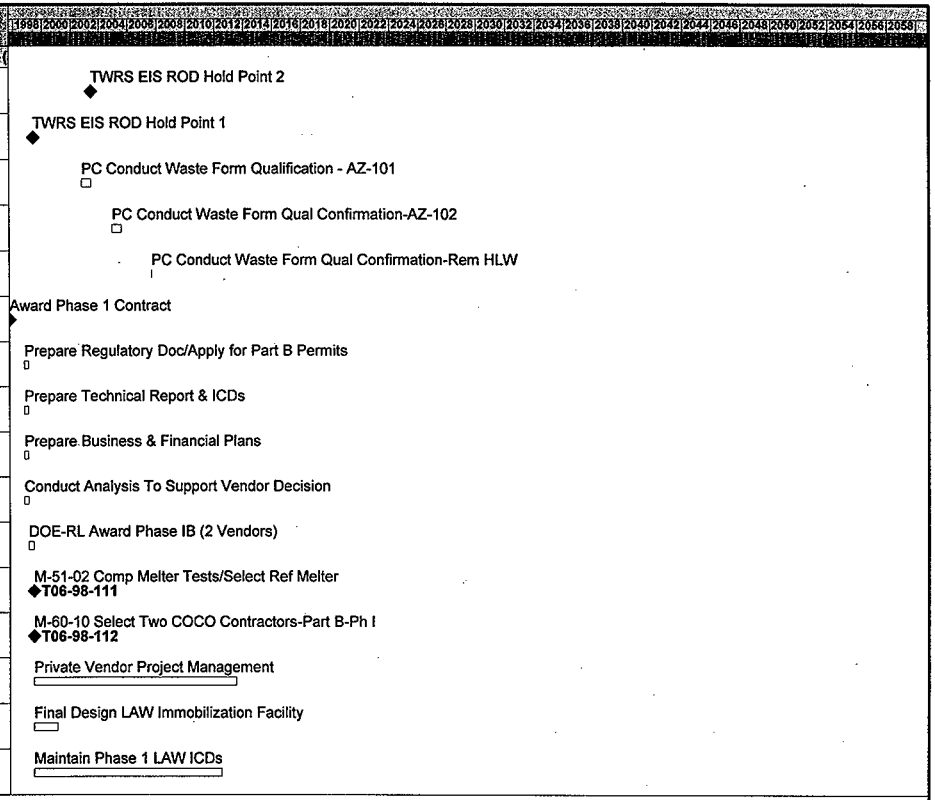
Proj Lvl (PBS #)	FDS Act Number	Activity Title	Activity Manager	Responsible Organization	Cost Account
RL-TW06		PROCESS WASTE PRIVATIZATION PHASE I			
	D5C	PRIVATIZATION PHASE I	PK Kearns	WASTE DISPOSAL INTEGRATION TEAM	

Activity ID	Early Start	Early Finish
Process Waste Privatization Phase I (		
150.B46H		31MAY02*
150.B63H	26MAY98*	
160.A70	04OCT01	14JUN02
160.F80	03NOV03	15JUL04
160.X85	17AUG06	16AUG06
340.010	26SEP96A	
340.020	01OCT97*	26JAN98
340.030	01OCT97*	26JAN98
340.040	01OCT97*	26JAN98
340.050	01OCT97*	26JAN98
340.060	27JAN98	26MAY98
340.060A		26MAY98
340.060B		26MAY98
350.010	27MAY98	31MAY12
350.020	27MAY98	31DEC99
350.030	27MAY98	31MAY11



Project Start 01OCT96
Project Finish 30SEP28
Data Date 01OCT97
Run Date 15SEP97

PMBS Bar
Progress Bar

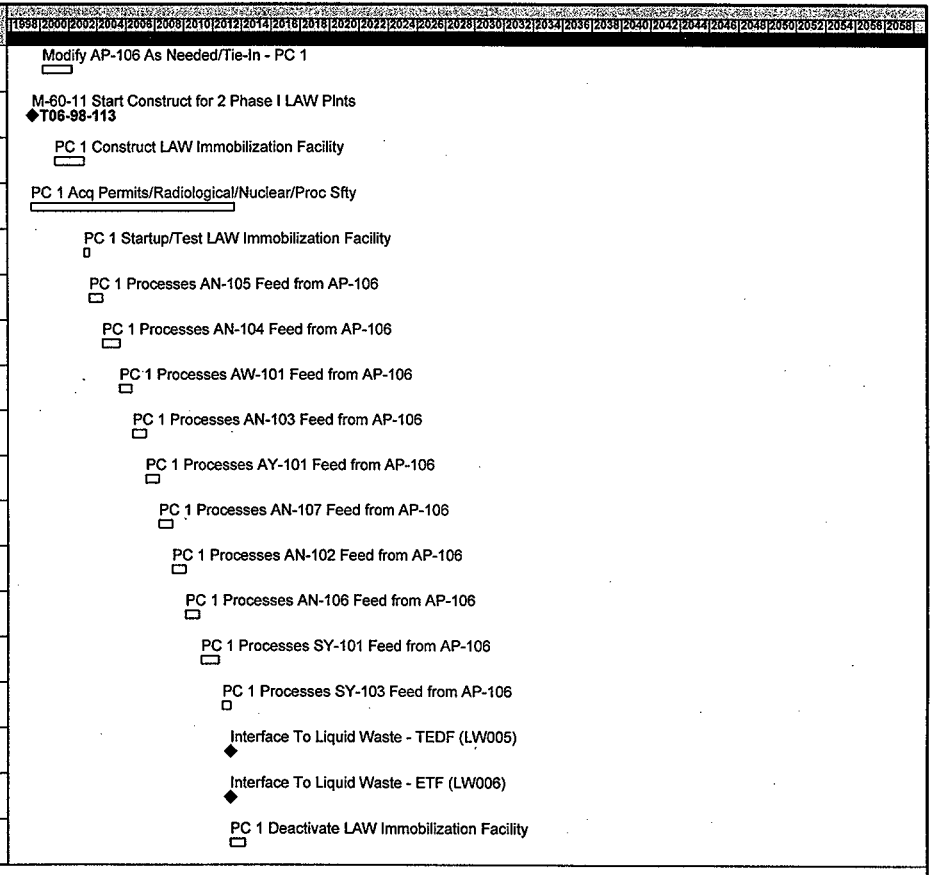
PMOR

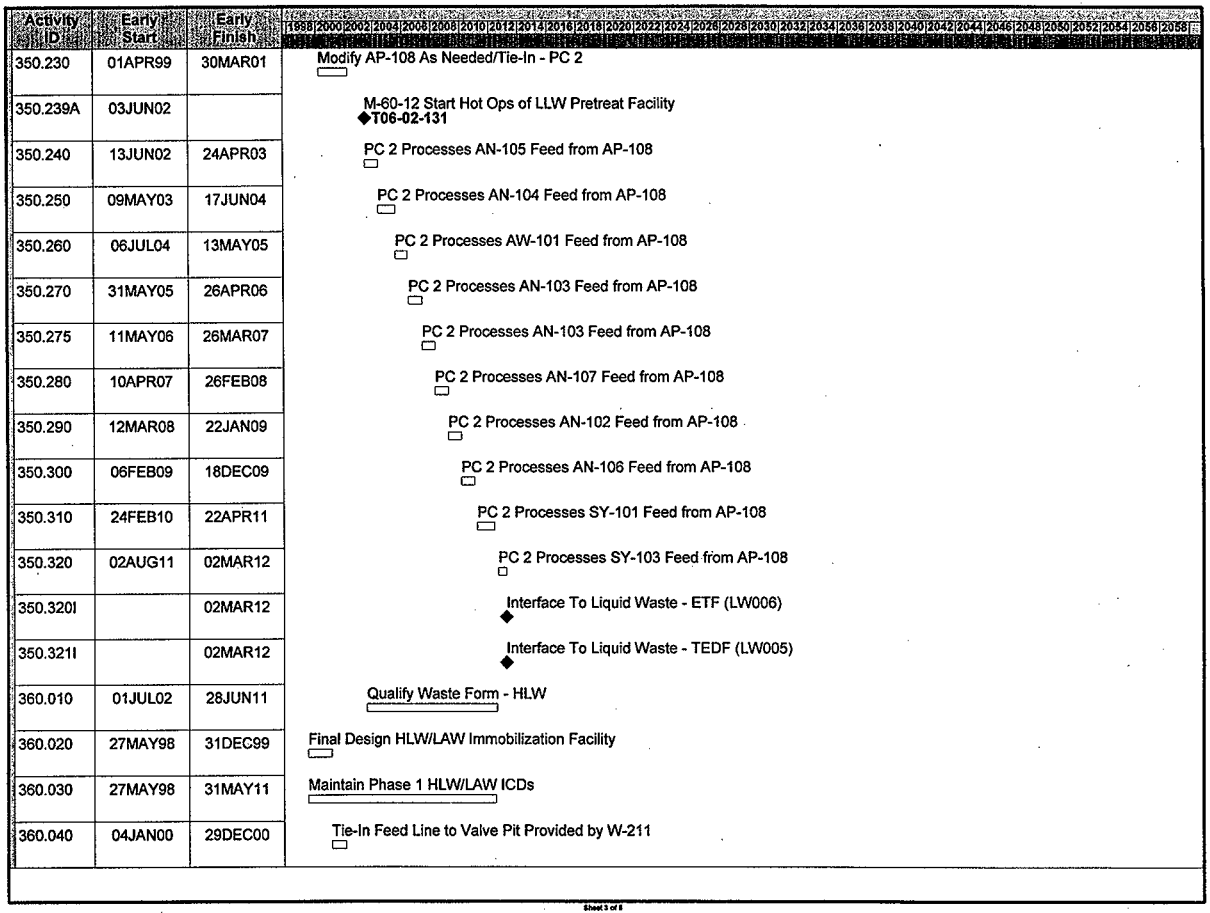
Sheet 1 of 6

Tank Waste Remediation Systems
Privatization Phase I (RL-TW06)
Project Master Baseline Schedule

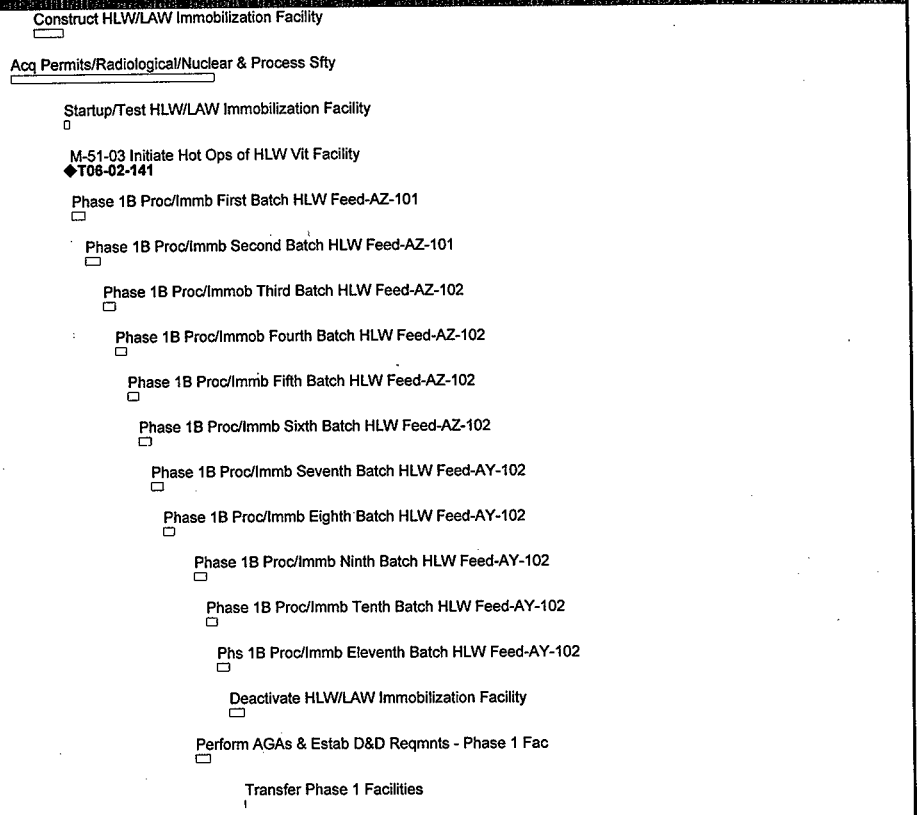
TW06 3.1-1

Activity ID	Early Start	Early Finish
350.040	01APR99	30MAR01
350.049A	29JUN98	
350.050	04JAN00	31DEC01
350.060	27MAY98	31MAY12
350.070	02JAN02	31MAY02
350.090	13JUN02	24APR03
350.100	09MAY03	17JUN04
350.110	06JUL04	13MAY05
350.120	31MAY05	26APR06
350.125	11MAY06	26MAR07
350.130	10APR07	26FEB08
350.140	12MAR08	22JAN09
350.150	06FEB09	18DEC09
350.160	24FEB10	22APR11
350.170	02AUG11	02MAR12
350.180I		02MAR12
350.181I		02MAR12
350.190	05MAR12	05MAR13

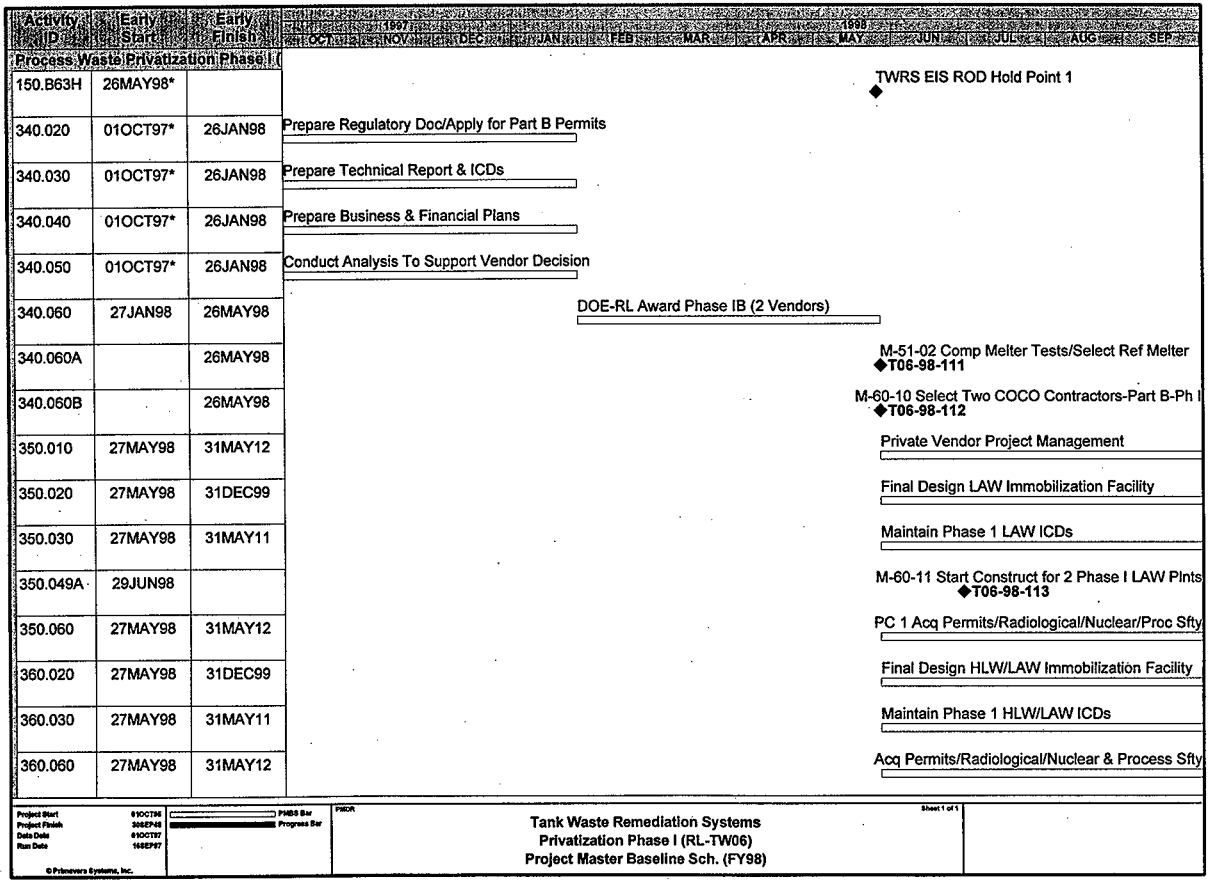



Activity ID
Early Start
Early Finish
1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058
350.230 01APR99 30MAR01 Modify AP-108 As Needed/Tie-In - PC 2
350.239A 03JUN02 M-60-12 Start Hot Ops of LLW Pretreat Facility
T06-02-131
350.240 13JUN02 24APR03 PC 2 Processes AN-105 Feed from AP-108
350.250 09MAY03 17JUN04 PC 2 Processes AN-104 Feed from AP-108
350.260 06JUL04 13MAY05 PC 2 Processes AW-101 Feed from AP-108
350.270 31MAY05 26APR06 PC 2 Processes AN-103 Feed from AP-108
350.275 11MAY06 26MAR07 PC 2 Processes AN-103 Feed from AP-108
350.280 10APR07 26FEB08 PC 2 Processes AN-107 Feed from AP-108
350.290 12MAR08 22JAN09 PC 2 Processes AN-102 Feed from AP-108
350.300 06FEB09 18DEC09 PC 2 Processes AN-106 Feed from AP-108
350.310 24FEB10 22APR11 PC 2 Processes SY-101 Feed from AP-108
350.320 02AUG11 02MAR12 PC 2 Processes SY-103 Feed from AP-108
350.320I 02MAR12 Interface To Liquid Waste - ETF (LW006)
350.321I 02MAR12 Interface To Liquid Waste - TEDF (LW005)
360.010 01JUL02 28JUN11 Qualify Waste Form - HLW
360.020 27MAY98 31DEC99 Final Design HLW/LAW Immobilization Facility
360.030 27MAY98 31MAY11 Maintain Phase 1 HLW/LAW ICDs
360.040 04JAN00 29DEC00 Tie-In Feed Line to Valve Pit Provided by W-211

Activity ID	Early Start	Early Finish
360.050	04JAN00	31DEC01
360.060	27MAY98	31MAY12
360.070	02JAN02	31MAY02
360.079A	03JUN02	
360.080	01JUL02	13JUN03
360.090	16JUN03	27MAY04
360.100	30JUL04	18MAY05
360.110	19MAY05	10MAR06
360.120	13MAR06	29DEC06
360.130	02JAN07	17OCT07
360.140	18OCT07	28JUL08
360.150	29JUL08	05MAY09
360.160	04OCT10	13JUL11
360.170	14JUL11	19APR12
360.175	20APR12	28JAN13
360.180	29JAN13	29JAN14
530.010	01OCT10*	30SEP11
530.020	30JAN14	29JAN14



Activity ID	Early Start	Early Finish	1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058
530.030	30JAN14	29JAN15	Design D&D Phase 1 Facilities
530.040	30JAN14	29JAN15	Obtain/Modify Permits Phase 1 Facilities
530.050	30JAN14	29JAN15	Amend Authorization Basis Phase 1 Facilities
530.060	30JAN15	30JAN17	D & D Phase 1 Facilities
530.070	05FEB47	04FEB47	Transfer Facilities for Other Uses
530.080	01OCT46	30SEP48	Place Surface Barriers


Activity ID
Early Start
Early Finish
1997
1998
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
Process Waste Privatization Phase I
150.B63H 26MAY98*
TWRS EIS ROD Hold Point 1
340.020 01OCT97* 26JAN98
Prepare Regulatory Doc/Apply for Part B Permits
340.030 01OCT97* 26JAN98
Prepare Technical Report & ICDs
340.040 01OCT97* 26JAN98
Prepare Business & Financial Plans
340.050 01OCT97* 26JAN98
Conduct Analysis To Support Vendor Decision
340.060 27JAN98 26MAY98
DOE-RL Award Phase IB (2 Vendors)
340.060A 26MAY98
M-51-02 Comp Melter Tests/Select Ref Melter
T06-98-111
340.060B 26MAY98
M-60-10 Select Two COCO Contractors-Part B-Ph I
T06-98-112
350.010 27MAY98 31MAY12
Private Vendor Project Management
350.020 27MAY98 31DEC99
Final Design LAW Immobilization Facility
350.030 27MAY98 31MAY11
Maintain Phase 1 LAW ICDs
350.049A 29JUN98
M-60-11 Start Construct for 2 Phase I LAW Plnts
T06-98-113
350.060 27MAY98 31MAY12
PC 1 Acq Permits/Radiological/Nuclear/Proc Sfty
360.020 27MAY98 31DEC99
Final Design HLW/LAW Immobilization Facility
360.030 27MAY98 31MAY11
Maintain Phase 1 HLW/LAW ICDs
360.060 27MAY98 31MAY12
Acq Permits/Radiological/Nuclear & Process Sfty
Project Start 01OCT96
Project Finish 30SEP98
Data Date 01OCT97
Run Date 16SEP97
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PMBS Bar
Progress Bar
PRIOR
Tank Waste Remediation Systems
Privatization Phase I (RL-TW06)
Project Master Baseline Sch. (FY98)
Sheet 1 of 1

MILESTONE CONTROL #	TPA-MS NUMBER	TPA TYPE	MS LEVEL	MS TITLE	DATES TYPE	DATES PLANNED BASELINE	DATES APPROVED BASELINE	DATES REVISED BASELINE	PROJ CIN	PBS #
T06-98-112	M-60-10	I	HQ	SELECT 2 COCO CONTRACTORS & AUTH TO PROCCED WITH PART B WORKS....	EA	5/26/98				RL-TW06
T06-98-113	M-60-11	I	HQ	START CONSTR FOR 2 PH I LAW PRETREAT & IMMOBILIZATION FACILITIES	EA	6/29/98				RL-TW06
T06-98-111	M-51-02	I	HQ	COMPLETE MELTER TESTS AND SELECT REFERENCE MELTER	EA	5/26/98				RL-TW06
T06-02-131	M-60-12	I	HQ	START HOT OPS OF 2 COCO PH I LAW PRETREAT & IMMOBILIZATION FAC'S	EA	6/03/02				RL-TW06
T06-02-141	M-51-03	I	HQ	INITIATE HOT OPERATIONS OF THE HLW VITRIFICATION FACILITY	EA	6/03/02				RL-TW06

TPA milestone dates on the Milestone Log/MDS represent the schedule date. Table 3-1 in the TWRS Summary lists the dates found in the Tri-Party Agreement.

PHMC

MILESTONE DESCRIPTION SHEET

Title: COMPLETE MELTER TESTS AND SELECT REFERENCE MELTER		**Date:**
Assigned To: RA Gilbert/NR Brown		**CIN:**
Program WBS Designator: 1.1.3.6		**Due Date:** 5/26/98
PBS No: RL-TW06		
MC #: T06-98-111	**TPA No:** M-51-02	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
X DOE-HQ DOE-RL DOE-FO CONTRACTOR	X EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report Letter Drawing(s) X Other (Specify) Complete Contracting	X DOE-HQ DOE-RL Other (Specify)

Milestone Description:
Complete selection of a reference high-level waste (HLW) Vitrification technology.

Description of what constitutes completion of this milestone:
The referenced HLW Vitrification technology for immobilization of Hanford Waste will be determined based upon DOE operational experience and information provided by the privatized contractors for the TWRS privatization contract. A letter report will be prepared evaluating HLW vitrification technologies and recommending a preferred technology to immobilized Hanford HLW.

PHMC

MILESTONE DESCRIPTION SHEET

Title: SELECT 2 COCO CONTRACTORS & AUTH TO PROCED WITH PART B WORKS....		**Date:**
Assigned To: RA Gilbert/NR Brown		**CIN:**
Program WBS Designator: 1.1.3.6		**Due Date:** 5/26/98
PBS No: RL-TW06		TPA date is 7/31/98
MC #: T06-98-112	**TPA No:** M-60-10	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
X DOE-HQ DOE-RL DOE-FO CONTRACTOR	X EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Two Contractor Owned, Contractor Operated (COCO) facilities will be authorized for final design, construction, and operation to treat and immobilize low-activity waste (LAW) from the Hanford tanks.

Description of what constitutes completion of this milestone:
Finalization and approval by the DOE to two privatized contractors to proceed into Phase 1B work described in the TWRS Privatization Request for Proposals (DE-RP06-96RL13308. The DOE will issue an Authorization to Proceed Letter to each of the two selected contractors. As appropriate, the contract initiated in Phase IA will be modified.

PHMC

MILESTONE DESCRIPTION SHEET

Title: START CONSTR FOR 2 PH I LAW PRETREAT & IMMOBILIZATION FACILITIES	**Date:**
Assigned To: RA Gilbert/NR Brown	**CIN:**
Program WBS Designator: 1.1.3.6	**Due Date:** 6/29/98
PBS No: RL-TW06	TPA date within 30 days of completion of M-60-10.
MC #: T06-98-113 / **TPA No:** M-60-11	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
X DOE-HQ DOE-RL DOE-FO CONTRACTOR	X EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Within thirty (30) days of completion of Milestone M-60-10, 'Select two (2) coco contractors to proceed with Phase B...', DOE will notify Ecology in writing of the start of facility construction date that is specified in the contract(s). Start of construction occurs when DOE issues a notice to proceed and the privatized contractor commences placement of first structural concrete on the project's primary facility.

Description of what constitutes completion of this milestone:
DOE issues a letter to Ecology identifying the start of construction date established in the contract(s) following Authorization to Proceed with Privatization Phase B.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW06
PBS TITLE:	PRIVATIZ'N PHASE 1

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE		-				-	-	-	-	-	-
CENRTC											-
GENERAL PLANT PROJECT											-
LINE ITEM *(List Each One)*											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION											-
TOTAL BCWS/PMB[1]											
MGMT RESERVE[2]											-
LINE ITEM CONTINGENCY[2]											-
OFFSITE TRANSFERS[3]											-
Subtotal	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover **NOT** Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW06
PBS TITLE:	PRIVATIZ'N PHASE 1

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
OPERATING EXPENSE		209,010											209,010
CENRTC													-
GENERAL PLANT PROJECT													-
LINE ITEM *(List Each One)*													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION		23,514											23,514
TOTAL BCWS/PMB[1]		232,524											232,524
MGMT RESERVE[2]													-
LINE ITEM CONTINGENCY[2]													-
OFFSITE TRANSFERS[3]													-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	232,524	-	-	-	-	-	-	-	-	-	-	232,524

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover NOT Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

TANK WASTE REMEDIATION SYSTEM

4.2 SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS) FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW06
PBS TITLE:	PRIVATIZ'N PHASE 1

FUND TYPE	FY199	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE		-				-	-	-	-	-	-
CENRTC											-
GENERAL PLANT PROJECT											-
LINE ITEM (List each one)											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION											-
TOTAL NEW B/A	-										-

TW06.4-3

HNF-SP-1230 Rev. 0

TANK WASTE REMEDIATION SYSTEM

4.2 SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)

FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW06
PBS TITLE:	PRIVATIZ'N PHASE 1

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051 FY2055	FY2056-FY2060	FY2061 FY2064	TOTAL FY1997-FY2064
OPERATING EXPENSE		209,010											209,010
CENRTC													-
GENERAL PLANT PROJECT													-
LINE ITEM (List each one)													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION		23,514											23,514
TOTAL NEW B/A	-	232,524	-	-	-	-	-	-	-	-	-	-	232,524

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW06
PBS TITLE:	PRIVATZ'N PHASE 1

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
VENDOR OPERATIONS	1230-0	OP EXP	-	-	-	-	-	-	-	-	-	-	-	-	-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
FACILITIES D&D	1230-0														
		OP EXP	-	-	-	-	-	-	-	-	-	-	-	-	-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW06
PBS TITLE:	PRIVATZ'N PHASE 1

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL BCWS/PMB[1]			-	-	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

4.4

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1										
PBS Title	PBS NO	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	6.8	13.3	0.0	0.0	0.0	0.0	0.0

		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2038	FY 2039	FY 2040	FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2048	FY 2049	FY 2050	FY 2051	FY 2052	FY 2053	FY 2054	FY 2055	FY 2056	FY 2057
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2058	FY 2059	FY 2060	FY 2061	FY 2062	FY 2063	FY 2064	FY 2065	FY 2066	FY 2067
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CONTENTS

PRIVATIZATION PHASE II (RL-TW07)

1.0 TECHNICAL BASELINE

1.1 PROJECT MISSION

Phase II will be the full-scale production phase, in which the facilities will be configured so all the waste can be processed. The objectives of Phase II are to implement the lessons from Phase I; to process all tank waste and the cesium and strontium capsules into forms suitable for final disposal; achieve competition and cost savings; and meet or exceed the Tri-Party Agreement milestones.

1.2 Drivers for Privatization Phase II

Source Documents for Privatization Phase II

Name	Title
10 CFR 20	Control of Exposure from External Sources in Restricted Areas
40 CFR 191	Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes
DOE/EIS-0222D	Draft Hanford Remedial Action Environmental Impact Statement and Comprehensive Land Use Plan
DOE/RL-89-10	Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Rev.4
DOE/RL-96-14	Updated Draft Mission Direction Document, June 1996
DOE/RL-96-92	Hanford Strategic Plan
DOE/RW-0351P, rev.1	Waste Acceptance System Requirements Document
Tank Waste Remediation System Mission Analysis, WHC-SD-WM-MAR-008, Revision 2	Tank Waste Remediation System Mission Analysis (TWRS MAR)

1.3 Privatization Phase II Risk Management

Introduction. The waste disposal program is an integrated program of retrieval, waste processing, infrastructure, and storage and disposal operations. All parts are necessary for the accomplishment of the desired end state in accordance with the Tri-Party Agreement. If, for example, storage facilities are not funded, the private contractors will have no place to store their immobilized products. Similarly, if waste feed is not retrieved or utilities aren't provided, the private contractors can't be successful. Therefore, risk and risk reduction are evaluated from a total tank waste disposal program perspective.

The risk this program addresses is that of the HLW stored in the 177 underground storage tanks and Cs/Sr capsules stored in the Waste Encapsulation and Storage Facility . The risk to the public and environment will be reduced to a negligible amount by retrieving the waste, immobilizing it, and then storing/disposing of it safely. These actions reduce the hazard source, the likelihood of release, and the number of potential event scenarios.

Description of the Risk. If the tank waste is not removed or other treatments are not performed on the waste in the tanks, much of the tank waste would remain unstabilized and, eventually, the tank domes would deteriorate and collapse. It is assumed that following the initial energetic release from a collapsed dome, resuspension and entrainment of the exposed tank waste would continue for 24 hours before mitigative action is taken. Approximately 8 liters of respirable-sized radiological and chemical contaminants would be released to the air, carried downwind, and inhaled by site personnel and the public. The contaminant would also be deposited on the ground. This scenario could occur for many of the 177 tanks.

The accident with the most severe potential health impacts is an energetic hydrogen gas fire in a tank. In the event of such an accident, there is potential for up to 22 latent cancer fatalities, including 20 Site workers and 2 offsite members of the general public from direct radiation and inhalation of radioactive contaminants. If no action were taken to remediate the tank waste over the next 100 years, the probability of a hydrogen fire is relatively high, 0.72, which would cause an estimated 16 fatalities.

The release of radiological and chemical contaminants to the air could result in a combined public population dose of 4000 REM and cause two latent cancer fatalities. Site

personnel would receive as much as 23,000 REM, causing 10 fatalities, each of which received a lethal dose of 1500 REM.

Radiological and chemical particulates could be transported through the atmosphere in the direction of prevailing winds and could be deposited on the ground or surface waters, including the Columbia River and populated areas. These contaminants could be resuspended by wind for redeposit elsewhere or leached into the soil by precipitation. Contamination could be spread over several hectares, depending on wind conditions.

If the waste is not removed, eventually the liquid waste would leak into the ground, the vadose zone, and, ultimately the groundwater. However, this scenario is largely eliminated for those tanks in which the water has been removed. Contamination could eventually reach the Columbia River. Releases of contaminants also would occur as water from precipitation dissolves contaminants from the waste in the tanks and slowly carries them through the soil and into the groundwater, which resides 230 to 300 feet below the tanks. This is a long-term process, of course, and hundreds to thousands of years may be required to leach contaminants into the groundwater. The amount and rate at which contaminants would enter the groundwater are dependent upon how much waste is in the tanks and whether the contaminants had been put in a more stable form. Estimates are that the fastest moving contaminants would reach the groundwater in approximately 130 years; maximum concentrations would be reached in 210 years, with gradual decreases over several thousand years thereafter. Once contaminants reached the groundwater, they could move relatively quickly and would reach the Columbia River in approximately 25 to 50 years. They would be rapidly dispersed after discharge into the River.

There could be exposure to individuals who had access to the groundwater (farmers, recreational users, American Indians) or plants irrigated with groundwater, and the risks therefrom could be high (1 in 2 chance for an onsite farmer, 1 in 10 for an industrial worker, etc.). However, those risks would be mitigated from land-use restrictions, especially controlled access to the groundwater (which is the baseline plan). There are some other minor risks associated with intruders, natural disasters, etc.; however, the main risks to the environment and the public are described above.

Note the risk associated with the Cs/Sr capsules is significant because of the amount of curies and the threat to the population should a fire or other disaster occur in the Waste Encapsulation Storage Facility. However, such an event is extremely unlikely. In any case, funding for operation of the Facility is provided under the WESF PBS until the capsules are removed for treatment and eventual disposition. Ultimately, the risk will be eliminated.

Analysis. The Single-shell tanks will be retrieved by 2018. Our planning basis assumes the DST do not leak (none has so far) during the remediation period, and the overall risk from tank farms is largely eliminated when the DSTs are retrieved by 2028. Thus, risk reduction is shown as a step function, with reduction in 2018 and in 2028, when all tanks have been retrieved. Note that Hanford could change our retrieval strategy and retrieve the highest risks first. A risk-based strategy could reduce overall environmental risks significantly sooner (about 90% of the waste is in about half the tanks, and most of the risk is in fewer than that); however, the baseline plan does not do so, nor is the initial tank retrieval sequence tied directly to environmental or public health risk.

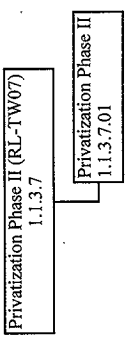
Some residual environmental risk will remain after the retrieval and immobilization of the tank waste. Most of this is associated with the one percent heel" remaining in the tanks. However, that will minimized through earthen barriers and filled tanks. (The DOE has no technique for removing all the waste, and the goal in the Tri-Party Agreement is 99% removal.)

Worker risk generally does not decrease until the end of the program because of risks associated with storage and disposal of the immobilized waste. Worker risks are highest during the construction phase of the vendor's plants but decrease during operations. Occupational radiological exposures will occur while managing tank farms and performing remedial activities. We expect 1-3 latent cancer worker fatalities from occupational exposure during the life of the program. Perhaps 1-2 would occur during Phase II.

The area of the private plants in near AP tank farm is desert scrub brush. Most of the 200 area has already been disturbed to some extent by the construction of roads, pipelines, and facilities. Phase II plants will be located in the vicinity of the PUREX plant, with the resulting ecological damage of that area.

The risk assessments in the PBS are consistent with those developed in the TWRS risk data sheets and the TWRS Final Environmental Impact Statement. Existing risk for the public, workers, and environment is considered to be medium and will be low or not applicable at the end state.

There are several metrics which could be used to measure risk reduction. The most appropriate are probably the amount (in metric tons) of tank waste retrieved and immobilized and the number of tanks closed.



2.1 WBS Hierarchy
TW07.2-1

2.2 WBS Dictionary

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1

8/27/1997

1. Activity Title: PRIVATIZATION PHASE II	2. Date	3. PBS Number RL-TW07	4. Dict Rev
5. Contract WBS No. 1.1.3.7.01	6. Corresponding FDS No. D5H	7. Baseline CR No.	
8. Organization Name WASTE DISPOSAL INTEGRATION TEAM			9. B & R No.

10. Scope of Work
TECHNICAL BASES

GOALS AND OBJECTIVES

The goals and objectives of the Privatization Phase II Project are to complete the immobilization of the Low-Activity and HLW waste in the 177 double and single shell tanks, which began in Phase I. Phase II will: 1) implement the lessons learned from Phase I; 2) process all remaining tank waste and the cesium and strontium capsules into forms suitable for final disposal; 3) achieve competition and cost savings; and 4) meet or exceed Tri-Party Agreement milestones.

In general, the privatization approach will implement:

- Cost-competitive, cost-effective employment of multiple vendors

- Leading edge technology developed by industry for a wide range of applications

- Capital financing arrangements which smooth the life cycle funding requirements, thereby reducing the need for high initial appropriation of government funds.

MAJOR END-ITEM DELIVERABLES

Requirements definition, RFP preparation and contract award for design, construction, operation, decontamination and decommissioning of full scale pretreatment, and LLW and HLW immobilization facilities. (Phase II)

Complete pretreatment and immobilization processing of Hanford tank waste, deactivate, decontaminate and decommission the Phase II facilities, and close all sites which were used during Phase II.

ACCEPTANCE CRITERIA

1. Long-term Acceptance Criteria

Immobilized waste must meet the product specifications provided by the Waste Feed Delivery Sub-Project and the TWRS Privatization contracts.

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1 8/27/1997

WBS Dictionary Continuation Page

Scope of Work (cont):

Site closure consistent with criteria generated using the NEPA process and in compliance with all applicable regulations.

2. Near-term Acceptance Criteria

Adequate definition of the technical, operational, regulatory, and financial elements required in privatized facilities to treat and immobilize tank waste at a fixed unit price.

STATEMENT OF WORK

Privatization Phase II will involve full-scale production facilities for the processing of all remaining tank waste and capsules and decontamination and decommissioning of facilities constructed for Phase II waste processing operations. Construction and operations of retrieval facilities will be privatized and is planned under TWRS PBS RL-TW04 [WBS 1.1.3.01]. Two or more private contractors will design, construct, operate, decontaminate, and decommission contractor-owned, contractor-operated facilities used to produce immobilized low-activity waste and high-level waste products. Contractors will recover their costs through payments for units of waste processed. During Phase II, waste retrieval operations will also be privatized.

The Nuclear Regulatory Commission will assume responsibility for nuclear, radiological, and process safety for Privatization Phase II. The details of that responsibility are being resolved, including the requirements for a new, detailed Safety Authorization Basis.

Private contractors will invest non-government funds to design, construct, operate, deactivate, and D&D waste processing facilities. Incentives will be offered by the DOE to the contractors to reduce immobilized waste volumes and to optimize waste loading. The costs associated with such efforts will ultimately be borne by the DOE through payments to contractors for waste processed.

Approximately 86% of the Hanford tank waste will be removed and treated during Phase II, leaving only about 1% in the tanks (13% is removed in Phase 1). It is mostly during Phase II that risk reduction and progress toward the end state will be achieved.

Privatization Phase II work scope includes all activities required for successful operation of the vendor processing facilities used to pretreat and immobilize LAW and HLW waste. These activities which will be managed and funded by the private vendor(s) include but are not limited to the following:

a. Production operations of the processing facilities
b. Preventative and corrective maintenance of the processing facilities

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1 8/27/1997

WBS Dictionary Continuation Page

Scope of Work (cont):

c. Quality assurance support for the processing facilities
d. Safety assurance (nuclear and industrial) support for the processing facilities
e. Engineering support for the processing facilities.

The Privatization Phase II Project [WBS Element 1.1.3.07] is a Level IV WBS element and is part of the TWRS Waste Disposal Program [WBS Element 1.1.3]. It is comprised of four Level V sub-projects and include: 1) Private Contractor Capital Projects; 2) LAW Treatment, Immobilization, Deactivation; 3) HLW Treatment, Immobilization, Deactivation; and 4) Facility D&D.

1.1.3.7.01.01 Private Contractor Capital Projects

The scope of this WBS element includes the design, construction, cold startup of private contractor LAW and HLW waste processing facilities. Design activities will begin following the completion of Phase II RFP and contract award activities which are scheduled to occur between 2003 and 2005. Phase II facility design activities are scheduled to begin in 2005. Construction is scheduled to be completed during FY2011. The selected vendors will be responsible for meeting applicable environmental, safety, and health requirements established by federal, state and local statutes; and the associated risk that accompanies these areas. This Cost Account is not active in FY 1998.

Tri-Party Agreement milestones associated with this cost account are summarized below.

- Initiate Negotiations on Phase II LAW and Pretreatment Milestones (TPA M-60-13), T07-04-111, 12/31/03

1.1.3.7.01.02 LAW Treatment, Immobilization, Deactivation

The LAW immobilization during Phase II will be performed by two or more vitrification contractors. Retrieval operations will be performed by an (assumed) different private contractor and is not included within this WBS element. Out-of-tank sludge washing will be used and enhanced-sludge-washed HLW solids will be provided to the single HLW plant. LAW plants will operate through the completion of SST closure in 2024. Private contractors will be responsible for deactivation of LAW immobilization facilities under this WBS element. The selected vendors will be responsible for meeting applicable environmental, safety, and health requirements established by federal, state and local statutes; and the associated risk that accompanies these areas. This Cost Account is not active in FY 1998.

Tri-Party Agreement milestones associated with this cost account are summarized below.

- Complete Vitrification of the Hanford Low Level Tank Waste (TPA M-60-

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1 8/27/1997

WBS Dictionary Continuation Page

Scope of Work (cont):
00), T07-25-121, 12/31/24

- Complete Pretreatment Processing of Hanford Tank Waste (TPA M-50-00), T07-29-121, 12/31/28

1.1.3.7.01.03 HLW Treatment, Immobilization, Deactivation

The HLW treatment and immobilization plant will operate from 2012 to 2028. Separated products from the LAW plants will be transferred to the HLW contractor for immobilization. (Note: a LAW plant could be combined with the HLW plant into a single facility). Cesium and strontium capsules will either be over packed (the current plan) or treated as HLW (the proposed plan). In either case, they will be disposed of in the National Geologic Repository.

The vitrification and retrieval technologies to be used during Phase II will reflect the lessons from Phase I and the Hanford Tank Initiative. The DOE will probably not specify the technologies to be used but will specify the performance and products required. Private contractors will be responsible for deactivation of HLW treatment and immobilization facilities under this WBS element. The selected vendors will be responsible for meeting applicable environmental, safety, and health requirements established by federal, state and local statutes; and the associated risk that accompanies these areas. This Cost Account is not active in FY 1998.

Tri-Party Agreement milestones associated with this cost account are summarized below.

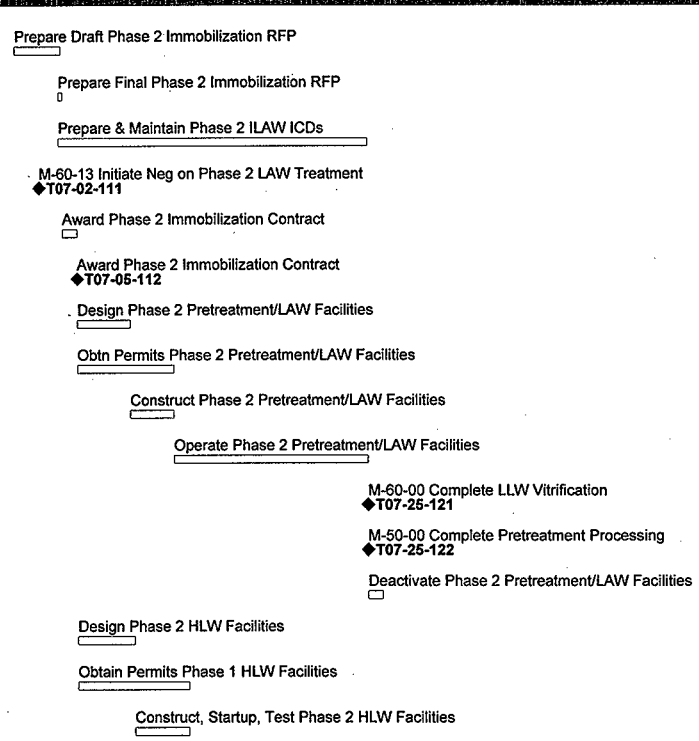
- Complete Vitrification of Hanford High Level Tank Waste (TPA M-51-00), T07-29-131, 12/31/28

1.1.3.7.01.04 Facility D&D

This task includes the decontamination and decommissioning (D&D) of the vendor facilities constructed for Phase II operations as well as the closure of any vendor sites used during Phases II. Deactivation of Phase I facilities is also the responsibility of the private vendors but is included in WBS 1.1.3.07.01.03. The D&D and facility site closures will be the responsibility of private contractors for the Privatization Phase II Sub-Project. This Cost Account is not active in FY 1998.

Proj Lvl (PBS #)	FDS Act Number	Activity Title	Activity Manager	Responsible Organization	Cost Account
RL-TW07		PROCESS WASTE PRIVATIZATION PHASE II			
	D5H	PRIVATIZATION PHASE II	PK Kearns	WASTE DISPOSAL INTEGRATION TEAM	

Activity ID	Early Start	Early Finish
Process Waste Privatization Phase II		
400.010	02OCT00*	30DEC03
400.020	01OCT03	30JAN04
400.030	01OCT03	31DEC24
400.049A	03JUN02	
400.050	02FEB04*	31JAN05
400.050A		31JAN05
400.060	01FEB05	30SEP08
400.070	01FEB05	30SEP11
400.080	01OCT08	30SEP11
400.090	03OCT11	31DEC24
400.090A		31DEC24
400.090B		31DEC24
400.100	02JAN25	31DEC25
410.010	01FEB05	31DEC08
410.030	01FEB05	28SEP12
410.040	02JAN09	28SEP12



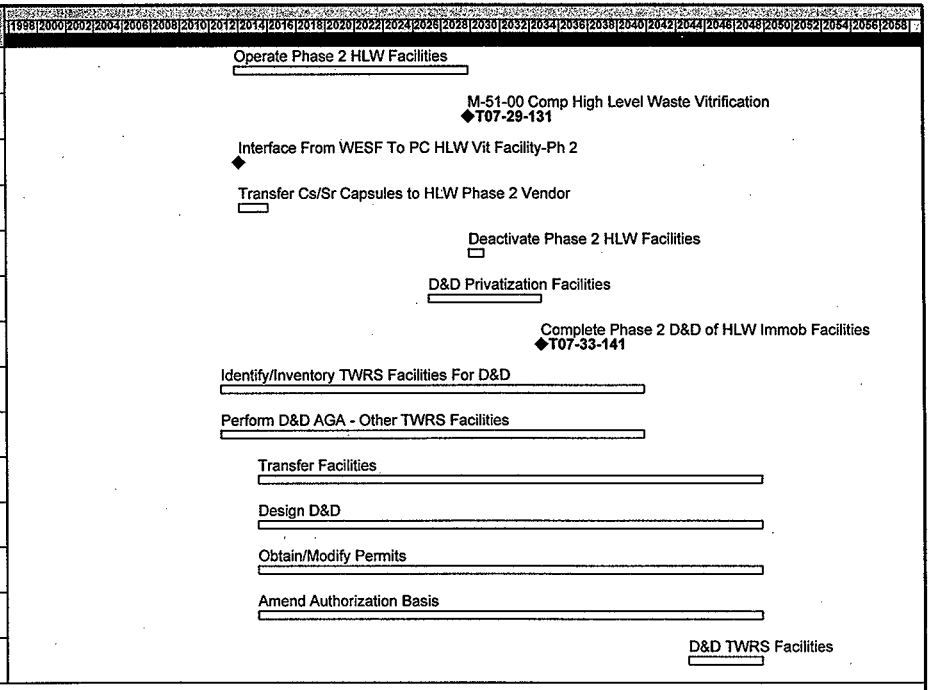
Project Start	01OCT96	PMBS Bar	
Project Finish	30SEP48	Progress Bar	
Data Date	01OCT97		
Run Date	16SEP97		

PSCR

Tank Waste Remediation Systems
Privatization Phase II (RL-TW07)
Project Master Baseline Schedule

Sheet 1 of 2

Activity ID	Early Start	Early Finish
410.050	01OCT12	29SEP28
410.050A		29SEP28
410.054I	02JAN13*	
410.055	02JAN13	31DEC14
410.060	02OCT28	28SEP29
430.010	02JAN26	30SEP33
430.010A		30SEP33
530.090	03OCT11*	28SEP40
530.100	03OCT11	28SEP40
530.150	01APR14	30SEP48
530.160	01APR14	30SEP48
530.170	01APR14	30SEP48
530.180	01APR14	30SEP48
530.190	01OCT43	30SEP48



3.2 EXECUTION YEAR PMBS

There are no activities for FY98 for Privatization Phase II.

MILESTONE CONTROL #	TPA-MS NUMBER	TPA TYPE	MS LEVEL	MS TITLE	TYPE	DATES PLANNED BASELINE	DATES APPROVED BASELINE	DATES REVISED BASELINE	PROJ CIN	PBS #
T07-02-111	M-60-13	I	HQ	INITIATE NEGOTIATIONS ON PHASE II LAW PRERTREAT & IMMOBILIZATION	EA	6/03/02				RL-TW07
T07-25-121	M-60-00	M	HQ	COMPLETE VITRIFICATION OF HANFORD LOW-LEVEL TANK WASTE	EA	12/31/24				RL-TW07
T07-25-122	M-50-00	M	HQ	PRETREATMENT PROCESSING OF HANFORD TANK WASTE	EA	12/31/24				RL-TW07
T07-29-131	M-51-00	M	HQ	COMPLETE VITRIFICATION OF HANFORD HIGH LEVEL TANK WASTE	EA	9/29/28				RL-TW07

TPA milestone dates on the Milestone Log/MDS represent the schedule date. Table 3-1 in the TWRS Summary lists the dates found in the Tri-Party Agreement.

3.4 FY 98 MILESTONE DESCRIPTION SHEETS

There are no FY98 Milestone Description Sheets for this project.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW07
PBS TITLE:	PRIVATIZ'N PHASE II

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE		-	-	-	-	-	-	-	-	-	-
CENRTC											-
GENERAL PLANT PROJECT											-
LINE ITEM *(List Each One)*											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION											-
TOTAL BCWS/PMB[1]	-	-	-	-	-	-	-	-	-	-	-
MGMT RESERVE[2]											-
LINE ITEM CONTINGENCY[2]											-
OFFSITE TRANSFERS[3]											-
Subtotal	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover **NOT** Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW07
PBS TITLE:	PRIVATIZ'N PHASE II

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
OPERATING EXPENSE													-
CENRTC													-
GENERAL PLANT PROJECT													-
LINE ITEM *(List Each One)*													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION													-
TOTAL BCWS/PMB[1]	-	-	-	-	-	-	-	-	-	-	-	-	-
MGMT RESERVE[2]													-
LINE ITEM CONTINGENCY[2]													-
OFFSITE TRANSFERS[3]													-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover **NOT** Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

4.2

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1										
PBS NO:	RL-TW07										
PBS TITLE:	PRIVATIZ'N PHASE II										SUBTOT
FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY1997-FY2006
OPERATING EXPENSE											-
CENRTC											-
GENERAL PLANT PROJECT											-
LINE ITEM (List each one)											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION											-
TOTAL NEW B/A	-	-	-	-	-	-	-	-	-	-	-

TANK WASTE REMEDIATION SYSTEM

4.2 SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)

FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW07
PBS TITLE:	PRIVATIZ'N PHASE II

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2041-FY2045	FY2041-FY2045	FY2041-FY2045	TOTAL FY1997-FY2064
OPERATING EXPENSE													
CENRTC													
GENERAL PLANT PROJECT													
LINE ITEM (List each one)													
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	
ESCALATION													
TOTAL NEW B/A	-	-	-	-	-	-	-	-	-	-	-	-	-

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW07
PBS TITLE:	PRIVATIZ'N PHASE 11

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
VENDOR OPERATIONS	1230-0	OP EXP	-	-	-	-	-	-	-	-	-	-	-	-	-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
FACILITIES D&D	1230-0														
		OP EXP	-	-	-	-	-	-	-	-	-	-	-	-	-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW07
PBS TITLE:	PRIVATIZ'N PHASE 11

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL BCWS/PMB[1]			-	-	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1										
PBS Title	PBS NO	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2038	FY 2039	FY 2040	FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2048	FY 2049	FY 2050	FY 2051	FY 2052	FY 2053	FY 2054	FY 2055	FY 2056	FY 2057
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2058	FY 2059	FY 2060	FY 2061	FY 2062	FY 2063	FY 2064	FY 2065	FY 2066	FY 2067
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CONTENTS

PRIVATIZATION INFRASTRUCTURE (RL-TW08)

1.0 TECHNICAL BASELINE

1.1 PROJECT MISSION

Part of the Tank Waste Remediation Systems (TWRS) Project mission is to separate the Hanford Site liquid tank waste into low-activity and high-activity fractions and immobilize these fractions in an environmentally sound, safe and cost-effective manner. To achieve this a two phase alternative acquisition strategy (AAS) has been implemented by contracting with private contractors to perform pretreatment and immobilization of low-activity waste (LAW) and immobilization of the high-activity waste (HAW) fraction. The first phase of the AAS (Phase I) is a "proof of concept phase" during which approximately 13 percent of the tank waste will be treated. The remaining tank waste is to be treated in Phase II a full-scale production phase.

The Process Waste Privatization Infrastructure Project (PWPIP) will provide the needed infrastructure to support the private contractors. Most of this support is essential to meeting M-50, M-51 and M-60 TPA Milestones. Not developing this needed infrastructure would cause the Privatization effort to fail, delaying the treatment, immobilization and disposal of tank waste by several years. During this delay, tanks would continue to age increasing the chance of an accident with serious radiological consequences.

1.2 DRIVERS

-None-

1.3 RISK MANAGEMENT

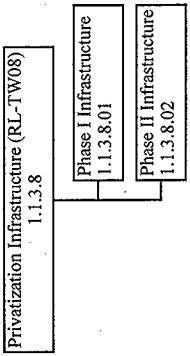
Introduction: The infrastructure project is integrated with other projects which shape the waste disposal program. All projects are necessary for accomplishing the desired end state consistent with the Tri-Party Agreement. If site infrastructure is not provided, the private contractors can't be successful. Thus, the risk and risk reduction related to the total tank waste disposal program is directly influenced by the successful implementation of this project. This overall programmatic risk is discussed in C.1 of PBS RL-TW06 and for brevity is not presented here. The following evaluation is specific to this project, Phase I Privatization Infrastructure.

Description of Risk The principal accident with potential health impacts is the release to the air of radiological and chemical contaminants due to surface and sub-surface disturbance during infrastructure construction activities. A small portion of construction activities may intrude into contaminated areas and there will also be some physical interfaces with piping systems which carry contaminants, albeit at very low levels. These contaminants if released through accident scenarios could be resuspended by wind for redeposit elsewhere.

Analysis At this time, it is believed that airborne contaminant levels under a postulated accident scenario would pose no risk to the public and minimal risk to site personnel. What risk exists to site personnel will be highest during the construction phase of the infrastructure facilities, 1999 thru 2000. Occupational exposures may occur during tie-ins to contaminated systems. Again exposure levels if any, are expected to be quite low because of the very limited number of tie-ins to contaminated systems and limited excavation in contaminated areas.

There is minimal ecological risk in Phase I infrastructure, and that is associated with roads and utilities construction interfacing with the private plants. The area of the private plants is adjacent to AP tank farm and is desert scrub brush. Most of the 200 area has already been disturbed to some extent by the construction of roads, pipelines, and facilities. The additional to previously undisturbed areas is minimal in Phase I. Phase II infrastructure, which will be more extensive, will be located in the vicinity of the PUREX plant, with the resulting ecological damage of that area.

Please see table C.1A of PBS RL-TW06 for quantified values for overall risks associated with the waste disposal program.



2.1 WBS Hierarchy
TW08.2-1

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TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

1. PROGRAM/TITLE PARTICIPANT 1.1 Tank Waste Remediation Systems 1.1.3 Waste Disposal		
2. WBS ELEMENT CODE/ LEVEL 1.1.3.8/Level IV	3. WBS ELEMENT TITLE Privatization Infrastructure	
4. CURRENT REV. 0	5. EFFECTIVE REV DATE October 1, 1997	6. APPROVED CHANGES

ELEMENT DESCRIPTION

1. TECHNICAL BASES

The basis for the Privatization Infrastructure activities are the contracting documents associated with soliciting private firms to provide a disposal service. RL had made a decision that certain infrastructure would be provided to privatization contractors. Providing this infrastructure required the PHMC contractor to modify existing infrastructure systems. In addition to physical ties to site infrastructure, privatization service contractors would also receive certain services free. These free services are identified in the contracts.

The Privatization scenario is divided into two phases. Phase I will be a Proof-of Concept phase during which two vendors will finance, design, construct and operate LLW pretreatment and immobilization subsystems. After feasibility is demonstrated on approximately 6-13% of the waste through Phase I, a full-scale production phase, (Phase II) will be completed.

Using the service contract agreement as a basis, the Privatization Infrastructure project developed the site infrastructure modifications required and cost impacts to the PHMC life cycle cost baseline for services provided free to the privatization contractors. As part of developing the Phase 1 solicitation documentation, Functions and Requirement and Interface Control Documents were developed to define anticipated infrastructure requirements for the privatization contractors. These documents were the basis for further development of infrastructure requirements. Inputs received with proposals from privatization bidders and subsequent interactions with privatization contractors during Phase IA will solidify infrastructure requirements. A similar strategy is the planning basis for the development of infrastructure requirements to support Phase II.

A. GOALS AND OBJECTIVES

The Privatization Infrastructure project provides the required facilities and systems which assure the waste disposal privatization contractors are integrated into the Hanford Site infrastructure. This project also provides funding which cover the cost for electricity and water used by the privatization

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contractors. Privatization Infrastructure also provides funds for PHMC costs associated with the PHMC receiving liquid effluents, radioactive solid waste, and sanitary waste (Phase 2) from the privatization contractors. Telecommunications systems to the Phase 2 contractors' site will also be provided. Telecommunication systems provided are limited to extending the site LAN to the privatization contractors' site boundary.

Privatization Infrastructures provides the incremental funding required by the PHMC organizations that operate and maintain the infrastructure systems added to accommodate the privatization contractors.

As part of the Phase 1 contract with the privatization contractors the PHMC will provide funding to train the initial operator work force.

Included in the Privatization Infrastructure scope is the funding and task responsibility to decontaminate, decommission, and provide closure to the infrastructure systems added.

B. MAJOR END-ITEM DELIVERABLES

1. **Long-term Deliverables**

   - PHMC completes design, construction, and operation of Privatization Infrastructures (infrastructure) (utilities, roads, etc) to provide necessary services to the privatization vendors for both Phases I and II.

   - PHMC completes decontamination and decommissioning (D&D) of Phase I and Phase II Privatization Infrastructures (infrastructure) facilities after completion of Phases I and II.

2. **Near-term Deliverables**

   - Complete design/build/startup contract solicitation for Phase I Infrastructure electrical sub-project and Statements of Work for the design and construction management of site development/roads, water and liquid effluent system sub-projects by 9/30/98.

C. ACCEPTANCE CRITERIA

1. **Long-term Acceptance Criteria**

   - Site closure consistent with criteria generated using the NEPA process and in compliance with all applicable regulations.

2. **Near-term Acceptance Criteria**

   - Available Privatization Infrastructure (infrastructure) to support the schedules negotiated with privatization vendor contracts.

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D. STATEMENT OF WORK

The Privatization Infrastructure project provides the required facilities and systems to integrate the waste disposal privatization contractors into the Hanford Site infrastructure. This project also provides funding to operate infrastructure systems added to support Phase I and Phase II vendor construction and facility operation including the cost for electricity and water used by the privatization contractor. Privatization Infrastructures also provides funds for PHMC costs associated with the PHMC receiving liquid effluents, radioactive solid waste, and sanitary waste (Phase II only) from the privatization contractors. The Privatization Infrastructures project consists of two Level 5 WBS elements, Phase I and Phase II Infrastructure. These are made up of 6 Cost Accounts each. These are: Project Management/Administration; Systems Definition; Acquisition (Project W-519 for Phase I); PHMC Operations; Private Contractor Operations; and Closure/D&D. The following summary work scope is further defined under specific WBS elements 1.1.1.3.08.01 and 1.1.13.08.02, Phase I Infrastructure and Phase II Infrastructure respectively.

Project Management/Administration

This activity includes management, project control, and reporting for Privatization Infrastructures acquisition, operations, and decontamination and decommissioning/closure activities.

Work scope includes preparation of strategy documents and plans; development and maintenance of cost account plans and schedules; monthly statusing of schedules and monitoring cost, monthly reporting of cost/schedule performance of PHMC contractor work scope. Interfacing with the PHMC contractor and Operations subcontractor is also included. Also included in the preparation of special presentations: TWRS Program inputs; and participation in various external reviews, e.g. safety reviews, regulators and oversight groups. Reviews of program deliverables i.e. reports, engineering studies, and other milestone media will also be conducted as required.

Milestone: There are no Level 5 Milestones or above in these cost accounts.

Systems Definition

This activity consists of providing systems engineering and other engineering activities necessary to support privatization apart from specific capital project line item support. Work scope includes defining capital project requirements, feed tank custodial transfer, radioactive solid waste integration, establishing interface control with privatization contractors, and performing studies to determine impacts on the Hanford Site infrastructure caused by privatization.

Milestone: Major-RL (Level 5) milestones are listed below.

- Feed Tank Custodial Transfer to Privatization Contractor

Acquisition Project

This activity provide the required facilities and systems that assures the waste disposal privatization contractors are integrated into the Hanford Site infrastructure. This includes defining capital project

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requirements, executing capital projects, and establishing interface control with privatization contractors. For Phase I the systems required are electrical, water, site/roads, and liquid effluents transfer/treatment/disposal. The following project work scope will be performed to support this project. For Phase II, the Acquisition project is expected to include the following systems: electrical, water, site/roads, liquid effluent transfer/treatment/disposal, sewage transfer/treatment/disposal, radioactive solid waste and telecommunication (LAN only).

Milestones: Major-RL (Level 5) milestones are listed below.

- Complete Construction and Start-up Site Development/Roads Phase I, T08-01-131, 09/28/01
- Complete Construction and Start-up Water Systems Phase I, T08-00-133, 09/29/00
- Complete Construction and Start-up of Electrical System Phase I, T08-00-131, 04/19/00
- Complete Construction and Start-up Liquid Effluent System Phase I, T08-01-132, 12/29/00.
- Start Phase II Privatization Infrastructures Projects, T08-03-211, 10/01/02
- Obtain Key Decision 0 for Privatization Infrastructure Project Phase II, T08-05-211, 10/01/04
- Complete Design, Construction, and Start-up Privatization Infrastructures LLW Privatization Infrastructures Acquisition, Phase II, T08-09-231, 09/30/09.

PHMC Operations

Privatization Infrastructure Operations activities include funding/resources to operate and maintain the added infrastructure and Phase I operator training. For Phase I and Phase II, this work scope includes activities required to operate and maintain the interconnecting piping between site utilities and vendor interfaces for raw/potable water and liquid effluents; in Phase I, one year of training will be provided for the vendor staff; in Phase II, the operation and maintenance of the sanitary sewer system will be provided.

Milestones: Major-RL (Level 5) milestones are listed below.

- Commence Full Operations of the Privatization Infrastructures for the Phase I Processing Facilities, T08-02-141, 05/01/02
- Complete Operations of the Privatization Infrastructures for the Phase I Processing Facilities, T08-15-141, 04/30/15

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- Commence Full Operations of the Privatization Infrastructures for the Phase II Processing Facilities, T08-10-241, 10/01/09

- Complete Operations of the Privatization Infrastructures for the Phase II Processing Facilities, T08-33-241, 09/30/33.

PC Operations

Privatization contractor operations activities include the utility costs associated with operation of the vendor facilities, e.g, electricity and water, and the costs for solid waste and liquid effluents treatment and disposal. This includes the coordination and funding of government furnished services (i.e., electrical supply/maintenance, solid waste disposal, liquid effluent treatment, raw water and potable water supply)

Milestones: This Cost Account has no Level 4 or above milestones.

Closure/D&D

Privatization Infrastructure D&D/closure removes Privatization Infrastructures (infrastructure) added during Phase I and Phase II. Removal occurs after the privatization contractor facilities have gone through D&D.

Milestones: Major-RL (Level 5) milestones are listed below.

- Award D&D Contract, Phase I Privatization Infrastructures, T08-16-161, 10/01/15

- Award D&D Contract, Phase II Privatization Infrastructures, T08-34-261, 10/01/15

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1. Activity Title: PHASE I INFRASTRUCTURE	2. Date	3. PBS Number RL-TW08	4. Dict Rev
5. Contract WBS No. 1.1.3.8.01	6. Corresponding FDS No. D63	7. Baseline CR No.	
8. Organization Name PROJECT DEVELOPMENT			9. B & R No.

10. Scope of Work
TECHNICAL BASES

The basis for the Phase I Infrastructure activities are the contracting documents associated with soliciting private firms to perform a Proof-of-Concept demonstration to successfully treat 6-13% of Hanford tank waste. RL had made a decision that certain infrastructure would be provided to privatization contractors. Providing this infrastructure will require the PHMC contractor to modify existing infrastructure systems. In addition to physical ties to site infrastructure, the privatization contractors would also receive certain services at no cost. These free services are identified in the contracts.

Using the service contract agreement as a basis, the Phase I Infrastructure project developed the site infrastructure modifications required and cost impacts to the PHMC life cycle cost baseline for services provided free to the privatization contractors. As part of developing the Phase 1 solicitation documentation, Functions and Requirement and Interface Control Documents were developed to define anticipated infrastructure requirements for the privatization contractors. These documents were the basis for further development of infrastructure requirements. Subsequent Engineering Studies and Conceptual Design Reports have further defined the technical baseline of the Phase I infrastructure requirements. Inputs received with proposals by privatization bidders and continuing interaction with privatization contractors during Phase 1A will solidify infrastructure requirements further.

GOALS AND OBJECTIVES

The Privatization Phase I Infrastructures project provides the required facilities and systems that assures the waste disposal privatization contractors are integrated into the Hanford Site infrastructure. This project also provides funding that covers the cost for electricity and water used by the privatization contractors. The project also provides funds for PHMC costs associated with the PHMC receiving liquid effluents, and radioactive solid waste from the privatization contractors. Phase I Infrastructure provides the incremental funding required by the PHMC organizations that operate and maintain the infrastructure systems added to accommodate the privatization contractors.

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WBS Dictionary Continuation Page

Scope of Work (cont):
As part of the Phase I contract with the privatization contractors the PHMC will provide funding to train the initial operator work force.

Included in the Privatization Phase I Infrastructures scope is the funding and task responsibility to decontaminate, decommission, and provide closure to the infrastructure systems added.

MAJOR END-ITEM DELIVERABLES

1. Long-term Deliverables

a. PHMC completes design, construction, and operation of Privatization Phase I Infrastructure facilities (utilities, roads, etc) to provide necessary services to the privatization contractors for Phase I.

b. PHMC completes decontamination and decommissioning (D&D) of Phase I Privatization Infrastructure contractors' facilities after completion of Phases I.

2. Near-term Deliverables

a. Complete design/build/startup contract solicitation for Phase I Infrastructure electrical sub-project and Statements of Work for the design and construction management of site development/roads, water and liquid effluent system sub-projects by 9/30/98.

ACCEPTANCE CRITERIA

1. Long-term Acceptance Criteria

Site closure consistent with criteria generated using the NEPA process and in compliance with all applicable regulations.

2. Near-term Acceptance Criteria

Available Phase I Infrastructure facilities and systems to support the schedules negotiated with privatization contracts.

STATEMENT OF WORK

The Phase I Infrastructure project provides the required facilities and systems to integrate the waste disposal privatization contractors into the Hanford Site infrastructure. This project also provides funding to operate infrastructure systems added to support Phase I privatization contractor construction and facility operation including the cost for electricity and water used by the privatization contractor and other selected services. Phase I Infrastructure also provides funds for PHMC costs associated with the PHMC receiving liquid effluents, and radioactive solid waste from the privatization contractors. The Phase I Infrastructures project WBS consists of 6 Cost Accounts. These are: Project Management/

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WBS Dictionary Continuation Page

Scope of Work (cont):
Administration; Systems Definition; Acquisition W-519; PHMC Operations; Privatization Contractor Operations; and Closure/D&D. The following work scope is further defined under the following WBS elements.

1.1.3.8.01.01 Project Management/Administration

Project Management includes management, project control, and reporting for Privatization Infrastructures (infrastructure) acquisition, operations, and decontamination and decommissioning/closure activities.

Work scope to be performed within this activity includes; preparation of PBSs (RL08); Multi-Year planning including funding requirements; monthly and quarterly reporting of project performance; project control of line item projects; monitoring of performance to ensure work arounds/corrective actions are initiated and implemented; interfacing with other disposal projects, Waste Integration Team (WIT), and privatization contractors; establishing/maintaining change control for the Privatization Infrastructure project and line item projects; preparation/maintenance of project schedules; provide inputs/updates to disposal program LCCE. In addition, inputs to support Key Decisions and the Capital Budget Validation documentation package will be provided. Included in this budget is support to IPT activities.

Milestone: Major-RL (Level 5) milestone is listed below.

There are no Level 5 Milestones or above in these cost accounts.

1.1.3.8.01.02 Systems Definition

Systems definition includes defining capital project requirements, establishing interface control with privatization contractors, and performing studies to determine impacts on the Hanford Site infrastructure caused by privatization. Tasks associated with turnover of AP 106 and AP 108 tanks to privatization contractors are included. Within the tank turnover effort, technical support is provided to the privatization contractor to review tank modification concepts, tank modification design media and privatization contractor tank operating procedures. Also included is system definition and integration and development of interface control documents and drawings. Conditions of the feed tank steel shells (ultrasonic test), leak detection systems and cathodic protection systems will be evaluated in this task. Radioactive solid waste ICDs will be maintained and an engineering study will be performed to determine the impact on the Site Solid Waste Disposal facilities as a result of privatization contractor operations and eventual D&D of the facilities. The study will be based on radioactive solid waste quantities and species estimates provided by the privatization contractors. Support will be provided to IPT activities associated with the privatization contractors radioactive solid waste projections, handling issues, an interfaces.

1.1.3.8.01.03 Acquisition Project W-519

2.2 WBS Dictionary

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WBS Dictionary Continuation Page

Scope of Work (cont):

Phase I Infrastructure project provides the required facilities and systems that assures the waste disposal privatization contractors are integrated into the Hanford Site infrastructure. This includes defining capital project requirements, executing capital projects, and establishing interface control with privatization contractors. For Phase I the systems required are electrical, water, site/roads, and liquid effluents. The following project work scope will be performed to support this project.

Electrical System:

Design, construct and provide the electrical systems necessary to support the privatization contractors Phase I facilities. These systems include a new sub-station next to the site of the privatization contractor facilities, tie into the existing 230 kV power grid and 13.8 kV power distribution system upto the site boundary of the privatization facilities. Included in this project are system definition and integration; development of interface control documents and drawings; conceptual; design, construction and start-up of the electrical systems; engineering and inspection services; project management, and project technical support. This also includes PHMC infrastructure operator training.
Raw and Potable Water Systems:

Design, construct and provide the raw and potable water systems necessary to support the privatization contractors Phase I facilities. These systems include piping from the existing raw and potable water systems to the site of the privatization contractor facilities. This includes system definition and integration; development of interface control documents and drawings; design, construction and start-up of the water systems; engineering and inspection services; project management and project technical support.

Site Development and Roads:

Design, construct and provide the roads to the privatization contractor's site to support site access and the transport of required construction/operations materials and equipment to the privatization contractors facilities. Site development also includes providing construction power and construction water to the privatization contractor site. Leveling of the grout spoils pile, clearing and grubbing in the selected Phase I site is also part of this site development work. Mitigation of the loss of habitat in developing sites is also included. The privatization contractor site soil baseline characterization and ground water monitoring well decommissioning/replacement are also included. The system definition and integration, the development of interface control documents and drawings, the design and construction of the road network to the site boundary, engineering and inspection services, project management and project technical support will also be performed.

Liquid Effluent Transfer Systems:

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WBS Dictionary Continuation Page

Scope of Work (cont):

Design, construct and provide the liquid effluent transfer systems. These system will provide the pipeline network to transfer liquid effluents from the privatization contractor to the PHMC. Separate piping systems will be provided to transfer radioactive and dangerous liquid effluents to LERF and non-radioactive, non-dangerous liquid effluents to TEDF. The Waste Processing project will treat and dispose of liquid radioactive, dangerous (mixed) and non-radioactive, non-dangerous wastes. Also included is system definition and integration; development of interface control documents and drawings; advanced conceptual design/engineering evaluation; design, construction and start-up of the liquid effluent system; engineering and inspection services; and project engineering and technical support.

Milestones: Major-RL (Level 5) milestones are listed below.

- Complete Construction and Start-up Site Development/Roads Phase I, T08-01-131, 09/28/01

- Complete Construction and Start-up Water Systems Phase I, T08-00-133, 09/29/00

- Complete Construction and Start-up of Electrical System Phase I, T08-00-131, 04/19/00

- Complete Construction and Start-up Liquid Effluent System Phase I, T08-01-132, 12/29/00.

1.1.3.8.01.04 PHMC Operations

Privatization Infrastructure Operations activities include funding/resources to operate and maintain the added infrastructure. This work scope includes activities required to operate and maintain the electrical system, interconnecting piping between site utilities and privatization contractor interfaces for raw/potable water and liquid effluents. Also in Phase I, one year of training will be provided for the privatization contractor staff.

Milestones: Major-RL (Level 5) milestones are listed below.

- Commence Full Operations of the Privatization Infrastructures for the Phase I Processing Facilities, T08-02-141, 05/01/02

- Complete Operations of the Privatization Infrastructures for the Phase I Processing Facilities, T08-15-141, 04/30/15

1.1.3.8.01.05 PC Operations

Privatization contractor operations activities include the utility costs associated with operation of the privatization contractor facilities, e.g,

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WBS Dictionary Continuation Page

Scope of Work (cont):
electricity and water, and the costs for solid waste and liquid effluents treatment and disposal. This includes the coordination and funding of government furnished services (i.e., electrical supply/maintenance, solid waste disposal, liquid effluent treatment, raw water and potable water supply)

Milestones: This Cost Account has no Level 5 or above milestones.

1.1.3.8.01.06 Closure/D&D

Phase I Infrastructure D&D/Closure removes infrastructure facilities and systems added to support Phase I. Contactor facilities will also undergo D&D/Closure under this cost account. Removal will commence after the Phase I privatization contractor facilities have been deactivated.

Milestones: Major-RL (Level 5) milestones are listed below.

- Award D&D Contract, T08-16-161, 10/01/15

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8/27/1997

1. Activity Title: PHASE II INFRASTRUCTURE	2. Date	3. PBS Number RL-TW08	4. Dict Rev
5. Contract WBS No. 1.1.3.8.02	6. Corresponding FDS No. D64	7. Baseline CR No.	
8. Organization Name PROJECT DEVELOPMENT			9. B & R No.

10. Scope of Work
TECHNICAL BASES

The basis for the Phase II Infrastructure activities will be the contracting documents associated with soliciting private firms to provide a full-scale production disposal service for Hanford tank waste. RL has made a decision that certain infrastructure would be provided to privatization contractors. Providing this infrastructure will require the PHMC to modify existing infrastructure systems. In addition to physical ties to site infrastructure, privatization service contractors would also receive certain services free. These free services are to be identified in the contracts.

Using the service contract agreement as a basis, the Phase II Infrastructure project will develop the site infrastructure modifications required and cost impacts to the PHMC life cycle cost baseline for services provided free to the privatization contractors. The specific infrastructure needs will be reflected in Interface Control documents (e.g., site, water, electrical, etc) and contained in the Functions and Requirements document. The Phase II Request For Proposal will contain specific reference to what the Hanford Site would provide to privatization contractors. From the Interface Control Documents and Function and Requirements documents, a further decomposition of requirements will be made through engineering studies/analyses. These studies/analyses will be the basis for establishing specific design requirements.

GOALS AND OBJECTIVES

The Privatization Infrastructures project provides the required facilities and systems that assures the waste disposal privatization contractors are integrated into the Hanford Site infrastructure. This project also provides funding that covers the cost for electricity and water used by the privatization contractors. Privatization Infrastructures also provides funds for PHMC costs associated with the PHMC receiving liquid effluents, radioactive solid waste, and sanitary waste from the privatization contractors. Telecommunications systems to the contractors▪ site (limited to the site LAN) will also be provided.

Privatization Infrastructures provides the incremental funding required by the PHMC organizations that operate and maintain the infrastructure systems

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WBS Dictionary Continuation Page

Scope of Work (cont):
added to accommodate the privatization contractors.

As part of the Phase II contract with the privatization contractors the PHMC will provide funding to train the initial operator work force.

Included in the Privatization Infrastructures scope is the funding and task responsibility to decontaminate, decommission, and provide closure to the infrastructure systems and the contractors's facilities as well.

MAJOR END-ITEM DELIVERABLES

1. Long-term Deliverables

a. PHMC completes design, construction, and operation of Phase II Infrastructure (utilities, roads, etc) to provide necessary services to the privatization contractors.

b. PHMC completes decontamination and decommissioning (D&D) of Phase II Privatization Infrastructures facilities after completion of Phase II operations.

2. Near-term Deliverables

. None

ACCEPTANCE CRITERIA

1. Long-term Acceptance Criteria

Site closure consistent with criteria generated using the NEPA process and in compliance with all applicable regulations.

2. Near-term Acceptance Criteria

None

STATEMENT OF WORK

The work contained in this activity includes the development of infrastructure design requirements for each system provided, establishment of interface control documentation, conceptual design for all the systems, and the execution of a capital line item project. This project also provides funding to operate infrastructure systems added to support Phase II privatization contractors construction and facility operation including the cost for electricity and water used by the privatization contractors. Phase II Infrastructure also provides funds for PHMC costs associated with the PHMC receiving liquid effluents, radioactive solid waste, and sanitary waste from the privatization contractors.

The Phase II Infrastructure project consists of 6 Cost Account elements.

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Scope of Work (cont):
These are: Project Management/Administration; Systems Definition; Acquisition Project; PHMC Operations; Private Contractor Operations; and Closure/D&D.

1.1.3.8.02.01 Project Management

Project Management includes management, project control, and reporting for Privatization Infrastructures (infrastructure) acquisition, operations, and decontamination and decommissioning/closure activities.

Work scope to be performed within this activity includes; preparation of PBSs (RL08); Multi-Year planning including funding requirements; monthly and quarterly reporting of project performance; project control of line item projects; monitoring of performance to ensure work arounds/corrective actions are initiated and implemented; interfacing with other disposal projects, Waste Integration Team (WIT), and privatization contractors; establishing/maintaining change control for the Privatization Infrastructure project and line item projects; preparation/maintenance of project schedules; provide inputs/updates to disposal program LCCE. In addition, inputs to support Key Decisions and the Capital Budget Validation documentation package will be provided. Included in this budget is support to IPT activities.

Milestone: Major-RL (Level 5) milestone is listed below.

There are no Level 5 Milestones or above in these cost accounts.

1.1.3.8.02.02 Systems Definition

Systems definition includes defining capital project requirements, establishing interface control with privatization contractors, and performing studies to determine impacts on the Hanford Site infrastructure caused by Phase II privatization.

1.1.3.8.02.03 Acquisition Project

The Privatization Infrastructure projects provide the required facilities and systems that assures the waste disposal privatization contractors are integrated into the Hanford Site infrastructure. This includes defining capital project requirements, executing capital projects, and establishing interface control with privatization contractors. The following systems have been identified to support the privatization contractors within the line item project:

- Electrical system
- Site/Water/Roadway system
- Liquid Effluent system
- Sewage Collection/Treatment system
- Radioactive Solid Waste system
- Telecommunication (LAN) system

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1 8/27/1997

WBS Dictionary Continuation Page

Scope of Work (cont):

It is anticipated that design/build/startup contracting would be used to obtain this systems.

Milestones: Major-RL (Level 5) milestones are listed below.

- Start Phase II Privatization Infrastructures Projects, T08-03-211, 10/01/02

- Obtain Key Decision 0 for Privatization Infrastructure Project Phase II, T08-05-211, 10/01/04

- Complete Design, Construction, and Start-up Privatization Infrastructures LLW Privatization Infrastructures Acquisition, Phase II, T08-09-231, 09/30/09.

1.1.3.8.02.04 PHMC Operations

Phase II Infrastructure PHMC Operations activities include funding/resources to operate and maintain the added infrastructure. The Phase II work scope includes activities required to operate and maintain the electrical systems, interconnecting piping between site utilities and privatization contractor interfaces for raw/potable water, liquid effluents, and sanitary sewer system.

Milestones: Major-RL (Level 5) milestones are listed below.

- Commence Full Operations of the Privatization Infrastructures for the Phase II Processing Facilities, T08-10-241, 10/01/09

- Complete Operations of the Privatization Infrastructures for the Phase II Processing Facilities, T08-33-241, 09/30/33.

1.1.3.8.02.05 PC Operations

Privatization contractor operations activities include the utility costs associated with operation of the privatization contractor facilities, e.g, electricity and water, and the costs for solid waste and liquid effluents treatment and disposal. This includes the coordination and funding of government furnished services (i.e., electrical supply/maintenance; solid waste disposal, liquid effluent treatment, raw water and potable water supply, sewage treatment/disposal)

Milestones: This Cost Account has no Level 5 or above milestones.

1.1.3.8.02.06 Closure/D&D

Privatization Infrastructure D&D/closure removes Phase II Infrastructure facilities added to support privatization contractors. Removal occurs after the privatization contractor facilities have gone through

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: I.1 8/27/1997

WBS Dictionary Continuation Page

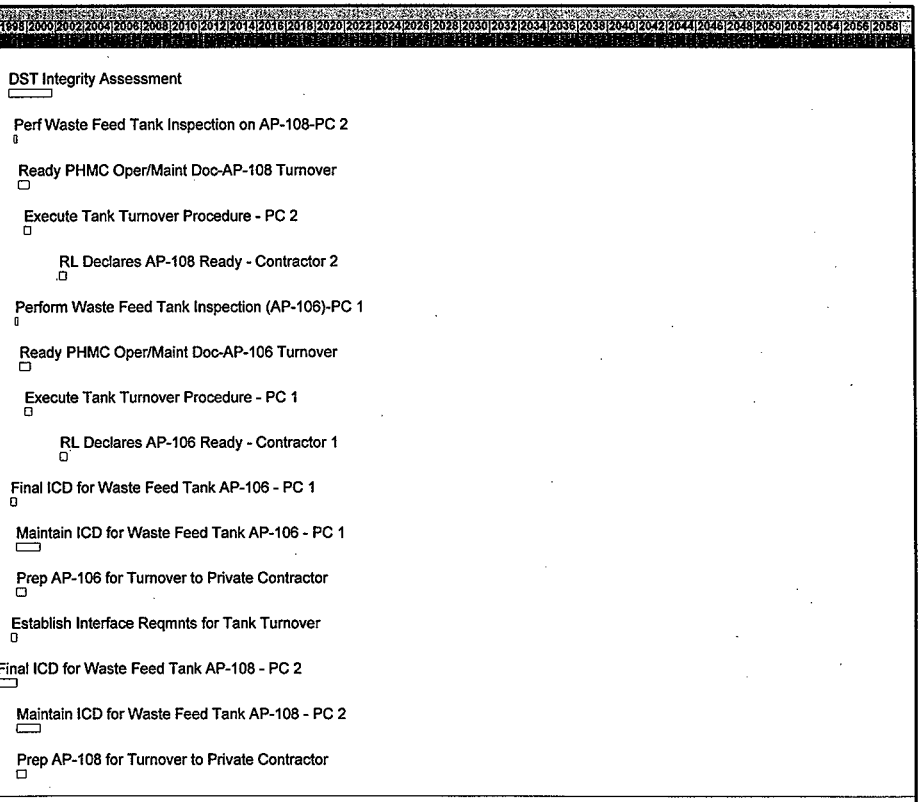
Scope of Work (cont):
deactivation.

Milestones: Major-RL (Level 5) milestones are listed below.

- Award D&D Contract , T08-34-261, 10/03/33

Proj Lvl (PBS #)	FDS Act Number	Activity Title	Activity Manager	Responsible Organization	Cost Account
RL-TW08		PROCESS WASTE PRIVATIZATION INFRASTRUCTURE			
	D63	PHASE I INFRASTRUCTURE	RJ Parazin	PROJECT DEVELOPMENT	
	D64	PHASE II INFRASTRUCTURE	RJ Parazin	PROJECT DEVELOPMENT	

Activity ID	Early Start	Early Finish
Process Wst Privatization Infrastruct		
120.B05	01OCT97*	29SEP00
150.B62	02FEB98	30APR98
150.B66	01JUN98*	26FEB99
150.B68	01OCT98	31MAR99
150.B70	02APR01	31AUG01
150.B72	02FEB98	30APR98
150.B76	01JUN98*	26FEB99
150.B78	01OCT98	31MAR99
150.B80	02APR01	31AUG01
150.B86	01OCT97*	30JAN98
150.B87	02FEB98	30SEP99
150.B88	02FEB98	30SEP98
150.B94	01OCT97*	30JAN98
150.B96	25SEP96A	30JAN98
150.B97	02FEB98	30SEP99
150.B98	02FEB98	30SEP98



Project Start 01OCT96
Project Finish 30SEP48
Data Date 01OCT97
Run Date 16SEP97

PMBS Bar
Progress Bar

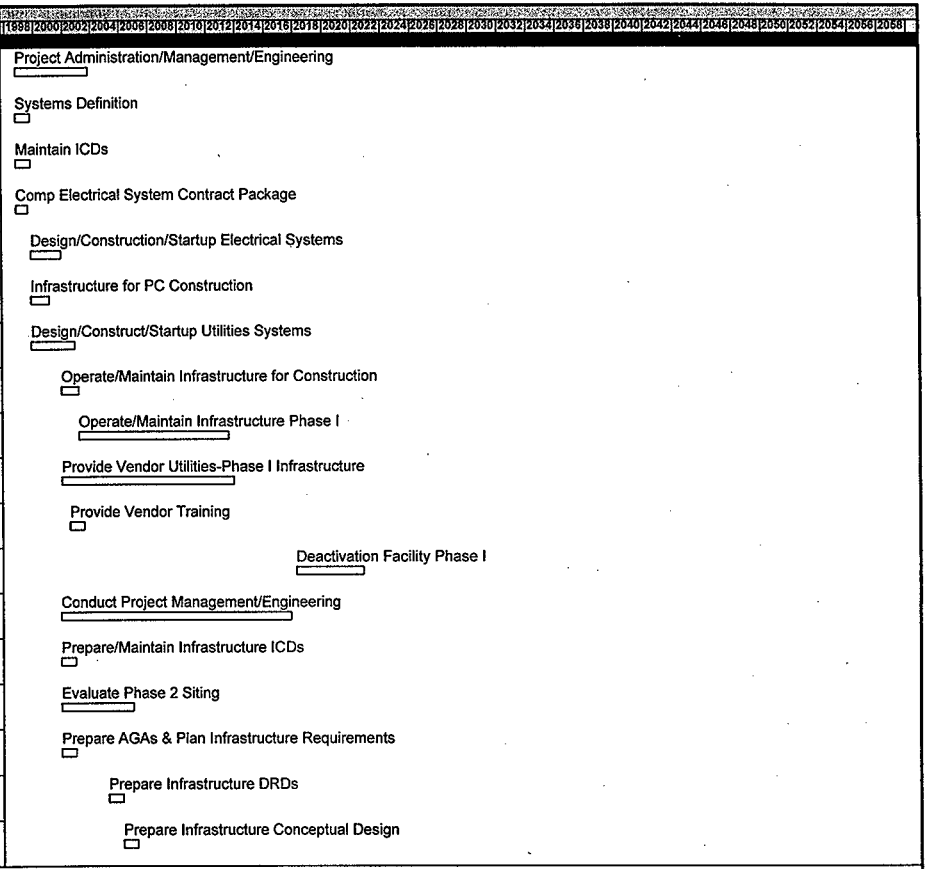
PMDR

Sheet 1 of 3

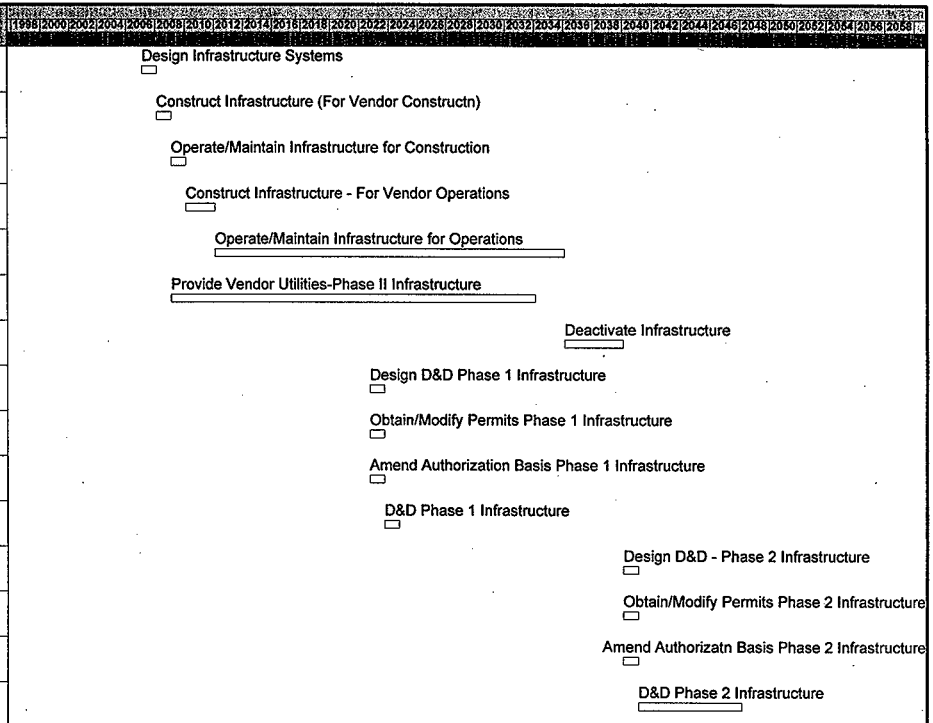
Tank Waste Remediation Systems
Privatization Infrastruct. (RL-TW08)
Project Master Baseline Schedule

TW08 3.1-1

Activity ID	Early Start	Early Finish
330.010	01OCT97*	30SEP02
330.020	01OCT97	30SEP98
330.030	01OCT97	30SEP98
330.040	01OCT97	31JUL98
330.050	01OCT98	31OCT00
330.060	01OCT98	31DEC99
330.070	01OCT98	28SEP01
330.080	01NOV00	31DEC01
330.090	02JAN02	31MAY12
330.100	01NOV00	31OCT12
330.110	01JUN01	31MAY02
330.130	31JAN17	27SEP21
480.010	02OCT00*	30SEP16
480.020	02OCT00	02OCT01
480.040	02OCT00	29SEP05
480.050	02OCT00	01OCT01
480.060	30JAN04	31JAN05
480.070	01FEB05	31JAN06



Activity ID	Early Start	Early Finish
480.080	01FEB06	30JAN07
480.090	31JAN07	31JAN08
480.100	01FEB08	30JAN09
480.110	30JAN09	01FEB11
480.120	02FEB11	01FEB35
480.130	01FEB08	01FEB33
480.140	02FEB35	03FEB39
530.110	28SEP21	26SEP22
530.120	28SEP21	26SEP22
530.130	28SEP21	26SEP22
530.140	27SEP22	26SEP23
530.200	04FEB39	02FEB40
530.210	04FEB39	02FEB40
530.220	04FEB39	02FEB40
530.230	03FEB40	04FEB47



Activity ID	Early Start	Early Finish	1997 OCT	NOV	DEC	JAN	FEB	MAR	APR	1998 MAY	JUN	JUL	AUG	SEP
Process Wst Privatization Infrastruct														
120.B05	01OCT97*	29SEP00	DST Integrity Assessment											
150.B62	02FEB98	30APR98					Perf Waste Feed Tank Inspection on AP-108-PC 2							
150.B66	01JUN98*	26FEB99									Ready PHMC Oper/Maint Doc-AP-108 Turnover			
150.B72	02FEB98	30APR98					Perform Waste Feed Tank Inspection (AP-106)-PC 1							
150.B76	01JUN98*	26FEB99									Ready PHMC Oper/Maint Doc-AP-106 Turnover			
150.B86	01OCT97*	30JAN98	Final ICD for Waste Feed Tank AP-106 - PC 1											
150.B87	02FEB98	30SEP99					Maintain ICD for Waste Feed Tank AP-106 - PC 1							
150.B88	02FEB98	30SEP98					Prep AP-106 for Turnover to Private Contractor							
150.B94	01OCT97*	30JAN98	Establish Interface Reqmnts for Tank Turnover											
150.B97	02FEB98	30SEP99					Maintain ICD for Waste Feed Tank AP-108 - PC 2							
150.B98	02FEB98	30SEP98					Prep AP-108 for Turnover to Private Contractor							
330.010	01OCT97*	30SEP02	Project Administration/Management/Engineering											
330.020	01OCT97	30SEP98	Systems Definition											
330.030	01OCT97	30SEP98	Maintain ICDs											
330.040	01OCT97	31JUL98	Comp Electrical System Contract Package											

Project Start 01OCT96 | Project Finish 30SEP45 | Data Date 01OCT97 | Run Date 15SEP97

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PMBS Bar | Progress Bar

PMDR

Tank Waste Remediation Systems
Privatization Infrastruct. (RL-TW08)
Project Master Baseline Sch. (FY98)

Sheet 1 of 1

3.3 MILESTONE LIST

There are no controlled milestones for Privatization Phase II.

3.4 FY 98 MILESTONE DESCRIPTION SHEETS

There are no FY98 Milestone Description Sheets for Privatization Phase II.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1										
PBS NO:	RL-TW08										
PBS TITLE:	PRIVATIZ'N INFRASTRUCTURE										SUBTOT
FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY1997-FY2006
OPERATING EXPENSE	5,876	6,340	4,446	3,774	7,519	25,642	1,596	1,284	48,093	46,489	151,059
CENRTC	17	-									17
GENERAL PLANT PROJECT			-	-	-				-	-	-
LINE ITEM *(List Each One)*											
PHASE I INFRASTRUCTURE PROJ W-519			14,800	12,792	589						28,181
PHASE II INFRASTRUCTURE PROJ									225	225	450
											-
											-
											-
Subtotal Line Items	-	-	14,800	12,792	589	-	-	-	225	225	28,631
ESCALATION							43	70	4,020	5,253	9,386
TOTAL BCWS/PMB[1]	5,893	6,340	19,246	16,566	8,108	25,642	1,639	1,354	52,338	51,967	189,093
MGMT RESERVE[2]											-
LINE ITEM CONTINGENCY[2]											-
OFFSITE TRANSFERS[3]											-
Subtotal	-	-	-	-	-	-	-	-	-	-	-
TOTAL	5,893	6,340	19,246	16,566	8,108	25,642	1,639	1,354	52,338	51,967	189,093

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover NOT Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

4.1

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW08
PBS TITLE:	PRIVATIZ'N INFRASTRUCTURE

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
OPERATING EXPENSE	267,043	375,755	310,330	303,842	265,472	111,107	1,498						1,786,106
CENRTC													17
GENERAL PLANT PROJECT													-
LINE ITEM *(List Each One)*													-
PHASE I INFRASTRUCTURE PROJ W-519													28,181
PHASE II INFRASTRUCTURE PROJ	24,735												25,185
													-
													-
													-
Subtotal Line Items	24,735	-	-	-	-	-	-	-	-	-	-	-	53,366
ESCALATION	32,825	42,272	34,912	34,182	29,866	12,500	169						196,112
TOTAL BCWS/PMB[1]	324,603	418,027	345,242	338,024	295,338	123,607	1,667	-	-	-	-	-	2,035,601
MGMT RESERVE[2]													-
LINE ITEM CONTINGENCY[2]													-
OFFSITE TRANSFERS[3]													-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	324,603	418,027	345,242	338,024	295,338	123,607	1,667	-	-	-	-	-	2,035,601

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover **NOT** Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

TW08.4-2

HNF-SP-1230 Rev. 0

TANK WASTE REMEDIATION SYSTEM

4.2 SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS) FY 1998

($000s)

PROJECT WBS:	1.1										
PBS NO:	RL-TW08										
PBS TITLE:	PRIVATIZ'N INFRASTRUCTURE										SUBTOT
FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY1997-FY2006
OPERATING EXPENSE	6,261	6,340	4,446	3,774	7,519	25,642	1,596	1,284	48,093	46,489	151,444
CENRTC	(15)										(15)
GENERAL PLANT PROJECT			-	-	-				-	-	-
LINE ITEM (List each one)											
PHASE I INFRASTRUCTURE PROJ W-519			14,800	12,792	589						28,181
PHASE II INFRASTRUCTURE PROJ									225	225	450
											-
											-
											-
Subtotal Line Items	-	-	14,800	12,792	589	-	-	-	225	225	28,631
ESCALATION							43	70	4,020	5,253	9,386
TOTAL NEW B/A	6,246	6,340	19,246	16,566	8,108	25,642	1,639	1,354	52,338	51,967	189,446

TW08.4-3

HNF-SP-1230 Rev. 0

TANK WASTE REMEDIATION SYSTEM

4.2 SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)

FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW08
PBS TITLE:	PRIVATIZ'N INFRASTRUCTURE

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051 FY2055	FY2056-FY2060	FY2061 FY2064	TOTAL FY1997-FY2064
OPERATING EXPENSE	267,043	375,755	310,330	303,842	265,472	111,107	1,498						1,786,491
CENRTC													(15)
GENERAL PLANT PROJEC													-
LINE ITEM (List each one)													-
PHASE I INFRASTRUCTURE PRO.													28,181
PHASE II INFRASTRUCTURE PRO	24,735												25,185
													-
													-
													-
Subtotal Line Items	24,735	-	-	-	-	-	-	-	-	-	-	-	53,366
ESCALATION	32,825	42,272	34,912	34,182	29,866	12,500	169						196,112
TOTAL NEW B/A	324,603	418,027	345,242	338,024	295,338	123,607	1,667	-	-	-	-	-	2,035,954

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

PROJECT WBS:	1.1
PBS NO:	RL-TW08
PBS TITLE:	PRIVATIZ'N INFRASTRUCTURE

($000s)

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFRASTRUCTURE	1230-0	OP EXP	531	416	485	471	572	583	558	277	599	616	616	616	6,340
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	531	416	485	471	572	583	558	277	599	616	616	616	6,340
VENDOR UTILITIES	1230-0														
		OP EXP	-	-	-	-	-	-	-	-	-	-	-	-	-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS: 1.1
PBS NO: RL-TW08
PBS TITLE: PRIVATIZ'N INFRASTRUCTURE

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL BCWS/PMB[1]			531	416	485	471	572	583	558	277	599	616	616	616	6,340

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

4.4

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1										
PBS Title	PBS NO	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	30.2	23.3	19.9	96.5	187.4	8.2	8.2	8.2	8.2	8.2
		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	8.2	23.5	25.7	31.4	30.3	23.2	22.7	22.7	22.8	20.5
		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	20.5	20.6	20.6	20.6	20.6	20.5	20.6	20.6	20.6	20.6
		FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	20.6	16.5	15.3	15.3	15.4	15.3	0.0	0.0	0.0	0.0
		FY 2038	FY 2039	FY 2040	FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		FY 2048	FY 2049	FY 2050	FY 2051	FY 2052	FY 2053	FY 2054	FY 2055	FY 2056	FY 2057
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		FY 2058	FY 2059	FY 2060	FY 2061	FY 2062	FY 2063	FY 2064	FY 2065	FY 2066	FY 2067
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CONTENTS

IMMOBILIZED TANK WASTE STORAGE AND DISPOSAL PROJECT (RL-TW09)

1.0 TECHNICAL BASELINE

1.1 PROJECT MISSION

The Immobilized Tank Waste Storage & Disposal program will provide safe storage and final near-surface disposal on the Hanford Site for immobilized low activity tank waste (ILAW), interim storage for immobilized high level waste (ILHLW), other HLW products, and provide for the final disposition of Hanford's Cs/Sr capsules.

The ILAW project will be complete when the immobilized low activity tank waste is disposed of on the Hanford site, long term surveillance and monitoring of the ILAW disposal site is ongoing, and interim storage facilities have been decontaminated and decommissioned. The ILAW Storage and Disposal facilities will accept the immobilized low activity tank waste from TWRS privatization vendors. The ILAW waste packages will be placed in near surface storage and disposal facilities. The near surface disposal systems along with the waste package are intended to meed DOE regulatory requirements for near-surface disposal of low-level waste. Waste receipts are currently planned to commence in 2002 and continue through 2024 which is consistent with the Tri-Party Agreement (TPA) milestone for completion of this mission.

The HLW Interim Storage will receive IHLW, non-routine waste from the HLW vendor, immobilized cesium product from the low level vendors, transport these products to the Canister Storage Building (CSB), where the product will be stored until either shipped to a geologic repository (IHLW) or returned to a Phase II vendor (Cs). Storage of the Phase I product in the CSB will consolidate the high level waste in one area and provide a safe environmentally sound storage of the IHLW product. HLW Interim Storage will provide additional storage capacity during Phase II privatization. In addition HLW Interim Storage will provide loadout capability for IHLW canisters moving to a geologic repository.

The Cs/Sr Capsule Disposition Project will address the disposition of the highly radioactive cesium and strontium capsules currently stored in the Waste Encapsulation and Storage Facility (WESF) at the Hanford Site's 200-E Area in a manner that is acceptable for final disposal in the geologic repository. The scope of the project is to provide sufficient technical definition such that the disposition scope can be incorporated into the Request for Proposal (RFP) for Phase II privatization.

1.2 Drivers for Immobilized Tank Waste Storage & Disposal Project

Source Documents for Immobilized Tank Waste Storage & Disposal Project

Name	Title
10 CFR 20	Control of Exposure from External Sources in Restricted Areas
40 CFR 191	Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes
DOE Order 430.1	Life Cycle Asset Management
DOE Order 6430.1A	General Design Criteria
DOE/EIS-0222D	Draft Hanford Remedial Action Environmental Impact Statement and Comprehensive Land Use Plan
DOE/RL-89-10	Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Rev.4
DOE/RL-96-14	Updated Draft Mission Direction Document, June 1996
DOE/RL-96-92	Hanford Strategic Plan
DOE/RW-0351P	Waste Acceptance System Requirements Document
HNF-SD-W465-DRD-001	
Tank Waste Remediation System Mission Analysis, WHC-SD-WM-MAR-008, Revision 2	Tank Waste Remediation System Mission Analysis (TWRS MAR)
WHC-SD-AGA-001	
WHC-SD-W456-AGA-001	
WHC-SD-WM-DRD-012	
WHC-SD-WM-FRD-027	
WHC-SD-WM-MAR-008, TWRS Mission Analysis Report	
WHC-SD-WM-SP-011	

1.3 Immobilized Tank Waste Storage & Disposal Project Risk Management

Introduction. The waste disposal program is an integrated program of retrieval, waste processing, infrastructure, and storage and disposal operations. All parts are necessary for the accomplishment of the desired end state in accordance with the Tri-Party Agreement. If, for example, storage facilities are not funded the private contractors will have no place to store their immobilized products. Similarly, if waste feed is not retrieved or utilities aren't provided, the private contractors can't be successful. Therefore, risk and risk reduction are evaluated from a total tank waste disposal program perspective.

The risk this program addresses is that of the HLW stored in the 177 underground storage tanks, primarily from Cs-137 and Sr-90, and Cs/Sr capsules stored in the Waste Encapsulation and Storage Facility . The risk to the public and environment will be reduced to a negligible amount by retrieving the waste, immobilizing it, and then storing/disposing of it safely. These actions reduce the hazard source, the likelihood of release, and the number of potential event scenarios.

Description of the Risk. If the tank waste is not removed or other treatments are not performed on the waste in the tanks, much of the tank waste would remain unstabilized and, eventually, the tank domes would deteriorate and collapse. It is assumed that following the initial energetic release from a collapsed dome, resuspension and

entrainment of the exposed tank waste would continue for 24 hours before mitigative action is taken. Approximately 8 liters of respirable-sized radiological and chemical contaminants would be released to the air, carried downwind, and inhaled by site personnel and the public. The contaminant would also be deposited on the ground. This scenario could obviously occur for many of the 177 tanks.

The accident with the most severe potential health impacts is an energetic hydrogen gas fire in a tank. In the event of such an accident, there is potential for up to 22 latent cancer fatalities, including 20 Site workers and 2 offsite members of the general public from direct radiation and inhalation of radioactive contaminants. The longer the waste remains in the tanks, the more likely an energetic hydrogen gas fire would occur. If no action were taken to remediate the tank waste over the next 100 years, the probability of a hydrogen fire is relatively high, 0.72, which would cause an estimated 16 fatalities.

The release of radiological and chemical contaminant released to the air could result in a combined public population dose of 4000 REM and cause two latent cancer fatalities. Site personnel would receive as much as 23,000 REM, causing 10 fatalities, each of which received a lethal dose of 1500 REM.

Radiological and chemical particulates could be transported through the atmosphere in the direction of prevailing winds and could be deposited on the ground or surface waters, including the Columbia River and populated areas. These contaminants could be resuspended by wind for redeposit elsewhere or leached into the soil by precipitation. Contamination could be spread over several hectares, depending on wind conditions.

If the waste is not removed, eventually the liquid waste would leak into the ground, the vadose zone, and, ultimately the groundwater. However, this scenario could be largely eliminated for those tanks in which the water has eliminated. Contamination could eventually reach the Columbia River. Releases of contaminants also would occur as water from precipitation dissolves contaminants from the waste in the tanks and slowly carries them through the soil and into the groundwater, which occurs 230 to 300 feet below the tanks. This is a long-term process, of course, and hundreds to thousands of years may be required to leach contaminants into the groundwater. The amount and rate at which contaminants would enter the groundwater is dependent upon how much waste is in the tanks and whether the contaminants had been put in a more stable form. Estimates are that the fastest moving contaminants would reach the groundwater in approximately 130 years; maximum concentrations would be reached in 210 years, with gradual decreases over several thousand years thereafter. (The DOE has no technique for removing all the waste, and the goal in the Tri-Party Agreement is 99% removal.) Once contaminants reached the groundwater, they could move relatively quickly and would reach the Columbia River in approximately 25 to 50 years. They would be rapidly dispersed after discharge into the River.

There could be exposure to individuals who had access to the groundwater (farmers, recreational users, American Indians) or plants irrigated with groundwater, and the risks therefrom could be high (1 in 2 chance for an onsite farmer, 1 in 10 for an industrial worker, etc.); however those risks would be mitigated from land use restrictions, especially controlled access to the groundwater (which is the baseline plan). There are some other minor risks associated with intruders, natural disasters, etc.; however, the main risks to the environment and the public are described above.

Analysis. The retrieval strategy is to provide feed in Phase I to private contractors from the double-shell tanks. This is necessary to provide waste of the type needed and to make space for single-shell tank waste. There is little overall reduction in risk to the public or environment during Phase I, although about 13% of the waste will be processed. The main risk reduction is from removing the waste from Tank C-106, a high-heat tank. There is minimal opportunity for actual closure of any tanks; however.

The Single-shell tanks will be retrieved by 2018. Our planning basis assumes the DST do not leak (none has so far) during the remediation period, and the overall risk from tank farms is largely eliminated when the DSTs are retrieved by 2028. Thus, we are showing risk generally as a step function, with reduction in 2018 and in 2028, when all tanks have been retrieved. Note that we could change our retrieval strategy and retrieve the highest risks first. A

risk-based strategy could reduce overall environmental risks significantly sooner (about 90% of the waste is in about half the tanks, and most of the risk is in fewer than that); however, the baseline plan for Phase I does not do so, nor is the initial tank retrieval sequence tied directly to environmental or public health risk.

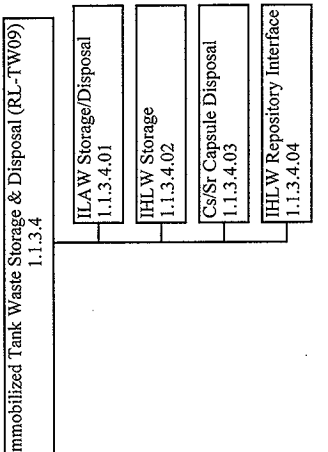
Some residual environmental risk will remain after the retrieval and immobilization of the tank waste. Most of this is associated with the one percent heel" remaining in the tanks. However, that will minimized through earthen barriers and filled tanks.

Worker risk generally does not decrease until the end of the program because of risks associated with storage and disposal of the immobilized waste. Worker risks are highest during the construction phase of the vendor's plants (1999-2002) but decrease during operations. Occupational radiological exposures will occur while managing tank farms and performing remedial activities. We expect 1-3 latent cancer worker fatalities from occupational exposure during the life of the program. Perhaps 1 would occur during Phase I and 2 during Phase II.

There is minimal ecological risk in Phase I, and that is associated with roads and construction of private vendor plants, as well as construction of storage facilities for immobilized waste products. The area of the private plants is adjacent to AP tank farm and is desert scrub brush. Most of the 200 area has already been disturbed to some extent by the construction of roads, pipelines, and facilities. The additional destruction is minimal in Phase I. Phase II plants, which will be much larger, will be located in the vicinity of the PUREX plant, with the resulting ecological damage of that area.

The risk assessments in the PBS are consistent with those developed in the TWRS risk data sheets and the TWRS Final Environmental Impact Statement. Existing risk for the public, workers, and environment is considered to be medium and will be low or not applicable at the end state.

There are several metrics which could be used to measure risk reduction. The most appropriate are probably the amount (in metric tons) of tank waste retrieved and immobilized and the number of tanks closed.



2.1 WBS Hierarchy
TW09.2-1

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

1. PROGRAM/TITLE PARTICIPANT 1.1 Tank Waste Remediation Systems 1.1.3 Waste Disposal		
2. WBS ELEMENT CODE/ LEVEL 1.1.3.4/V	3. WBS ELEMENT TITLE Immobilized Tank Waste Storage and Disposal	
4. CURRENT REV NO 0	5. EFFECTIVE REV DATE October 1, 1997	6. APPROVED CHANGES

ELEMENT DESCRIPTION

1. TECHNICAL BASES

The Immobilized Tank Waste Storage and Disposal Program will provide safe storage and final near-surface disposal on the Hanford Site for immobilized low-activity tank waste, interim storage for immobilized high-level waste and other HLW products, and provide for the final disposition of Hanford's Cs/Sr capsules. This Program element is composed of three separate project efforts: immobilized low-activity waste storage/disposal, immobilized high-activity waste storage, and Cs/Sr capsule disposition.

The Immobilized Tank Waste Storage and Disposal program is responsible for the end state of the Hanford tank waste. The Projects of the Storage and Disposal Program enable final disposal of the waste, and are integrally tied to the retrieval and processing operations of TWRS. This mission is defined in the TWRS EIS (DOE/EIA-0189) and the accompanying record of decision. Milestone for the achievement of this scope are identified in Tri-Party Agreement milestones M90 and M20.

A. GOALS AND OBJECTIVES

The goals and objectives of the Immobilized Tank Waste Storage and Disposal Program are encompassed in each of the following Project goals:

- The Immobilized Low-activity Waste Storage and Disposal Project will be complete when the immobilized low-activity tank waste is disposed of on the Hanford Site, long-term surveillance and monitoring of the immobilized low-activity waste disposal site is ongoing, and interim storage facilities have been decontaminated and decommissioned. The immobilized low-activity waste storage and disposal facilities will accept the immobilized low-activity tank waste from TWRS privatization vendors. The immobilized low-activity waste packages will be placed in near-surface storage and disposal facilities. The near-surface disposal systems along with waste package are intended to meet DOE regulatory requirements for near-surface disposal of LLW. Waste receipts are currently planned to commence in 2022 and continue through 2024 which is consistent with the Tri-Party Agreement milestone for completion of this mission.

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

- The HLW Interim Storage Project will receive immobilized HLW, non-routine waste from the HLW vendor, immobilized cesium product from the low level vendors, transport these products to the canister storage building (CSB) where the product will be stored until either shipped to a geologic repository (immobilized HLW) or returned to a phase 2 vendor (Cs). Storage of the Phase 1 product in the CSB will consolidate the HLW in one area and provide a safe, environmentally-sound storage of the immobilized HLW product. The HLW Interim Storage Project will provide additional storage capacity during Phase II privatization.

- The Cs/Sr Capsule Disposition project will address the disposition of the highly radioactive cesium and strontium capsules, currently stored in the Waste Encapsulation and Storage Facility at the Hanford Site's 200E Area, in a manner that is acceptable final disposal in the geologic repository. The scope of the project is to provide sufficient technical definition such that the disposition scope can be incorporated into the Request for Proposal for Phase II privatization.

- The HLW Repository Interface project will provide load-out and transfer capability for immobilized HLW canisters moving to a geologic repository. This project will coordinate the technical interface with DOE-RW for establishing HLW glass canister chain of custody and quality assurance requirements.

B. MAJOR END-ITEM DELIVERABLES

The major end-item deliverables include the following:

- Submit project management plan to Ecology, immobilized low-activity waste
- Complete immobilized low-activity waste conceptual design (grout vault modification)
- Complete immobilized low-activity waste detail design (grout vault modification)
- Complete construction (grout vault modifications)
- Start up immobilization low-activity waste storage and disposal operations
- Complete conceptual design (immobilized low-activity waste disposal facilities)
- Complete detail design (immobilized low-activity waste disposal facilities)
- Complete construction (immobilized low-activity waste disposal facilities)
- Start up operations (immobilized low-activity waste disposal facilities)
- Close immobilized low-activity waste storage and disposal operations

- Complete immobilized HLW conceptual design (CSB modification)
- Complete immobilized HLW detail design (CSB modifications)
- Complete construction (CSB modifications)
- Start-up immobilized HLW storage operations (CSB)
- Complete immobilized HLW conceptual design (Phase II facilities)
- Complete immobilized HLW detail design (Phase II facilities)
- Complete construction (Phase II facilities)
- Start up immobilized HLW storage operations (Phase II facilities)
- Close immobilized HLW storage facilities

- Provide Cs/Sr capsule disposition recommendation
- Establish technical basis for supplemental EIS

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

- Provide Phase II Cs/Sr capsule processing specifications
- Establish Transition Projects design and operations interface for Cs/Sr transfer

- Provide load out capability from IHLW storage facilities
- Provide capability/facilities for loading glass canisters to RW transport vehicles.
- Provide for transfer of glass quality documentation to RW.

C. STATEMENT OF WORK

The scope of the Immobilized Tank Waste Storage and Disposal Program is encompassed in the scope of the three project elements:

(1) Scope of the Immobilized Low-activity Waste Storage and Disposal Project
- Site characterization for new facilities
- Disposal system performance assessments
- Engineering and design of facilities to store and dispose of immobilized low-activity waste
- Construction or modification of facilities to store and dispose immobilized low-activity waste
- Receipt and transport of the immobilized low-activity waste from the private vendors to the storage/disposal facilities
- Storage and disposal of the immobilized low-activity waste
- Monitoring of the waste and near-field environment
- Closure of the disposal facility
- Appropriate technical, safety, environmental and administrative documentation

(2) Scope of the Immobilized HLW Interim Storage Project
- Retrofit vaults two and three of the canister storage building
- Modify the CSB handling equipment
- Design and build a transport system from the private vendor to the CSB
- Transport immobilized HLW product and other HLW products, and place in a safe compliant configuration to assure disposal requirements are met
- Design, construct and operate facilities for Phase II privatization
- Load and ship canisters to the HLW repository for final disposal
- Decontaminate and decommission all storage facilities

(3) Scope of the Cs/Sr Capsule Disposition project
- Analyze and recommend a preferred path forward to DOE for capsule disposition
- Provide engineering data for a TWRS supplemental EIS
- Provide process specifications for Phase II privatization handling of Cs and Sr
- Design processes and equipment to transfer of Cs and Sr to private vendors
- Coordinate with Waste Encapsulation and Storage Facility/Transition Projects to transfer Cs and Sr to private vendors

(4) Scope of the ILHW Repository Interface
- Load and ship canisters to the HLW repository for final disposal
- Transfer glass quality documentation to RW.

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1 8/27/1997

1. Activity Title: ILAW STORAGE/DISPOSAL	2. Date	3. PBS Number RL-TW09	4. Dict Rev
5. Contract WBS No. 1.1.3.4.01	6. Corresponding FDS No. D4C	7. Baseline CR No.	
8. Organization Name STORAGE AND DISPOSAL			9. B & R No. EW3130010

10. Scope of Work
GOALS AND OBJECTIVES

The Immobilized Low-activity Waste (ILAW) Storage and Disposal Project under the Storage and Disposal Program, will receive ILAW from private suppliers of treatment services under contract to the DOE and provide for interim storage, disposal, closure, and monitoring of accepted waste. Waste receipts are currently planned to commence in 2002 and continue through 2024 which is consistent with the TPA milestone for completion of this mission. Secondary LAW streams will be dispositioned directly with the solid and liquid waste facilities.

The ILAW Storage and Disposal Project will be developed and executed to provide a sound technical basis using Systems Engineering principles for development of facility requirements, alternatives, recommendations, design, construction, operation, and closure of interim storage and disposal facilities. After facility closure and monitoring, a transition will be facilitated from TWRS to Environmental Restoration for responsibility of remaining facilities and lands.

This Project began in FY 1996 as a result of the Secretarial decision to privatize the waste treatment and immobilization portion of the TWRS mission. Project information generated through FY 1997 includes the following:

- Developed preliminary ILAW product acceptance strategy and identified candidate product inspection/verification techniques for evaluation (activities moved to PBS 1.1.1.3.6 in FY 1997).

- Completed engineering studies and decision analysis recommending the modification and deployment of existing vaults for storage of ILAW products, thereby utilizing existing assets and saving design and construction dollars.

- Issued the DRD and SOW for ILAW storage conceptual design.

- Issued 'Technical Basis for Classification of Low-Activity Waste Fraction from Hanford Site Tanks,' and received NRC concurrence for incidental waste disposal.

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1 8/27/1997

WBS Dictionary Continuation Page

Scope of Work (cont):

- Prepared interim PA evaluating long-term environmental impacts associated with ILAW disposal and issued for Hanford review.

- Started conceptual design to convert former Grout Facilities into storage facilities for private contractor glass product.

- Drafted the alternatives generation and analysis for future disposal facilities.

- Drafted the project management plan for project W-465 and TPA milestone M-90-02.

STATEMENT OF WORK

1. Project Management and Administration

Certain administrative activities are required to support the development of the ILAW Storage and Disposal Project including inputs to the MYWP, status reports, scheduling, financial analysis, change management, PBS preparation, project management, and site integration.

2. Systems Definition

Systems Definition activities include: (1) formulation of engineering studies which will establish requirements, evaluate alternatives, prepare cost estimates and make recommendations for facilities needed to accomplish LAW interim storage and disposal missions; (2) development of RCRA regulatory strategies for storage and disposal of LAW; (3) preparation, review, and issuance of selected Systems Engineering documentation including DRDs to support specific construction projects; (4) preparation of documentation to support the NRC classification of waste; and (5) preparation of project plans.

3. Performance Assessment

A radiological PA is required per DOE Order 5820.2A. Significant work areas include: (1) preparation of an interim PA to verify the adequacy of the disposal concept; (2) data generation and collection necessary to prepare the preliminary PA; (3) disposal site characterization to support PA data needs and a site baseline for permitting purposes; (4) final PA preparation and review; and (5) periodic PA updates through the active life of the waste processing and disposal operations culminating in a closure PA. Glass durability studies support both the PA and RL privatization contract specification management.

4. Project W-465

The ILAW Storage and Disposal Project will include the work effort necessary to provide storage facilities ready to operate for early Phase II privatization. Major tasks include: (1) project management; (2)

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1 8/27/1997

WBS Dictionary Continuation Page

Scope of Work (cont):
conceptual design; (3) validation - this project is currently scoped to modify the existing grout vaults for storage ready for operations by June 2002; (4) definitive design; (5) construction; and (6) facility startup; (7) safety analysis; and (8) permitting.

5. Operations

Facility operations including planning, staffing, training, operations, maintenance and operational monitoring to assure compliance are provided as needed to fulfill the LAW disposal mission. Key activities include: (1) preparation for startup and conduct of Operational Readiness Review; (2) interim storage of LAW products; (3) operation of disposal facilities; and (4) support to facility closure, D&D and long-term monitoring.

6. Future Projects

The ILAW Storage and Disposal Project will provide capacity to dispose of all privatization ILAW glass containers (1.2m x 1.2m x 1.8m) currently estimated at approximately 13,000 for Phase I and 85,000 for Phase II. The work scope for this effort includes: (1) project management; (2) conceptual design; (3) validation; (4) definitive design; (5) construction; (6) facility startup; (7) safety analysis and; (8) permitting. The future projects will be scoped to have disposal capacity ready in approximately 2005.

7. Closure/D&D

Provide for the disposition and closure of facilities, placement of barriers as needed over disposal facilities, establishment of long-term monitoring systems and turnover to the ER Program.

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1

8/27/1997

1. Activity Title: IHLW STORAGE	2. Date	3. PBS Number RL-TW09	4. Dict Rev
5. Contract WBS No. 1.1.3.4.02	6. Corresponding FDS No. D4N	7. Baseline CR No.	
8. Organization Name STORAGE AND DISPOSAL			9. B & R No. EW3130010

10. Scope of Work
GOALS AND OBJECTIVES

Successfully identify requirements for immobilized high-level waste (IHLW) interim storage and onsite transport. Design and construct interim storage facilities to accept IHLW and other HLW products for Phases I and II privatization. Successfully operate the HLW interim storage to accept the immobilized waste. Load HLW for transfer to ultimate disposal facilities and close interim storage facility building.

MAJOR END-ITEM DELIVERABLES

Completion of design requirements, design, and construction of facility by December 2001, operate the facility starting in June 2002, and ultimate offsite disposal of waste in 2034-2042. The interim storage facility will be phased to meet the requirements of privatization with Phase I starting in 2002 and Phase II available in 2013.

STATEMENT OF WORK

1. Project Management and Administration

Project management and administration will perform those activities necessary to support the development of the IHLW Interim Storage Project including input to the MYPP, status reports, scheduling, financial analysis, change management, PBS preparation, project management, and site integration.

2. Systems Definition

During FY 1996, systems definition studies were performed of existing facilities or new facilities would be utilized for HLW interim storage. The systems definition work determined using the Spent Nuclear Fuels (SNF) canister storage building (CSB) for Phase I privatization and new facilities for Phase II.

Near-term systems definition work (FY 1997) completed studies identified in FY 1996 to support the DRD and conceptual design.

Product acceptance strategy for the HLW products will be developed to

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1 8/27/1997

WBS Dictionary Continuation Page

Scope of Work (cont):
assure the HLW product meets repository requirements and can be safely stored. In addition, requirements for documentation of storage of the HLW product will be developed to assure proper documentation can be provided to the repository.

3. Project W-464

An SOW was developed based on the DRD for the HLW interim storage utilizing the CSB for Phase I. The facility conceptual design will be developed followed by detail design. The facility will be constructed based on the approved project design. Concurrent with the facility design, safety, and permitting, documentation will be developed to allow for operation of the HLW interim facility. For Phase I privatization, the two available vaults of the SNF CSB will be outfitted to receive HLW product.

4. HLW Operations

HLW interim storage facility operations will include support in the early phases for facility definition and engineering. During construction, preparation of required documentation, personnel training, and qualification will occur. After construction, cold and hot testing and an ORR will be performed. These will be followed by the actual hot operations of the facility to continue until all IHLW product are shipped to the repository.

5. Future Projects

Facilities for the storage of IHLW produced during Phase II privatization will be design, constructed, and turned over for operations. Design activities for the Phase II storage facility are scheduled to commence in FY 2006. The program plan is based upon a series of storage vault modules that can be added as needed.

6. Facility D&D

The facilities will be D&D'ed following final shipments of waste. At this time, it is assumed that minimal contamination will occur, and the facility will not have future uses after its mission.

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1

8/27/1997

1. Activity Title: CS/SR CAPSULE DISPOSAL	2. Date	3. PBS Number RL-TW09	4. Dict Rev
5. Contract WBS No. 1.1.3.4.03	6. Corresponding FDS No. D4C	7. Baseline CR No.	
8. Organization Name STORAGE AND DISPOSAL			9. B & R No. EW3130010

10. Scope of Work
GOALS AND OBJECTIVES

Process the Cs/Sr capsules in a manner that they are acceptable for final disposal in the geologic repository.

(1) Produce a waste form that is acceptable to EM (waste acceptance product specifications) and OCRWM (waste acceptance system requirements) for final disposal in a geologic repository.

(2) Perform trade studies, decision analyses, and other Systems Engineering activities required to support technical and programmatic baseline (vitrification of capsule contents in Phase II privatization).

(3) Develop product specifications and interface control documents based on the recommended processing option for Cs/Sr capsules that would be included as input to the request for proposal for Phase II privatization.

(4) Evaluate options for accelerating capsule processing by ten years (save >$100M in operating and capital upgrades at WESF).

(5) Provide programmatic leadership and technical expertise.

(6) Develop necessary business-related planning documents, and financial and scheduling support.

STATEMENT OF WORK

- Preparation of trade study on overpacking of Cs/Sr capsules vis-a-vis blending and vitrification of the Cs/Sr salts.

- Preparation of decision analysis and processing recommendation to senior RL and LMHC management.

- Preparation, review, and approval of waste acceptance documentation.

- Completion of required Systems Engineering documentation including interface control documents.

- Preparation of product specifications based on recommended processing of

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1 8/27/1997

WBS Dictionary Continuation Page

Scope of Work (cont):
the Cs/Sr capsules to include as input to the RFP for Phase II privatization.

- Preparation, review, and approval of updated technical baseline description that incorporates vitrification of capsule contents as part of HLW feed for Phase II privatization.

- Evaluation of accelerated processing options for Cs/Sr capsules that will allow shutdown of WESF ten years earlier at a cost savings >$100M.

- Demonstration of unit processes required to prepare capsule contents for blending with other HLW feeds prior to vitrification.

2.2 WBS Dictionary

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1

8/27/1997

1. Activity Title: IHLW REPOSITORY INTERFACE	2. Date	3. PBS Number RL-TW09	4. Dict Rev
5. Contract WBS No. 1.1.3.4.04	6. Corresponding FDS No. D4R	7. Baseline CR No.	
8. Organization Name PROJECT IMPLEMENTATION			9. B & R No. EW3130010

10. Scope of Work
GOALS AND OBJECTIVES

Provide interface with the Repository Program for IHLW stored on Hanford. Define the necessary facilities and documentation to assure IHLW product will be accepted to the repository. Ship canisters to the geologic repository and D&D the facility.

MAJOR END-ITEM DELIVERABLES

- Provide transfer facility to load IHLW - 2033.

- Start shipping to repository - 2034.

- Complete shipping - 2043.

STATEMENT OF WORK

- Maintain interface with the Repository Program for storage requirements; shipping schedule.

- Define requirements for transfer of IHLW product to repository (rail/truck).

- Build and operate transfer facility to load RW casks.

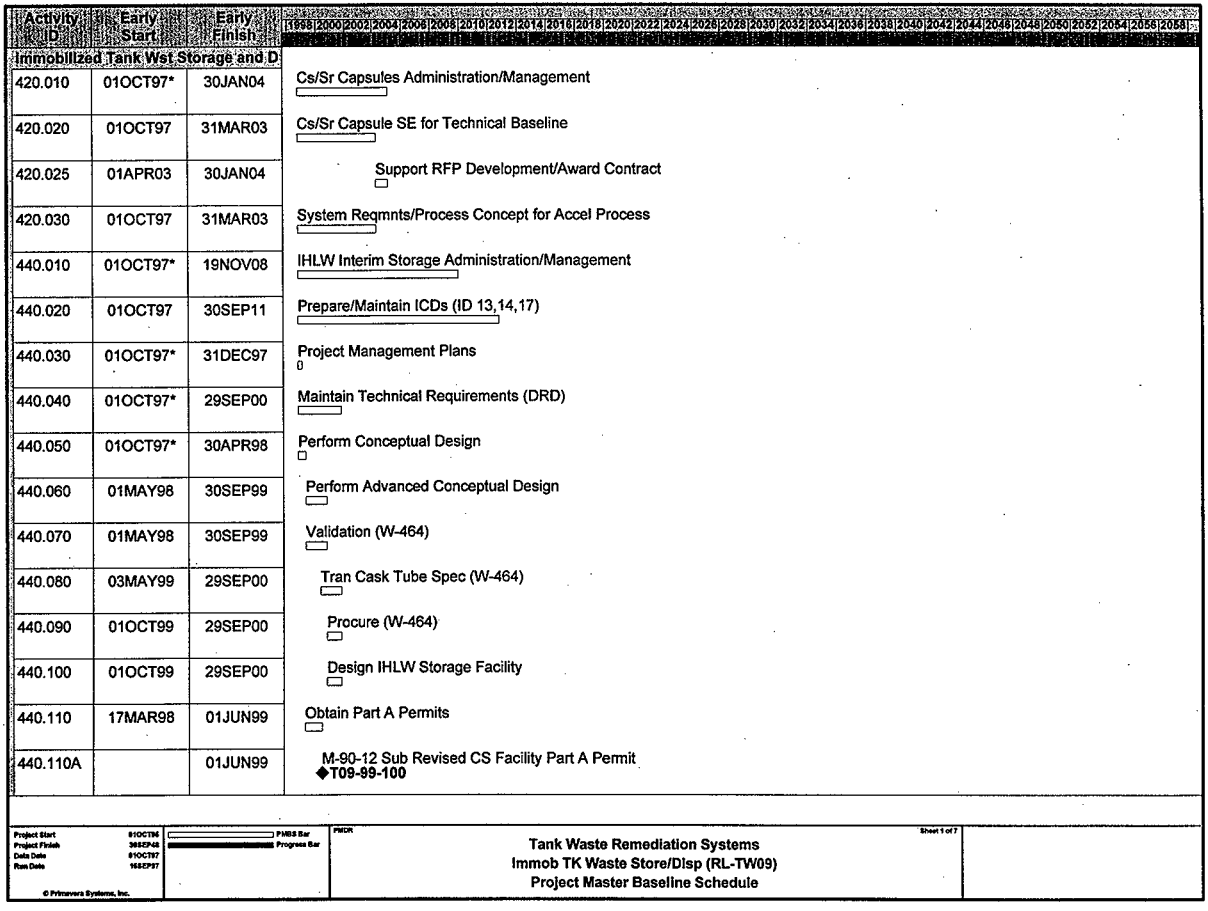
- Maintain account for repository fees.

- D&D facility when shipments are complete.

Options to be Considered

Truck or rail shipping - For purpose of estimates, rail shipping from 200 East Area is assumed.

Proj Lvl (PBS #)	FDS Act Number	Activity Title	Activity Manager	Responsible Organization	Cost Account
RL-TW09		IMMOBLIZED TANK STORAGE & DISPOSAL PROJECT			
	D4C	CS/SR CAPSULE DISPOSAL ILAW STORAGE/DISPOSAL	PS Schaus JA Voogd	STORAGE AND DISPOSAL STORAGE AND DISPOSAL	
	D4N	IHLW STORAGE	JA Voogd	STORAGE AND DISPOSAL	
	D4R	IHLW REPOSITORY INTERFACE	KC Burgard	PROJECT IMPLEMENTATION	


Activity ID
Early Start
Early Finish
1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058
Immobilized Tank Wst Storage and D
420.010 01OCT97* 30JAN04 Cs/Sr Capsules Administration/Management
420.020 01OCT97 31MAR03 Cs/Sr Capsule SE for Technical Baseline
420.025 01APR03 30JAN04 Support RFP Development/Award Contract
420.030 01OCT97 31MAR03 System Reqmnts/Process Concept for Accel Process
440.010 01OCT97* 19NOV08 IHLW Interim Storage Administration/Management
440.020 01OCT97 30SEP11 Prepare/Maintain ICDs (ID 13,14,17)
440.030 01OCT97* 31DEC97 Project Management Plans
440.040 01OCT97* 29SEP00 Maintain Technical Requirements (DRD)
440.050 01OCT97* 30APR98 Perform Conceptual Design
440.060 01MAY98 30SEP99 Perform Advanced Conceptual Design
440.070 01MAY98 30SEP99 Validation (W-464)
440.080 03MAY99 29SEP00 Tran Cask Tube Spec (W-464)
440.090 01OCT99 29SEP00 Procure (W-464)
440.100 01OCT99 29SEP00 Design IHLW Storage Facility
440.110 17MAR98 01JUN99 Obtain Part A Permits
440.110A 01JUN99 M-90-12 Sub Revised CS Facility Part A Permit
◆T09-99-100
Project Start 01OCT96
Project Finish 30SEP48
Data Date 01OCT97
Run Date 16SEP97
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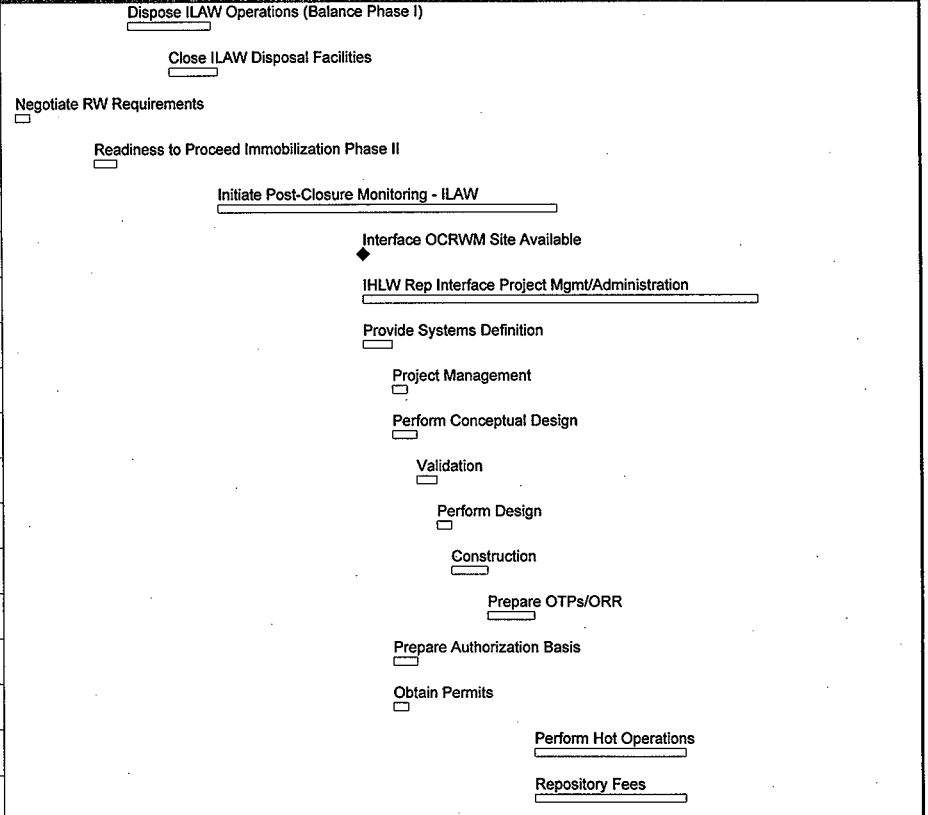
PMDR
Sheet 1 of 7
Tank Waste Remediation Systems
Immob TK Waste Store/Disp (RL-TW09)
Project Master Baseline Schedule

Activity ID	Early Start	Early Finish	1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058
440.115	01OCT97	29SEP00	Obtain Part B Permits
440.115A		29SEP00	M-20-56 Submit Canister Fac Part B Permit App ◆T09-01-100
440.120	01OCT97	31MAY02	Amend CSB Authorization Basis
440.129I		29SEP00	Interface SNF - OSB Construct/Fuel Transfer Comp ◆
440.130	02OCT00	31OCT00	Obtain CSB Construct Access
440.140	01NOV00	28SEP01	Modify/Construct System
450.010	01OCT01	31MAY02	Prep OTPs/Conduct Readiness Assessmnt (Phase I)
450.020	01OCT01	31MAY02	Develop Procedures/Training (Phase I)
450.020A		31MAY02	M-90-11 Complete Startup-Phase I-HLW ISF (CSB) ◆T09-03-003
450.030	26SEP03	28JAN13	Transport/Receive/Interim Store IHLW (Phase I)
450.040	29JAN13	27JAN14	Interim Store IHLW (Phase I)
450.050	29JAN13	28JAN15	Transfer Phase I Intermediate Prod Back to PC
460.005	01OCT97*	29SEP34	ILAW Disposal Administration/Management
460.010		30SEP97A	Prepare ICD (ID15)
460.015	01OCT97	30SEP10	Maintain ICDs
460.020		09JUN97A	Negotiate Incidental Waste Classification
460.025		27JAN97A	Prep ILAW Storage Design Requirements Document
460.030	28JAN97A	31MAR98	Maintain DRD

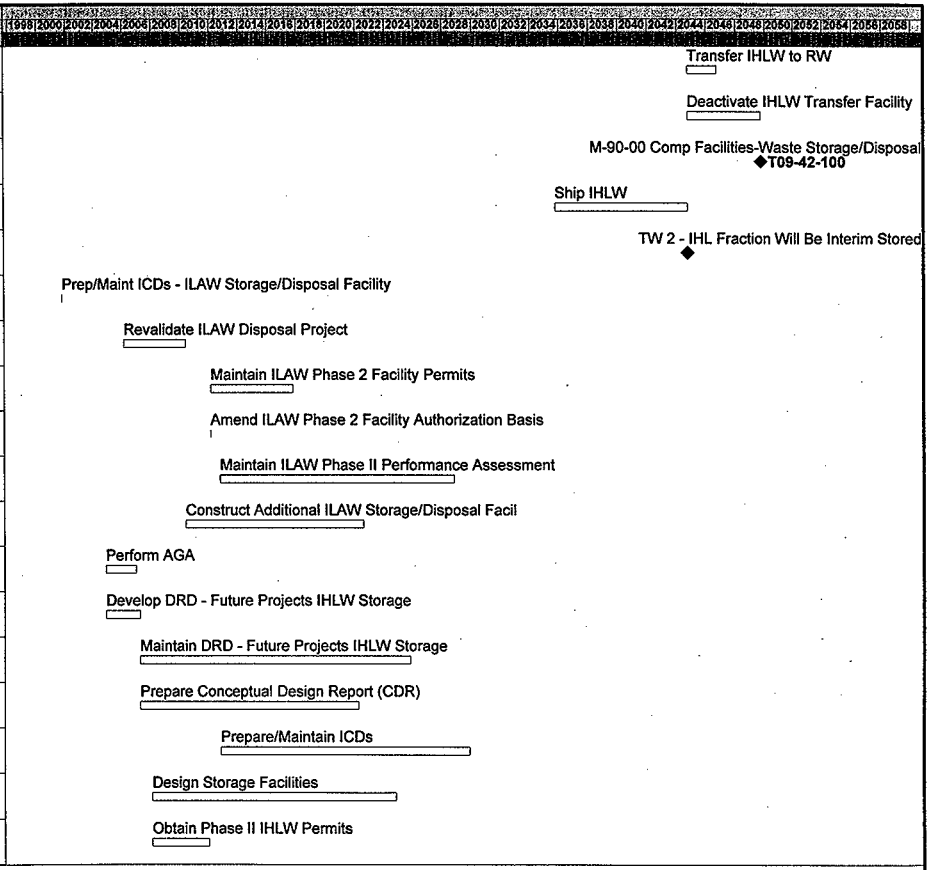
Activity ID	Early Start	Early Finish	1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058
460.035	02JAN97A	31DEC97	Project Management Plan
460.035A		31DEC97	M-90-01 Submit Project Management Plans to Ecol ◆T09-98-100
460.040	01OCT97*	15DEC97	Develop ILAW Storage Conceptual Design (W-465)
460.045	02JAN98	30SEP99	Dev ILAW Storage Adv Conceptual Design (W-465)
460.055	03APR00	02JAN02	Procure Equipment (W-465)
460.060	01OCT97	30SEP99	Validation (W-465)
460.065	01OCT99	28SEP01	Perform Detailed Design (W-465)
460.069A	29JUN01		M-90-03 Initiate ILAW ISF Construction ◆T09-00-003
460.070	29JUN01	31MAY02	Modify Vaults (W-465)
460.075	01OCT97	17JAN00	Draft Permits (W-465)
460.075A		17JAN00	M-20-57 Submit Interim ILAW Facility Part B ◆T09-01-021
460.080	06JAN00	30OCT01	Complete Permits (W-465)
460.085	01JUL98	30MAR01	Prepare Authorization Basis (W-465)
460.090	01OCT96A	30SEP97A	Prepare AGA - Disposal Facilities
460.095	01OCT97*	31JAN00	Prepare/Maintain DRD - Disposal Facilities
460.100	05JAN98*	30JUN98	Evaluate Disposal Siting
460.105	02FEB98*	15DEC98	Prepare Conceptual Design - Disposal Facilities
460.110	16DEC98	29SEP00	Prep Advanced Conceptual Design - Disposal Fac

Activity ID	Early Bar Start	Early Finish	1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058
460.112	01OCT98	29SEP00	Validate Project
460.115	02OCT00	30SEP02	Design Disposal Facilities
460.119A	01APR03		M-90-08 Initiate ILAW Disposal Fac Construction ◆T09-05-005
460.120	01OCT02	30SEP04	Construct Disposal Facilities
460.125	01SEP99	31MAR03	Obtain Permits - Disposal Facilities
460.125A		31MAR03	M-20-58 Submit LAW Facility Part B Permit ◆T09-01-020
460.130	02FEB98	31DEC04	Prep Authorization Basis - Disposal Facilities
460.135	05JUL06*	30JUN08	Construct/Modify Disposal Facilities
460.140	01OCT97*	15JAN99	1998 Performance Assessment
460.145	01OCT97	28SEP01	Data Collection for 2001 Performance Assessment
460.155	04JAN00	31DEC01	2001 Performance Assessment
460.160	01FEB99	30JAN04	Data Collection for Performance Assessment
460.170	01OCT01	30SEP11	Maintain ILAW Phase I Performance Assessment
470.010	31MAY00	31MAY02	Procedures/Training/OTP/ORR (Initial Phase I)
470.039A	03JUN02		M-90-06 Initiate Hot Ops-ILAW ISF-Phase I ◆T09-02-002
470.040	13JUN02	10AUG05	Interim Store ILAW Operations (Initial Phase I)
470.060	01APR03	29JUL05	Procedures/Training/OTP/ORR (Balance Phase I)
470.069A	01AUG05		M-90-10 Initiate Hot Ops of ILAW Disposal Fac ◆T09-05-100

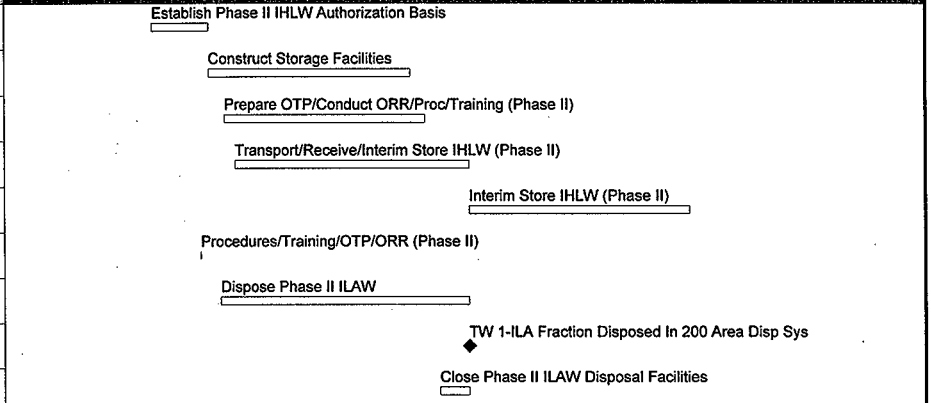
Activity ID	Early Start	Early Finish
470.075	11AUG05	10MAY11
470.080	02JUN08*	31OCT11
490.090	01OCT97*	30SEP98
490.115	01APR03*	30SEP04
550.020	01NOV11*	31JAN35
570.009I	01OCT21*	
570.010	01OCT21	30SEP48
570.020	01OCT21	29SEP23
570.030	02OCT23	30SEP24
570.040	02OCT23	30MAY25
570.050	02JUN25	30SEP26
570.060	01OCT26	30SEP27
570.070	01OCT27	29MAR30
570.080	01APR30	31MAY33
570.090	02OCT23	30MAY25
570.100	02OCT23	30SEP24
570.120	01JUN33	30SEP43
570.130	01JUN33	30SEP43



Activity ID	Early Start	Early Finish
570.140	01OCT43	29SEP45
570.150	01OCT43	30SEP48
570.150A		30SEP48
571.010	02OCT34	30SEP43
571.010A		30SEP43
600.010	02OCT00	29SEP00
600.020	01FEB05	01MAY09
600.030	02FEB11	03OCT16
600.040	02FEB11	01FEB11
600.050	03OCT11	30SEP27
600.060	04MAY09	02AUG21
610.010	01OCT03*	30NOV05
610.020	01OCT03	28FEB06
610.030	01MAR06	30SEP24
610.040	01MAR06	31MAR21
610.050	03OCT11	29SEP28
610.060	02JAN07	29SEP23
610.070	02JAN07	30NOV10



Activity ID	Early Start	Early Finish
610.080	02JAN07	30NOV10
610.090	01DEC10	30SEP24
630.010	03JAN12	30SEP25
630.020	01OCT12	29SEP28
630.030	02OCT28	30SEP43
640.010	04MAY10	03MAY10
640.040	03OCT11	29SEP28
640.040A		29SEP28
640.050	05OCT26	29SEP28



Activity ID	Early Start	Early Finish	1997 OCT	NOV	DEC	JAN	FEB	MAR	APR	1998 MAY	JUN	JUL	AUG	SEP
Immobilized Tank Wst Storage and D														
420.010	01OCT97*	30JAN04	Cs/Sr Capsules Administration/Management											
420.020	01OCT97	31MAR03	Cs/Sr Capsule SE for Technical Baseline											
420.030	01OCT97	31MAR03	System Reqmnts/Process Concept for Accel Process											
440.010	01OCT97*	19NOV08	IHLW Interim Storage Administration/Management											
440.020	01OCT97	30SEP11	Prepare/Maintain ICDs (ID 13,14,17)											
440.030	01OCT97*	31DEC97	Project Management Plans											
440.040	01OCT97*	29SEP00	Maintain Technical Requirements (DRD)											
440.050	01OCT97*	30APR98	Perform Conceptual Design											
440.060	01MAY98	30SEP99								Perform Advanced Conceptual Design				
440.070	01MAY98	30SEP99								Validation (W-464)				
440.110	17MAR98	01JUN99							Obtain Part A Permits					
440.115	01OCT97	29SEP00	Obtain Part B Permits											
440.120	01OCT97	31MAY02	Amend CSB Authorization Basis											
460.005	01OCT97*	29SEP34	LAW Disposal Administration/Management											
460.015	01OCT97	30SEP10	Maintain ICDs											
460.035A		31DEC97	M-90-01 Submit Project Management Plans to Ecol ◆T09-98-100											

Project Start 01OCT96 | Project Finish 30SEP48 | Data Date 01OCT97 | Run Date 16SEP97

PMBS Bar | Progress Bar

PMDR

Tank Waste Remediation Systems
Immob TK Waste Stor/Disp (RL-TW09)
Project Master Baseline Sch. (FY98)

Sheet 1 of 2

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TW09 3.2-1

Activity ID	Early Start	Early Finish	1997: OCT	NOV	DEC	1998: JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
460.040	01OCT97*	15DEC97	Develop ILAW Storage Conceptual Design (W-465)											
460.045	02JAN98	30SEP99				Dev ILAW Storage Adv Conceptual Design (W-465)								
460.060	01OCT97	30SEP99	Validation (W-465)											
460.075	01OCT97	17JAN00	Draft Permits (W-465)											
460.085	01JUL98	30MAR01												Prepare Authorization Basis (W-465)
460.095	01OCT97*	31JAN00	Prepare/Maintain DRD - Disposal Facilities											
460.100	05JAN98*	30JUN98				Evaluate Disposal Siting								
460.105	02FEB98*	15DEC98					Prepare Conceptual Design - Disposal Facilities							
460.130	02FEB98	31DEC04					Prep Authorization Basis - Disposal Facilities							
460.140	01OCT97*	15JAN99	1998 Performance Assessment											
460.145	01OCT97	28SEP01	Data Collection for 2001 Performance Assessment											
490.090	01OCT97*	30SEP98	Negotiate RW Requirements											

Sheet 2 of 2

MILESTONE CONTROL #	TPA-MS NUMBER	TPA TYPE	MS LEVEL	MS TITLE	TYPE	DATES: PLANNED BASELINE	DATES: APPROVED BASELINE	DATES: REVISED BASELINE	PROJ CIN	PBS #
T09-98-100	M-90-01	I	HQ	INTERIM STORAGE & DISPOSAL ILAW & INTERIM STORAGE IHLW PMP'S	EA	12/31/97				RL-TW09
T09-99-100	M-90-12	I	HQ	REV CANISTER STORAGE FAC PART A DANGEROUS WASTE PERMIT APPLICAT'N	EA	6/01/99				RL-TW09
T09-01-100	M-20-56	I	HQ	CANISTER STORAGE FACILITY PART B DANGEROUS WASTE PERMIT APPLICA'N	EA	9/29/00				RL-TW09
T09-01-021	M-20-57	I	HQ	SUBMIT INTERIM ILAW FACILITY PART B PERMIT APPLICATION TO ECOLOGY	EA	1/17/00				RL-TW09
T09-01-020	M-20-58	I	HQ	SUBMIT LAW DISPOSAL FACILITY PART B PERMIT APPLICATION TO ECOLOGY	EA	3/31/03				RL-TW09
T09-42-100	M-90-00	M	HQ	C/ FACILITIES ACQUISITION/MOD NECESSARY FOR IHLW & ILAW	EA	9/30/48				RL-TW09
T09-00-003	M-90-03	I	HQ	INITIATE ILAW INTERIM STORAGE FACILITY CONSTRUCTION	EA	6/29/01				RL-TW09
T09-02-002	M-90-06	I	HQ	INITIATE HOT OPERATIONS OF ILAW INTERIM STORAGE FACILITY	EA	6/03/02				RL-TW09
T09-05-005	M-90-08	I	HQ	INITIATE ILAW DISPOSAL FACILITY CONSTRUCTION	EA	4/01/03				RL-TW09
T09-06-100	M-90-10	I	HQ	INITIATE HOT OPERATIONS OF ILAW DISPOSAL FACILITY	EA	8/01/05				RL-TW09
T09-03-003	M-90-11	I	HQ	COMPLETE CANISTER STORAGE FACILITY CONSTRUCTION	EA	5/31/02				RL-TW09

TPA milestone dates on the Milestone Log/MDS represent the schedule date. Table 3-1 in the TWRS Summary lists the dates found in the Tri-Party Agreement.

PHMC

MILESTONE DESCRIPTION SHEET

Title: INTERIM STORAGE & DISPOSAL ILAW & INTERIM STORAGE IHLW PMP'S		**Date:**
Assigned To: JA Voogd		**CIN:**
Program WBS Designator: 1.1.3.4		**Due Date:** 12/31/97
PBS No: RL-TW09		
MC #: T09-98-100	**TPA No:** M-90-01	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
X DOE-HQ DOE-RL DOE-FO CONTRACTOR	X EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report Letter Drawing(s) X Other (Specify) PMP	DOE-HQ DOE-RL X Other (Specify) Ecology

Milestone Description:
Submit interim storage and disposal ILAW and interim storage IHLW Project Management Plans to Ecology pursuant to the Agreement, Section 11.5.

Description of what constitutes completion of this milestone:
Project Management Plan prepared, reviewed, and approved by M&I contractor and RL and submitted to DOE-RL for transmittal to Ecology by 12/31/97.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW09
PBS TITLE:	IMMOBILIZED TANK WASTE STORAGE & DISP'L PROJECT

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE	4,968	11,262	9,957	11,396	12,825	14,753	10,204	11,896	13,035	16,877	117,173
CENRTC		251	150	113	2,624						3,138
GENERAL PLANT PROJECT				-	-	-	-	-	-	-	-
LINE ITEM *(List Each One)*											
W-465				21,589	41,190	23,042	61,181	82,219	77	15,259	244,557
											-
											-
											-
											-
Subtotal Line Items	-	-	-	21,589	41,190	23,042	61,181	82,219	77	15,259	244,557
ESCALATION							1,927	5,151	1,091	3,614	11,783
TOTAL BCWS/PMB[1]	4,968	11,513	10,107	33,098	56,639	37,795	73,312	99,266	14,203	35,750	376,651
MGMT RESERVE[2]											-
LINE ITEM CONTINGENCY[2]											-
OFFSITE TRANSFERS[3]											-
Subtotal	-	-	-	-	-	-	-	-	-	-	-
TOTAL	4,968	11,513	10,107	33,098	56,639	37,795	73,312	99,266	14,203	35,750	376,651

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover NOT Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW09
PBS TITLE:	IMMOBILIZED TANK WASTE STORAGE & DISP'L PROJECT

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
OPERATING EXPENSE	45,930	64,518	59,400	63,621	52,626	1,150,045	2,462,959	1,514,404	54,839				5,585,515
CENRTC													3,138
GENERAL PLANT PROJECT													-
LINE ITEM *(List Each One)*													-
W-465	172,462	358,638	726,765	796,243	77,915	3,900							2,380,480
													-
													-
													-
													-
Subtotal Line Items	172,462	358,638	726,765	796,243	77,915	3,900	-	-	-	-	-	-	2,380,480
ESCALATION	24,569	47,605	88,444	96,735	14,686	129,819	277,083	170,370	6,169				867,263
TOTAL BCWS/PMB[1]	242,961	470,761	874,609	956,599	145,227	1,283,764	2,740,042	1,684,774	61,008				8,836,396
MGMT RESERVE[2]													-
LINE ITEM CONTINGENCY[2]													-
OFFSITE TRANSFERS[3]													-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	242,961	470,761	874,609	956,599	145,227	1,283,764	2,740,042	1,684,774	61,008				8,836,396

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover **NOT** Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

TW09.4-2

HNF-SP-1230 Rev. 0

TANK WASTE REMEDIATION SYSTEM

4.2 SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS) FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW09
PBS TITLE:	IMMOBILIZED TANK WASTE STORAGE & DISP'L PROJECT

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE	5,147	11,262	9,957	11,396	12,825	14,753	10,204	11,896	13,035	16,877	117,352
CENRTC	(2)	251	150	113	2,624						3,136
GENERAL PLANT PROJECT				-	-	-	-	-	-	-	-
LINE ITEM (List each one)											
W-465				21,589	41,190	23,042	61,181	82,219	77	15,259	244,557
											-
											-
											-
											-
Subtotal Line Items	-	-	-	21,589	41,190	23,042	61,181	82,219	77	15,259	244,557
ESCALATION							1,927	5,151	1,091	3,614	11,783
TOTAL NEW B/A	5,145	11,513	10,107	33,098	56,639	37,795	73,312	99,266	14,203	35,750	376,828

TW09.4-3

HNF-SP-1230 Rev. 0

TANK WASTE REMEDIATION SYSTEM

4.2 SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)

FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW09
PBS TITLE:	IMMOBILIZED TANK WASTE STORAGE & DISP'L PROJECT

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051 FY2055	FY2056-FY2060	FY2061 FY2064	TOTAL FY1997-FY2064
OPERATING EXPENSE	45,930	64,518	59,400	63,621	52,626	1,150,045	2,462,959	1,514,404	54,839				5,585,694
CENRTC													3,136
GENERAL PLANT PROJE													-
LINE ITEM (List each one):													-
W-465	172,462	358,638	726,765	796,243	77,915	3,900							2,380,480
													-
													-
													-
													-
Subtotal Line Items	172,462	358,638	726,765	796,243	77,915	3,900	-	-	-	-	-	-	2,380,480
ESCALATION	24,569	47,605	88,444	96,735	14,686	129,819	277,083	170,370	6,169				867,263
TOTAL NEW B/A	242,961	470,761	874,609	956,599	145,227	1,283,764	2,740,042	1,684,774	61,008	-	-	-	8,836,573

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS: 1.1
PBS NO: RL-TW09
PBS TITLE: IMMOBILIZED TANK WASTE STORAGE

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
STORAGE & DISPOSAL	[1] 1250-0	OP EXP	945	716	777	738	852	929	966	1,009	1,066	1,142	1,061	1,061	11,262
		CENRTC	31	24	28	28	26	30	30	27	14	13			251
		GPP													-
		LI													-
		SUBTOT	976	740	805	766	878	959	996	1,036	1,080	1,155	1,061	1,061	11,513
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-

TW09.4-5

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW09
PBS TITLE:	IMMOBILIZED TANK WASTE STORAGE

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL BCWS/PMB[1]			976	740	805	766	878	959	996	1,036	1,080	1,155	1,061	1,061	11,513

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1									
PBS Title	PBS NO	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	31.0	25.5	53.8	96.0	131.8	79.0	98.4	106.9	75.5	78.9

		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	87.2	88.9	83.6	72.7	60.4	109.8	107.6	97.1	104.4	97.8

		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	96.7	97.1	97.1	97.1	97.0	96.6	97.0	97.0	98.8	107.7

		FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	98.6	10.1	10.1	10.1	10.2	10.1	9.7	40.9	40.4	40.2

		FY 2038	FY 2039	FY 2040	FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	40.2	40.2	40.2	40.2	40.2	40.2	0.8	0.8	0.8	0.8

		FY 2048	FY 2049	FY 2050	FY 2051	FY 2052	FY 2053	FY 2054	FY 2055	FY 2056	FY 2057
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2058	FY 2059	FY 2060	FY 2061	FY 2062	FY 2063	FY 2064	FY 2065	FY 2066	FY 2067
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CONTENTS

TWRS MANAGEMENT SUPPORT (RL-TW10)

1.0 TECHNICAL BASELINE

1.1 PROJECT MISSION

The TWRS Managment Support Project (MSP) provides overall program management to establish and maintain technical, cost and schedule elements of the TWRS baseline, and to provide services and oversight that sustain TWRS integration and control. Practical products of MSP work are systems developed, improved, deployed and maintained to structure program strategy, direction and business management in support of the TWRS technical functions, waste storage and waste disposal. Primary MSP functions include executive management and strategic planning; systems engineering to support risk and decision management and ongoing evolution of the TWRS technical bases; administration of a core program and crosscutting services to ensure environmental, safety, health and quality assurance compliance to all regulatory and contractual requirements applicable for TWRS; and life-cycle project management. Drivers for work indicated include the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement, TPA); DOEOrder 430.1; DNFSB Recommendation 92-04 Implementation Plan; the Price Anderson Amendment Act; 10CFR835 and 10CFR830.120; DOE Order 5700.6C; and multiple statutes and regulations identified in the TWRS Standards/Requirements Identification Document (notably those related to safety/health, quality, and the environment). MSP monitors ongoing systems engineering analysis of TWRS functions and requirements to identify emerging need for work products that may compel a change in MSP planning. The project is planned to exist only until 2005 (when the Waste Storage Program ends), after which the need for integrated management of TWRS will be reduced. MSP activities planned to occur after 2005 will transition to the Waste Disposal Program.

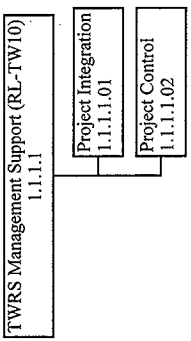
1.2 Drivers for TWRS Management Support

Source Documents for TWRS Management Support

Name	Title
DOE/RL-89-10	Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Rev.4
DOE/RL-96-14	Updated Draft Mission Direction Document, June 1996

1.3 TWRS Management Support Risk Management

The TWRS Management Support Project presents no direct risk and , as program direction/management, is exempt for risk evaluation.



2.1 WBS Hierarchy
TW10.2-1

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

1. PROGRAM/TITLE PARTICIPANT 1.1 Tank Waste Remediation Systems		
2. WBS ELEMENT CODE 1.1.1.1	3. WBS ELEMENT TITLE TWRS MANAGEMENT SUPPORT	
4. CURRENT REV NO 0	5. EFFECTIVE REV DATE 10/1/97	6. APPROVED CHANGES

ELEMENT DESCRIPTION

1. TECHNICAL BASES

The Management Support Project (MSP) is not a direct result of the systems engineering process to identify and define functional, architectural, and interface requirements for the TWRS system. At this level of the work breakdown structure (WBS), MSP work does not serve a direct function and results in no singular deliverable toward the TWRS mission. However, the practical "product" of MSP work, management, is recognized as essential to achievement of TWRS' mission and technical objectives. The considered "deliverable," services, is part of a systems infrastructure that supports the TWRS Program. Significant products from next level WBS elements that directly support MSP include systems/tools for project control and integration of the TWRS program.

A. GOALS AND OBJECTIVES

The MSP summary goal is transition, to Waste Disposal (WBS 1.1.3), of all work now executed under this WBS element. The practical goal is systems developed, improved, deployed and maintained to structure program direction and business management in support of the TWRS technical functions, waste storage and waste disposal. Objectives for systems provided under this WBS element are their efficient utilization, operational effectiveness, and acceptance by customers.

Acceptability of management support as the overall MSP "product" will be determined according to the attributes and standards specified for deliverables produced at lower levels, and by the following general parameters for management support effectiveness:

- The services and systems provided are acknowledged by Storage and Disposal (and other customers) as comprising the management support appropriate and efficient for execution of those functions.

- Lower level work under this WBS element results in deliverables that sustain the summary product, management support.

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WBS 1.1

- Deliverables are accomplished within baselined cost and schedule limitations.

- Performance measurement is timely, and accurately reported.

B. MAJOR END-ITEM DELIVERABLES

Date	Product/Outcome
2005 or sooner	MSP work transitioned to the Waste Disposal work element(s)

MSP supplies no physical product at this level of the WBS. Deliverables are identified in lower level WBS dictionary sheets, including specific products that support cyclical planning and control processes.

Upper level WBS elements Management Support and Waste Storage are currently planned through fiscal year 2005, when Waste Storage projects are expected to end, after which the need for integrated management of TWRS will be reduced. The MSP end outcome, turnover of the project in 2005 to the Waste Disposal element, is identified and planned under cost account 1.1.1.1.1.11/Management, Administration and Strategic Planning. Individual cost accounts will plan separately for transition, which may occur earlier for some WBS elements, if need warrants changeover and Disposal provides funds.

2. STATEMENT OF WORK

ASSUMPTIONS:

- Need for management support will continue for the life of the TWRS project, but functions may vary as requirements change.

- The TWRS work breakdown structure will continue to evolve as systems engineering analysis of functions and requirements identifies emerging requirements for TWRS products other than those currently known.

- Transition of all management support activities to Disposal WBS elements is currently planned to occur no later than 2005, and cost account 1.1.1.1.1.11 will manage and integrate changeover by individual WBS elements.

This upper level WBS description reflects ongoing cost account planning, but not all currently planned MSP activities/accounts will extend through the life of the TWRS project. MSP will coordinate with Waste Disposal to plan the management support activities that will continue beyond the 2005 transition.

MSP interfaces directly with the site WBS and with the two TWRS functions concurrent at this level: 1.1.2/Waste Storage and 1.1.3/Waste Disposal. Multiple interfaces among these three top level

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TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

segments are identified at lower levels of the TWRS WBS. MSP organizational interfaces include those directly sustained by work under this WBS element: (1) between the TWRS contractor and the site integrating contractor; (2) between/among TWRS contractors; (3) between TWRS and the Department of Energy, RL; and (4) between TWRS and other entities outside TWRS.

WORK DEFINITION

MSP provides TWRS level oversight, integration and control of functions such as planning, systems engineering, business management, project control, financial oversight and configuration management. MSP supports all projects to provide crosscutting services related to engineering and maintenance; safety/health, environmental and quality assurance matters; information systems; and other specific contexts. MSP execution requires that TWRS projects provide input for baseline management, cyclical planning, performance reporting, and other functions. Projects also make technical contributions as necessary to support TWRS management.

As management support, MSP presents options for separation of work; cost accounts at the lower WBS level indicate how work is divided currently. The nature of MSP work means that several cost accounts involve iterative or cyclical tasks, and products generated periodically. Certain accounts contribute support/services to a TWRS infrastructure. Most accounts include work best described as administration, for which all WBS dictionary sheets applies a general context. "Administration" implies level of effort work that results in no specific deliverables. WBS elements 1.1.1.1.01/Program Integration and 1.1.1.1.02/Program Control include all three types of tasks: services, administration, and work toward discrete products.

Generally, Management Support life of project activities at this WBS level are planning, execution and evaluation of work, performed at the TWRS level and/or to support projects. Primary categories for that work are:

- executive management, including fiscal stewardship and compliance oversight
- systematic direction to TWRS projects, notably that related to technical baseline
- risk/decision management and strategic planning
- business management, including contract administration
- project control, including cyclical planning and baseline management
- liaison between TWRS projects and the site
- interface with external entities
- crosscutting oversight and/or management
- support to Department of Energy, RL (including that specific to management of the National Environmental Policy Act and environmental permitting/compliance)
- reporting and administration.

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

LIST OF COST ACCOUNTS

The list below expands the WBS to cost account level, and indicates summary descriptions. Some accounts include work in more than one of the primary categories indicated above.

1.1.1.1.01 PROJECT INTEGRATION

1.1.1.1.01.01 Technical Baseline

Establish tenable configuration that structures the TWRS technical bases as an outcome of systems engineering and results in core products that represent configuration; control change to the technical configuration; plan and support technical bases validations and reviews; and manage responses to reviews, including Systems Requirements Review.

1.1.1.1.01.02 Systems Engineering Infrastructure

Provide management, services and oversight to develop and implement TWRS core processes, systems and tools consistent with site systems engineering policies and guidance that facilitate systems engineering capability and support its application as the primary basis for TWRS integrated management and decisions toward disciplined execution of mission.

1.1.1.1.01.03 Technical Systems Analysis

Provide systems engineering analysis to demonstrate specialized techniques; identify and evaluate operational issues, strategic uncertainties, and alternatives for their address and resolution; and otherwise support TWRS risk/decision management.

1.1.1.1.01.04 NEPA, Environmental Permitting and Compliance

Provide direct support to Department of Energy (DOE) in various services, functions and administrative tasks, including preparation of specific documents, to facilitate DOE management of the National Environmental Policy Act and TWRS environmental permitting and compliance.

1.1.1.1.01.05 RL Support Activities

Provide direct services to the Department of Energy (DOE) for management review and fiscal oversight of TWRS and TWRS projects; support specified facilitation activities; and administrate funding for services from DOE laboratories.

1.1.1.1.01.06 Environmental Oversight

Execute oversight and provide services to projects in administration of a comprehensive program that integrates functional tasks executed under other cost accounts and supports site permitting and TWRS compliance with all regulatory, site and contractual requirements relative to environmental management.

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1.1.1.1.01.07 Safety and Health Oversight

Execute oversight and provide services to projects in administration of a comprehensive program that integrates functional tasks executed under other cost accounts and supports TWRS compliance with all regulatory, site and contractual requirements relative to safety and health.

1.1.1.1.01.08 QA Oversight

Execute oversight and provide services to projects in administration of a comprehensive program that integrates functional tasks executed under other cost accounts and supports TWRS compliance with all regulatory, site and contractual requirements relative to quality assurance.

1.1.1.1.01.09 Information Management Oversight

Fund and direct various data management activities that serve transient needs related to TWRS information systems, including implementation, reprogramming, and upgrade, integration, transfer, or configuration management of data.

1.1.1.1.01.10 Life-Cycle Cost Estimating

Direct and/or support TWRS cost engineering to develop, maintain, and review TWRS activity based life cycle cost estimates; provide guidance and otherwise support estimating process improvements; and estimate cost impacts of change requests.

1.1.1.1.01.11 Management, Administration, and Strategic Planning

Provide executive management to oversee and execute administrative tasks/systems (for training, external contact, etc.); interface with the site integrating contractor and the Department of Energy for TWRS planning, direction and control; ensure TWRS compliance with regulatory, site and contractual requirements; and integrate systems/services that support management executed by projects.

1.1.1.1.01.12 FDH Project Office/Direction

Represent the site integrating contractor to review, advise, and otherwise oversee TWRS integrated execution of site and contractual commitments, including required system implementations and cost/schedule performance planning, monitoring, reporting and analysis.

1.1.1.1.01.13 Engineering Management

Provide management, project control and administration for direction and control of the TWRS Engineering and Nuclear Safety organization that include procedure development, integration of various TWRS engineering functions and interfaces, technical review/analysis, various services to projects, and other specific support for the Plant Review Committee and for TWRS strategic and tactical planning.

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1.1.1.1.01.14 Maintenance Management

Provide management, project control and administration to direct, integrate and oversee TWRS preventive and corrective maintenance activities that include facility modifications/upgrades, production control planning/scheduling, vent and balance services for the entire site, training, and various support services.

1.1.1.1.02 PROJECT CONTROL

1.1.1.1.02.01 Configuration Management

Provide integration systems/services for management and disciplined change control of TWRS baseline data and procedures; oversee and support change control executed by projects; and with the site integrating contractor, mutually specify and communicate TWRS criteria for award fee eligibility, and monitor/verify performance toward eligibility.

1.1.1.1.02.02 Performance Measurement Control System

Provide management, services and oversight of procurements to develop, integrate, operate and maintain the central database system for TWRS project control; and provide system training.

1.1.1.1.02.03 Construction Project Management

Provide services to oversee and support execution of project management functions by construction projects (under other cost accounts), and integrate business management of construction projects for their administration and reporting at TWRS level.

1.1.1.1.02.04 Financial Control and Integration

Provide integration systems and support services; oversee project and PNNL execution of functions toward financial control, including preparation of cyclical planning documents (notably Project Baseline Summaries and the Multi-Year Work Plan); and execute/oversee the TWRS level project control reporting function to ensure compliance with all site and contractual requirements for monitoring, reporting, analyzing and correcting cost/schedule performance.

1.1.1.1.02.05 PHMC Fee Account

Administrative holding account for recording award fee distribution.

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1. Activity Title: PROJECT INTEGRATION	2. Date	3. PBS Number RL-TW10	4. Dict Rev
5. Contract WBS No. 1.1.1.1.01	6. Corresponding FDS No. D1M	7. Baseline CR No.	
8. Organization Name TWRS PROJECT PLANNING/INTEGRATION/CONTROL			9. B & R No. EW3120075

10. Scope of Work

TECHNICAL BASES

The Project Integration element derives from the upper level TWRS element 1.1.1.1/Management Support Project (MSP). It is not a direct result of the systems engineering process to identify and define functional, architectural, and interface requirements for the TWRS system. At this level of the WBS, Project Integration work serves no direct function and results in no singular deliverable toward the TWRS mission. The practical 'product' of work at this WBS level, project integration, is recognized as fundamental to the management support provided for TWRS' direct technical functions, waste storage and waste disposal. Deliverables are services and tools that comprise part of a TWRS Program systems infrastructure. Project Integration work results in both discrete products and services/administration outcomes. Next level WBS elements directly support Project Integration by providing products and services for systems engineering, business planning, and specific TWRS crosscutting functions.

GOALS AND OBJECTIVES

The Project Integration goal is systems that structure overall context for TWRS strategy, oversight and services. Objectives for integration systems and tools provided under this WBS element are their efficient utilization, operational effectiveness, and acceptance by customers. Acceptability of project integration as a 'product' will be determined by the attributes and standards specified for deliverables produced at lower levels, and by the following general parameters for project integration effectiveness:

- Project Integration work is acknowledged by the TWRS projects and other customers as serving appropriately in support of the project mission functions.

- Lower level work under this WBS element results in products that appropriately sustain integration as a goal of the upper level work element, management support.

- Meaningful integration of the TWRS Program is achieved, as evident and traceable in documents and other indicators that recognize relationships between program participants.

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WBS Dictionary Continuation Page

Scope of Work (cont):
MAJOR END-ITEM DELIVERABLES

Project Integration supplies no deliverables at this level of the WBS. Deliverables identified in lower level WBS dictionary sheets include products that support required cyclical planning and reporting processes.

STATEMENT OF WORK

ASSUMPTIONS:

- Need for project integration will continue for the life of the TWRS project, but functions may vary as requirements change.

- The TWRS work breakdown structure will continue to evolve as systems engineering analysis of functions and requirements identifies emerging requirements for TWRS products other than those currently known.

- Transition of all management support project integration activities to

Disposal WBS elements is currently planned to occur no later than 2005, and cost account 1.1.1.1.01.11 will manage and integrate changeover by individual WBS elements.

This upper level WBS description reflects ongoing cost account planning, but not all currently planned MSP activities/accounts will extend through the life of the TWRS project. MSP will coordinate with Waste Disposal to plan the MSP integration activities that will continue beyond the 2005 transition.

To accomplish project integration, this WBS element interfaces directly with the other at this level under MSP, Project Control, and with all TWRS projects. Certain products from the projects feed this primary management support process (integration) through multiple interfaces at lower levels. Project Integration interfaces include the Department of Energy (DOE-RL) and the site WBS, and some accounts interface with entities outside TWRS.

WORK DEFINITION

Project Integration supports all TWRS projects by providing consolidated systems engineering, planning and other crosscutting functions. This work element also supports activities relative to information management, quality assurance, safety/health, and other contexts not common to all TWRS projects. These services that fall within specific parameters, but not particular projects, are identified as cost accounts under Project Integration.

As management support, project integration presents options for separation of work; cost accounts in the lower level WBS indicate how work is divided currently. Integration is an ultimate result implied in all the cost accounts under this WBS element, whatever tasks and products are involved.

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WBS Dictionary Continuation Page

Scope of Work (cont):
Certain accounts contribute infrastructure support/services, and they include work best described as administration. WBS dictionary description of MSP work applies a general context for 'administration' to imply level of effort work that may not result in specific deliverables. Project Integration includes services and administration, as well as other work toward discrete products.

Life of project activities under this WBS element are planning, execution and evaluation of work performed directly at the TWRS level and/or to support projects. More specifically, that work includes:

- executive management, including compliance oversight
- systems engineering tools/infrastructure, notably the technical baseline
- risk/decision management and strategic planning
- life cycle cost/schedule management
- liaison between TWRS and site management
- interface with external entities
- crosscutting oversight and/or management of quality assurance, environmental, safety/health, information systems, engineering, and maintenance functions
- support to Department of Energy, RL (including that specific to management of the National Environmental Policy Act and environmental permitting/compliance)
- administration

LIST OF COST ACCOUNTS

The list below expands the WBS to cost account level, and indicates summary descriptions. Some accounts include work in more than one of the primary categories indicated above.

1.1.1.1.01.01 Technical Baseline

Establish tenable configuration that structures the TWRS technical bases as an outcome of systems engineering and results in core products that represent configuration; control change to the technical configuration; plan and support technical bases validations and reviews; and manage responses to reviews, including Systems Requirements Review.

1.1.1.1.01.02 Systems Engineering Infrastructure

Provide management, services and oversight to develop and implement TWRS core processes, systems and tools consistent with site systems engineering policies and guidance that facilitate systems engineering capability and support its application as the primary basis for TWRS integrated management and decisions toward disciplined execution of mission.

1.1.1.1.01.03 Technical Systems Analysis

Provide systems engineering analysis to demonstrate specialized techniques;

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WBS Dictionary Continuation Page

Scope of Work (cont):
identify and evaluate operational issues, strategic uncertainties, and alternatives for their address and resolution; and otherwise support TWRS risk/decision management.

1.1.1.1.01.04 NEPA, Environmental Permitting and Compliance

Provide direct support to Department of Energy (DOE) in various services, functions, and administrative tasks, including preparation of specific documents to facilitate DOE management of the National Environmental Policy Act and TWRS environmental permitting and compliance.

1.1.1.1.01.05 RL Support Activities

Provide direct services to the Department of Energy (DOE) for management review and fiscal oversight of TWRS and TWRS projects; support specified facilitation activities; and administrate funding for services from DOE laboratories.

1.1.1.1.01.06 Environmental Oversight

Execute oversight and provide services to projects in administration of a comprehensive program that integrates functional tasks executed under other cost accounts and supports site permitting and TWRS compliance with all regulatory, site and contractual requirements relative to environmental management.

1.1.1.1.01.07 Safety and Health Oversight

Execute oversight and provide services to projects in administration of a comprehensive program that integrates functional tasks executed under other cost accounts and supports TWRS compliance with all regulatory, site and contractual requirements relative to safety and health.

1.1.1.1.01.08 QA Oversight

Execute oversight and provide services to projects in administration of a comprehensive program that integrates functional tasks executed under other cost accounts and supports TWRS compliance with all regulatory, site and contractual requirements relative to quality assurance.

1.1.1.1.01.09 Information Management Oversight

Fund and direct various data management activities that serve transient needs related to TWRS information systems, including implementation, reprogramming, and upgrade, integration, transfer, or configuration management of data.

1.1.1.1.01.10 Life-Cycle Cost Estimating

Direct and/or support TWRS cost engineering to develop, maintain, and

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WBS Dictionary Continuation Page

Scope of Work (cont):
review TWRS activity-based life-cycle cost estimates; provide guidance and otherwise support estimating process improvements; and estimate cost impacts of change requests.

1.1.1.1.01.11 Management, Administration, and Strategic Planning

Provide executive management to oversee and execute administrative tasks/systems (for training, external contact, etc.); interface with the site integrating contractor and the Department of Energy for TWRS planning, direction and control; ensure TWRS compliance with regulatory, site and contractual requirements; and integrate systems/services that support management executed by projects.

1.1.1.1.01.12 FDH Project Office/Direction

Represent the site integrating contractor to review, advise, and otherwise oversee TWRS integrated execution of site and contractual commitments, including required system implementations and cost/schedule performance planning, monitoring, reporting and analysis.

1.1.1.1.01.13 Engineering Management

Provide management, project control and administration for direction and control of the TWRS Engineering and Nuclear Safety organization that include procedure development, integration of various TWRS engineering functions and interfaces, technical review/analysis, various services to projects, and other specific support for the Plant Review Committee and for TWRS strategic and tactical planning.

1.1.1.1.01.14 Maintenance Management

Provide management, project control and administration to direct, integrate and oversee TWRS preventive and corrective maintenance activities that include facility modifications/upgrades, production control planning/scheduling, vent and balance services for the entire site, training, and various support services.

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8/27/1997

1. Activity Title: PROJECT CONTROL	2. Date	3. PBS Number RL-TW10	4. Dict Rev
5. Contract WBS No. 1.1.1.1.02	6. Corresponding FDS No. D1N	7. Baseline CR No.	
8. Organization Name TWRS PROJECT PLANNING/INTEGRATION/CONTROL			9. B & R No. EW3120075

10. Scope of Work
TECHNICAL BASES

The Project Control element derives from the upper level TWRS element 1.1.1.1/Management Support Project (MSP). It is not a direct result of the systems engineering process to identify and define functional, architectural, and interface requirements for the TWRS system. At this level of the WBS, Project Control work serves no direct function and results in no singular deliverable toward the TWRS mission. The practical 'product' of work at this WBS level, project control, is recognized as fundamental to the management support provided for TWRS' direct technical functions, waste storage and waste disposal. Deliverables are services and tools that comprise part of a TWRS Program systems infrastructure. Project Control work results in both discrete products and services/administration outcomes. Next level WBS elements directly support Project Control by providing services and products for fiscal direction and oversight, business reporting, and other crosscutting project management functions.

GOALS AND OBJECTIVES

The goal of Project Control is systems that correlate all parameters pertinent to TWRS' obligations for fiscal stewardship and business management. Objectives for control systems and tools provided under this WBS element are customer acceptance, efficient utilization, and effective support.

Acceptability of project control as a 'product' will be determined by the attributes and standards specified for deliverables produced at lower levels, and by the following general parameters for project control effectiveness:

- Project Control business management is acknowledged by the TWRS projects and other customers as appropriate to support the project mission functions.

- Work under this WBS element results in products at lower levels that appropriately sustain control as a goal of the upper level work element, management support.

- Control of the TWRS Project, including fiscal stewardship,

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WBS Dictionary Continuation Page

Scope of Work (cont):
configuration management, performance reporting, is achieved under systems applications that sustain best business practices and standards.

MAJOR END-ITEM DELIVERABLES

Project Control supplies no deliverables at this level of the WBS. Deliverables identified in lower level WBS dictionary sheets include products that support required cyclical planning and reporting processes.

STATEMENT OF WORK

ASSUMPTIONS:

The need for project control will continue for the life of the TWRS project, but functions may vary as requirements change.

The TWRS work breakdown structure will continue to evolve as systems engineering analysis of functions and requirements identifies emerging requirements for TWRS products other than those currently known.

Transition of all management support project control activities to Disposal WBS elements is currently planned to occur no later than 2005, and cost account 1.1.1.1.1.11 will manage and integrate changeover by individual WBS elements.

This upper level WBS description reflects ongoing cost account planning, but not all currently planned MSP activities/accounts will extend through the life of the TWRS project. MSP will coordinate with Waste Disposal to plan the MSP project control activities that will continue beyond the 2005 transition.

To accomplish project control, this WBS element interfaces directly with the other at this level under MSP, Project Integration, and with all TWRS projects. Certain products from the projects feed this primary management support process (control) through multiple interfaces at lower levels. Project Control also interfaces with the site WBS.

WORK DEFINITION

Project Control supports all TWRS projects by providing consolidated fiscal oversight and business products/services that include configuration management. Certain cost accounts under this WBS element relate to specific data services or contract administration.

As management support, project control presents options for separation of work; cost accounts in the lower level WBS indicate how work is divided currently. Project control is an ultimate result implied in all accounts under this WBS element that contribute support/services to a TWRS

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WBS Dictionary Continuation Page

Scope of Work (cont):
infrastructure. Many accounts include work best described as administration. WBS dictionary description of MSP work applies a general context for 'administration' to imply level of effort work resulting in no specific deliverables. Project Control includes services and administration, as well as other work toward discrete products.

Life of project activities under this WBS element are planning, execution and evaluation of work performed directly at the TWRS level and/or to support projects. More specifically, that work includes:

- configuration management
- budget coordination and funds management
- cyclical planning and baseline management
- business reporting systems/tools
- administration, including contract management

LIST OF COST ACCOUNTS

The list below expands the WBS to cost account level, and indicates summary descriptions. Some accounts include work in more than one of the primary categories indicated above.

1.1.1.1.02.01 Configuration Management

Provide integration systems/services for management and disciplined change control of TWRS baseline data and procedures; oversee and support change control executed by projects; and with the site integrating contractor, mutually specify and communicate TWRS criteria for award fee eligibility, and monitor/verify performance toward eligibility.

1.1.1.1.02.02 Performance Measurement Control System

Provide management, services and oversight of procurements to develop, integrate, operate and maintain the central database system for TWRS project control; and provide system training.

1.1.1.1.02.03 Construction Project Management

Provide services to oversee and support execution of project management functions by construction projects (under other cost accounts), and integrate business management of construction projects for their administration and reporting at TWRS level.

1.1.1.1.02.04 Financial Control and Integration

Provide integration systems and support services; oversee project and PNNL execution of functions toward financial control, including preparation of cyclical planning documents (notably Project Baseline Summaries and the Multi-Year Work Plan); and execute/oversee the TWRS level project control reporting function to ensure compliance with all site and contractual

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WBS Dictionary Continuation Page

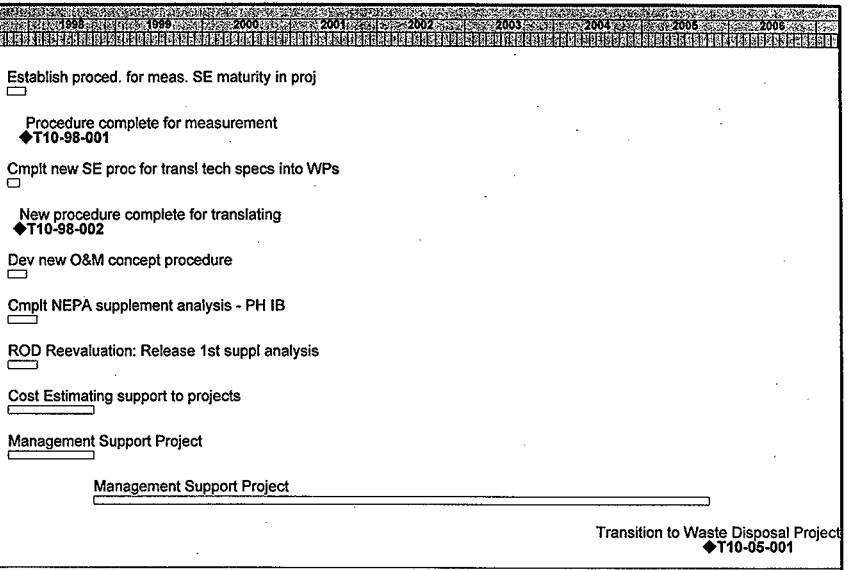
Scope of Work (cont):
requirements for monitoring, reporting, analyzing and correcting cost/schedule performance.

1.1.1.1.02.05 PHMC Fee Account

Administrative holding account for recording award fee distribution.

Proj Lvl (PBS #)	FDS Act Number	Activity Title	Activity Manager	Responsible Organization	Cost Account
RL-TW10		TWRS MANAGEMENT SUPPORT			
	D1M	PROJECT INTEGRATION	TR Schrimsher	TWRS PROJECT PLANNING/INTEGRATION/CONTR	
	D1N	PROJECT CONTROL	TR Schrimsher	TWRS PROJECT PLANNING/INTEGRATION/CONTR	

Activity ID	Early Start	Early Finish
TWRS MANAGEMENT SUPPORT (RL		
AAA.010	01OCT97*	19DEC97
AAA.010M		19DEC97
AAA.020	01OCT97*	21NOV97
AAA.020M		21NOV97*
AAA.030	01OCT97*	19DEC97
AAA.040	01OCT97*	30JAN98
AAA.050	01OCT97*	30JAN98
AAA.060	01OCT97*	30SEP98
AAA.100	01OCT97*	30SEP98
AAA.101	01OCT98*	30SEP05
AAA.110M		30SEP05*



Project Start 01OCT96	PMB Bar	PMB	Sheet 1 of 1
Project Finish 30SEP06	Progress Bar	**Tank Waste Remediation Systems**	
Data Date 01OCT97		**TWRS Management Systems (RL-TW10)**	
Run Date 16SEP97		**Project Master Baseline Schedule**	
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TW10 3.1-1

Activity ID	Early Start	Early Finish	1997 OCT	NOV	DEC	JAN	FEB	MAR	APR	1998 MAY	JUN	JUL	AUG	SEP
TWRS MANAGEMENT SUPPORT (RL														
AAA.010	01OCT97*	19DEC97	Establish proced. for meas. SE maturity in proj											
AAA.010M		19DEC97			Procedure complete for measurement ◆T10-98-001									
AAA.020	01OCT97*	21NOV97	Cmplt new SE proc for transl tech specs into WPs											
AAA.020M		21NOV97*			New procedure complete for translating ◆T10-98-002									
AAA.030	01OCT97*	19DEC97	Dev new O&M concept procedure											
AAA.040	01OCT97*	30JAN98	Cmplt NEPA supplement analysis - PH IB											
AAA.050	01OCT97*	30JAN98	ROD Reevaluation: Release 1st suppl analysis											
AAA.060	01OCT97*	30SEP98	Cost Estimating support to projects											
AAA.100	01OCT97*	30SEP98	Management Support Project											

Project Start 01OCT96
Project Finish 30SEP98
Data Date 01OCT97
Run Date 16SEP97

PMBS Bar
Progress Bar

PMBS

Sheet 1 of 1

Tank Waste Remediation Systems
TWRS Management Support (RL-TW10)
Project Master Baseline Sch. (FY98)

TW10 3.2-1

MYWP/SSPP PLANNING MILESTONE LIST
REPORTING PERIOD 10/01/97 TO 10/01/20

MILESTONE CONTROL #	TPA-MS NUMBER	TPA TYPE	MS LEVEL	MS TITLE	TYPE	DATES: PLANNED BASELINE	DATES: APPROVED BASELINE	DATES: REVISED BASELINE	PROJ CIN	PBS #
T10-98-002			RL	DEVELOP SE PROCEDURE TO TRANSLATE TWRS BL DATA INTO PROJ DES SPEC		11/21/97				RL-TW10
T10-98-001			RL	DEVELOP PROCED TO EVAL SE PERFORMANCE & MATURITY IN TWRS PROJECTS		12/19/97				RL-TW10

PHMC

MILESTONE DESCRIPTION SHEET

Title: DEVELOP PROCED TO EVAL SE PERFORMANCE & MATURITY IN TWRS PROJECTS		**Date:**
Assigned To: L Peck		**CIN:**
Program WBS Designator: 1.1.1.1		**Due Date:** 12/19/97
PBS No: RL-TW10		
MC #: T10-98-001	**TPA No:**	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
DOE-HQ X DOE-RL DOE-FO CONTRACTOR	EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report Letter Drawing(s) X Other (Specify) Copy approved procedure	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Form a measurement scheme (model) that can be used to periodically assess progress in applying specified, graded systems engineering processes on TWRS projects. Document the criteria that enable measurement of improvement of systems engineering processes in TWRS. Commitment is responsive to Safety Concern #2 of DNFSB Recommendation 92-4 Implementation Plan, Revision 2, dated June 16, 1997.

Description of what constitutes completion of this milestone:
Completion and PMCS contractor approval of a procedure or comparable document and submittal of the procedure or document to DOE-RL. Document specifies the criteria and method/process that enable quantitative measurement of the level of maturity and/or improvement of systems engineering processes on TWRS projects.

PHMC

MILESTONE DESCRIPTION SHEET

Title: DEVELOP SE PROCEDURE TO TRANSLATE TWRS BL DATA INTO PROJ DES SPEC				**Date:**
Assigned To: L Peck				**CIN:**
Program WBS Designator: 1.1.1.1				**Due Date:** 11/21/97
PBS No: RL-TW10				
MC #: T10-98-002		**TPA No:**		**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
DOE-HQ X DOE-RL DOE-FO CONTRACTOR	EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report Letter Drawing(s) X Other (Specify) copy approved procedure	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Develop a graded procedure for translating available TWRS technical baseline data into required project design specifications, utilizing the guidelines, procedures, and tools available in TWRS. This commitment is responsive to Safety Concern #2 of DNFSB Recommendation 92-4 Implementation Plan, Revision 2, dated June 16, 1997.

Description of what constitutes completion of this milestone:
Completion and PHMC contractor approval of a procedure or comparable document and submittal of the procedure or document to DOE-RL. Procedure specifies the method for translating available TWRS technical baseline data into project design specifications.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW10
PBS TITLE:	TWRS MANAGEMENT SUPPORT

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE	30,644	35,929	31,808	27,852	29,168	43,524	19,699	23,502	50,895	-	293,021
CENRTC											-
GENERAL PLANT PROJECT											-
LINE ITEM *(List Each One)*											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION							532	1,287	4,235		6,054
TOTAL BCWS/PMB[1]	30,644	35,929	31,808	27,852	29,168	43,524	20,231	24,789	55,130		299,075
MGMT RESERVE[2]											-
LINE ITEM CONTINGENCY[2]											-
OFFSITE TRANSFERS[3] 1)											-
Subtotal	-	-	-	-	-	-	-	-	-	-	-
TOTAL	30,644	35,929	31,808	27,852	29,168	43,524	20,231	24,789	55,130	-	299,075

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover **NOT** Included.

[2]Management Reserve and Line Item Contingency Held by RL.

[3]Work Performed at Sites Other Than Hanford.

1) CURRENT ESTIMATE OF FY 1998 & FY 1999 NON-PHMC COSTS (NAT'L LAB, RL FUNDING) ARE $825, $825 RESPECTIVELY (SUBJECT TO CHANGE)

4.1

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW10
PBS TITLE:	TWRS MANAGEMENT SUPPORT

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
OPERATING EXPENSE													293,021
CENRTC													-
GENERAL PLANT PROJECT													-
LINE ITEM *(List Each One)*													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION													6,054
TOTAL BCWS/PMB[1]	-	-	-	-	-	-	-	-	-	-	-	-	299,075
MGMT RESERVE[2]													-
LINE ITEM CONTINGENCY[2]													-
OFFSITE TRANSFERS[3] 1)													-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	299,075

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover NOT Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

TW10.4-2

HNF-SP-1230 Rev. 0

4.2

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW10
PBS TITLE:	TWRS MANAGEMENT SUPPORT

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE	19,000	35,929	31,808	27,852	29,168	43,524	19,499	23,310	52,757	-	282,847
CENRTC											-
GENERAL PLANT PROJECT											-
LINE ITEM (List each one)											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION							732	1,479	2,373		4,584
TOTAL NEW B/A	19,000	35,929	31,808	27,852	29,168	43,524	20,231	24,789	55,130		287,431

1) CURRENT ESTIMATE OF FY 1998 & FY 1999 NON-PHMC COSTS (NAT'L LAB, RL FUNDING) ARE $2,110, $1,670 RESPECTIVELY (SUBJECT TO CHANGE)

TANK WASTE REMEDIATION SYSTEM

4.2 SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)

FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW10
PBS TITLE:	TWRS MANAGEMENT SUPPORT

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051 FY2055	FY2056-FY2060	FY2061 FY2064	TOTAL FY1997-FY2064
OPERATING EXPENSE													282,847
CENRTC													-
GENERAL PLANT PROJE													-
LINE ITEM (List each one													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION													4,584
TOTAL NEW B/A	-	-	-	-	-	-	-	-	-	-	-	-	287,431

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS: 1.1
PBS NO: RL-TW10
PBS TITLE: TWRS MANGEMENT SUPPORT

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
MANAGEMENT SYSTEMS	1200	OP EXP	3,567	2,829	3,280	3,305	2,753	3,184	3,084	2,846	3,106	2,933	2,852	2,190	35,929
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	3,567	2,829	3,280	3,305	2,753	3,184	3,084	2,846	3,106	2,933	2,852	2,190	35,929
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

9/13/97

98MYPMO1.xls

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS: 1.1
PBS NO: RL-TW10
PBS TITLE: TWRS MANGEMENT SUPPORT

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL BCWS/PMB[1]			3,567	2,829	3,280	3,305	2,753	3,184	3,084	2,846	3,106	2,933	2,852	2,190	35,929

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

4.4

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1										
PBS Title	PBS NO	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
TWRS MANAGEMENT SUPPORT	RL-TW10	122.2	96.4	51.3	42.1	36.8	36.8	36.9	36.8	0.0	0.0

		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2038	FY 2039	FY 2040	FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2048	FY 2049	FY 2050	FY 2051	FY 2052	FY 2053	FY 2054	FY 2055	FY 2056	FY 2057
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2058	FY 2059	FY 2060	FY 2061	FY 2062	FY 2063	FY 2064	FY 2065	FY 2066	FY 2067
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CONTENTS

EM-50

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	M-50TANK
PBS TITLE:	TWRS EM-50 TANK CORROSION

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE	-	-	-	-	-	-	-	-	-	-	-
CENRTC											-
GENERAL PLANT PROJECT											-
LINE ITEM *(List Each One)*											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION							-	-	-		-
TOTAL BCWS/PMB[1]	-	-	-	-	-	-	-	-	-	-	-
MGMT RESERVE[2]											-
LINE ITEM CONTINGENCY[2]											-
OFFSITE TRANSFERS[3]											-
Subtotal	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover NOT Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

1.1

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1												
PBS NO:	EM-50TANK												
PBS TITLE:	TWRS EM-50 TANK CORROSION												
FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
OPERATING EXPENSE													-
CENRTC													-
GENERAL PLANT PROJECT													-
LINE ITEM *(List Each One)*													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION													-
TOTAL BCWS/PMB[1]	-	-	-	-	-	-	-	-	-	-	-	-	-
MGMT RESERVE[2]													-
LINE ITEM CONTINGENCY[2]													-
OFFSITE TRANSFERS[3]													-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover **NOT** Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

EM-50.1-2

HNF-SP-1230 Rev. 0

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL06WT21
PBS TITLE:	TWRS EM-50 TANK CORROSION

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE	200		-	-	-	-	-	-	-	-	200
CENRTC											-
GENERAL PLANT PROJECT											-
LINE ITEM *(List Each One)*											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION							-	-	-		-
TOTAL BCWS/PMB[1]	200	-	-	-	-	-	-	-	-	-	200
MGMT RESERVE[2]											-
LINE ITEM CONTINGENCY[2]											-
OFFSITE TRANSFERS[3]											-
Subtotal	-	-	-	-	-	-	-	-	-	-	-
TOTAL	200	-	-	-	-	-	-	-	-	-	200

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL06WT21
PBS TITLE:	TWRS EM-50 TANK CORROSION

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
OPERATING EXPENSE													200
CENRTC													-
GENERAL PLANT PROJECT													-
LINE ITEM *(List Each One)*													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION													-
TOTAL BCWS/PMB[1]													200
MGMT RESERVE[2]													-
LINE ITEM CONTINGENCY[2]													-
OFFSITE TRANSFERS[3]													-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	200

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	EM-50HTI
PBS TITLE:	TWRS EM-50 HTI

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE	7,000	7,000	10,000	10,000	-	-	-	-	-	-	34,000
CENRTC											-
GENERAL PLANT PROJECT											-
LINE ITEM *(List Each One)*											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION							-	-	-		-
TOTAL BCWS/PMB[1]	7,000	7,000	10,000	10,000	-	-	-	-	-	-	34,000
MGMT RESERVE[2]											-
LINE ITEM CONTINGENCY[2]											-
OFFSITE TRANSFERS[3]											-
Subtotal	-	-	-	-	-	-	-	-	-	-	-
TOTAL	7,000	7,000	10,000	10,000	-	-	-	-	-	-	34,000

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover NOT Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	EM-50HTI
PBS TITLE:	TWRS EM-50 HTI

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
OPERATING EXPENSE													34,000
CENRTC													-
GENERAL PLANT PROJECT													-
LINE ITEM *(List Each One)*													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION													-
TOTAL BCWS/PMB[1]	-	-	-	-	-	-	-	-	-	-	-	-	34,000
MGMT RESERVE[2]													-
LINE ITEM CONTINGENCY[2]													-
OFFSITE TRANSFERS[3]													-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	34,000

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover NOT Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL07WT61
PBS TITLE:	TWRS EM-50 HTI

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE	7,000	7,000	10,000	10,000	-	-	-	-	-	-	34,000
CENRTC											-
GENERAL PLANT PROJECT											-
LINE ITEM *(List Each One)*											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION							-	-	-		-
TOTAL BCWS/PMB[1]	7,000	7,000	10,000	10,000							34,000
MGMT RESERVE[2]											-
LINE ITEM CONTINGENCY[2]											-
OFFSITE TRANSFERS[3]											-
Subtotal	-	-	-	-	-	-	-	-	-	-	-
TOTAL	7,000	7,000	10,000	10,000	-	-	-	-	-	-	34,000

2.2

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL07WT61
PBS TITLE:	TWRS EM-50 HTI

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
OPERATING EXPENSE													34,000
CENRTC													-
GENERAL PLANT PROJECT													-
LINE ITEM *(List Each One)*													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION													-
TOTAL BCWS/PMB[1]	-	-	-	-	-	-	-	-	-	-	-	-	34,000
MGMT RESERVE[2]													-
LINE ITEM CONTINGENCY[2]													-
OFFSITE TRANSFERS[3]													-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	34,000

2.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS: 1.1
PBS NO: EM-50 HTI
PBS TITLE: TWRS HANFORD TANK INITIATIVE

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
HTI	L07WT61	OP EXP	521	499	539	491	496	703	731	599	628	612	610	571	7,000
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	521	499	539	491	496	703	731	599	628	612	610	571	7,000
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-

EM50.2-5

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

2.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS:	1.1														
PBS NO:	EM-50 HTI														
PBS TITLE:	TWRS HANFORD TANK INITIATIVE														
ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL BCWS/PMB[1]			521	499	539	491	496	703	731	599	628	612	610	571	7,000

EM50.2-6

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

TANK WASTE REMEDIATION SYSTEMS FY 1998 MULTI-YEAR WORK PLAN

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SECTION 1 **OF** 3

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WBS 1.1

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TANK WASTE REMEDIATION SYSTEMS SUMMARY

1.0 Technical Baseline

The MYWP technical baseline describes the work to be accomplished by the Project and the technical standards which govern that work.

1.1 Mission Statement

The TWRS Project Mission is to manage and immobilize for disposal the Hanford Site radioactive tank waste and cesium (Cs)/strontium (Sr) capsules in a safe, environmentally sound, and cost-effective manner. The scope includes all activities needed to (1) resolve safety issues; (2) operate, maintain, and upgrade the tank farms and supporting infrastructure; (3) characterize, retrieve, pretreat, and immovbilize the waste for diposal and tank frarm closure; and (4) use waste minimization and evaporation to manage tank waste volumes to ensure that the tannk capacities of existing DSTs are not exceeded. The TWRS Project is responsible for closure of assigned operable units and D&D of TWRS faciliites.

1.2 Boundary Diagram with Major Facilities

The following table indentifies the major facilities that interface with this Project. The left column of the table identifies the major facilities that generate waste, materials, or infrastructure for this Project. The right column of the table identifies the major facilities that will receive waste and materials from this Project. The blank center column represents this Project.

Tank Waste Remediation Systems Project Boundary Diagram

External Interfaces Hanford Legacy Hanford Site Environmental System Interfaces hsems.1.1.2 Reactors on the River Soil Site Operable Units hsems.1.2.1 100 K Area Facilities hsems.2.2.5 242-A Evaporator hsems.2.2.6 Plutonium-Uranium Extraction Plant hsems.2.2.7 B Plant hsems.2.2.8 Waste Encapsulation and Storage Facility hsems.2.2.9 Plutonium Finishing Plant hsems.2.2.12 T-Plant Facility hsems.2.5.1 222-S Laboratory hsems.2.5.3 Central Plateau Steam System hsems.2.5.4 Central Plateau Water System hsems.2.5.5 Central Plateau Office Facilities hsems.2.5.6 Central Plateau Electrical System hsems.2.5.9 Central Plateau Shop Facilities hsems.2.5.13 Central Plateau Road System hsems.4.2.3 340 Waste Handling Facility hsems.4.3.1 Fast Flux Test Facility hsems.4.6.1 324 Building hsems.4.6.4 327 Building hsems.4.7.1 331 Complex		External Interfaces Hazardous Waste Disposal Contracts Yucca Mountain Geologic Repository Hanford Site Environmental System Interfaces hsems.2.2.5 242-A Evaporator hsems.2.2.16 Liquid Effluent Retention Facility hsems.2.3.5 Central Waste Complex hsems.2.4.3 200 Area Treated Effluent Disposal Facility hsems.2.5.1 222-S Laboratory hsems.2.5.7 Central Plateau Liquid Sanitary Waste System

1.3 Facility Responsibility Assignment Matrix

This section provides a table that identifies the sub-projects, major facilities, and the life cycle assignments.

Facility Responsibility Assignment Matrix

Asset	Life Cycle								
	Program Planning	Pre Conceptual	Conceptual	Execute: Design	Execute: Construction	Execute: Turnover	O&M	Close Out: Post Ops	Close Out: D&D
LAW Plant, Phase I	RL-TW10		**RL-TW06** RL-TW05 RL-WM07	**RL-TW06** RL-WM07	**RL-TW06**	**RL-TW06**	**RL-TW06**	**RL-TW06**	**RL-TW06**
LAW/HLW Plant, Phase I	RL-TW10		**RL-TW06** RL-TW05 RL-WM07	**RL-TW06** RL-WM07	**RL-TW06**	**RL-TW06**	**RL-TW06**	**RL-TW06**	**RL-TW06**
LAW Treatment Facility, Phase II	**RL-TW05** RL-TW10	**RL-TW05**	**RL-TW07** RL-TW05 RL-WM07	**RL-TW07** RL-WM07	**RL-TW07**	**RL-TW07**	**RL-TW07**	**RL-TW07**	**RL-TW07**
HLW Treatment Facility, Phase II	**RL-TW05** RL-TW10	**RL-TW05**	**RL-TW07** RL-TW05 RL-WM07	**RL-TW07** RL-WM07	**RL-TW07**		**RL-TW07**	**RL-TW07**	**RL-TW07**
Single Shell Tank (SST) System							**RL-TW03** RL-TW01 RL-TW02 RL-TW04	**RL-TW04**	**RL-TW04**
Double Shell Tank (DST) System	RL-TW10						**RL-TW03** RL-TW01 RL-TW02 RL-TW04	**RL-TW04**	**RL-TW04**
Canister Storage Building	**RL-WM01** RL-TW10				**RL-WM01** RL-TW09	**RL-WM01** RL-TW09	**RL-WM02** RL-TW09 RL-WM01	**RL-WM02** RL-TW09	**RL-WM02** RL-TW09
IHLW Storage Modules, Phase II	**RL-TW09** RL-TW09 RL-TW10	**RL-TW09**	**RL-TW09** RL-WM07	**RL-TW09** RL-WM07	**RL-TW09**	**RL-TW09**	**RL-TW09**	**RL-TW09**	**RL-TW09**
Immobilized LAW Storage Facility	RL-TW10		**RL-TW09** RL-WM07	**RL-TW09** RL-WM07	**RL-TW09**	**RL-TW09**	**RL-TW09**	**RL-TW09**	**RL-TW09**
Immobilized LAW Disposal Facility	**RL-TW09** RL-TW10	**RL-TW09**	**RL-TW09** RL-WM07	**RL-TW09** RL-WM07	**RL-TW09**	**RL-TW09**	**RL-TW09**	**RL-TW09**	**RL-TW09**

RL-TW01 - Tank Waste Characterization Project
RL-TW02 - Tank Safety Issue Resolution Project
RL-TW03 - Tank Farms Operations Project
RL-TW04 - Retrieval Project
RL-TW05 - Process Waste Support
RL-TW06 - Privatization Phase I
RL-TW07 - Privatization Phase II
RL-TW09 - Immobilized Tank Waste Storage & Disposal Project
RL-TW10 - TWRS Management Support
RL-WM01 - Spent Nuclear Fuel
RL-WM02 - Canister Storage Building Operations
RL-WM07 - Waste Minimization

1.4 Project Planning Assumptions

This section contains the issues that affect the project. These include project specific issues, as well as the site-level issues that have been assigned to the project for resolution. It also contains the assumptions that are used as a basis for the development of project plans until the issues are formally resolved with records of decision. The "Champion" column determines if the Project has lead responsibility or is an affected participant. If the champion belongs to the Project, the Project has the lead. If not, the Project is an affected participant. Project plans include appropriate activities and resources for resolving these issues.

Project Issues And Assumptions

	ISSUE	PLANNING ASSUMPTION	CHAMPION
1	**TPA HLW Pretreatment Milestones** The current planning involving privatization of Phase I facilities to immobilize waste does not include the construction of a HLW Pretreatment Plant. Therefore the associated milestones are no longer valid and should be revised.		
2	**Land Use Plan 200** The interim end state for the 200 Areas has not been defined	The 200 Area and central plateau will be used for the management of nuclear materials and the collection and disposal of waste materials that remain on site and for other related and compatible uses. Cleanup levels and disposal standards will be established in the CERCLA and RCRA permit modifications. Soil sites will be remediated consistent with CERCLA-ROD cleanup standards. DOE will retain control of this land.	Bauer
3	**Soil Cleanup Criteria** Criteria for contaminated soil cleanup have not been integrated.	Soil sites remediation consistent with ROD cleanup standards.	Bauer Liedle
4	**325 & 204-AR Upgrades** Liquid waste collection and loading facility (340 facility) is scheduled for shutdown after FY 1998. Initially nothing will be done to preclude accepting waste at the 340 facility after this date. Transfer systems from Bldg. 325 to the tank farms via 204-AR facility will not be available per the current schedule.	No Decision made.	Beard Briggs
5	**Cs & Sr Capsules Disposition Policy** It has not been decided where, how and when Cs/Sr capsules will be finally dispositioned.	MDD: Cs/Sr capsules will continue to be interim stored at WESF. In the event the Cs/Sr capsules are declared waste, the contents will be processed to meet high-level waste feed requirements, blended with other tank waste, vitrified and stored onsite for eventual disposal at the geologic repository.	Mecca Reynolds
6	**TRU Waste Disposition** The projected volume of TRU waste at Hanford exceed the volume allotted for Hanford waste at WIPP.	No Decision made.	Guercia Wilde
7	**New Structural Design Criteria** TWRS and SNF have been using a new Structural Design Criteria which has not been approved. This criteria has been developed to comply with the new DOE Order 5480.28, "Natural Phenomena Hazards Mitigation" and DOE Order 430.1, "Facility Safety"	Existing Structural Design Criteria will be used until DOE-RL provides direction	Veitenheimer Skriba
8	**K-Basin Sludge Disposal** Regulatory and technical issues require resolution before sludge disposal path can be confirmed. Major issues include discovery of TSCA regulated levels of PCBs in the sludge and compatibility with existing safety basis.	No Decision made.	Hansen Williams

Project Issues And Assumptions (Continued)

	ISSUE	PLANNING ASSUMPTION	CHAMPION
9	**Project Life Cycle Planning** The forecasting information for SNF terminates with the end of the Project (FY 2002). However it is clear that there will be waste streams from the K-Basins and from the CSB as well as infrastructure needs.These need to be included in the forecasting section of some project.	No Decision made.	Piper Brennan
10	**Facility Life Cycle Planning** In the HSTD Database, Projects do not have assigned responsibility for each life cycle phase of the on-site facilities (K-Basins transition is either not assigned to or accepted by SNF, Tr P, or ER).	Each Project that currently owns a facility is responsible for planning the entire life cycle or negotiating that responsibility to Transition Projects or ER	Wisness Brennan
11	**HSIS / SE Interface Differences** The Interface information is needed to support the Hanford Site Integrated Schedule preparation. The current HSIS activities can not be easily linked to the SE interface titles.	Use interfaces as currently defined in the HSTB.	Wisness Brennan
12	**MDD End Points Vs MYWPs** All the MDD End Point Targets do not get assigned to the Projects.	S27 belongs to the Advanced Reactors Transition End Point 39 belongs to SNF Other requirements need to be assigned.	Wisness Brennan
13	**Site Cleanup Strategy** The Site cleanup strategy has not been clearly defined.	No Decision made.	Murphy Brennan
14	**TWRS MAR Issue #1. Tank Waste Classification** SHOULD TANK WASTE BE CLASSIFIED AS NON-HLW WASTE ? Federal regulations require that HLW be disposed in Nuclear Regulatory Commission (NRC) licensed facilities. Tank wastes must be classified as non-HLW in order to be exempt from disposal in an NRC-licensed disposal facility.	The NRC will classify residual waste remaining in tank farms after retrieval as non-HLW. Technical bases for classifying portions of the waste as non-HLW will be developed per the NRC criteria. Discussions with NRC and stakeholders will be held and NRC concurrence will be requested.	
15	**TWRS MAR Issue #2. Radionuclide Content of ILAW** SHOULD RADIONUCLIDE CONTENT WHICH CAN REMAIN IN THE TREATED LOW ACTIVITY WASTE FRACTION FROM SSTS AND DSTS BE IDENTIFIED ? Radionuclide content which can remain in the treated low-activity waste fraction from SSTs and DSTs has not been identified which allows onsite disposal and exemption from NRC regulatory jurisdiction.	The residual waste after treatment is assumed to be classified as incidental waste based on the NRC's previous ruling for DST wastes. The NRC defined incidental waste as: 1) waste that has been processed (or will be further processed) to remove key radionuclides to the extent that is technically and economically practical; 2) waste that will be incorporated into a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C LAW as set out in 10 CFR 61; and 3) waste that will be managed, pursuant to the AEA, such that safety requirements comparable to the performance objectives set out in 10 CFR 61 are satisfied.	
16	**TWRS MAR Issue #3. Retrieval Required for Closure** HOW MUCH WASTE SHOULD BE REMOVED FROM EACH TANK IN PREPARATION FOR CLOSURE ?	The SST waste retrieval system will be capable of meeting the Tri-Party Agreement milestone requiring 99% retrieval. This will be sufficient to close tanks without further retrieval. The waste retrieval systems for MUSTs and DSTs will be comparable to that for SSTs. Also, closure requirements for DSTs will be similar to requirements for SSTs. The TWRS MUSTs are included in both DST and SST operable units as ancillary equipment, and will be included in both DST and SST closure.	
17	**TWRS MAR Issue #4, Responsibility for DST Closure** IS TWRS RESPONSIBLE FOR DST CLOSURE ? Uncertainty exists with respect to disposition of DST structures. They may be closed by TWRS or the ER Program (DOE/RL 1993).	TWRS is responsible for DST closure.	
18	**TWRS MAR Issue #5. Responsibility for SST Closure** IS TWRS RESPONSIBLE FOR SST CLOSURE ? A recent EM-30 and EM-40 Memorandum of Agreement (Wagoner 1994) (DOE/RL 1995) was signed to turn over responsibility for SST closure and soils remediation to EM-30. The TWRS Project is currently awaiting formal direction from RL regarding this agreement.	SST closure is the responsibility of TWRS.	

Project Issues And Assumptions (Continued)

	ISSUE	PLANNING ASSUMPTION	CHAMPION
19	**TWRS MAR Issue #6. TWRS MUSTs Responsibilities** HOW MANY MISCELLANEOUS UNDERGROUND STORAGE TANKS IS TWRS RESPONSIBLE FOR CLOSING ? There are 56 MUSTs currently identified as belonging to TWRS in Powers (1995), Rymarz and Speer (1991), and Nielsen (1992). Additional MUSTs may be identified. It is necessary to finalize program responsibility for these tanks.	TWRS will be responsible for closure of all MUSTs falling under TWRS ownership.	
20	**TWRS MAR Issue #7. Hanford IHLW Form Acceptance** WILL THE OCRWM ACCEPT A HLW FORM THAT IS DIFFERENT THAN THAT PRODUCED BY THE DEFENSE WASTE PROCESSING FACILITY (DWPF) AND West VALLEY DEMONSTRATION PROJECT (WVDP) ?	The Hanford HLW form will be acceptable to the OCRWM if it meets or exceeds the performance of the standard waste form (borosilicate glass).	
21	**TWRS MAR Issue #8. Hanford IHLW Canister Configuration** WILL THE OCRWM ACCEPT A HLW CANISTER CONFIGURATION THAT IS DIFFERENT FROM DWPF AND WVDP ?	The OCRWM will accept a larger canister.	
22	**TWRS MAR Issue #9. Acceptable Volume of IHLW for Disposal** WHAT IS AN ACCEPTABLE VOLUME OF HLW PRODUCED FOR OFFSITE DISPOSAL ?	23,000 standard canisters of HLW will be produced, based upon an independent technical review and this volume is considered acceptable. This value is to be used "as the technical baseline for future work," (Kinzer 1996). An evaluation of enhanced sludge washing will be completed by March 1998 and will further assess the volume of HLW produced.	
23	**TWRS MAR Issue #11. Allocation Limits for TWRS** WHAT ARE THE DOSE OR CONCENTRATION LIMITS FOR RADIONUCLIDES AND CHEMICALS ALLOCATED TO TWRS FROM THE SITE ALLOWABLE LIMITS ?	The total site dose rate from current operations is .005 mrem/year, well below the regulatory requirement of 10 mrem/year. The projected offsite dose with the vitrification plant in service, is .355 mrem/year, still well below the regulatory requirement. On the basis of the results of dose rate calculations, even an order of magnitude variation in the total Ci release from the TWRS operations will not change the dose rate significantly. For interim purposes, the TWRS Project will use a conservative dose rate of 1 mrem/year for design purposes.	
24	**TWRS MAR Issue #12. Future Site Use** WHAT IS THE PATH FORWARD FOR FUTURE USES OF THE HANFORD SITE, AND SPECIFICALLY FOR THOSE AREAS UNDER DIRECT TWRS RESPONSIBILITY ?	The findings of the Hanford Future Site Uses Working Group, presented in the document The Future for Hanford: Uses and Cleanup, April 1992, will be used as guidance for the path forward.	
25	**TWRS MAR Issue #13. DST & SST Residuals at Closure** WHAT IS THE PATH FORWARD FOR TANK CLOSURE FOLLOWING REMOVAL OF SST AND DST WASTES ?	The Hanford Mission Plan identifies that all residual waste, in-tank equipment, structures, and underlying and adjacent contaminated soils will be disposed in-place after suitable treatment in keeping with performance assessment criteria.	
26	**HLW and LLW Definition** Tank wastes are not defined quantitatively. Quantitative definitions would provide a clear criteria for segregation of non-radioactive waste , LLW, and HLW. LAW term used by TWRS must also be defined so that it can be related to the LAW and the HLW.	No Decision made.	Kinzer Umek
27	**HLW Disposal Location** It has not been decided where and how HLW will be dispositioned if a national repository is not opened.	No Decision made.	Kinzer Umek
28	**Low Level Tank Waste Disposal Criteria** The disposal criteria for LLW from tanks is not consistent with that of LLW from other sources (i.e. SW and ER).	No Decision made.	Kinzer Umek
29	**Low Level Tank Waste Disposal Criteria Ad-hoc Team** TBD	No Decision made.	Freeman
30	**TRU Tank Waste Disposal Location** It has not been decided where TRU tank waste will be dispositioned. This waste is not explicitly defined as high level waste.	No Decision made.	Kinzer Umek
31	**TRU Waste Long-Term Storage** Criteria for long-term storage of TRU waste have not been defined.	No Decision made.	Kinzer Umek

Additional major assumptions follow.

- Technically justifying to Ecology/U.S. Environmental Protection Agency (EPA)/DNFSB that the intent of outstanding DNFSB 93-5 Implementation Plan milestones related to core and vapor sampling can be resolved with primarily existing data and engineering analysis.

- Put a moratorium on additional startup of salt well pumping except BY105/106 which are the last of the known leakers. Continue pumping tanks which commenced in FY 1997. Place Stabilization on a one year reengineering moratorium in FY 1998 to access how continuing salt well pumping can be reduced from $2M-3.5M per tank to approximately $0.5M-0.7M per tank and proceed commencing in FY 1999 at the lower costs. No new exhausters will be fabricated in FY 1998 during the moratorium. Emergency pumping capabilities must be developed and put in place such that if a tank leak is detected we could commence pumping operations in less than 30 days.

- Basis for Interim Operation (BIO) will be fully implemented as planned in FY 1998 and remain the Authorization Basis. FY 1998 budget assumes nozzle caps in jumper pit will not be required. The Final Safety Assessment Report (FSAR) implementation will be deferred until FY 1999 and beyond.

- Reducing RL Management System oversight budget from $5M to $2M/year.

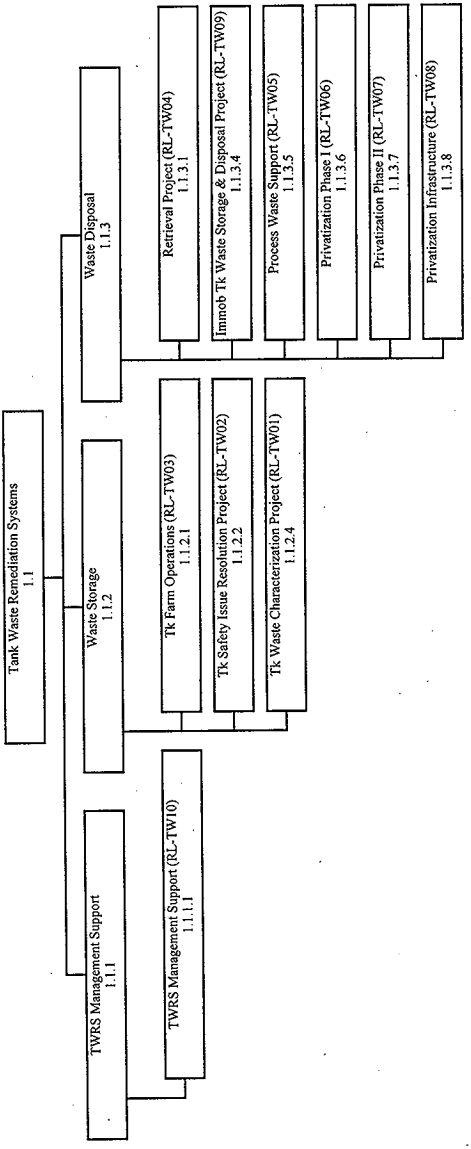
- The Flammable Gas USQ M-40 milestone can be resolved without the FY 1997 deferred Safety work scope from FY 1997 and an approximate $8.8M reduction to FY 1998 baseline scope. $16M of Safety work scope remains in FY 1998 to solve/maintain flammable gas USQ envelope including SHMS cabinets. Characterization support to Flammable Gas is an additional $17M.

- Drawing/labeling program will be planned at 50% of the current baseline plans in FY 1998/1999. Focus will be on critical Disposal drawings.

- Cr/Sr supplemental Environmental Impact Statement (EIS) will be prepared by DOE-RL.

- Per RL guidance to provide an MYWP that incorporates challenges and reengineering initiatives from the Salt Lake City Retreat, we have incorporated the following revisions to the Reference funding guidance:

	$M	
	1998	1999
Early Resolution of Flam Gas USQ	(6.0)	0
Operations Min Safe Challenge	(8.1)	(3.8)



2.1 Project Hanford Breakdown Structure Hierarchy

LEVELS

1 - SITE

2 - MISSION AREA

3 -

4 -PROJECTS

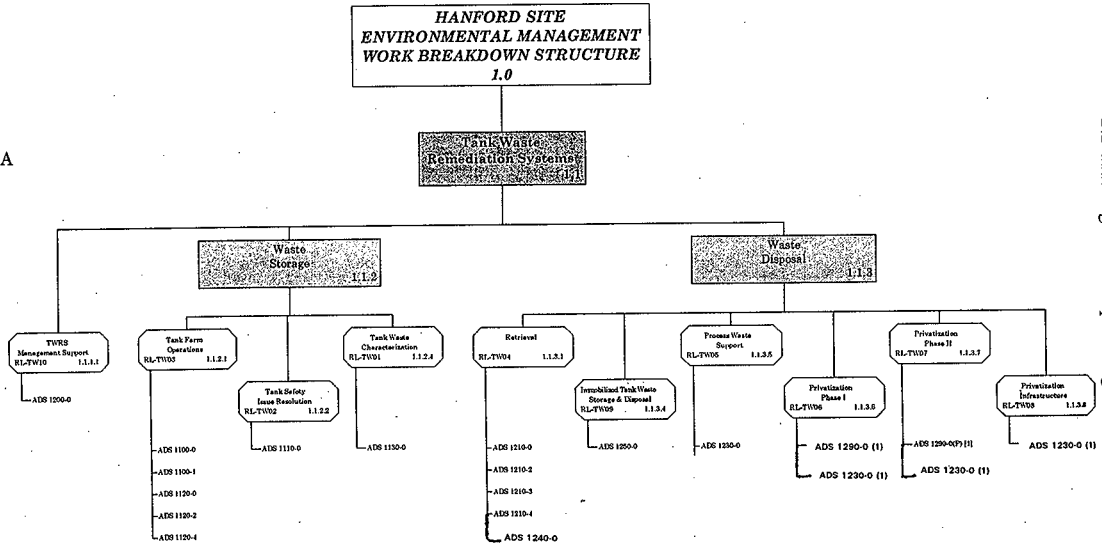
2-2

5 - ACTIVITY

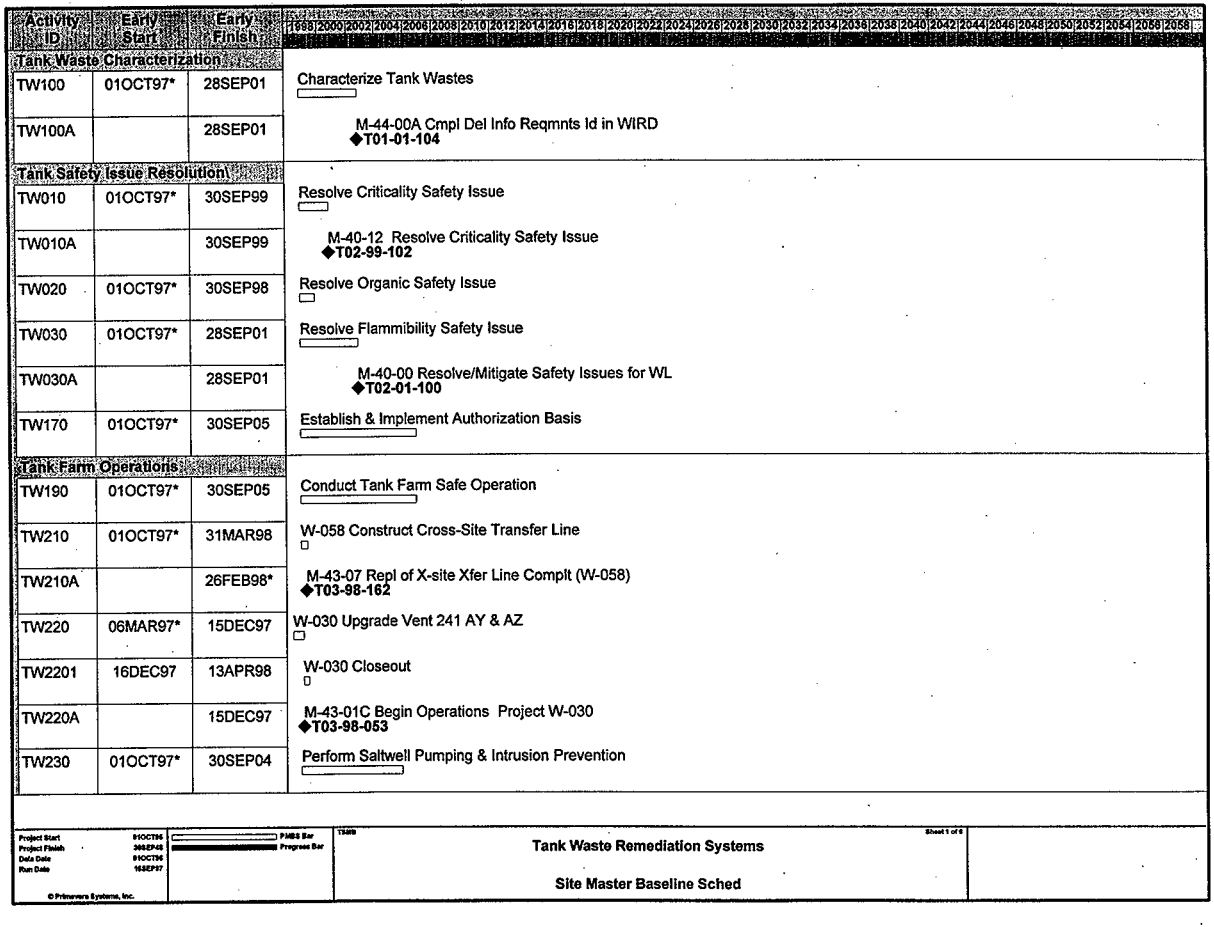
6 - COST ACCOUNT

7 - WORK PACKAGE

8 - TASK

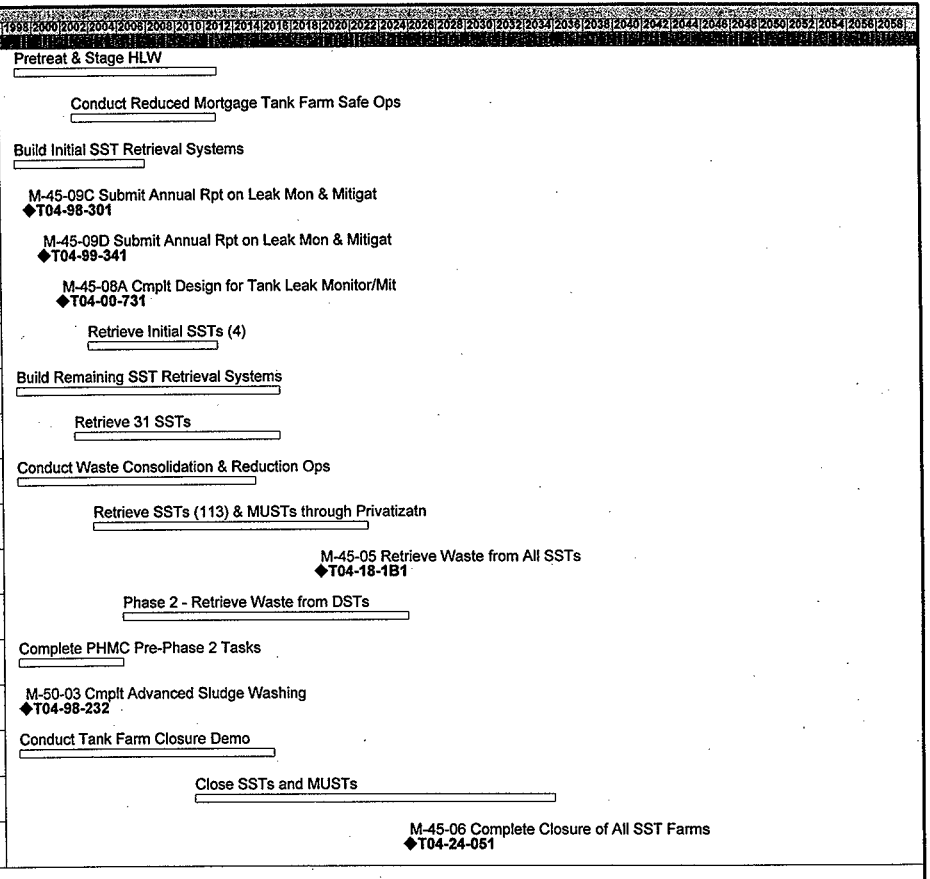


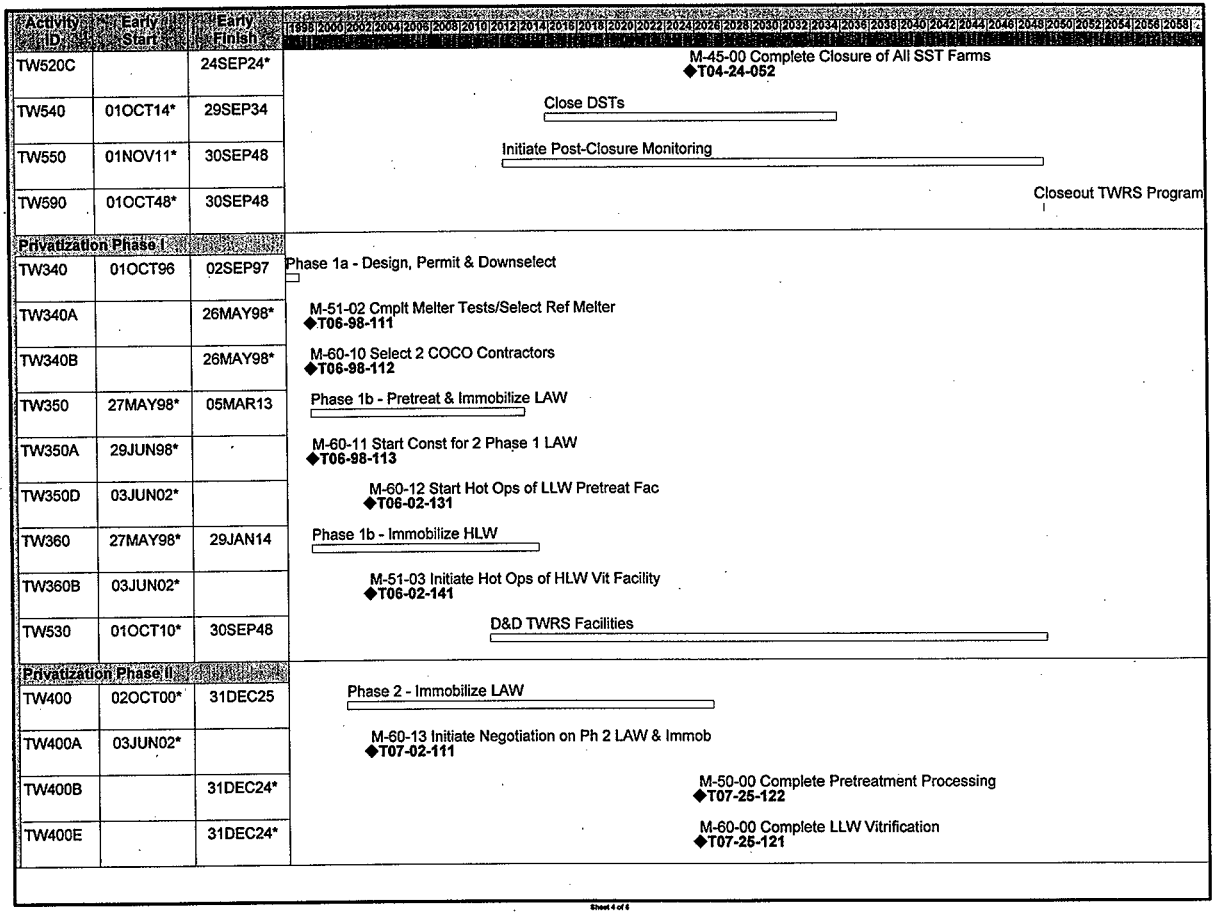
[1] Division of work scope may be seen in the Project Baseline Summaries.


Activity ID
Early Start
Early Finish
1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058
Tank Waste Characterization
TW100 01OCT97* 28SEP01 Characterize Tank Wastes
TW100A 28SEP01 M-44-00A Cmpl Del Info Reqmnts Id in WIRD
◆T01-01-104
Tank Safety Issue Resolution
TW010 01OCT97* 30SEP99 Resolve Criticality Safety Issue
TW010A 30SEP99 M-40-12 Resolve Criticality Safety Issue
◆T02-99-102
TW020 01OCT97* 30SEP98 Resolve Organic Safety Issue
TW030 01OCT97* 28SEP01 Resolve Flammibility Safety Issue
TW030A 28SEP01 M-40-00 Resolve/Mitigate Safety Issues for WL
◆T02-01-100
TW170 01OCT97* 30SEP05 Establish & Implement Authorization Basis
Tank Farm Operations
TW190 01OCT97* 30SEP05 Conduct Tank Farm Safe Operation
TW210 01OCT97* 31MAR98 W-058 Construct Cross-Site Transfer Line
TW210A 26FEB98* M-43-07 Repl of X-site Xfer Line Complt (W-058)
◆T03-98-162
TW220 06MAR97* 15DEC97 W-030 Upgrade Vent 241 AY & AZ
TW2201 16DEC97 13APR98 W-030 Closeout
TW220A 15DEC97 M-43-01C Begin Operations Project W-030
◆T03-98-053
TW230 01OCT97* 30SEP04 Perform Saltwell Pumping & Intrusion Prevention
Project Start 01OCT96
Project Finish 30SEP05
Data Date 01OCT96
Run Date 16SEP97
© Primavera Systems, Inc.
PMBS Bar
Progress Bar
T3000
Sheet 1 of 6
Tank Waste Remediation Systems
Site Master Baseline Sched

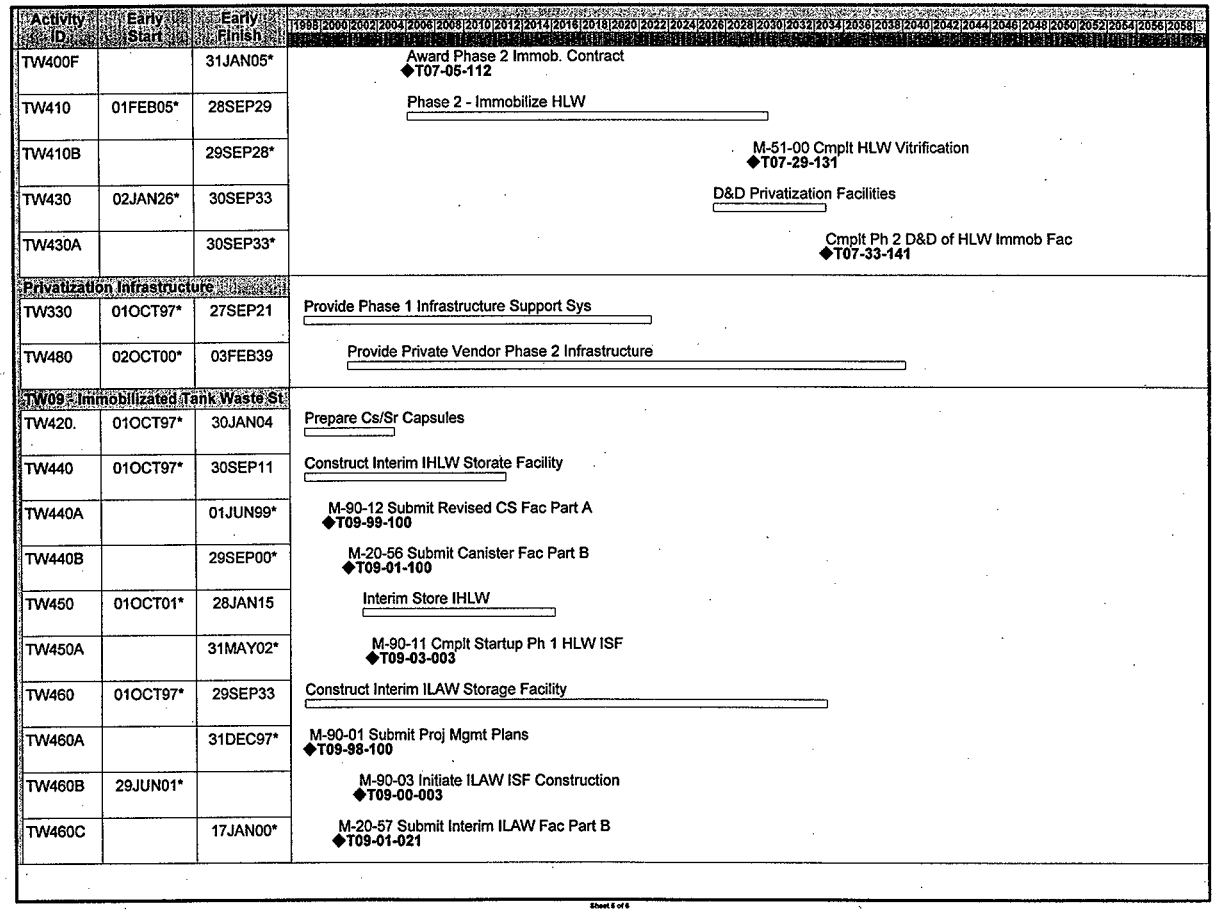
Activity ID	Early Start	Early Finish	1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058
TW230A		31JUL03*	M-41-00 Complete SST Interim Stabilization ◆T03-00-193
TW240	01OCT97*	29SEP00	Install Remote Monitoring Equipment
TW250	31JAN97*	28MAR02	W-314 Upgrade Tank Farms Phase 1
TW650	01OCT97*	30SEP03	Investig. Radionuclide Migration in Vadose Zone
TW660	02OCT00*	30MAY07	W-314 Upgrade Tank Farms Phase 2
TW660A		30JUN05*	M-43-00 Complete Tank Farm Upgrades ◆T03-05-051
TW670	01OCT97*	30SEP04	Disposition Inactive Tank Farm Facilities
TW680	01OCT97*	30SEP05	Perform Tank Farm Compliance Enhancements
Waste Retrieval			
TW050	01OCT97*	04NOV99	Sluice C-106 SST (High Heat)
TW050A	30NOV98*		M-45-03A Initiate Sluicing Retrieval of C-106 ◆T04-98-161
TW06A	01OCT97*	28SEP00	Develop SST Retrieval & Closure Methods & Req.
TW06B	01OCT97*	28SEP01	Develop SST Retrieval & Closure Metods & Req
TW110	01OCT97*	31MAR99	Demonstrate DST Retrieval (W-151)
TW120	01OCT97*	31OCT11	Build/Install Phase 1 DST Retrieval Sys (W-211)
TW130	01OCT97*	25JUN09	Retrieve Waste from DSTs
TW150	01OCT97*	26SEP12	Stage for LAW Pretreat & Immobilize
TW150B		30SEP98*	M-45-02C Submit Annual SST Retrieval Sequen Doc ◆T04-98-241
TW150C		30SEP99*	M-45-02D Submit Annual SST Retrieval Sequen Doc ◆T04-99-241

Activity ID	Early Start	Early Finish
TW160	30OCT97*	31OCT11
TW200	01OCT01*	30SEP11
TW270	01OCT97*	04OCT06
TW270C		30SEP98*
TW270D		30SEP99*
TW270H		29DEC00*
TW280	01OCT02*	30SEP11
TW290	01OCT97*	31DEC15
TW300	03OCT01*	31DEC15
TW320	01OCT97*	31MAR14
TW370	31JAN03*	30DEC21
TW370A		28SEP18*
TW380	03FEB05*	02OCT24
TW490	01OCT97*	02FEB05
TW490A		31MAR98*
TW510	01OCT97*	19JUN15
TW520	04JAN10*	29SEP34
TW520B		24SEP24*



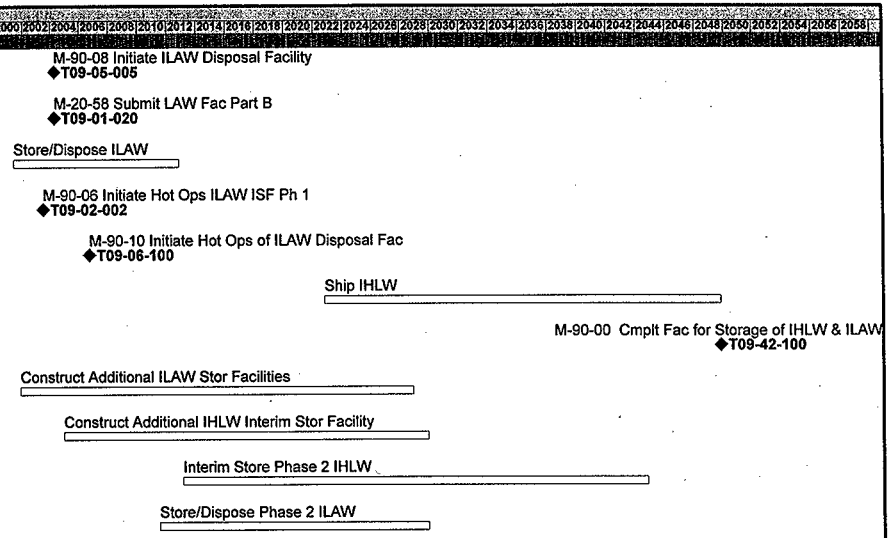

Activity ID
Early Start
Early Finish
1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058
TW520C 24SEP24*
M-45-00 Complete Closure of All SST Farms
◆T04-24-052
TW540 01OCT14* 29SEP34
Close DSTs
TW550 01NOV11* 30SEP48
Initiate Post-Closure Monitoring
TW590 01OCT48* 30SEP48
Closeout TWRS Program
Privatization Phase I
TW340 01OCT96 02SEP97
Phase 1a - Design, Permit & Downselect
TW340A 26MAY98*
M-51-02 Cmplt Melter Tests/Select Ref Melter
◆T06-98-111
TW340B 26MAY98*
M-60-10 Select 2 COCO Contractors
◆T06-98-112
TW350 27MAY98* 05MAR13
Phase 1b - Pretreat & Immobilize LAW
TW350A 29JUN98*
M-60-11 Start Const for 2 Phase 1 LAW
◆T06-98-113
TW350D 03JUN02*
M-60-12 Start Hot Ops of LLW Pretreat Fac
◆T06-02-131
TW360 27MAY98* 29JAN14
Phase 1b - Immobilize HLW
TW360B 03JUN02*
M-51-03 Initiate Hot Ops of HLW Vit Facility
◆T06-02-141
TW530 01OCT10* 30SEP48
D&D TWRS Facilities
Privatization Phase II
TW400 02OCT00* 31DEC25
Phase 2 - Immobilize LAW
TW400A 03JUN02*
M-60-13 Initiate Negotiation on Ph 2 LAW & Immob
◆T07-02-111
TW400B 31DEC24*
M-50-00 Complete Pretreatment Processing
◆T07-25-122
TW400E 31DEC24*
M-60-00 Complete LLW Vitrification
◆T07-25-121

Sheet 4 of 6


Activity ID
Early Start
Early Finish
1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058
TW400F 31JAN05*
Award Phase 2 Immob. Contract
T07-05-112
TW410 01FEB05* 28SEP29
Phase 2 - Immobilize HLW
TW410B 29SEP28*
M-51-00 Cmplt HLW Vitrification
T07-29-131
TW430 02JAN26* 30SEP33
D&D Privatization Facilities
TW430A 30SEP33*
Cmplt Ph 2 D&D of HLW Immob Fac
T07-33-141
Privatization Infrastructure
TW330 01OCT97* 27SEP21
Provide Phase 1 Infrastructure Support Sys
TW480 02OCT00* 03FEB39
Provide Private Vendor Phase 2 Infrastructure
TW09 - Immobilizated Tank Waste St
TW420. 01OCT97* 30JAN04
Prepare Cs/Sr Capsules
TW440 01OCT97* 30SEP11
Construct Interim IHLW Storate Facility
TW440A 01JUN99*
M-90-12 Submit Revised CS Fac Part A
T09-99-100
TW440B 29SEP00*
M-20-56 Submit Canister Fac Part B
T09-01-100
TW450 01OCT01* 28JAN15
Interim Store IHLW
TW450A 31MAY02*
M-90-11 Cmplt Startup Ph 1 HLW ISF
T09-03-003
TW460 01OCT97* 29SEP33
Construct Interim ILAW Storage Facility
TW460A 31DEC97*
M-90-01 Submit Proj Mgmt Plans
T09-98-100
TW460B 29JUN01*
M-90-03 Initiate ILAW ISF Construction
T09-00-003
TW460C 17JAN00*
M-20-57 Submit Interim ILAW Fac Part B
T09-01-021

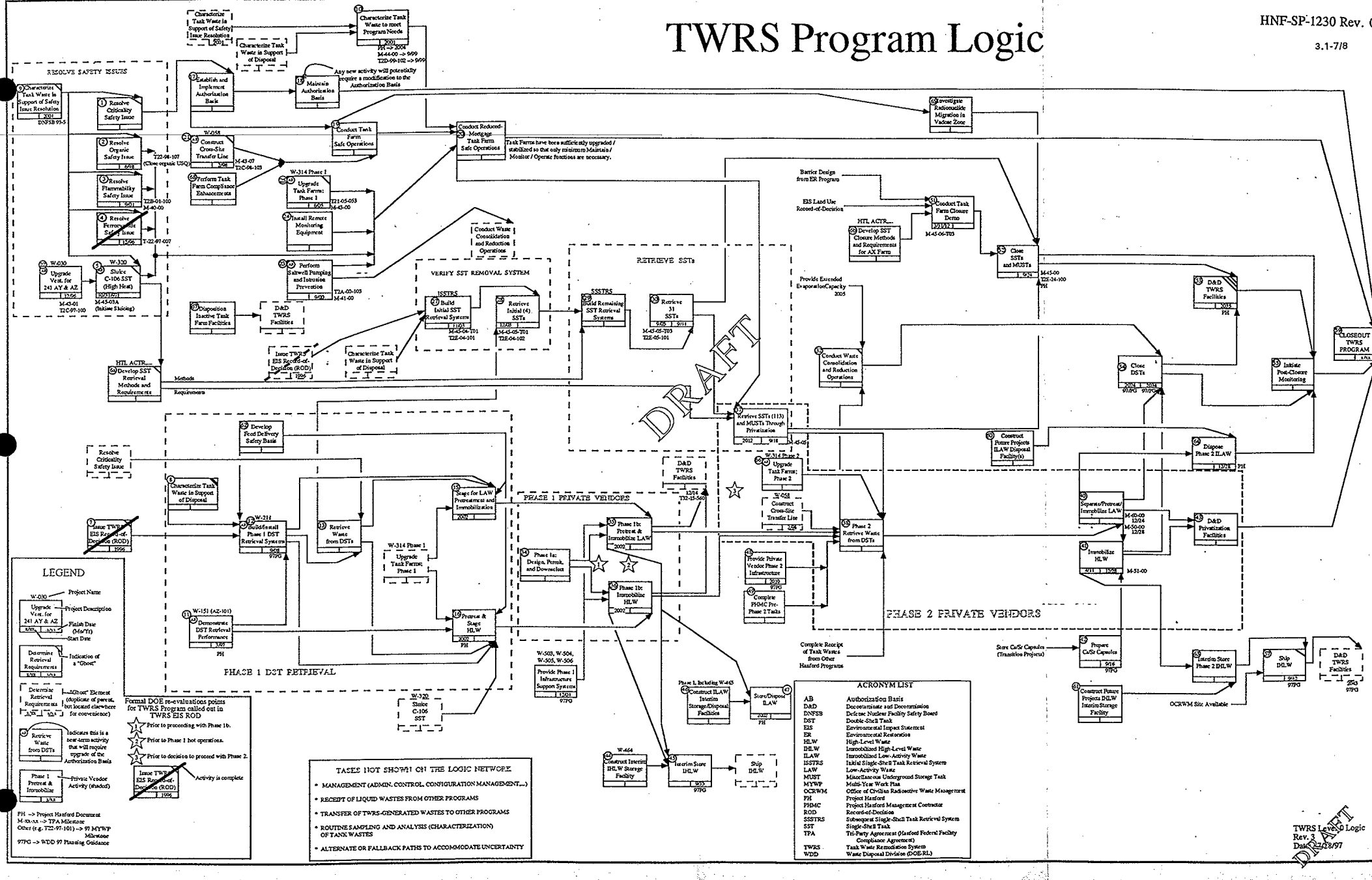
Sheet 6 of 6

Activity ID	Early Start	Early Finish
TW460D	01APR03*	
TW460E		31MAR03*
TW470	31MAY00*	31OCT11
TW470A	03JUN02*	
TW470B	01AUG05*	
TW570.	01OCT21*	30SEP48
TW570A		30SEP48*
TW600	02OCT00*	30SEP27
TW610	01OCT03*	29SEP28
TW630	03JAN12*	30SEP43
TW640	04MAY10*	29SEP28



Sheet 6 of 6

TWRS Program Logic



Milestone #	TPA #	WBS #	Title	TPA Date	Schedule Date
T03-00-193	M-41-00	1.1.2.1	COMPLETE SINGLE-SHELL TANK INTERIM STABILIZATION (M-41-00)	09/30/00	7/31/03
T03-98-151	M-41-23	1.1.2.1	START INTERIM STABILIZATION OF EIGHT (8) SINGLE-SHELL TANKS (M-41-23)	03/31/98	6/1/99
T03-98-152	M-41-24	1.1.2.1	START INTERIM STABILIZATION OF NINE (9) SINGLE-SHELL TANKS (M-41-24)	09/30/98	7/5/00
T03-99-191	M-41-25	1.1.2.1	START INTERIM STABILIZATION OF THREE (3) SINGLE-SHELL TANKS (M-41-25)	03/31/99	1/2/01
T03-99-192	M-41-26	1.1.2.1	START INTERIM STABILIZATION OF TWO (2) SINGLE-SHELL TANKS (M-41-26)	09/30/99	5/1/01
T03-00-196	M-41-27	1.1.2.1	COMPLETE SALTWELL PUMPING OF SINGLE-SHELL TANKS (M-41-27)	09/30/00	7/31/03
T03-05-051	M-43-00	1.1.2.1	COMPLETE TANK FARM UPGRADES (M-43-00)	06/30/05	6/30/05
T03-98-052	M-43-01	1.1.2.1	COMPLETE PROJECT W-030 TANK FARM VENTILATION UPGRADES (M-43-01)	12/31/97	2/12/98
T03-98-053	M-43-01C	1.1.2.1	BEGIN OPERATION FOR W-030, TANK FARM VENTILATION UPGRADES (M-43 01C)	12/31/97	12/15/97
T03-98-162	M-43-07	1.1.2.1	COMPLETE PROJECT W-058 REPLACEMENT OF CROSS-SITE TRANSFER SYSTEM (M-43-07)	02/28/98	2/26/98
T03-98-161	M-43-07C	1.1.2.1	CROSS SITE TRANSFER SYSTEM OPERATIONAL (M-43-07C)	02/28/98	2/26/98
T03-98-054	M-43-11	1.1.2.1	PROVIDE THE W-314 PROJECT CONSTRUCTION SCHEDULE TO ECOLOGY (M-43-11)	09/30/98	9/30/98
T03-99-055	M-43-12	1.1.2.1	START CONSTRUCTION FOR UPGRADES IN THE FIRST TANK FARM (M-43-12)	06/30/99	6/30/99
T03-00-056	M-43-13	1.1.2.1	START CONSTRUCTION FOR UPGRADES IN THE SECOND TANK FARM (M-43-13)	06/30/00	6/30/00
T03-01-057	M-43-14	1.1.2.1	START CONSTRUCTION FOR UPGRADES IN THE THIRD TANK FARM (M-43-14)	03/31/01	3/30/01
T03-02-058	M-43-15	1.1.2.1	START CONSTRUCTION FOR UPGRADES IN THE FOURTH TANK FARM (M-43-15)	03/31/02	3/29/02
T03-03-059	M-43-16	1.1.2.1	START CONSTRUCTION FOR UPGRADES IN THE FIFTH TANK FARM (M-43-16)	06/30/03	6/30/03
T03-98-101	M-46-00E	1.1.2.1	DOUBLE-SHELL TANK SPACE EVALUATION (M-46-00E)	09/30/98	9/30/98

Milestone #	TPA #	WBS #	Title	TPA Date	Schedule Date
T03-99-103	M-46-00F	1.1.2.1	DOUBLE-SHELL TANK SPACE EVALUATION (M-46-00F)	09/30/99	9/30/99
T03-00-105	M-46-00G	1.1.2.1	DOUBLE-SHELL TANK SPACE EVALUATION (M-46-00G)	09/30/00	9/29/00
T03-98-100	M-46-01D	1.1.2.1	CONCURRENCE OF ADDITIONAL TANK ACQUISITION (M-46-01D)	11/30/97	11/26/97
T03-99-102	M-46-01E	1.1.2.1	CONCURRENCE OF ADDITIONAL TANK ACQUISITION (M-46-01E)	11/30/98	11/30/98
T03-00-104	M-46-00F	1.1.2.1	CONCURRENCE OF ADDITIONAL TANK ACQUISITION (M-46-01F)	11/30/99	11/30/99
T02-01-100	M-40-00	1.1.2.2	MITIGATE/RESOLVE TANK SAFETY ISSUES FOR HIGH PRIORITY WATCH LIST TANKS (M-40-00)	09/30/01	9/28/01
T02-98-100	M-40-09	1.1.2.2	CLOSE ALL UNREVIEWED SAFETY QUESTIONS FOR DOUBLE-SHELL & SINGLE-SHELL TANKS (M-40-09)	09/30/98	9/30/98
T02-99-102	M-40-12	1.1.2.2	NUCLEAR CRITICALITY SAFETY ISSUE RESOLVED (M-40-12)	09/30/99	9/30/99
T01-01-104	M-44-00A	1.1.2.4	COMPLETE DELIVERY OF INFORMATION REQUIREMENTS IDENTIFIED IN WIRD	PROPOSED	9/28/01
T01-98-100	M-44-13B	1.1.2.4	SUBMIT DRAFT WIRD FOR FY99 TO ECOLOGY	PROPOSED	6/30/98
T01-99-100	M-44-13C	1.1.2.4	SUBMIT DRAFT WIRD FOR FY00 TO ECOLOGY	PROPOSED	6/30/99
T01-00-103	M-44-13D	1.1.2.4	SUBMIT DRAFT WIRD FOR FY01 TO ECOLOGY	PROPOSED	6/30/00
T01-98-101	M-44-14B	1.1.2.4	SUBMIT FINAL WIRD FOR FY 99 TO ECOLOGY	PROPOSED	8/31/98
T01-99-100	M-44-14C	1.1.2.4	SUBMIT FINAL WIRD FOR FY00 TO ECOLOGY	PROPOSED	8/31/99
T01-00-104	M-44-14D	1.1.2.4	SUBMIT FINAL WIRD FOR FY01 TO ECOLOGY	PROPOSED	8/31/00
T01-98-169	M-44-15B	1.1.2.4	ISSUE CHARACTERIZATION DELIVERABLES CONSISTENT WITH WIRD DEVELOPED FOR FY98	PROPOSED	9/30/98
T01-99-144	M-44-15C	1.1.2.4	ISSUE CHARACTERIZATION DELIVERABLES CONSISTENT WITH WIRD DEVELOPED FOR FY99	PROPOSED	9/30/99
T01-00-105	M-44-15D	1.1.2.4	ISSUE CHARACTERIZATION DELIVERABLES CONSISTENT WITH WIRD DEVELOPED FOR FY00	PROPOSED	9/29/00
T01-01-102	M-44-15E	1.1.2.4	ISSUE CHARACTERIZATION DELIVERABLES CONSISTENT WITH WIRD DEVELOPED FOR FY01	PROPOSED	9/28/01
T01-98-170	M-44-16B	1.1.2.4	COMPLETE INPUT FOR HLW TANKS PER WIRD FY98	PROPOSED	9/30/98

Milestone #	TPA #	WBS #	Title	TPA Date	Schedule Date
T01-99-145	M-44-16C	1.1.2.4	COMPLETE INPUT FOR HLW TANKS PER WIRD FY99	PROPOSED	9/30/99
T01-00-106	M-44-16D	1.1.2.4	COMPLETE INPUT FOR HLW TANKS PER WIRD FY00	PROPOSED	9/29/00
T01-01-103	M-44-16E	1.1.2.4	COMPLETE INPUT FOR HLW TANKS PER WIRD FY01	PROPOSED	9/28/00
T04-24-052	M-45-00	1.1.3.1	COMPLETE CLOSURE OF ALL SINGLE SHELL TANK FARMS (M-45-00)	09/30/24	9/24/24
T04-98-241	M-45-02C	1.1.3.1	SUBMIT ANNUAL UPDATE OF SST RETRIEVAL SEQUENCE DOCUMENT FOR ECOLOGY APPROVAL (M-45-02C)	09/30/98	9/30/98
T04-99-241	M-45-02D	1.1.3.1	SUBMIT ANNUAL UPDATE OF SST RETRIEVAL SEQUENCE DOCUMENT FOR ECOLOGY APPROVAL (M-45-02D)	09/30/99	9/30/99
T04-98-161	M-45-03A	1.1.3.1	INITIATE SLUICING RETRIEVAL OF C-106 (M-45-03A)	10/31/97	11/30/98
T04-18-1B1	M-45-05	1.1.3.1	RETRIEVE WASTE FROM ALL REMAINING SINGLE-SHELL TANKS (M-45-05)	09/30/18	9/28/18
T04-24-051	M-45-06	1.1.3.1	COMPLETE CLOSURE OF ALL SINGLE-SHELL TANK FARMS (M-45-06)	09/30/24	9/24/24
T04-03-791	M-45-08	1.1.3.1	ESTABLISH FULL-SCALE CAPABILITY FOR MITIGATION OF WASTE TANK LEAKAGE DURING RETRIEVAL SLUICING OPERATIONS (M-45-08)	06/30/03	6/30/03
T04-00-731	M-45-08A	1.1.3.1	COMPLETE SYSTEMS DESIGN AND OPERATING STRATEGY FOR TANK LEAK MONITORING AND MITIGATION FOR SYSTEMS TO BE USED IN CONJUNCTION WITH INITIAL RETRIEVAL SYSTEMS FOR SSTs (M-45-08A)	12/31/00	12/29/00
T04-03-792	M-45-08B	1.1.3.1	COMPLETE DEMONSTRATION AND INSTALLATION OF LEAK MONITORING AND MITIGATION SYSTEMS FOR INITIAL SST RETRIEVAL (M-45-08B)	06/30/03	6/30/03
T04-98-301	M-45-09C	1.1.3.1	SUBMIT ANNUAL PROGRESS REPORTS ON THE DEVELOPMENT OF WASTE TANK LEAK MONITORING/DETECTION AND MITIGATION ACTIVITIES IN SUPPORT OF M-45-08 (M-45-09C)	09/30/98	9/30/98
T04-99-341	M-45-09D	1.1.3.1	SUBMIT ANNUAL PROGRESS REPORTS ON THE DEVELOPMENT OF WASTE TANK LEAK MONITORING / DETECTION AND MITIGATION ACTIVITIES IN SUPPORT OF TPA M-45-08 (M-45-09D)	09/30/99	9/30/99

Milestone #	TPA #	WBS #	Title	TPA Date	Schedule Date
T04-00-341	M-45-09E	1.1.3.1	SUBMIT ANNUAL PROGRESS REPORTS ON THE DEVELOPMENT OF WASTE TANKS LEAK MONITORING/DETECTION AND MITIGATION ACTIVITIES (M-45 09E)	09/30/00	9/29/00
T04-98-232	M-50-03	1.1.3.1	COMPLETE EVALUATION OF ENHANCED SLUDGE WASHING TO DETERMINE WHETHER ADVANCED SLUDGE SEPARATION PROCESSES ARE REQUIRED (M-50-03)	03/31/98	3/31/98
T09-01-100	M-20-56	1.1.3.4	SUBMIT CANISTER FACILITY PART B DANGEROUS WASTE PERMIT APPLICATION TO ECOLOGY (M-20-56)	12/31/00	9/29/00
T09-01-021	M-20-57	1.1.3.4	SUBMIT INTERIM ILAW FACILITY PART B DANGEROUS WASTE PERMIT APPLICATION TO ECOLOGY (M-20-57)	12/31/00	1/17/00
T09-01-020	M-20-58	1.1.3.4	SUBMIT LAW FACILITY PART B DANGEROUS WASTE PERMIT TO ECOLOGY (M-20-58)	12/31/03	3/31/03
T09-42-100	M-90-00	1.1.3.4	COMPLETE FACILITIES FOR STORAGE OF IHLW AND ILAW AND DISPOSE OF ILAW (M-90-00)	TBD - 6 months after approval of Project Management Plan	9/30/48
T09-98-100	M-90-01	1.1.3.4	SUBMIT INTERIM STORAGE AND DISPOSAL ILAW AND INTERIM STORAGE IHLW PROJECT MANAGEMENT PLANS TO ECOLOGY (M-90-01)	12/31/97	12/31/97
T09-00-003	M-90-03	1.1.3.4	INITIATE ILAW INTERIM STORAGE FACILITY CONSTRUCTION (M-90-03)	06/30/01	6/29/01
T09-02-002	M-90-06	1.1.3.4	INITIATE HOT OPERATIONS OF ILAW INTERIM STORAGE FACILITY (M-90-06)	12/31/02	6/3/02
T09-05-005	M-90-08	1.1.3.4	INITIATE ILAW DISPOSAL FACILITY CONSTRUCTION (M-90-08)	06/30/03	4/1/03
T09-06-100	M-90-10	1.1.3.4	INITIATE HOT OPERATIONS OF ILAW DISPOSAL FACILITY (M-90-10)	12/31/05	8/1/05
T09-03-003	M-90-11	1.1.3.4	COMPLETE CANISTER STORAGE FACILITY CONSTRUCTION (M-90-11)	12/31/02	5/31/02
T09-99-100	M-90-12	1.1.3.4	SUBMIT REVISED CANISTER STORAGE FACILITY PART A DANGEROUS WASTE PERMIT APPLICATION TO ECOLOGY (M-90-12)	06/30/99	6/1/99

3.2 Tri-Party Agreement Milestone Report

Milestone #	TPA #	WBS #	Title	TPA Date	Schedule Date
T06-98-111	M-51-02	1.1.3.6	COMPLETE MELTER TESTS AND SELECT REFERENCE MELTER (M-51-02)	09/30/98	5/26/98
T06-02-141	M-51-03	1.1.3.6	INITIATE HOT OPERATIONS OF THE HLW VITRIFICATION FACILITY (M-51-03)	12/31/09	6/3/02
T06-98-112	M-60-10	1.1.3.6	SELECT TWO (2) COCO CONTRACTORS AND ISSUE AUTHORIZATION TO PROCEED WITH PART B WORK FOR LAW PRETREATMENT AND IMMOBILIZATION (M-60-10)	07/31/98	5/26/98
T06-98-113	M-60-11	1.1.3.6	START OF CONSTRUCTION FOR TWO (2) PHASE I LAW PRETREATMENT AND IMMOBILIZATION FACILITIES (M-60-11)	30 days after completion of M-60-10	6/29/98
T06-02-131	M-60-12	1.1.3.6	START OF HOT OPERATIONS OF TWO (2) COCO PHASE I LAW PRETREATMENT AND IMMOBILIZATION FACILITIES (M-60-12)	12/31/02	6/3/02
T07-25-122	M-50-00	1.1.3.7	COMPLETE PRETREATMENT PROCESSING OF HANFORD TANK WASTE (M-50-00)	12/31/28	12/31/24
T07-29-131	M-51-00	1.1.3.7	COMPLETE VITRIFICATION OF HANFORD HIGH LEVEL TANK WASTE (M-51-00)	12/31/28	9/29/28
T07-25-121	M-60-00	1.1.3.7	COMPLETE PRETREATMENT AND IMMOBILIZATION OF HANFORD LOW ACTIVITY TANK WASTE (LAW) (M-60-00)	12/31/24	12/31/24
T07-02-111	M-60-13	1.1.3.7	INITIATE NEGOTIATIONS ON PHASE 2 LAW PRETREATMENT AND IMMOBILIZATION MILESTONE (M-60-13)	12/31/03	6/3/02
-	M-45-02	-	SUBMIT ANNUAL UPDATES OF SST RETRIEVAL SEQUENCE DOCUMENT (M-45-02)	09/30/17	Not in schedule. See Note 1
-	M-50-04	-	START HOT OPERATIONS OF HLW PRETREATMENT FACILITY (M-50-04)	06/30/08	Not in schedule. See Note 2.

Note 1 This milestone was not included in the schedule because it is expected that this effort (final retrieval sequence document (2017) will be privatized as part of Phase II Retrieval.

Note 2 This milestone was not included in the schedule because it is not consistent with the Retrieval technical baseline. We are not planning to build distinct HLW pretreatment facilities over that required for in-tank sludge washing. A TPA change request to delete this milestone is being prepared.

4.0 COST BASELINE

4.1 ESTIMATE BASIS

The Tank Waste Remediation Systems (TWRS) fiscal year (FY) 1998 Multi-Year Work Plan (MYWP) estimate was developed using Activity-Based Cost (ABC) estimating methodology. Briefing material from the Fluor Daniel Hanford, Inc. (FDH) FY 1998 MYWP Cost Estimating Workshop as well as the draft FDH Cost Estimating Procedure were distributed to the TWRS Project personnel for information and use during development of the MYWP.

The TWRS Integrated Baseline has been developed to define the technical scope, schedule and cost for the Project that are incorporated in this MYWP. The scope, schedule and cost baselines are interrelated and have been integrated. The Hanford Site Technical Baseline requirements have been incorporated in the TWRS Technical Baseline through development of TWRS technical specifications. Level 0, Level 1, and mid-level logics were developed to define the tasks and interfaces necessary to meet the technical requirements. The Logics were then further decomposed into the hierarchy of schedules and work breakdown structure to define all activities required to complete the work. Upon validation of the technical and schedule basis, detailed resource estimates were prepared by schedule activity, the schedule resource loaded and priced to define the cost baseline. The schedule and cost data (FY 1998) are subsequently input into the Financial Data System (FDS) to produce the fiscal year baseline budget plan utilized for performance measurement and reporting. Planning and escalation rates used are consistent with those developed by the FDH Chief Financial Officer, approved by the Department of Energy Richland Operations Office and transmitted to the subcontractors. The official rates have been incorporated in the FDS Budget Tables to establish the cost baseline.

This MYWP is the product of an iterative planning process to arrive at baselines consistent with the revised TWRS priority strategy to retrieve, treat, immobilize and dispose of tank waste. The MYWP guidance for this strategy includes the latest Project Baseline Summaries (PBS's), Integrated Priority List (IPL) and other guidance documentation provided by DOE.

Due to significant variations in the current phases of the TWRS projects and available scope definition, many estimating techniques have been utilized in development of the cost estimate. They include definitive, parametric, analogy, trend analysis, level of effort and engineering judgement. ABC estimates for the scope of work have been prepared at the lowest level of detail practical. As expected, the level of scope definition and estimate detail is greatest for the near-term activities and less well defined in later years. Through the annual planning process and change control, the execution year and outyear estimate basis will continue to be refined, updated and validated. For FY 1998, cost estimate detail has been prepared at the task package level. For FY 1999 and 2000, cost estimate detail has been prepared to the cost account level as a minimum, with greater detail in most areas. For FY 2001 through 2006, estimate detail has been prepared to the WBS activity level as a minimum with additional detail to the cost account level or lower in most areas (particularly as it applies to the TWRS Waste Disposal Projects). Beyond FY 2007, cost estimate detail has been prepared at the cost account level or lower as part of the TWRS Waste Disposal planning.

The Estimate Basis is contained in numerous technical scope, schedule and cost baseline and supporting documents. The Estimate Basis includes the following key data:

- Technical scope
- Purpose of the project
- Assumptions and exclusions
- Work breakdown structure
- Technique and historical basis
- Cost estimating relationship (CER) development (as applicable)
- Labor rates, unit rates, and unit cost sources
- Escalation amounts and sources
- Contingency calculation development (as applicable to authorized Expense and Capital funded line item projects)
- Legal Drivers
- Labor costs
- Technical logic diagrams
- Integrated, logic driven, resource loaded schedules
- Responsibility assignment matrices
- Other costs that will be reflected in the budget for the particular project or program

The baseline and supporting documentation that contains the Estimate Basis are located in the respective TWRS project offices in the 200 East and West Areas, 2440 Stevens Center Building and the Sigma IV Building.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS :	1.1

PBS TITLE	PBS NO	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
TANK WASTE CHARTZ'N PROJECT	RL-TW01	57,706	47,543	39,024	37,239	35,016	2,949	1,613	2,761	3,455	1,013	226,319
TANK SAFETY ISSUE RESOL'N PJT	RL-TW02	34,070	30,522	27,434	22,279	8,312	1,500	1,541	1,582	1,625	-	128,865
TANK FARM OPERATIONS	RL-TW03	156,948	116,832	122,129	100,427	86,111	90,706	99,694	74,454	56,031	29,338	932,670
RETRIEVAL PROJECT	RL-TW04	26,919	57,230	72,128	96,628	92,944	103,200	119,016	121,604	126,152	171,716	987,537
PROCESS WASTE SUPPORT	RL-TW05	6,025	8,250	7,799	9,111	9,102	17,384	17,394	15,756	13,766	40,814	145,401
PRIVATIZ'N PHASE 1	RL-TW06	-	-	-	-	-	-	-	-	-	-	-
PRIVATIZ'N PHASE II	RL-TW07	-	-	-	-	-	-	-	-	-	-	-
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	5,893	6,340	19,246	16,566	8,108	25,642	1,639	1,354	52,338	51,967	189,093
IMMOBILIZED TANK WASTE STORA	RL-TW09	4,968	11,513	10,107	33,098	56,639	37,795	73,312	99,266	14,203	35,750	376,651
TWRS MANAGEMENT SUPPORT	RL-TW10	30,644	35,929	31,808	27,852	29,168	43,524	20,231	24,789	55,130	-	299,075
TWRS EM-50 TANK CORROSION	RL05WT21	-	-	-	-	-	-	-	-	-	-	-
TWRS EM-50 HTI	RL07WT61	7,000	7,000	10,000	10,000	-	-	-	-	-	-	34,000
TOTAL BCWS/PMB[1]		330,173	321,159	339,675	353,200	325,400	322,700	334,440	341,566	322,700	330,598	3,321,611
TWRS UNFUNDED												
RETRIEVAL PROJECT	RL-TW04	-		-	-	-	-	-	-	-	-	-
PRIVATIZ'N PHASE 1	RL-TW06	-	54,000	-	-	-	253,382	766,252	769,304	766,251	763,198	3,372,387
PRIVZTIZ'N PHASE II	RL-TW07	-	-	-	-	-	-	-	-	-	-	-
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	-	-	-	-	-	-	46,693	48,145	-	-	94,838
TOTAL BCWS PMB AND UNFUNDED		330,173	375,159	339,675	353,200	325,400	576,082	1,147,385	1,159,015	1,088,951	1,093,796	6,788,836

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

1) CURRENT ESTIMATE OF FY 1998 & FY 1999 NON-PHMC COSTS (NAT'L LAB, RL FUNDING) ARE $7,345, $3,320 RESPECTIVELY (SUBJECT TO CHANGE)

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS :	1.1													TOTAL
PBS TITLE	PBS NO	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
TANK WASTE CHARTZ'N PROJECT	RL-TW01	1,175	-	-	-	-	-	-	-	-	-	-	-	229,494
TANK SAFETY ISSUE RESOL'N PJT	RL-TW02	-	-	-	-	-	-	-	-	-	-	-	-	128,865
TANK FARM OPERATIONS	RL-TW03	29,359	-	-	-	-	-	-	-	-	-	-	-	962,029
RETRIEVAL PROJECT	RL-TW04	539,470	90,475	49,443	78,437	110,419	126,716	3,738	3,739	3,742	3,739	3,739	2,989	2,004,183
PROCESS WASTE SUPPORT	RL-TW05	167,088	192,425	176,945	176,904	106,207	-	-	-	-	-	-	-	964,970
PRIVATIZ'N PHASE I	RL-TW06	-	232,524	-	-	-	-	-	-	-	-	-	-	232,524
PRIVATIZ'N PHASE II	RL-TW07	-	-	-	-	-	-	-	-	-	-	-	-	-
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	324,603	418,027	345,242	338,024	295,338	123,607	1,667	-	-	-	-	-	2,035,601
IMMOBILIZED TANK WASTE STORA	RL-TW09	242,961	470,761	874,609	956,599	145,227	1,283,764	2,740,042	1,684,774	61,008	-	-	-	8,836,396
TWRS MANAGEMENT SUPPORT	RL-TW10	-	-	-	-	-	-	-	-	-	-	-	-	299,075
TWRS EM-50 TANK CORROSION	RL06WT21													-
TWRS EM-50 HTI	RL07WT61													34,000
TOTAL BCWS/PMB[1]		1,304,656	1,404,212	1,446,239	1,549,964	657,191	1,534,087	2,745,447	1,688,513	64,750	3,739	3,739	2,989	15,727,137
TWRS UNFUNDED														
RETRIEVAL PROJECT	RL-TW04	-	1,734,337	759,492	235,683	46,440	-	-	-	-	-	-	-	2,775,952
PRIVATIZ'N PHASE I	RL-TW06	1,967,122	304,493	-	-	-	-	-	-	-	-	-	-	5,644,002
PRIVZTIZ'N PHASE II	RL-TW07	-	6,843,394	4,571,510	1,543,601	252,518	-	-	-	-	-	-	-	13,211,023
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	-	-	-	-	-	-	-	-	-	-	-	-	94,838
TOTAL BCWS PMB AND UNFUNDED		3,271,778	10,286,436	6,777,241	3,329,248	956,149	1,534,087	2,745,447	1,688,513	64,750	3,739	3,739	2,989	37,452,952

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS :	1.1

PBS TITLE	PBS NO	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
TANK WASTE CHARTZ'N PROJEC	RL-TW01	54,643	47,543	39,024	37,239	35,016	2,949	1,613	2,761	3,455	1,013	225,256
TANK SAFETY ISSUE RESOL'N PJ	RL-TW02	32,700	30,522	27,434	22,279	8,312	1,500	1,541	1,582	1,625	-	127,495
TANK FARM OPERATIONS	RL-TW03	140,952	110,739	122,129	100,427	86,111	90,706	99,694	74,454	56,031	29,338	910,581
RETRIEVAL PROJECT	RL-TW04	24,843	57,230	72,128	96,628	92,944	103,200	119,016	121,604	126,152	171,716	985,461
PROCESS WASTE SUPPORT	RL-TW05	5,581	8,250	7,799	9,111	9,102	17,384	17,394	15,756	13,766	40,814	144,957
PRIVATIZ'N PHASE I	RL-TW06	-	-	-	-	-	-	-	-	-	-	-
PRIVATIZ'N PHASE II	RL-TW07	-	-	-	-	-	-	-	-	-	-	-
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	6,246	6,340	19,246	16,566	8,108	25,642	1,639	1,354	52,338	51,967	189,446
IMMOBILIZED TANK WASTE STOR	RL-TW09	5,145	11,513	10,107	33,098	56,639	37,795	73,312	99,266	14,203	35,750	376,828
TWRS MANAGEMENT SUPPORT	RL-TW10	19,000	35,929	31,808	27,852	29,168	43,524	20,231	24,789	55,130	-	287,431
TWRS EM-50 TANK CORROSION	RL06WT21	200	-	-	-	-	-	-	-	-	-	200
TWRS EM-50 HTI	RL07WT61	7,000	7,000	10,000	10,000	-	-	-	-	-	-	34,000
TOTAL NEW B/A		296,310	315,066	339,675	363,200	325,400	322,700	334,440	341,866	322,700	330,598	3,261,855
TWRS UNFUNDED												
RETRIEVAL PROJECT	RL-TW04	-	-	-	-	-	-	-	-	40,000	24,000	64,000
PRIVATIZ'N PHASE I	RL-TW06	156,000	427,000	325,000	465,000	63,001	160,000	460,000	460,000	460,000	460,000	3,436,001
PRIVZTIZ'N PHASE II	RL-TW07	-	-	-	-	-	-	-	-	179,000	188,000	367,000
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	-	-	-	-	-	-	46,693	48,145	-	-	94,838
TOTAL NEW B/A AND UNFUNDED		452,310	742,066	664,675	828,200	388,401	482,700	841,133	849,011	1,001,700	1,002,598	7,243,494

1) CURRENT ESTIMATE OF FY 1998 & FY 1999 NON-PHMC COSTS (NAT'L LAB, RL FUNDING) ARE $7,345, $3,320 RESPESTIELY (SUBJECT TO CHANGE)

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS :	1.1

PBS TITLE	PBS NO	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051 FY2055	FY2056 FY2060	FY2061 FY2064	TOTAL FY1997-FY2064
TANK WASTE CHARTZ'N PROJEC	RL-TW01	1,175	-	-	-	-	-	-	-	-	-	-	-	226,431
TANK SAFETY ISSUE RESOL'N PJ	RL-TW02	-	-	-	-	-	-	-	-	-	-	-	-	127,495
TANK FARM OPERATIONS	RL-TW03	29,359	-	-	-	-	-	-	-	-	-	-	-	939,940
RETRIEVAL PROJECT	RL-TW04	539,470	90,475	49,443	78,437	110,419	126,716	3,738	3,739	3,742	3,739	3,739	2,989	2,002,107
PROCESS WASTE SUPPORT	RL-TW05	167,088	192,425	176,945	176,904	106,207	-	-	-	-	-	-	-	964,526
PRIVATIZ'N PHASE 1	RL-TW06	-	232,524	-	-	-	-	-	-	-	-	-	-	232,524
PRIVATIZ'N PHASE II	RL-TW07	-	-	-	-	-	-	-	-	-	-	-	-	-
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	324,603	418,027	345,242	338,024	295,338	123,607	1,667	-	-	-	-	-	2,035,954
IMMOBILIZED TANK WASTE STOR	RL-TW09	242,961	470,761	874,609	956,599	145,227	1,283,764	2,740,042	1,684,774	61,008	-	-	-	8,836,573
TWRS MANAGEMENT SUPPORT	RL-TW10	-	-	-	-	-	-	-	-	-	-	-	-	287,431
TWRS EM-50 TANK CORROSION	RL06WT21	-	-	-	-	-	-	-	-	-	-	-	-	200
TWRS EM-50 HTI	RL07WT61	-	-	-	-	-	-	-	-	-	-	-	-	34,000
TOTAL NEW B/A		1,304,656	1,404,212	1,446,239	1,349,964	657,191	1,534,087	2,745,447	1,688,513	64,750	3,739	3,739	2,989	15,687,181
TWRS UNFUNDED														
RETRIEVAL PROJECT	RL-TW04	722,000	984,000	731,000	228,000	46,952	-	-	-	-	-	-	-	2,775,952
PRIVATIZ'N PHASE 1	RL-TW06	1,840,000	300,001	-	-	-	-	-	-	-	-	-	-	5,576,002
PRIVZTIZ'N PHASE II	RL-TW07	1,975,000	5,942,758	3,132,000	1,544,000	250,265	-	-	-	-	-	-	-	13,211,023
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	-	-	-	-	-	-	-	-	-	-	-	-	94,838
TOTAL NEW B/A AND UNFUNDED		5,841,656	8,630,971	5,309,239	3,121,964	954,408	1,534,087	2,745,447	1,688,513	64,750	3,739	3,739	2,989	37,344,996

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS	PROJECT TITLE	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
1.1	TANK WASTE REMEDIATION SYSTEM	Operating Expense	28,005	21,887	25,218	24,745	22,017	24,169	24,058	20,960	22,808	21,539	21,064	20,701	277,171
		CENRTC	185	224	356	457	421	435	351	236	227	202	138	52	3,284
		GPP	0	0	0	0	0	0	0	0	0	0	0	0	0
		Line Item	3082	2510	3198	3521	2910	3240	3428	3288	3593	3753	3536	4645	40,704
		Total BCWS/PMB[1]	31,272	24,621	28,772	28,723	25,348	27,844	27,837	24,484	26,628	25,494	24,738	25,398	321,159
		Mgmt Reserve[2]													0
		Line Item Contingency[2]													0
		Offsite Transfers[3]													0
Total			31,272	24,621	28,772	28,723	25,348	27,844	27,837	24,484	26,628	25,494	24,738	25,398	321,159

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is Not Included.
[2]Management Reserve and Line Item Contingency Held By RL.

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS	PROJECT TITLE		COST ELEMENT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
1.1	TANK WASTE REMEDIATION SYSTEM	0	Salaries	15,009,004	11,874,731	13,577,297	13,450,534	11,958,252	13,679,894	13,424,936	11,877,495	13,131,437	12,534,531	12,313,167	12,065,966	154,897,244
		1	Material	804,229	583,961	658,888	786,791	722,736	819,143	702,068	600,477	658,853	627,440	605,741	580,353	8,150,680
		2	Purchased Serv	4,693,437	3,410,302	3,923,354	3,729,438	3,347,684	4,197,015	3,944,811	3,316,583	3,507,313	3,410,291	3,325,999	3,139,429	43,945,656
		3	Other Contr Chgs	2,190,466	1,942,087	2,385,957	2,348,032	2,186,628	2,297,538	2,482,321	2,162,953	2,294,959	1,898,522	1,784,077	1,706,783	25,680,323
		4	Internal Serv	721,711	571,259	663,745	634,011	592,857	705,699	706,302	631,160	709,842	681,575	674,467	655,849	7,948,477
		5	Internal Chgs	266,465	208,538	246,098	227,889	233,832	404,061	822,673	266,049	261,687	308,775	292,960	1,541,433	5,080,460
		6	LMSI	76,827	60,126	70,147	67,884	62,131	71,941	71,816	64,538	70,835	67,345	67,619	73,090	824,299
		7	Overheads	1,347,012	1,054,183	1,229,881	1,229,881	1,112,749	1,288,446	1,288,446	1,171,315	1,288,446	1,229,881	1,229,881	1,229,879	14,700,000 [2]
		8	Revenue													0
		9	Enterprise Cos	6,162,853	4,915,813	6,016,636	6,248,544	5,131,132	4,380,264	4,393,627	4,393,431	4,704,629	4,735,641	4,444,092	4,405,218	59,931,880
Total BCWS/PMB[1]				31,272,004	24,621,000	28,772,003	28,723,004	25,348,001	27,844,001	27,837,000	24,484,001	26,628,001	25,494,001	24,738,003	25,398,000	321,159,019

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **Not** Included.
[2]$14,700,000 in cost element 7 is fee only.

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1										
PBS Title	PBS NO	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
TANK WASTE CHARTZ'N PROJECT	RL-TW01	286.2	231.6	222.1	216.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	100.7	80.7	52.2	23.5	0.0	0.0	0.0	0.0	0.0	0.0
TANK FARM OPERATIONS	RL-TW03	613.1	578.2	**	**	**	**	**	**	**	**
RETRIEVAL PROJECT	RL-TW04	180.9	149.5	146.5	175.4	231.9	240.8	249.6	218.7	455.1	433.2
PROCESS WASTE SUPPORT	RL-TW05	4.3	3.8	3.1	2.9	3.3	3.3	3.3	3.3	3.3	3.3
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	30.2	23.3	19.9	96.5	187.4	8.2	8.2	8.2	8.2	8.2
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	31.0	25.5	53.8	96.0	131.8	79.0	98.4	106.9	75.5	78.9
TWRS MANAGEMENT SUPPORT	RL-TW10	122.2	96.4	51.3	42.1	36.8	36.8	36.9	36.8	0.0	0.0
Total PBS FTEs		1368.7	1188.9	**	**	**	**	**	**	**	**

** Specific FTE'S Unavailable

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1										
PBS Title	PBS NO	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK FARM OPERATIONS	RL-TW03	**	**	**	**	**	**	**	**	**	**
RETRIEVAL PROJECT	RL-TW04	436.6	434.0	432.0	405.5	6.5	5.0	3.5	0.1	7.7	7.6
PROCESS WASTE SUPPORT	RL-TW05	3.3	3.3	6.4	4.3	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	6.8	13.3	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	8.2	23.5	25.7	31.4	30.3	23.2	22.7	22.7	22.8	20.5
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	87.2	88.9	83.6	72.7	60.4	109.8	107.6	97.1	104.4	97.8
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total PBS FTEs		**	**	**	**	**	**	**	**	**	**

** Specific FTE'S Unavailable

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1										
PBS Title	PBS NO	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK FARM OPERATIONS	RL-TW03	**	**	**	**	**	**	**	**	**	**
RETRIEVAL PROJECT	RL-TW04	7.6	9.5	9.5	9.5	9.5	9.5	9.4	1.2	1.2	4.6
PROCESS WASTE SUPPORT	RL-TW05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	20.5	20.6	20.6	20.6	20.6	20.5	20.6	20.6	20.6	20.6
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	96.7	97.1	97.1	97.1	97.0	96.6	97.0	97.0	98.8	107.7
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total PBS FTEs		**	**	**	**	**	**	**	**	**	**

** Specific FTE'S Unavailable

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1										
PBS Title	PBS NO	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK FARM OPERATIONS	RL-TW03	**	**	**	**	**	**	**	**	**	**
RETRIEVAL PROJECT	RL-TW04	7.5	7.7	7.8	6.2	0.0	0.0	0.0	0.0	0.0	0.0
PROCESS WASTE SUPPORT	RL-TW05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	20.6	16.5	15.3	15.3	15.4	15.3	0.0	0.0	0.0	0.0
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	98.6	10.1	10.1	10.1	10.2	10.1	9.7	40.9	40.4	40.2
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total PBS FTEs		**	**	**	**	**	**	**	**	**	**

** Specific FTE'S Unavailable

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1										
PBS Title	PBS NO	FY 2038	FY 2039	FY 2040	FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK FARM OPERATIONS	RL-TW03	**	**	**	**	**	**	**	**	**	**
RETRIEVAL PROJECT	RL-TW04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROCESS WASTE SUPPORT	RL-TW05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	40.2	40.2	40.2	40.2	40.2	40.2	0.8	0.8	0.8	0.8
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total PBS FTEs		**	**	**	**	**	**	**	**	**	**

** Specific FTE'S Unavailable

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1									
PBS Title	PBS NO	FY 2048	FY 2049	FY 2050	FY 2051	FY 2052	FY 2053	FY 2054	FY 2055	FY 2056	FY 2057
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK FARM OPERATIONS	RL-TW03	**	**	**	**	**	**	**	**	**	**
RETRIEVAL PROJECT	RL-TW04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROCESS WASTE SUPPORT	RL-TW05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total PBS FTEs		**	**	**	**	**	**	**	**	**	**

** Specific FTE'S Unavailable

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1									
PBS Title	PBS NO	FY 2058	FY 2059	FY 2060	FY 2061	FY 2062	FY 2063	FY 2064	FY 2065	FY 2066	FY 2067
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANK FARM OPERATIONS	RL-TW03	**	**	**	**	**	**	**	**	**	**
RETRIEVAL PROJECT	RL-TW04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROCESS WASTE SUPPORT	RL-TW05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE 1	RL-TW06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N PHASE II	RL-TW07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRIVATIZ'N INFRASTRUCTURE	RL-TW08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IMMOBILIZED TANK WASTE STORAGE	RL-TW09	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TWRS MANAGEMENT SUPPORT	RL-TW10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total PBS FTEs		**	**	**	**	**	**	**	**	**	**

** Specific FTE'S Unavailable

CONTENTS

TANK WASTE CHARACTERIZATION (RL-TW01)

1.0 TECHNICAL BASELINE

1.1 PROJECT MISSION

The Tank Waste Characterization Project was established to characterize the Hanford Site high-level radioactive waste and to ensure safe storage and retrieval/disposal of this waste. This waste is stored in large, underground, radioactive waste storage double-shell tanks and single-shell tanks. The work involved is to plan, sample, analyze, and report tank waste contents. Activities include program management, characterization data development, sampling equipment, acquire samples and measurements, and sample analyses.

1.2 Drivers for Tank Waste Characterization Project

Source Documents for Tank Waste Characterization Project

Name	Title
DE-AC06-96RL13200	Project Hanford Management Contract, Fluor Daniel Hanford, Inc.
DOE/RL-96-14	Updated Draft Mission Direction Document, June 1996

1.3 Tank Waste Characterization Project Risk Management

The Characterization Project provides support to maintain minimum safe storage of waste within SSTs and DSTs. This includes sampling for Operating Safety Document (OSD) requirements for maintenance of caustic conditions to minimize tank corrosion, to support SST stabilization and other waste transfers between tanks, support to SST flammable gas program to better understand phenomenological efforts of gas retention in various types of tank waste, to support privatization and evaporator efforts, to support identification of organic issues, to understand the phenomenological effects of organic complexant solubility and aging (decomposition), to satisfy information needs, and to provide tank waste content reports.

Activities are required to control existing material, waste, and facilities in a safe, stable condition. No remediation will occur unless determined to be safety related.

PBS Title: Tank Waste Characterization Project

Unit of Analyses:

1) TWRS Tank Waste Characterization (Support to Minimum Safe)
2) TWRS Tank Waste Characterization (Support to SST Stabilization)
3) TWRS Tank Waste Characterization (Support to SST Flammable Gas)
4) TWRS Tank Waste Characterization (Support to Evaporator)
5) TWRS Tank Waste Characterization (Organic Support)
6) TWRS Tank Waste Characterization (Support to Disposal Sampling)
7) TWRS Tank Waste Characterization (Support to TPA M-44)
8) TWRS Tank Waste Characterization (RL Support)
9) TWRS Tank Waste Characterization (DNFSB 93-5 Support)
10) TWRS Universal Sampler / Mods / Deployment

Unfunded Regulatory Requirements

1. DNFSB 93-5 requires core and vapor samples from all tanks. Current planning is based on the assumption that TWRS will not need core and
vapor samples from all tanks. The current budget profile does not provide sufficient funding for obtaining core and vapor samples from all
tanks, if needed. The shortfall if sampling of all tanks is required is:

FY 98 $4.25M

FY 99 $14.4M

FY 00 $16.2M

FY 01 $18.7M

FY 02 $50.0M

2. The existing TPA M-44-00 milestone requires all tanks to be sampled and TCRs written on all tanks by September 30, 1999. No TWRS program requires all tanks to be sampled by the end of FY 1999. This shortfall is not recoverable because the required funding to meet M-44-00 was not provided in FY 1996 and FY 1997. The shortfall to meet existing M-44-00 is:

FY 98 greater than $45.0M

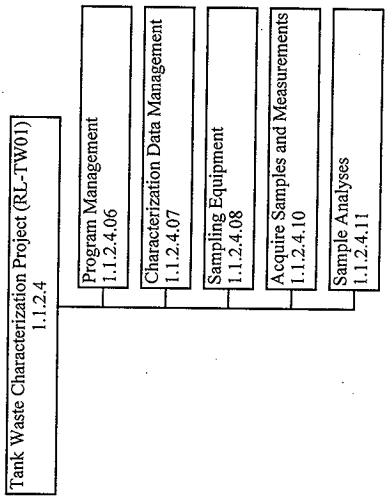
FY 99 greater than $44.0M

3. Because of the inability to meet the existing M-44-00, a proposed TPA change request was negotiated. This proposed change request is currently in the public comment period. It establishes a process to define and meet TWRS tank waste information needs through FY 2002. There is no FY 2002 funding provided to obtain any characterization information to meet TWRS information needs. The shortfall is:

FY 02 $37.5M (This is included in the $50.0M in item 1 above.

4. Sampling to support FY 1998 new start saltwell pumping has been deferred since no saltwell pumping new starts will occur in FY 1998. The shortage is:

FY 98 $1.3M



2.1 WBS Hierarchy

TW01.2-1

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

1. PROGRAM/TITLE PARTICIPANT 1.1 Tank Waste Remediation System 1.1.2 Waste Storage		
2. WBS ELEMENT CODE/LEVEL 1.1.2.4/IV	3. WBS ELEMENT TITLE Tank Waste Characterization Project	
4. CURRENT REV NO 0	5. EFFECTIVE REV DATE October 1, 1997	6. APPROVED CHANGES

ELEMENT DESCRIPTION

1. TECHNICAL BASIS

A. Goals and Objectives

Tank waste contents are to be characterized to ensure an acceptable level of public and worker health and safety in conjunction with safe storage of waste, and safe and cost-effective waste retrieval. The Characterization Project was established to complete this goal. This waste is stored in large, underground, radioactive waste storage double-shell tanks (DSTs) and single-shell tanks (SSTs). Objectives include the development of plans to characterize tank waste, acquire samples and measurements of the tank waste, analyze the tank waste samples, and report tank contents.

B. Major End-Item Deliverables

Characterize as many of the 177 Hanford Site waste tanks as needed to satisfy the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) M-44-00 milestone and the *Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 93-5 Implementation Plan*, DOE/RL-94-0001, latest revision.

2. STATEMENT OF WORK

The Characterization Project supports the following work breakdown structure (WBS) elements.

A. Program Management. Activities for the management of the Project are supplied. Work scope includes: program management; baseline planning and integration; and Environmental, Health, Safety, Quality Assurance, and Radiological Control.

B. Characterization Data Development. Technical bases are developed and information management is supplied. Work scope includes: characterization data development; characterization basis planning; historical data, models and inventory; data assessment and reports; and characterization data management.

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

C. **Sampling Equipment.** Equipment and operational techniques are analyzed and improvements are implemented to optimize sampling efficiency. Work scope includes management of sampling equipment, maintaining core sampling systems, improving sampling equipment availability and effectiveness, and providing alternative sampling systems.

D. **Acquire Samples and Measurements.** Specific sampling methodologies are performed for sampling tank contents and for sampling vapor in tank dome spaces. Work scope includes: management of waste sampling; obtaining physical samples by core sampling, grab sampling, auger sampling, and vapor sampling; and maintenance of sampling equipment.

E. **Sample Analyses.** Timely sample analyses are performed to support safe storage and disposal of tank wastes. Samples will be received, analyzed, archived/stored or disposed. A laboratory analysis report will be issued to document results. Work scope includes: management of sample analyses; analyses for core, grab, auger, and vapor samples; and technology applications.

PLANNING ASSUMPTIONS AND CONSTRAINTS

A. Planning Assumptions

The planning assumptions listed below are for the current planning cycle and are based on current knowledge. Assumptions will be revised as necessary for future planning cycles as new information becomes available.

1) The U. S. Department of Energy, Richland Operations Office (DOE-RL) plans are to sample and analyze condensed phase waste from a sufficient number of the 177 Hanford Site waste tanks to resolve all safety issues except flammable gas and to support privatization phase 1. Additionally, sufficient sampling will be conducted to provide an adequate understanding of flammable gas retention. Resolution of the flammable gas safety issue will be on a tank-by-tank basis which does not require sampling all tanks.

2) Work will be initiated to develop justifications to sample only tanks that require additional characterization data, complete efforts on the high priority tanks (HPTs), eliminate the need for vapor sampling, and close the organic safety issue with minimal additional core sampling.

3) The strategy for identifying tank sampling priorities at the time of sampling is based on various data quality objectives (DQOs) for the Safety and Retrieval Programs and is reflected in the current revision of the *Tank Characterization Technical Sampling Basis (HNF-SD-WM-TA-164)*. HPTs are defined in DNFSB Recommendation 93-5 Implementation Plan, Revision 1 (DOE/RL 94-0001, Revision 1).

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

4) The Safety Program effort to develop a technical justification that the organic solvent safety issue does not exceed risk acceptance guidelines will be successful by December 31, 1997. Tank vapor sampling will be maintained at a rate to satisfy the DNFSB Recommendation 93-5 Implementation Plan milestone 5.4.3.4f (Vapor sample all DSTs) until December 31, 1997.

5) The Characterization Project will maintain compliance with DNFSB Recommendation 93-5 Implementation Plan characterization requirements while completing the transition to top priority, minimum safe operations and preparing for feed delivery in June 2002. Fiscal Year (FY) 1998 sampling and analyses rates will be adequate to meet the following DNFSB Recommendation 93-5 Implementation Plan milestones:

   a) Completion of milestone 5.6.3.1e (Headspace Homogeneity);

   b) Completion of milestone 5.6.3.1f (Standard inventory);

   c) Completion of milestone 5.6.3.1h (Tank-by-tank safety status evaluation);

   d) Completion of milestone 5.6.3.1i (Update or define tank model limitations);

6) Truck sampling crews will be reduced from 5 crews to 3.5 crews, and field sampling crews will be reduced from 2 crews to 1.5 crews.

7) Washington Department of Health (WDOH) will designate the SX farm sludge cooler exhauster as a minor stack not later than September 30, 1997, and the rotary mode core sampling (RMCS) system exhausters as minor stacks not later than October 30, 1997. Designation as minor stacks will eliminate the need for the exhausters to have independently testable high-efficiency particle air (HEPA) filters, isokinetic sampling, or continuous air monitoring, and will allow sampling to occur without modifications to the exhausters or the procedures. There is no workscope or budget provided herein to accomplish any modifications to upgrade either SX farm sludge cooler exhauster or any of the RMCS exhausters to meet the requirements for a major stack.

   a) Sampling will be authorized to begin in SX farm not later than October 4, 1997.

   b) A waiver of the FDH requirement for independently testable HEPA filters for the RMCS exhausters will be granted not later than November 4, 1997, allowing rotary mode core sampling will start not later than November 7, 1997.

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

8) The Organic Safety Program priority tanks remaining to be sampled and analyzed in FY 1998 which are considered critical to early unreviewed safety question (USQ) closure are AX-101 (planned for retained gas sample [RGS] sampling in support of the Flammable Gas Program), C-202, SX-101, SX-103 (if sampled - dependent on establishment of proper ventilated flow rate), SX-106 (planned for RGS in support of the Flammable Gas Program), and TX-104. The Organic Safety Program priority tanks which were sampled in FY 1997 for which lab analysis must be completed in FY 1998 are AX-103 and C-201. Sampling of SX-101, SX-103 (if sampled) and SX-104 is dependent on establishing the appropriate ventilation rates for the tanks.

9) The DNFSB Recommendation 93-5 Implementation Plan, Revision 1, HPTs remaining to be sampled as of October 1, 1997 are: AX-101, BY-103, BY-105, S-110, SX-101, SX-103 (if sampled, see #8 above), SX-104, TX-111, TX-118, and U-107. All tanks except BY-103 and BY-105 will be sampled in FY 1998.

10) There will be twenty-eight (28) core samples collected in FY 1998. Collection of these samples is highly dependent on assumption 7. There is a day-for-day delay in sampling tanks which require RMCS if the dates for designation of the required stacks as minor stacks does not occur when assumed. If the stacks are designated as major stacks, a revised sampling schedule will be developed once a change request is approved to accomplish the required modifications. Samples collected will consist of the following (assumes AX-103 and C-201 are sampled in FY 1997 for the Organic Safety Program):

    a) In support of the Organic Safety Program, twelve (12) core samples will be collected from 5 tanks (AX-101 [an HPT which is also required for the Flammable Gas Program], C-202, SX-101 [HPT], SX-103 [HPT, if sampled - see #8 above)], SX-106 [also required for the Flammable Gas Program] and TX-104) to support early USQ closure. The highest priority for sampling, laboratory analysis, data analysis, and tank characterization report (TCR) preparation will be applied to core sampling which supports early closure of the organic complexant USQ and safety issue.

    b) In support of the Flammable Gas Program, four (4) additional core samples will be collected from 2 tanks (S-102, and a second tank to be determined by the Flammable Gas Program). The Flammable Gas Program also requires RGS samples from two cores from AX-101 (an HPT which will be sampled to support early Organic Nitrate USQ closure) and two cores from SX-106 (a tank which will be sampled to support early organic-nitrate USQ closure). These four cores are counted among the twelve cores for the Organic Safety Program in paragraph a) above.

    c) In support of sampling additional HPTs, ten (10) core samples will be collected from five (5) additional tanks (S-110, SX-104, TX-111, TX-118, and U-107).

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d) In support of the Privatization Project, two (2) full depth sludge samples will be collected from AZ-102, assuming that no modifications are required to either the truck or the casks. These samples will be collected once a DQO is completed; estimated to occur March 1998.

11) There will be thirty (30) grab samples collected in FY 1998. Samples collected will consist of:

a) 18 grab samples in support of Tank Farms Operations; and

b) 12 grab samples in support of the Privatization Project.

NOTE: Indications are that one of the two vendors will require 5 liters from each of the low activity waste (LAW) feed tanks (envelope A, B, and C tank). Two grab samples are considered the equivalent of 5 liters since 2 grabs equaled 5 liters in the FY 1996 Privatization samples for the LAW envelopes. Two liters are required from AZ-101 (envelope D) and are counted as two grab samples because of the high radioactivity levels. These samples will be obtained once a DQO is completed.

c) Saltwell pumping is reduced to continuing to pump tanks in progress; no new starts except emergency pumping of leaking tanks. Therefore, no grab samples in support of saltwell pumping are planned.

d) No evaporator campaign is planned, therefore no grab samples are planned in support of the evaporator.

12) For tank condensed-phase sample analyses, a single laboratory capability will be maintained at the 222-S Facility. Sample analyses throughput will be dependent upon the number of samples received and will change as the monthly sampling rate changes. The sample analyses rate will be based on twenty (20) analytical equivalent units (AEUs) for FY 1998. Since this represents approximately 70 percent of the estimated FY 1998 analytical work scope represented by the planned sampling schedule, prioritization of laboratory analyses will be required. Laboratory analyses of condensed phase samples will be conducted using Characterization Project funding in accordance with tank sampling and analysis plans (TSAPs). These TSAPs will be prepared based on the following DQOs as modified:

a) Bloom, G. R., and Q. H. Nguyen, 1996, *Characterization Data Needs for Development, Design and Operation of Retrieval Equipment Developed through the Data Quality Objective (DQO) Process*, WHC-SD-DQO-008, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

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b) Dukelow, G. T., J. W. Hunt, H. Babad, and J. E. Meacham, 1995, *Tank Safety Screening Data Quality Objective,* WHC-SD-WM-SP-004, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

c) Jones, T. E., K. D. Wiemers, 1996, *Data Requirements for TWRS Privatization Characterization of Potential Low Activity, Waste Feed,* WHC-SD-WM-DQO-023, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

d) Mulkey, C. H., 1997, *Data Quality Objectives for Tank Farms Waste Compatibility Program,* HNF-SD-WM-DQO-001, Rev. 2, Lockheed Martin Hanford Corporation, Richland, Washington.

e) McDuffie, N. G., 1995, *Flammable Gas Tank Safety Program: Data Requirements for Core Sample Analysis Developed Through the Data Quality Objectives (DQO) Process,* WHC-SD-WM-DQO-004, Rev. 2, Westinghouse Hanford Company, Richland, Washington, as modified by:

(1) Cash, R. J., 1996a, *Application of "Flammable Gas Tank Safety Program: Data Requirements for Core Sampling Analysis Developed Through the Data Quality Objectives Process,"* Rev. 2, (internal memo 79300-96-028 to S. J. Eberlein, July 12), Westinghouse Hanford Company, Richland, Washington.

f) Turner, D. A., H. Babad, L. L. Buckley, and J. E. Meacham, 1995, *Data Quality Objective to Support Resolution of the Organic Complexant Safety Issue,* WHC-SD-WM-DQO-006, Rev. 2, Westinghouse Hanford Company, Richland, Washington, as modified by:

(1) Meacham, J. E., 1996a, *Implementation Change Concerning Organic DQO, Rev. 2,* (internal memorandum 2N160-96-006 to distribution, December 2), Duke Engineering & Services Hanford, Richland, Washington

(2) Meacham, J. E., 1996b, *Increase Scope to Organic DQO,* (internal memorandum 2N160-96-003 to J. G. Kristofzski, October 31), Duke Engineering & Services Hanford, Richland, Washington.

(3) Cash, R. J., 1996b, *Scope Increase of "Data Quality Objective to Support Resolution of the Organic Complexant Safety Issue,"* Rev. 2 (internal memorandum #79300-96-029, to S. J. Eberlein, July 12), Westinghouse Hanford Company, Richland, Washington.

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g) Simpson, B. C., and D. J. McCain, 1997, *Historical Model Evaluation Data Requirements*, WHC-SD-WM-DQO-018, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

h) Von Bargen, B. H., 1995, *242-A Evaporator/Liquid Effluent Retention Facility Data Quality Objectives*, WHC-SD-WM-DQO-014, Rev. 1, Westinghouse Hanford Company, Richland, Washington. There is no evaporator campaign planned for FY 1998.

i) Caustic mitigation. Test plans will be used.

j) Sludge washing. Test plans will be used.

Laboratory analyses of condensed-phase samples, which are required in addition to those required by the DQOs and test plans listed above, must be funded by the requesting program/project. Laboratory analyses requested by the following DQOs are not funded within the Characterization Project budget.

a) Mulkey, C. H., 1996, *Data Quality Objectives for Regulatory Requirements for Dangerous Waste Sampling and Analysis*, WHC-SD-WM-DQO-025, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

b) Slankas, T. J., M. J. Kupfer, and W. W. Schulz, 1995, *Data Needs and Attendant Data Quality Objectives for Tank Waste Pretreatment and Disposal*, WHC-SD-WM-DQO-022, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

13) The need to give priority to completing laboratory analyses of the samples from tanks required to support early closure of the organic-nitrate USQ (AX-101, AX-103, C-201, C-202, SX-101, SX-103 (if sampled, see #8 above), SX-106, and TX-104) will require lengthening other tank sample laboratory turn around times.

a) The U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology) allow the 222-S Laboratory to resume transfers of laboratory waste to Tank Farms by October 1, 1997.

14) There will be ten (10) vapor samples collected in support of the Organic Safety Program. Once the 10 samples are collected and analyzed, the Vapor Program will be suspended.

a) Vapor sampling will occur between October 1, 1997 and December 31, 1997.

b) Vapor laboratory funding will be provided to maintain the 200 Area Special Analytical Services (SAS) Laboratory until March 31, 1998 to complete the analyses of these samples. Funding to support facility and personnel ramp down of the SAS Laboratory is YL funding responsibility.

c) Laboratory analyses of vapor samples will be conducted using Characterization Project funding in accordance with TSAPs. These TSAPs will be prepared based on the following DQOs as modified:

(1) Osborne, J. W., and L. L. Buckley, 1995, *Data Quality Objectives for Tank Hazardous Vapor Safety Screening*, WHC-SD-WM-DQO-002, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

(2) Price, D. N., 1994, *Rotary Core Vapor Sampling Data Quality Objective,* WHC-SD-WM-SP-003, Rev. 0, Westinghouse Hanford Company, Richland, Washington, as modified by.

(a) Laws, G. L., 1996, *Status of the Current Understanding of the Toxic Air Pollutants (TAPS) and Hanford Tank Farm Vapor Space Characterization; Recommended Path Forward and Justification for Continued RMCS Exhauster Operations*, (telephone conference memorandum 01830-96-022 to Distribution, March 8), Westinghouse Hanford Company, Richland, Washington.

(b) Draft Organic Solvent DQO which requires measurement of total non-methane hydrocarbons by the TO-12 method.

d) Laboratory analyses of vapor samples which are required in addition to those required by the DQOs and test plans listed above must be funded by the requesting program/project. Laboratory analyses requested by the following DQO is not funded within the Characterization Project budget.

(1) Mulkey, C. H., and K. D. Markillie, 1995, *Data Quality Objective for Regulatory Requirements for Hazardous and Radioactive Air Emissions Sampling and Analysis*, WHC-SD-WM-DQO-021, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

15) Laboratory technology development will be undertaken to:

a) Accomplish a trade study to examine potential technology applications to reduce turn-around times for grab samples in support of privatization.

b) Investigate methods for improving the accuracy and precision of sodium measurements in support of privatization.

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c) Investigate methods for improving the accuracy and precision of technetium measurements in support of privatization.

d) Completing transition of Laser Ablation Mass Spectroscopy to routine analysis use, including definition of anticipated uses in support of privatization.

16) Unit prices for sampling events (Core Sample, Grab Sample, and Vapor Sample) will be based upon the independent cost estimate and FY 1997 actual costs.

17) Acquiring samples and performing sample analyses will continue through FY 2001. At the end of FY 2001, responsibility for continued tank sampling and analyses will be turned over to the Retrieval Program. Retrieval will also assume responsibility for DNFSB 93-5 in the event that DNFSB 93-5 is not closed.

18) The cone penetrometer, surface moisture monitoring system, and the light-duty utility arm (LDUA) will be placed into storage until an appropriate mission is developed and additional funding is provided.

Note: While the Characterization Project currently maintains configuration control of its equipment and documentation, funding is not available to support maintaining technical baseline documents and drawings for all equipment remaining in active status, in compliance with the requirements of CM 6-1. These requirements have been driven by DNFSB Recommendation 95-2. Furthermore, additional scope is expected to be necessary in this area resulting from the continuing transition and consolidation of the Authorization Basis. This anticipated additional scope is not funded. Configuration control will not be maintained for systems placed in standby.

19) Work will be initiated to develop a large volume grab sampler, based on a need for 5 liter samples, for the Privatization Project. The first set of large volume Privatization samples (prior to May 1998) will be taken as grab samples.

20) Core samples will be obtained using core sampling systems #1, #2, #3, and #4 (trucks 1 through 4). Once rotary mode core sampling is authorized in all SST tank farms, core sampling system #2 (truck 2) will be placed in standby.

21) RMCS system #2 (truck 2) will be placed in standby following authorization to rotary mode core sample in all SST tank farms. Standby status includes the following:

a) The truck will be parked in a space which will not incur any additional cost for building space rental;

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b) Only minor preparation for standby status will be performed and only minor periodic effort to maintain the material status of the truck systems will be performed. A study will be performed by Characterization Engineering to provide recommendations for the minimum preparation and periodic maintenance (e.g. gas tank, battery disconnect, rodent protection, desiccants, etc);

c) Current PM and calibration program will be suspended;

d) Configuration control will not be maintained;

e) Spares will not be maintained;

f) Operating and maintenance procedures will not be maintained;

g) No repairs, troubleshooting or periodic maintenance will be conducted; and

h) Placing the truck in standby status will result in an uncertain scope, schedule and cost to return the truck to service.

22) Design of grab sample table modifications to sample tank 241-AZ-101 is funded. Accomplishments of the modifications is not funded. Truck and shipping cask modifications to complete this sampling effort are not funded.

23) No 222-S Laboratory upgrades will be funded.

24) There will be sixteen (16) new TCRs issued and ten (10) TCR revisions issued in FY 1998. Paperless TCRs will be determined to be acceptable for all TCRs produced after January 1998, allowing reduction of the time required to prepare TCRs. This includes the following:

a) New TCRs will be issued on the following: four (4) HPTs (AX-101, SX-101, SX-104, and U-103); two additional tanks which are important to early closure of the organic-nitrate USQ (AX-103 and SX-106), and ten (10) TCRs would be prepared on BX-111, BY-101, BY-109, S-106, T-110, T-112, T-201, T-202, T-203, and T-204.

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b) TCR revisions will be prepared on the following: AN-104 (documentation of laboratory analyses to meet LAW DQO is required by the Tank Waste Remediation System (TWRS) critical path as well a revised best basis inventory), AN-105 (documentation of laboratory analyses to meet LAW DQO is required by the TWRS critical path as well a revised best basis inventory), C-201 (important to organic-nitrate USQ closure and safety issue resolution) and C-202 (important to organic-nitrate USQ closure and safety issue resolution), and six (6) would be prepared on tanks which have had new information obtained since initial publication of the original TCR.

25) An agreement shall be reached to renegotiate and modify Tri-Party Agreement milestones M-44-10, M-44-11, M-44-12, and M-44-00. These milestones pertain to the completion of TCRs. Until this agreement is reached, a funding shortfall exists.

Note: A proposed Tri-Party Agreement change request has been negotiated with the Ecology and EPA, and is in the public comment period which will end on October 18, 1997. It is expected to be approved by November 1, 1997. This proposed change will require the submittal of an annual plan to define TWRS characterization needs. The proposed change will require the M-44-00 milestone to be complete by September 2002.

26) The Tri-Party Agreement currently requires the preparation of TCRs on all 177 tanks using recent (post 1989) sampling. The major milestone is M-44-00 (due September 1999) when all 177 tank TCRs are required to be completed. There are intermediate milestones: M-44-10 (40 TCRs - September 1997), M-44-11 (30 TCRs - September 1998), M-44-12 (14 TCRs - September 1999). Ninety-three TCRs have been delivered to date. There are no programmatic needs driving completion of the remaining TCRs by these dates. A proposed Tri-Party Agreement change request has been negotiated with Ecology and EPA, and is in the public comment period which will end on October 18, 1997. It is expected to be approved by November 1, 1997. This proposed change will require the submittal of an annual plan to define TWRS characterization needs. The Characterization Project will plan and execute all characterization deliverables through September 30, 2001. The proposed change will require the M-44-00 milestone to be complete by September 2002. Delivery of characterization deliverables after FY 2001 and projections of the number of TCRs beyond FY 2001 are the purview of the Retrieval Program.

27) Approximately 200 USQs will be prepared in FY 1998 to support sampling operations. In order to minimize cost with no impact on quality or safety, USQs will be prepared assuming that any reviewer has a level of understanding of the TWRS Authorization Basis equivalent to a qualified engineer with three years experience. This level of understanding will avoid the need to include excessive detail which would be required to allow an inexperienced reviewer to understand the USQ.

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28) It is assumed that the following will be required on an annual basis:

a) Preparation of six presentations for the Project Manager's meetings in support of M-44 Tri-Party Agreement milestones.

b) Preparation and presentation of two presentations to the DNFSB on the status of the DNFSB Recommendation 93-5 Implementation Plan.

c) Preparation and presentation of six presentations to the DNFSB staff on the status of the DNFSB Recommendation 93-5 Implementation Plan.

d) Attendance at six Partnering sessions.

29) The Characterization Project integrates all TWRS tank waste information needs in developing the Project schedule and workscope. Because of this integration, any individual activity on the Project schedule frequently supports more than one TWRS program or project. Because of this, there is not a one-to-one correlation between Characterization Project WBS, activities on the Project schedule, and items on the TWRS Integrated Priority List (IPL). The following cross-walk is provided to facilitate understanding Characterization Project line items on the IPL:

a) Support to Minimum Safe Operations. Grab sampling, laboratory analysis and reporting conducted to support Operational Safety Requirement (OSR) compliance.

b) Support to SST Stabilization. Grab sampling, laboratory analysis and reporting conducted to support saltwell pumping.

c) Support to Flammable Gas. Core sampling, laboratory analysis and reporting conducted to support resolution of the flammable gas USQ.

d) RL Support. RL directed support.

e) Support to Evaporator. Grab sampling, laboratory analysis and reporting conducted to support evaporator operations.

f) Organics Support. Core and vapor sampling, laboratory analysis and reporting conducted to support organic complexant and organic pool safety issue resolution.

g) DNFSB 93-5 Commitments. Standard Inventory, Historical modeling, Tank-by-Tank Safety Analysis, Analysis of High Priority Tanks.

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h) Disposal Sampling. Core sampling of AZ-102 and grab sampling of AZ-101, laboratory analysis and reporting conducted to support privatization feed delivery critical path.

i) Universal Samplers/Equipment Modifications. Restoration of inventory and RMCS modifications completion.

B. Constraints

The constraints below are recognized and accommodated in this Multi-Year Work Plan (MYWP):

1) The scope of the Characterization Project is limited to characterization of wastes and tank headspace vapor in the 177 Hanford Site waste tanks.

2) Physical properties of the waste properties may change during the sampling process. If these properties need to be measured as they currently exist in the tanks, funding must be provided and in situ measurement methods developed and/or deployed. Current DQOs do not require in-situ measurements.

3) Tank core sampling is currently restricted to locations directly beneath risers, and the number of risers that can be used is very limited in most SSTs. In addition, no funding is provided for continued work on the LDUA, cone penetrometer, or on the surface moisture monitoring system (SMMS).

4) Sample size is currently limited, which may restrict analytical protocols.

5) Technical and programmatic risks impact work requirements.

   a) Technical risks are caused by uncertainties in the characteristics and composition of tank waste. These uncertainties include the following:

      (1) assumptions that underlie the technical analyses;

      (2) range of uncertainty surrounding quantitative values used in analyses and models;

      (3) homogeneity of the collected samples; and

      (4) depth, breadth, and completeness of analyses used to support the technical bases.

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b) Programmatic risks involve: achieving the required level of technical excellence within available funding and schedule constraints; managing the Characterization Project to properly consider the values of public interest groups, Native American tribes, local and regional governments, and Washington State agencies; institutional influences; and the merging of new facilities with existing operations and facilities site wide. Factors contributing to the programmatic risks include the following:

(1) incomplete historical operational records, which make data analysis and data interpretation difficult;

(2) uncertainties about the impact of increased safety and hazardous waste requirements on the time and cost to sample the waste (e.g., disposal costs for sampling equipment);

(3) reliability of sampling equipment, which may impact sampling activities;

(4) unscheduled events that may impact scheduled work;

(5) homogeneity of the collected samples;

(6) availability of an adequate number of qualified resources in the time frame required; and

(7) depth of planning and funding stability.

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9/10/1997

1. Activity Title: PROGRAM MANAGEMENT	2. Date	3. PBS Number RL-TW01	4. Dict Rev
5. Contract WBS No. 1.1.2.4.06	6. Corresponding FDS No. N4F	7. Baseline CR No.	
8. Organization Name CHARACTERIZATION PROGRAM			9. B & R No. EW3120074

10. Scope of Work
Goals and Objectives

Provide program management activities for the Characterization Project. Objectives include:

1) Program Management;

2) Planning and Integration; and

3) Environmental, Health, Safety, Quality Assurance, and Radiological Control.

Major End-Item Deliverables

Provide program management for the Characterization Project in accordance with the Multi-Year Work Plan (MYWP) milestones, commitments, budget, planning assumptions, and resource-loaded schedules.

STATEMENT OF WORK

Provide program management for the Characterization Project. Work activities include the following:

1) Program Management will provide:

a) Guidance to sampling operations for tank sampling and to the 222-S Laboratory for sample analyses;

b) Interface with Defense Nuclear Facilities Safety Board (DFSB) and Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) to ensure tracking, scheduling, and reporting of DNFSB Recommendation 93-5 and Tri-Party Agreement commitments are regularly reviewed and completed;

c) Vapor sampling interface to coordinate efforts to resolve safety issues, integration of vapor-related field sampling, laboratory analyses, and data reporting activities;

d) Coordination of DOE-RL work for Characterization Sub-Tank Advisory Panel (Sub-TAP) activities, Tier III reviews, data quality objective (DQO)

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Scope of Work (cont):
support, facilitation for partnering, and support closure of Organic Safety Issue; and

e) Project Management support.

2) Planning and Integration will provide:

a) Baseline work planning and integration;
b) Characterization financial support;
c) Characterization schedules; and
d) On demand purchase order support.

3) Environmental, Health, Safety, Quality Assurance, and Radiological Control will provide:
a) Quality Assurance;
b) Environmental Compliance;
c) Assessment;
d) Health and Safety;
e) Procedure Compliance;
f) Nuclear Safety; and
g) Radiological Control.

PLANNING ASSUMPTIONS AND CONSTRAINTS

The Tank Waste Remediation System (TWRS) Characterization Project has defined planning assumptions and constraints associated with the FY 1998 MYWP. Refer to Level 4 Work Breakdown Structure (WBS) Dictionary (1.1.2.4) for this information.

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8/29/1997

1. Activity Title: CHARACTERIZATION DATA DEVELOPMENT	2. Date	3. PBS Number RL-TW01	4. Dict Rev
5. Contract WBS No. 1.1.2.4.07	6. Corresponding FDS No. N4G	7. Baseline CR No.	
8. Organization Name PROCESS ENGINEERING			9. B & R No. EW3120074

10. Scope of Work
Goals and Objectives

Provide characterization data development activities for the Characterization Project. Objectives include:

1) Characterization data development;

2) Characterization basis planning;

3) Historical data, models, and inventory;

4) Data assessment and reports; and

5) Characterization data management.

Major End-Item Deliverables

Provide characterization data development for the Characterization Project in accordance with the Multi-Year Work Plan (MYWP) milestones, commitments, budget, planning assumptions, and resource-loaded schedules.

STATEMENT OF WORK

Provide characterization data development for the Characterization Project. Work activities include the following:

1) Characterization data development will provide:
   a) Management of the characterization data development; and
   b) Data review.

2) Characterization basis planning will provide:
   a) Characterization process application;
   b) Waste information requirements document;
   c) Sampling analyses plans; and
   d) Data quality objective (DQO) coordination;

3) Historical data, models, and inventory will provide:
   a) Tank waste inventory;
   b) Tank waste modeling; and

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Scope of Work (cont):

c) Historical data and model confidence evaluation.

4) Data assessment and reports will provide:
   a) Laboratory waste analysis reports;
   b) Sampling and laboratory data evaluation; and
   c) Tank characterization reports.

5) Characterization data management will provide:
   a) Tank characterization database;
   b) Data administration; and
   c) Data dissemination.

PLANNING ASSUMPTIONS AND CONSTRAINTS

The Tank Waste Remediation System (TWRS) Characterization Project has defined planning assumptions and constraints associated with the FY 1998 MYWP. Refer to Level 4 Work Breakdown Structure (WBS) Dictionary (1.1.2.4) for this information.

2.2 WBS Dictionary

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8/29/1997

1. Activity Title: SAMPLING EQUIPMENT	2. Date	3. PBS Number RL-TW01	4. Dict Rev
5. Contract WBS No. 1.1.2.4.08	6. Corresponding FDS No. N4H	7. Baseline CR No.	
8. Organization Name CHARACTERIZATION ENGINEERING			9. B & R No. EW3120074

10. Scope of Work
Goals and Objectives

Provide management of sampling equipment activities. Objectives include:

1) Manage the sampling equipment activity;

2) Provide core sampling systems;

3) Maintain sampling equipment availability and effectiveness; and

4) Provide alternative sampling systems.

Major End-Item Deliverables

Provide sampling equipment for the Characterization Project in accordance with the Multi-Year Work Plan (MYWP) milestones, commitments, budget, planning assumptions, and resource-loaded schedules.

STATEMENT OF WORK

Provide sampling equipment for the Characterization Project. Work activities include the following:

1) Manage sampling equipment will provide:
   a) Manage the sampling equipment activity;
   b) Characterization engineering training and professional development;
   c) Engineering performance compliance.

2) Core sampling systems will provide:
   a) Project management for core sampling systems;
   b) Truck #2 rotary mode core sampling system;
   c) Truck #3 and #4 rotary mode core sampling system;
   d) Maintenance of the authorization basis; and
   e) Troubleshooting and field assistance.

3) Sampling equipment availability and effectiveness will provide:
   a) Sampling equipment availability and effectiveness project management;
   b) Safety improvements;

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Scope of Work (cont):

c) Sampling equipment availability and effectiveness improvements;
d) Engineering studies and testing; and
e) Design changes to sample tank AZ-101.

4) Alternative sampling systems will provide:
a) Alternative sampling systems project management;
b) Cone penetrometer and light duty utility arm standby support; and
c) Design and fabrication of a new large volume grab sampler.

PLANNING ASSUMPTIONS AND CONSTRAINTS

The Tank Waste Remediation System (TWRS) Characterization Project has defined planning assumptions and constraints associated with the FY 1998 MYWP. Refer to Level 4 Work Breakdown Structure (WBS) Dictionary (1.1.2.4) for this information.

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9/08/1997

1. Activity Title: ACQUIRE SAMPLES AND MEASUREMENTS	2. Date	3. PBS Number RL-TW01	4. Dict Rev
5. Contract WBS No. 1.1.2.4.10	6. Corresponding FDS No. N4J	7. Baseline CR No.	
8. Organization Name CHARACTERIZATION PROJECT OPERATIONS			9. B & R No. EW3120074

10. Scope of Work
Goals and Objectives

Acquire samples and measurements for the Characterization Project. Objectives include:

1) Manage the waste sampling activity;
2) Provide core sampling of waste;
3) Provide grab sampling of waste;
4) Provide auger sampling of waste; and
5) Provide vapor sampling of waste.

Major End-Item Deliverables

Acquire samples and measurements for the Characterization Project in accordance with the Multi-Year Work Plan (MYWP) milestones, commitments, budget, planning assumptions, and resource-loaded schedules.

STATEMENT OF WORK

Provide samples and measurements for the Characterization Project. Work activities include the following:

1) Management of samples and measurements will provide:
    a) Manage the waste sample activity; and
    b) Inventory Procurement. Provide the necessary procurement of Critical Parts to enable quantities to maintain a level greater than the minimum required.

2) Core sample waste will provide:
    a) Qualification and testing of operators;
    b) Riser selection and field engineering support;
    c) Plan, schedule, and material procurement for sampling;
    d) Riser preparation;
    e) Set up equipment and transportation of samples to the laboratory;
    f) Collect sample;
    g) Field maintenance;
    h) Decontamination of tools and equipment;
    i) Safety, health, and evaluation monitoring;
    j) Corrective maintenance; and

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1 9/08/1997

WBS Dictionary Continuation Page

Scope of Work (cont):

k) Preventive maintenance.

3) Grab sample waste will provide:
   a) Qualification and testing of operators;
   b) Riser selection and field engineering support;
   c) Plan, schedule, and material procurement for sampling;
   d) Riser preparation;
   e) Set up equipment and transportation of samples to the laboratory;
   f) Collect sample;
   g) Field maintenance;
   h) Decontamination of tools and equipment; and
   i) Safety, health, and evaluation monitoring.

4) Auger sample waste will provide:
   a) Qualification and testing of operators;
   b) Riser selection and field engineering support;
   c) Plan, schedule, and material procurement for sampling;
   d) Riser preparation;
   e) Set up equipment and transportation of samples to the laboratory;
   f) Collect sample;
   g) Field maintenance;
   h) Decontamination of tools and equipment; and
   i) Safety, health, and evaluation monitoring.

5) Vapor sample waste will provide:
   a) Qualification and testing of operators;
   b) Riser selection and field engineering support;
   c) Plan, schedule, and material procurement for sampling;
   d) Riser preparation;
   e) Set up equipment and transportation of samples to the laboratory;
   f) Collect sample;
   g) Field maintenance;
   h) Decontamination of tools and equipment; and
   i) Safety, health, and evaluation monitoring.

PLANNING ASSUMPTIONS AND CONSTRAINTS

The Tank Waste Remediation System (TWRS) Characterization Project has defined planning assumptions and constraints associated with the FY 1998 MYWP. Refer to Level 4 Work Breakdown Structure (WBS) Dictionary (1.1.2.4) for this information.

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1

8/29/1997

1. Activity Title: SAMPLE ANALYSES	2. Date	3. PBS Number RL-TW01	4. Dict Rev
5. Contract WBS No. 1.1.2.4.11	6. Corresponding FDS No. N4K	7. Baseline CR No.	
8. Organization Name 222-S Laboratory			9. B & R No. EW3120074

10. Scope of Work
Goals and Objectives

Analyses waste samples for the Characterization Project. Objectives include:

1) Manage the sample analyses activity;

2) Provide core sample analyses;

3) Provide grab sample analyses;

4) Provide auger sample analyses;

5) Provide vapor sample analyses; and

6) Provide technology applications.

Major End-Item Deliverables

Provide sample analyses for the Characterization Project in accordance with the Multi-Year Work Plan (MYWP) milestones, commitments, budget, planning assumptions, and resource-loaded schedules.

STATEMENT OF WORK

Provide sample analyses activities for the Characterization Project. Work activities include the following:

1) Manage sample analyses will provide:
   a) Manage the sample analyses activity;
   b) Facilitate a sample exchange evaluation; and
   c) Sample storage and disposal.

2) Core sample analyses will provide:
   a) Sample receipt;
   b) Sample analyses;
   c) Data administration and reporting;
   d) Hazardous material control;
   e) Sample planning support; and

2.2 WBS Dictionary

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS: 1.1 8/29/1997

WBS Dictionary Continuation Page

Scope of Work (cont):

f) Technical support.

3) Grab sample analyses will provide:
   a) Sample receipt;
   b) Sample analyses;
   c) Data administration and reporting;
   d) Hazardous material control;
   e) Sample planning support; and
   f) Technical support.

4) Auger sample analyses will provide:
   a) Sample receipt;
   b) Sample analyses;
   c) Data administration and reporting;
   d) Hazardous material control;
   e) Sample planning support; and
   f) Technical support.

5) Vapor sample analyses will provide:
   a) Vapor analyses in the SAS laboratory.

6) Technology applications will provide:
   a) Tech 99 analyses;
   b) Sodium assay methods;
   c) Trade study; and
   d) Sludge wash test.

PLANNING ASSUMPTIONS AND CONSTRAINTS

The Tank Waste Remediation System (TWRS) Characterization Project has defined planning assumptions and constraints associated with the FY 1998 MYWP. Refer to Level 4 Work Breakdown Structure (WBS) Dictionary (1.1.2.4) for this information.

Proj Lvl (PBS #)	FDS Act Number	Activity Title	Activity Manager	Responsible Organization	Cost Account
RL-TW01		TANK WASTE CHARACTERIZATION PROJECT			
	N4F	PROGRAM MANAGEMENT	TJ Kelley	CHARACTERIZATION PROGRAM	
	N4G	CHARACTERIZATION DATA DEVELOPMENT	JG Kristofzski	PROCESS ENGINEERING	
	N4H	SAMPLING EQUIPMENT	RE Raymond	CHARACTERIZATION ENGINEERING	
	N4J	ACQUIRE SAMPLES AND MEASUREMENTS	CB Bryan	CHARACTERIZATION PROJECT OPERATIONS	
	N4K	SAMPLE ANALYSES	LF Perkins Jr.	222-S LABORATORY	

Activity ID	Early Start	Early Finish	Activity
TANK WASTE CHARACTERIZATI			
100.001	01OCT97*	31OCT97	Doe Review and approval of DNFSB 5.6.3.1.E
100.001A		31OCT97	DNFSB 5.6.3.1.E Complete (DNFSB) T01-98-158
100.002	01OCT97*	30SEP98	Program Planning/Management
100.003	01OCT98	30SEP99	Program Planning/Management
100.003A		30SEP99	Core Sample 10 Remaining Tanks T01-97-185
100.003B		30SEP99	Compl all FY98 Deliverables (DNFSB 5.6.3.1) T01-97-190
100.004A		30NOV99*	Comp of Vap Samp of all SSTs (RL) DNFSB 5.4.3.4. T01-00-100
100.004B		31DEC99*	Comp of Vap Samp of all SSTs (RL) DNFSB 5.4.3.4. T01-00-101
100.006	01OCT99	28SEP01	Program Planning/Management
100.007A		29SEP00*	Comp of Vap Samp of all SSTs (RL) DNFSB 5.4.3.4. T01-01-100
100.007B		29SEP00*	Comp of Vap Samp of all SSTs (RL) DNFSB 5.4.3.4. T01-01-101
100.014	02JUL01*	30AUG01	Prepare Report for DNFSB
100.014A		30AUG01	DNFSB 5.6.3.1.J Compl (RL)Under Negotiation T01-03-300
100.015	31AUG01	28SEP01	DOE Review and Approval
100.015A		28SEP01	DNFSB 5.6.3.1.J Complete(DNFSB)Under Negotiation T01-03-301
102.002	01OCT97	30SEP98	Characterization Sampling
102.002A		30SEP98	Design Large Volume Sampler T01-98-168
102.002B		30SEP98	Complete 28 Core Samples T01-98-113

FY98 FY99 FY00 FY01 FY02 FY03 FY04

Project Start 01OCT95
Project Finish 28SEP01
Data Date 01OCT96
Plot Date 17SEP97

Early Bar
Progress Bar
Critical Activity

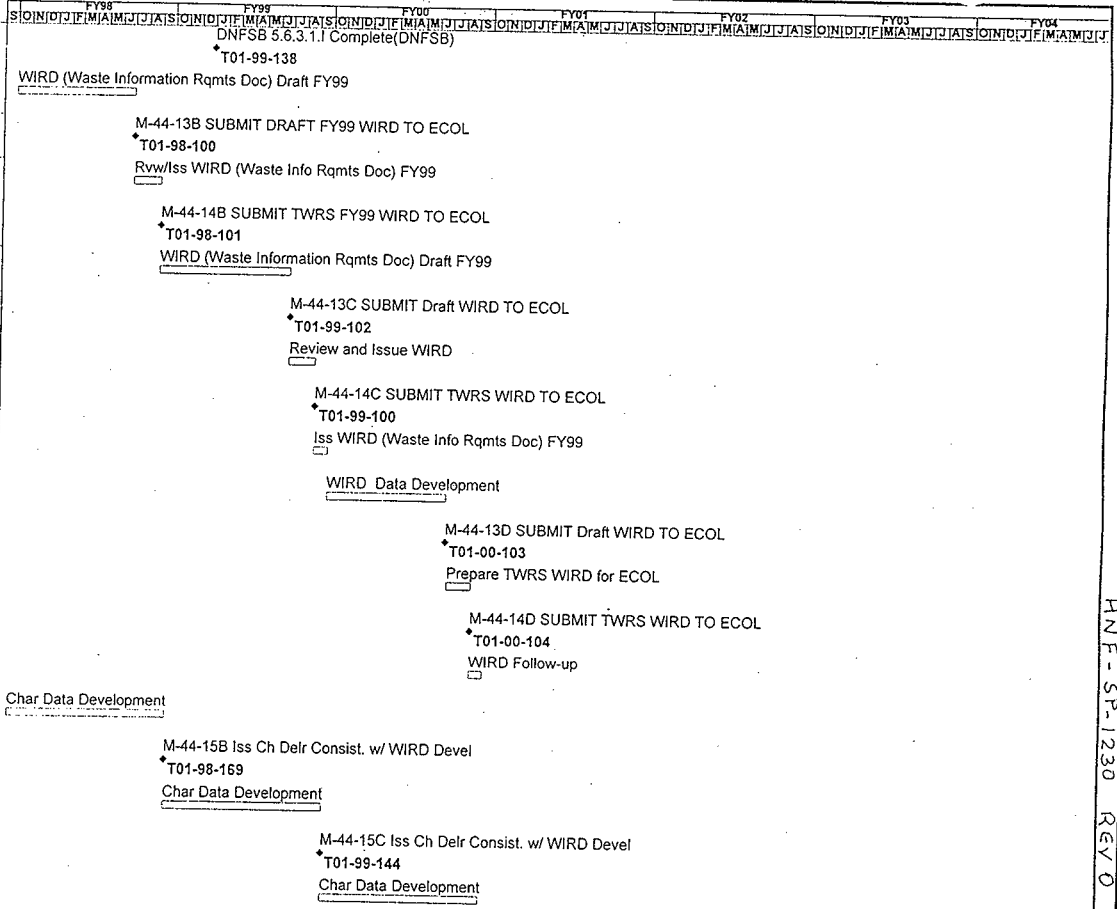
4PM1

Tank Waste Remediation Systems
TK Waste Characterization (RL-TW01)
Project Master Baseline Sched

Activity ID	Early Start	Early Finish	Bar
102.002C		30SEP98	Complete 30 Grab Samples ◆T01-98-116
102.003	01OCT97	31DEC97	Collect Vapor Samples
102.003A		02FEB98*	Complete 10 Vapor Samples ◆T01-98-115
102.006	01OCT98	30SEP99	Characterization Sampling
102.008	01OCT99	29SEP00	Characterization Sampling
102.010	02OCT00	28SEP01	Characterization Sampling
103.002	01OCT97*	30SEP98	Sample Analyses
103.004	01OCT98	30SEP99	Sample Analyses
103.006	01OCT99	29SEP00	Sample Analyses
103.008	02OCT00	28SEP01	Sample Analyses
104.001	01OCT97*	31DEC97	DOE Review and Approval
104.001A		31DEC97	DNFSB 5.6.3.1.F Complete (DNFSB) ◆T01-98-159
104.005	01OCT97	31MAR98	Complete Tank-by-Tank Status Eval
104.005A		30APR98*	DNFSB 5.6.3.1.H Complete (RL) ◆T01-98-136
104.006	01MAY98	29JUL98	DOE Review and Approval
104.006A		31JUL98	DNFSB 5.6.3.1.H Complete (DNFSB) ◆T01-98-161
104.007	01APR98	31JUL98	Complete Tank-by-Tank Status Eval
104.008	01OCT97	30SEP98	HDW Modeling
104.008A		30SEP98	DNFSB 5.6.3.1.I Complete ◆T01-99-113
104.009	01OCT98	30DEC98	DOE Review and Approval

FY98 S O N D J F M A M J J A S | FY99 O N D J F M A M J J A S | FY00 O N D J F M A M J J A S | FY01 O N D J F M A M J J A S | FY02 O N D J F M A M J J A S | FY03 O N D J F M A M J J A S | FY04 O N D J F M A M J J

Activity ID	Early Start	Early Finish
104.009A		30DEC98
104.020	01OCT97*	30JUN98
104.020A		30JUN98
104.022	01JUL98	31AUG98
104.022A		31AUG98
104.024	01SEP98	30JUN99
104.024A		30JUN99
104.026	01JUL99	31AUG99
104.026A		31AUG99
104.027	01SEP99	30SEP99
104.028	01OCT99	30JUN00
104.028A		30JUN00
104.030	05JUL00	31AUG00
104.030A		31AUG00
104.032	01SEP00	29SEP00
104.102	01OCT97*	30SEP98
104.102A		30SEP98
104.110	01OCT98	30SEP99
104.110A		30SEP99
104.114	01OCT99	29SEP00



Activity ID	Early Start	Early Finish	Activity Description
104.114A		29SEP00	M-44-15D Iss Ch Delr Consist. w/ WIRD Devel
			T01-00-105
104.115	02OCT00	29NOV00	DOE Review and Approval
104.115A		29SEP00	DNFSB 5.6.3.1.G Complete (RL)
			T01-98-140
104.115B		29NOV00	DNFSB 5.6.3.1.G Complete (DNFSB)
			T01-98-160
104.120	02OCT00	28SEP01	Char Data Development
104.120A		28SEP01	M-44-15E Iss Ch Delr Consist. w/ WIRD Devel
			T01-01-102
104.120B		28SEP01	M-44-00A Compl Delr of Info Rqmts as in WIRD
			T01-01-104
104.200	01OCT97*	30SEP98	Prepare and Issue TCRs
104.200A		30SEP98	Issue 16 New TCRs
			T01-98-122
104.200B		30SEP98	Update & Reissue 10 TCRs
			T01-98-171
104.200C		30SEP98	M-44-16C Compl Input for HLW Tanks
			T01-98-170
104.200D		30SEP98	Update Best Basis Std Inv Est
			T01-98-153
104.240	01OCT98	30SEP99	Prepare and Issue TCRs
104.240C		30SEP99	M-44-16C Compl Input for HLW Tanks per WIRD FY99
			T01-99-145
104.250	01OCT99	29SEP00	Prepare and Issue TCRs
104.250C		29SEP00	M-44-16D Compl Input for HLW Tanks per WIRD FY00
			T01-00-106
104.260	02OCT00	28SEP01	Prepare and Issue TCRs
104.260C		28SEP01	M-44-16E Compl Input for HLW Tanks per WIRD FY01
			T01-01-103

FY98 S O N D J F M A M J J A S | FY99 O N D J F M A M J J A S | FY00 O N D J F M A M J J A S | FY01 O N D J F M A M J J A S | FY02 O N D J F M A M J J A S | FY03 O N D J F M A M J J A S | FY04 O N D J F M A M J J

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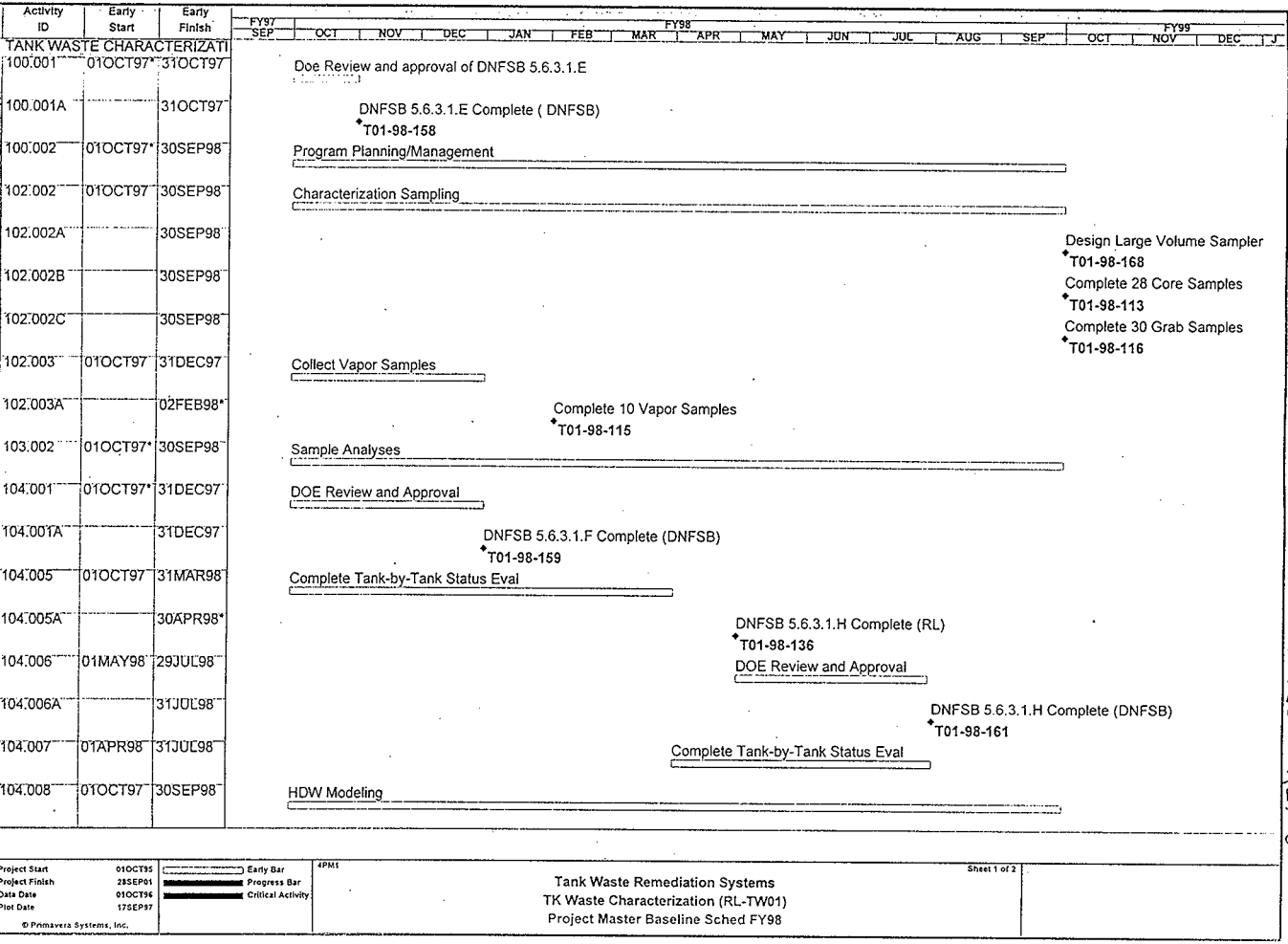
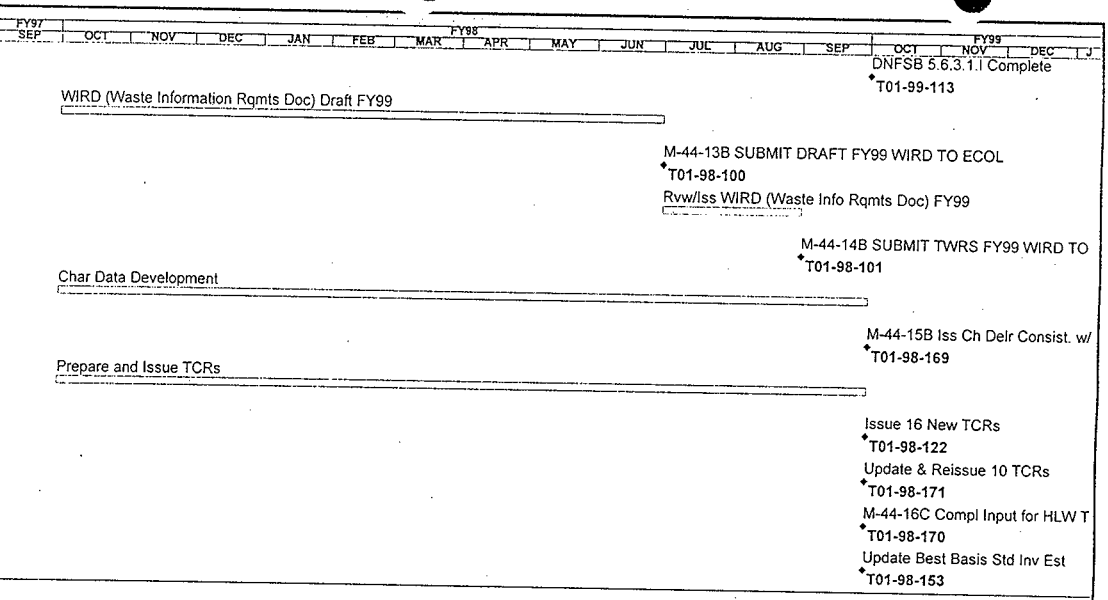


HNF-SP-1230 REV 0

Activity ID	Early Start	Early Finish
104.008A		30SEP98
104.020	01OCT97*	30JUN98
104.020A		30JUN98
104.022	01JUL98	31AUG98
104.022A		31AUG98
104.102	01OCT97*	30SEP98
104.102A		30SEP98
104.200	01OCT97*	30SEP98
104.200A		30SEP98
104.200B		30SEP98
104.200C		30SEP98
104.200D		30SEP98



MYWP/SSPP PLANNING MILESTONE LIST
REPORTING PERIOD 10/01/97 TO 10/01/20

MILESTONE CONTROL #	TPA-MS NUMBER	TPA TYPE	MS LEVEL	MS TITLE	TYPE	DATES PLANNED BASELINE	DATES APPROVED BASELINE	DATES REVISED BASELINE	PROJ CIN	PBS #
T01-99-144	M-44-15C	I	HQ	ISSUE CHAR DELIVERABLES CONSISTENT WITH WIRD DEVELOPED FOR FY99	EA	9/30/99				RL-TW01
T01-01-102	M-44-15E	I	HQ	ISSUE CHAR DELIVERABLES CONSISTENT WITH WIRD DEVELOPED FOR FY01	EA	9/28/01				RL-TW01
T01-01-104	M-44-00A	I	HQ	COMPLETE DELIVERY OF INFORMATION REQUIREMENTS IDENTIFIED IN WIRD	EA	9/28/01				RL-TW01
T01-99-102	M-44-13C	I	HQ	SUBMIT DRAFT WIRD FOR FY 2000 TO ECOLOGY	EA	6/30/99				RL-TW01
T01-99-100	M-44-14C	I	HQ	SUBMIT FINAL WIRD FOR FY 2000 TO ECOLOGY	EA	8/31/99				RL-TW01
T01-00-103	M-44-13D	I	HQ	SUBMIT DRAFT WIRD FOR FY 2001 TO ECOLOGY	EA	6/30/00				RL-TW01
T01-98-158			HQ	DNFSB 93-5, 5.6.3.1.E COMPLETE	OTH	11/04/97				RL-TW01
T01-98-101	M-44-14B	I	HQ	SUBMIT FINAL WIRD FOR FY99 TO ECOLOGY	EA	8/31/98				RL-TW01
T01-98-100	M-44-13B	I	HQ	SUBMIT DRAFT WIRD TO ECOLOGY FOR FY 1999	EA	6/30/98				RL-TW01
T01-98-113			RL	COMPLETE 28 CORE SAMPLES		9/30/98				RL-TW01
T01-98-115			RL	COMPLETE 10 VAPOR SAMPLES		2/02/98				RL-TW01
T01-98-116			RL	COMPLETE 30 GRAB SAMPLES		9/30/98				RL-TW01
T01-98-122			RL	ISSUE 16 NEW TCR'S IN ACCORDANCE WITH THE WIRD		9/30/98				RL-TW01
T01-98-136			RL	DNFSB 5.6.3.1.H COMPLETE		4/30/98				RL-TW01
T01-98-140			RL	DNFSB 5.6.3.1.G COMPLETE		9/30/00				RL-TW01
T01-98-153			RL	UPDATE "BEST BASIS" STANDARD INVENTORY ESTIMATE		9/30/98				RL-TW01
T01-98-159			HQ	DNFSB 93-5, 5.6.3.1.F COMPLETE	OTH	12/31/97				RL-TW01
T01-98-160			HQ	DNFSB 93-5 5.6.3.1.G COMPLETE	OTH	11/30/00				RL-TW01
T01-98-161			HQ	DNFSB 5.6.3.1.H COMPLETE	OTH	7/31/98				RL-TW01
T01-98-168			RL	DESIGN LARGE VOLUME SAMPLER		9/30/98				RL-TW01
T01-98-169	M-44-15B	I	HQ	ISSUE CHAR DELIVERABLES CONSISTENT WITH WIRD DEVELOPED FOR FY98	EA	9/30/98				RL-TW01
T01-98-170	M-44-16B	I	HQ	COMPLETE INPUT FOR HLW TANKS PER WIRD FY98	EA	9/30/98				RL-TW01
T01-98-171			RL	UPDATE AND REISSUE 10 TCR'S		9/30/98				RL-TW01
T01-00-104	M-44-14D	I	HQ	SUBMIT FINAL WIRD FOR FY 2001 TO ECOLOGY	EA	8/31/00				RL-TW01
T01-99-145	M-44-16C	I	HQ	COMPLETE INPUT FOR HLW TANKS PER WIRD FY99	EA	9/30/99				RL-TW01
T01-00-106	M-44-16D	I	HQ	COMPLETE INPUT FOR HLW TANKS PER WIRD FY 2000	EA	9/29/00				RL-TW01
T01-01-103	M-44-16E	I	HQ	COMPLETE INPUT FOR HLW TANKS PER WIRD FY 2001	EA	9/28/01				RL-TW01
T01-00-105	M-44-15D	I	HQ	ISSUE CHAR DELIVERABLES CONSISTENT WITH WIRD DEVELOPED FOR FY00	EA	9/29/00				RL-TW01

PHMC

MILESTONE DESCRIPTION SHEET

Title: SUBMIT DRAFT WIRD TO ECOLOGY FOR FY 1999		**Date:** 6/30/98
Assigned To: J. W. Hunt		**CIN:**
Program WBS Designator: 1.1.2.4		**Due Date:** 6/30/98
PBS No: RL-TW01		
MC #: T01-98-100	**TPA No:** M-44-13B	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
X DOE-HQ DOE-RL DOE-FO CONTRACTOR	X EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	X Report Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Hanford Federal Facility Agreement and Consent Order change control form M-44-97-03, commitment M-44-13B, "Submit draft WIRD to Ecology for FY 1999." The Tank Waste Remediation System (TWRS) information needs are defined in a Waste Information Requirements Document (WIRD) submitted annually to the Washington State Department of Ecology (Ecology). The document will specify annual characterization deliverables to support safe storage, retrieval, and disposal of tank waste. The Draft WIRD will identify for approval the tank waste behavior information needs for subsequent years to FY 2002. The WIRD will describe characterization deliverables to be issued for each year based on existing Tri-Party Agreement milestones and will specify the content of each deliverable subject to Ecology approval. That portion of the WIRD which identifies waste characterization activities

Description of what constitutes completion of this milestone:
The Draft WIRD containing the elements described above will be submitted to Fluor Daniel Hanford Inc. for their delivery to DOE-RL by June 15, 1998. DOE-RL will provide comment for Contractor resolution in a manner sufficiently timely for the Contractor to resubmit the Draft WIRD to Fluor Daniel Hanford Inc. for their delivery to DOE-RL by June 29, 1998. Delivery of the Draft WIRD to Ecology by June 30, 1998 shall be the responsibility of DOE-RL, not the Contractor. The dates herein described shall be subject to negotiation between DOE-RL and the Contractor. The Draft WIRD will meet the quality standards as defined in Uniform Publications System (WHC-CM-3-6) and will include the elements described above.
The Draft WIRD will be considered complete when DOE-RL comments have been

PHMC

MILESTONE DESCRIPTION SHEET

Continuation Page

Program WBS Designator: 1.1.2.4 **MC #:** T01-98-100

Milestone description: (con't)
outside the scope of the Tri-Party Agreement shall not be subject to Ecology approval or concurrence, but rather will be included for information purposes only.

The Draft WIRD will contain standardized formats for tables and figures. Standardized text will be used to the maximum extent possible. The content and format for the Draft WIRD will continue to be developed through negotiations among DOE-RL, Ecology, and the Contractor, and will include but not be limited to the following: Introduction; Background; Scope; Review and summary of changes to previous WIRD edition; TWRS program drivers requiring characterization information; TWRS issues with characterization information requirements; Information requirements matrix; Description of Characterization Project deliverables; Acceptance criteria; and References.

Description of what constitutes completion of this milestone: (con't)
resolved and the document redelivered to Fluor Daniel Hanford Inc. for delivery to DOE-RL. DOE-RL shall ensure timely comment to permit Contractor resolution by dates stated, or otherwise negotiated, as above.

PHMC

MILESTONE DESCRIPTION SHEET

Title: SUBMIT FINAL WIRD FOR FY99 TO ECOLOGY				**Date:**
Assigned To: J.W. HUNT				**CIN:**
Program WBS Designator: 1.1.2.4				**Due Date:** 8/31/98
PBS No: RL-TW01				
MC #: T01-98-101		**TPA No:** M-44-14B		**Rev:**
MILESTONE LEVEL: X DOE-HQ DOE-RL DOE-FO CONTRACTOR	**MILESTONE TYPE:** X EA PEG OTHER	**DNFSB STATUS:** DNFSB (Y/N): COMMIT #: RECOMM #:	**DELIVERABLE:** X Report Letter Drawing(s) Other (Specify)	**ADDRESS TO:** DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Hanford Federal Facility Agreement and Consent Order change control form M-44-97-03, commitment M-44-14B, "Submit Final WIRD for FY 1999 to Ecology." The Tank Waste Remediation System (TWRS) information needs are defined in a Waste Information Requirements Document (WIRD) submitted annually to the Washington State Department of Ecology (Ecology). The document will specify annual characterization deliverables to support safe storage, retrieval, and disposal of tank waste. The final WIRD will identify for approval the tank waste behavior information needs for subsequent years to FY 2002. The WIRD will describe characterization deliverables to be issued for each year based on existing Tri-Party Agreement milestones and will specify the content of each deliverable subject to Ecology approval. That portion of the WIRD which identifies waste characterization activities

Description of what constitutes completion of this milestone:
The final WIRD containing the elements described above will be submitted to Fluor Daniel Hanford Inc. for their delivery to DOE-RL by August 15, 1998 and will include resolution of additional DOE-RL and/or Ecology comments on the Draft WIRD submitted in June 1998. Comments on the Draft WIRD will be delivered to the Contractor by DOE-RL and Ecology by July 30, 1998 to provide time for the Contractor to resolve comments and submit the final WIRD to Fluor Daniel Hanford Inc. for their delivery to DOE-RL by August 30, 1998. Delivery of the final WIRD to Ecology by August 31, 1998 shall be the responsibility of DOE-RL, not the Contractor. The dates herein described shall be subject to negotiation between DOE-RL and the Contractor.
The final WIRD will meet the quality standards as defined in Uniform Publications System (WHC-CM-3-6) and will include the elements described

PHMC

MILESTONE DESCRIPTION SHEET

Continuation Page

Program WBS Designator: 1.1.2.4 **MC #:** T01-98-101

Milestone description: (con't)
outside the scope of the Tri-Party Agreement shall not be subject to Ecology approval or concurrence, but rather will be included for information purposes only.

The final WIRD will contain standardized formats for tables and figures. Standardized text will be used to the maximum extent possible. The content and format for the final WIRD will continue to be developed through negotiations among DOE-RL, Ecology, and the Contractor, and will include but not be limited to the following: Introduction; Background; Scope; Summary report of progress for FY 1998; Review and summary of changes to previous WIRD edition; TWRS program drivers requiring characterization information; TWRS issues with characterization information requirements; Information requirements matrix; Description of Characterization Project deliverables; Acceptance criteria; and References.

Description of what constitutes completion of this milestone: (con't)
above.

The final WIRD will be considered complete when DOE-RL and/or Ecology comments on the Draft WIRD have been resolved and the document delivered to Fluor Daniel Hanford Inc. for delivery to DOE-RL. DOE-RL and Ecology shall ensure timely comment to permit Contractor resolution by dates stated, or otherwise negotiated, as above.

PHMC

MILESTONE DESCRIPTION SHEET

Title: COMPLETE 28 CORE SAMPLES	**Date:** 9/30/98
Assigned To: C. B. Bryan	**CIN:**
Program WBS Designator: 1.1.2.4	**Due Date:** 9/30/98
PBS No: RL-TW01	
MC #: T01-98-113 / **TPA No:**	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
DOE-HQ X DOE-RL DOE-FO CONTRACTOR	EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
High level tank waste core samples will be collected. On an average, 2 core samples will be collected per tank resulting in approximately 14 tanks sampled per this commitment.

Description of what constitutes completion of this milestone:
Twenty-eight (28) core samples retrieved in accordance with an approved Tank Sampling and Analysis Plan.
Relinquishment of all required waste samples to the laboratory via a transportation chain of custody document constitutes completion of the sampling commitment.
Contractor letter to Fluor Daniel Hanford Inc. for their delivery to DOE-RL reporting completion of core sampling.

PHMC

MILESTONE DESCRIPTION SHEET

Title: COMPLETE 10 VAPOR SAMPLES		**Date:**
Assigned To: C. B. Bryan		**CIN:**
Program WBS Designator: 1.1.2.4		**Due Date:** 2/02/98
PBS No: RL-TW01		
MC #: T01-98-115	**TPA No:**	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
DOE-HQ X DOE-RL DOE-FO CONTRACTOR	EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
High level waste tank dome spaces will be vapor sampled in support of vapor safety issue resolutions and core sampling activities as required by data quality objectives (DQOs) and Tank Sampling and Analysis Plans, and in accordance with exhauster regulatory requirements, as a prerequisite to core sampling when necessary.

Description of what constitutes completion of this milestone:
Ten (10) vapor samples retrieved in accordance with an approved Tank Sampling and Analysis Plan.
Relinquishment of all required waste samples to the laboratory via a transportation chain of custody document constitutes completion of the sampling commitment.
Contractor letter to Fluor Daniel Hanford Inc. for their delivery to DOE-RL reporting completion of vapor sampling.

PHMC

MILESTONE DESCRIPTION SHEET

Title: COMPLETE 30 GRAB SAMPLES				**Date:**
Assigned To: C. B. Bryan				**CIN:**
Program WBS Designator: 1.1.2.4				**Due Date:** 9/30/98
PBS No: RL-TW01				
MC #: T01-98-116		**TPA No:**		**Rev:**

MILESTONE LEVEL:	**MILESTONE TYPE:**	**DNFSB STATUS:**	**DELIVERABLE:**	**ADDRESS TO:**
DOE-HQ X DOE-RL DOE-FO CONTRACTOR	EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
High-level tank waste supernate and light sludge will be collected using the grab sampling method. Samples will be collected in support of characterization, process, compatibility issues in addition to RCRA campaign sampling. Grab samples will be gathered from 30 tanks.

Description of what constitutes completion of this milestone:
Thirty (30) grab samples retrieved in accordance with an approved Tank Sampling and Analysis Plan.
Relinquishment of all required waste samples to the laboratory via transportation chain of custody document constitutes completion of the sampling commitment.
Contractor letter to Fluor Daniel Hanford Inc. for their delivery to DOE-RL reporting completion of grab samples.

MILESTONE DESCRIPTION SHEET

Title: ISSUE 16 NEW TCR'S IN ACCORDANCE WITH THE WIRD				**Date:**
Assigned To: K. M. Hall				**CIN:**
Program WBS Designator: 1.1.2.4				**Due Date:** 9/30/98
PBS No: RL-TW01				
MC #: T01-98-122		**TPA No:**		**Rev:**
MILESTONE LEVEL: DOE-HQ X DOE-RL DOE-FO CONTRACTOR	**MILESTONE TYPE:** EA PEG OTHER	**DNFSB STATUS:** DNFSB (Y/N): COMMIT #: RECOMM #:	**DELIVERABLE:** Report X Letter Drawing(s) Other (Specify)	**ADDRESS TO:** DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Generate and issue 16 new Tank Characterization Reports (TCRs) in accordance with the FY 1998 Waste Information Requirements Document (WIRD).

Description of what constitutes completion of this milestone:
1) Provide a draft TCR to Fluor Daniel Hanford Inc. for their delivery to DOE-RL during review process so DOE-RL can perform a concurrent review.
2) Transmit each TCR through Fluor Daniel Hanford Inc. to DOE-RL as it is issued.
3) The TCRs must include both the relevant historical data and the information obtained by the characterization effort in accordance with the WIRD. The TCRs will be similar in content and format (revised as new information is made available) to that prepared for tank 241-T-109 and issued as supporting documents. One copy of each TCR will be transmitted through Fluor Daniel Hanford Inc. to DOE-RL for formal submittal to the Washington State Department of Ecology. All other internal and external distribution of the TCRs (up to 100 copies) will be performed by the Characterization Program.

Description of what constitutes completion of this milestone: (con't)

4) Characterization data for all 16 tanks must be accessible by onsite and offsite stakeholders through the tank characterization database (TCD) in accordance with Tri-Party Agreement milestone M-44-16B, executed under work breakdown structure (WBS) number 1.1.1.02.04.07.05.

5) Provide a final letter after transmission of all TCRs to Fluor Daniel Hanford Inc. for their delivery to DOE-RL, documenting completion of the milestone and the date when each TCR was transmitted.

PHMC

MILESTONE DESCRIPTION SHEET

Title: DNFSB 5.6.3.1.H COMPLETE	**Date:**
Assigned To: J. W. Hunt	**CIN:**
Program WBS Designator: 1.1.2.4	**Due Date:** 4/30/98
PBS No: RL-TW01	
MC #: T01-98-136 / **TPA No:**	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
DOE-HQ X DOE-RL DOE-FO CONTRACTOR	EA PEG OTHER	DNFSB (Y/N): Y COMMIT #: 009.008 RECOMM #: 93-05	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
DOE/RL-94-0001, Rev. 1, Recommendation 93-5 Implementation Plan, Commitment 5.6.3.1.h, 'Letter Reporting Completion of Tank-by-Tank Safety Status Evaluation.'

Description of what constitutes completion of this milestone:
Apply the criteria defined for Milestone T24-97-156 (DNFSB Recommendation 93-5, 5.6.3.1.c) to each waste tank. Provide the status/assessment for each tank, per the criteria, using best available data. Provide this summary information in a letter report to Fluor Daniel Hanford Inc. for their delivery to DOE-RL by April 30, 1998.
Contractor letter to Fluor Daniel Hanford Inc. for their delivery to DOE-RL reporting completion of tank-by-tank safety status evaluation.

PHMC

MILESTONE DESCRIPTION SHEET

Title: DNFSB 5.6.3.1.G COMPLETE		Date:
Assigned To: J. W. Hunt		CIN:
Program WBS Designator: 1.1.2.4		Due Date: 9/30/00
PBS No: RL-TW01		DNFSB Date - 1/30/98
MC #: T01-98-140	TPA No:	Rev:

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
DOE-HQ X DOE-RL DOE-FO CONTRACTOR	EA PEG OTHER	DNFSB (Y/N): Y COMMIT #: 009.007 RECOMM #: 93-05	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
DOE/RL-94-0001, Rev. 1, Recommendation 93-5 Implementation Plan, Commitment 5.6.3.1.g, 'Letter Report Completion of Tank Waste Characterization Basis (Brown et al. 1995) High Priority Tanks Sampling and Analysis.' Develop and issue documentation discussing:
1. The results of sampling, laboratory analysis, and data analysis/interpretation of the Tank Waste Characterization Basis High Priority Tanks (HPTs)
2. Conclusions and recommendations for application of the results for further characterization efforts in the resolution of waste tank safety and disposal issues.

3. This milestone can not be met on January 30, 1998 due to expansion of the flammable gas USQ, delays in deploying rotary mode core sampling systems, and budget reductions. The date reflected on this MDS reflects the DNFSB 93-5 IP date since DNFSB agreement has not been obtained to reschedule the date.

Description of what constitutes completion of this milestone:
Evaluate the sampling and analysis of HPTs (approximately 28 tanks) specified by DOE/RL-94-0001, Rev. 1, to provide the highest priority information requested by the programmatic data quality objectives (DQOs). Documentation will be developed to support the strategy of focus on HPTs as a means to expedite characterization to resolve safety and disposal issues. Contractor letter to Fluor Daniel Hanford Inc. for their delivery to DOE-RL reporting evaluation of Tank Waste Characterization Basis HPTs sampling and analysis. Documentation in completion of this commitment shall be a review and summarization of key findings arising from the combined efforts of characterization, safety, disposal, and other appropriate programs.

PHMC

MILESTONE DESCRIPTION SHEET

Title: UPDATE "BEST BASIS" STANDARD INVENTORY ESTIMATE		**Date:**
Assigned To: J. W. Cammann		**CIN:**
Program WBS Designator: 1.1.2.4		**Due Date:** 9/30/98
PBS No: RL-TW01		
MC #: T01-98-153	**TPA No:**	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
DOE-HQ X DOE-RL DOE-FO CONTRACTOR	EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
The 'best basis' standard inventory will be completed by November 1997 in accordance with the Defense Nuclear Facility Safety Board (DNFSB) Recommendation 93-5 Implementation Plan. Standard inventory estimates, for key chemicals and radionuclides will be developed and entered into the tank characterization database (TCD). Tank inventory values contained in the TCD, both global and tank-specific, may be impacted as new tank sampling results become available. This task will provide an annual update to the 'best basis' standard inventory estimates for chemicals and radionuclides based on the results of sample analyses. A formal change control board of onsite experts will be responsible for reviewing the new data and determining if changes to global and/or tank-specific inventories are warranted.

Description of what constitutes completion of this milestone:
Annual update to the global and/or tank-specific inventories for chemicals and radionuclides contained in the TCD following rigorous review and approval by the change control board.
Proposed revisions to the 'best basis' standard inventory values must be presented to the change control board with pertinent supporting documentation. The change control board will review the proposed revisions and determine if the changes are warranted. If warranted, official changes will be documented and made in the TCD. A change control log will be maintained to allow end-users of tank inventory data to remain cognizant of changes in process.
Contractor letter to Fluor Daniel Hanford Inc. for their delivery to DOE-RL reporting completion of the annual update to the 'best basis' standard inventory estimate.

PHMC

MILESTONE DESCRIPTION SHEET

Title: DNFSB 93-5, 5.6.3.1.E COMPLETE				**Date:**
Assigned To: MA Payne				**CIN:**
Program WBS Designator: 1.1.2.4				**Due Date:** 11/04/97
PBS No: RL-TW01				
MC #: T01-98-158		**TPA No:**		**Rev:**
MILESTONE LEVEL: X DOE-HQ DOE-RL DOE-FO CONTRACTOR	**MILESTONE TYPE:** EA PEG X OTHER	**DNFSB STATUS:** DNFSB (Y/N): Y COMMIT #: 009.005 RECOMM #: 93-05	**DELIVERABLE:** X Report X Letter Drawing(s) Other (Specify)	**ADDRESS TO:** X DOE-HQ DOE-RL Other (Specify)

Milestone Description:
DOE/RL-94-0001, Rev. 1, Recommendation 93-5 Implementation Plan, Commitment 5.6.3.1.e, 'Verification of headspace homogeneity and evaluation of variations in headspace vapor concentrations in passively ventilated tanks with changing atmospheric temperatures.'

Description of what constitutes completion of this milestone:
The homogeneity of the tank headspace vapor composition will be determined by a one-time sampling of three different passively ventilated single-shell tanks (SSTs), using two risers in each tank, and sampling from at least three levels in each riser (18 samples). The variation in tank headspace vapor composition over time (temporal), resulting from changing atmospheric temperatures, will be elevated using samples from four passively ventilated SSTs taken at approximately three-month intervals for a period of 12 months (20 samples). A separate report evaluating the sampling results will be prepared for both the homogeneity and the temporal sampling series. The reports will provide an evaluation of tank headspace vapor composition homogeneity and the variation with time and temperature. Recommendations concerning the validity of sampling previously conducted and future sampling methodology will also be included. These reports will be submitted to DOE-RL for transmittal to the Defense Nuclear Facilities

Description of what constitutes completion of this milestone: (con't)
Safety Board (DNFSB).

DOE-RL letter and two reports will be submitted to DNFSB reporting verification of headspace homogeneity and evaluation of variations in headspace vapor concentrations in passively ventilated tanks with changing atmospheric temperatures.

PHMC

MILESTONE DESCRIPTION SHEET

Title: DNFSB 93-5, 5.6.3.1.F COMPLETE		**Date:**
Assigned To: M. A. Payne		**CIN:**
Program WBS Designator: 1.1.2.4		**Due Date:** 12/31/97
PBS No: RL-TW01		
MC #: T01-98-159	**TPA No:**	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
X DOE-HQ DOE-RL DOE-FO CONTRACTOR	EA PEG X OTHER	DNFSB (Y/N): Y COMMIT #: 009.006 RECOMM #: 93-05	Report X Letter Drawing(s) Other (Specify)	X DOE-HQ DOE-RL Other (Specify)

Milestone Description:
DOE/RL-94-0001, Rev. 1, Recommendation 93-5 Implementation Plan, Commitment 5.6.3.1.f, "Standard Inventory Estimates for All Tanks.' Knowledge of the chemical and radionuclide inventories on a global and tank-specific basis are critical to ensuring safe, cost-effective, and regulatory compliant management of tank wastes. Many sources of tank inventory information currently exist. Close examination of the sources reveals many discrepancies and uncertainties in reported values. This task will reconcile existing values from historical records, sample analyses, and engineering analysis to arrive at a single-value, 'best basis' estimate of chemical and radionuclide inventories in the tanks.

Description of what constitutes completion of this milestone:
DOE-RL submittal of a letter to the Defense Nuclear Facilities Safety Board (DNFSB) following review, comment incorporation, and approval of the standard inventory by DOE-RL management. The standard inventory report must be submitted to DNFSB by November 1997 in accordance with DNFSB Recommendation 93-5 Implementation Plan.
DOE-RL letter to DNFSB based on Contractor delivery for milestone T24-97-158, due August 29, 1997, documenting completion of standard inventory estimates for all tanks for key radionuclides and chemicals. This task will develop an 'official' database of tank inventories in support of tank safety assessments, performance/risk assessments, and documentation required under RCRA and NEPA. The standard inventory values will be maintained in the tank characterization database (TCD) and will be revised through a rigorous change control board process. Documentation in

Description of what constitutes completion of this milestone: (con't) completion of this commitment shall be based on comment resolution on product delivered to DOE-RL in August 1997 for milestone T24-97-158. Unless the Contractor is given sufficient time to resolve any DOE-RL comments on the T24-97-158 input, the Contractor shall not be held responsible for completion of milestone T01-98-159.

PHMC

MILESTONE DESCRIPTION SHEET

Title: DNFSB 93-5 5.6.3.1.G COMPLETE				Date:
Assigned To: M. A. Payne				CIN:
Program WBS Designator: 1.1.2.4				Due Date: 11/30/00
PBS No: RL-TW01				DNFSB Date - 3/31/98
MC #: T01-98-160		TPA No:		Rev:

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
X DOE-HQ DOE-RL DOE-FO CONTRACTOR	EA PEG X OTHER	DNFSB (Y/N): Y COMMIT #: 009.007 RECOMM #: 93-06	Report X Letter Drawing(s) Other (Specify)	X DOE-HQ DOE-RL Other (Specify)

Milestone Description:
DOE/RL-94-0001, Rev. 1, Recommendation 93-5 Implementation Plan, Commitment 5.6.3.1.g, 'Letter Report Completion of Tank Waste Characterization Basis (Brown et al. 1995) High Priority Tanks Sampling and Analysis.' Develop and issue documentation discussing:
1. The results of sampling, laboratory analysis, and data analysis/interpretation of the Tank Waste Characterization Basis High Priority Tanks (HPTs)
2. Conclusions and recommendations for application of the results for further characterization efforts in the resolution of waste tank safety and disposal issues.
3. This milestone can not be met on March 31, 1998 due to expansion of the flammable gas USQ, delays in deploying rotary mode core sampling systems, and budget reductions. The date reflected on this MDS reflects the DNFSB 93-5 IP date since DNFSB agreement has not been obtained to reschedule the date.

Description of what constitutes completion of this milestone:
Evaluate the sampling and analysis of HPTs (approximately 28 tanks) specified by DOE/RL-94-0001, Rev. 1, to provide the highest priority information requested by the programmatic data quality objectives (DQOs). Documentation will be developed to support the strategy of focus on HPTs as a means to expedite characterization to resolve safety and disposal issues. DOE-RL letter to DNFSB based on Contractor delivery for milestone T01-98-140, due January 30, 1998, reporting evaluation of Tank Waste Characterization Basis HPTs sampling and analysis. Documentation in completion of this commitment shall be a review and summarization of key findings arising from the combined efforts of characterization, safety, disposal, and other appropriate programs. Unless the Contractor is given sufficient time to resolve DOE-RL comments on T01-98-140 input, the Contractor shall not be held responsible for completion of milestone T01-98-160.

PHMC

MILESTONE DESCRIPTION SHEET

Title: DNFSB 5.6.3.1.H COMPLETE		**Date:**
Assigned To: M. A. Payne		**CIN:**
Program WBS Designator: 1.1.2.4		**Due Date:** 7/31/98
PBS No: RL-TW01		
MC #: T01-98-161	**TPA No:**	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
X DOE-HQ DOE-RL DOE-FO CONTRACTOR	EA PEG X OTHER	DNFSB (Y/N): Y COMMIT #: 009.008 RECOMM #: 93-05	Report X Letter Drawing(s) Other (Specify)	X DOE-HQ DOE-RL Other (Specify)

Milestone Description:
DOE/RL-94-0001, Rev. 1, Recommendation 93-5 Implementation Plan, Commitment 5.6.3.1.h, 'Letter Reporting Completion of Tank-by-Tank Safety Status Evaluation'.

Description of what constitutes completion of this milestone:
Apply the criteria defined for milestone T24-97-182 (DNFSB 93-5, 5.6.3.1.c) to each waste tank. Provide the status/assessment for each tank, per the criteria, using best available data. DOE-RL is to provide this summary information in a letter report to the Defense Nuclear Facilities Safety Board (DNFSB) based on contractor delivery for milestone T01-98-136, due 4/30/98. Unless the contractor is given sufficient time to resolve any DOE-RL comments on the T01-98-136 input, the contractor shall not be held responsible for completion of milestone T01-98-161.
DOE-RL letter to the DNFSB reporting completion of tank-by-tank safety status evaluation.

PHMC

MILESTONE DESCRIPTION SHEET

Title: DESIGN LARGE VOLUME SAMPLER		**Date:**
Assigned To: R. E. Raymond		**CIN:**
Program WBS Designator: 1.1.2.4		**Due Date:** 9/30/98
PBS No: RL-TW01		
MC #: T01-98-168	**TPA No:**	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
DOE-HQ X DOE-RL DOE-FO CONTRACTOR	EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Initiate fabrication or procurement of a large volume sampler (~500 ml) for acquiring liquid samples needed for Privatization Program by August 1, 1998.

Description of what constitutes completion of this milestone:
This task will consist of preparing an engineering task plan; preparing and issuing functional design criteria for the sampler; preparing and issuing design media necessary for initiating fabrication and/or procurement of the sampler; and initiating fabrication or placing the purchase order for the sampler.
This task is contingent on two conditions: 1) receipt of formal sample requirements (data quality objective [DQO] or equivalent) by October 15, 1997; and 2) sample requirements do not preclude a sampler design which is compatible with existing and approved transportation containers and vehicles, and laboratory handling devices.
Contractor letter to Fluor Daniel Hanford Inc. for their delivery to DOE-RL reporting fabrication initiated or purchase order placed for the sampler.

PHMC

MILESTONE DESCRIPTION SHEET

Title: ISSUE CHAR DELIVERABLES CONSISTENT WITH WIRD DEVELOPED FOR FY98		**Date:**
Assigned To: J. W. Hunt		**CIN:**
Program WBS Designator: 1.1.2.4		**Due Date:** 9/30/98
PBS No: RL-TW01		
MC #: T01-98-169	**TPA No:** M-44-15B	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
X DOE-HQ DOE-RL DOE-FO CONTRACTOR	X EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Hanford Federal Facility Agreement and Consent Order change control form M-44-97-03, commitment M-44-15B, 'Issue Characterization deliverables consistent with Waste Information Requirements Document (WIRD) developed for FY 1998.'

Description of what constitutes completion of this milestone:
Provide a summary report reflecting FY 1998 Characterization deliverables identified in the most current version of the WIRD and the extent to which each of those deliverables were completed. The report will identify specific issues and/or tanks to which deliverables were applied. Provide this summary information in a letter report to Fluor Daniel Hanford Inc. for their delivery to DOE-RL by September 30, 1998.
Contractor letter to Fluor Daniel Hanford Inc. for their delivery to DOE-RL reporting completion of Characterization deliverables.

PHMC

MILESTONE DESCRIPTION SHEET

Title: COMPLETE INPUT FOR HLW TANKS PER WIRD FY98		**Date:**
Assigned To: M. R. Adams		**CIN:**
Program WBS Designator: 1.1.2.4		**Due Date:** 9/30/98
PBS No: RL-TW01		
MC #: T01-98-170	**TPA No:** M-44-16B	**Rev:**

MILESTONE LEVEL:	MILESTONE TYPE:	DNFSB STATUS:	DELIVERABLE:	ADDRESS TO:
X DOE-HQ DOE-RL DOE-FO CONTRACTOR	X EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Hanford Federal Facility Agreement and Consent Order change control form M-44-97-03, commitment M-44-16B, 'Complete input of Characterization Information for HLW tanks for which sampling and analysis were completed per the FY 1998 WIRD into electronic database. Off-site access to the database containing tank waste characterization information will be made available to the EPA and Ecology.'

Description of what constitutes completion of this milestone:
Provide a letter addressing loading of FY 1998 Characterization information, identified in the most current version of the WIRD into the Tank Characterization Database, accessible to the U.S. Environmental Protection Agency (EPA) and Washington State Department of Ecology (Ecology) via the internet. Provide this letter to Fluor Daniel Hanford Inc. for their delivery to DOE-RL by September 30, 1998.
Contractor letter to Fluor Daniel Hanford Inc. for their delivery to DOE-RL reporting completion of information entry into electronic databases.

PHMC

MILESTONE DESCRIPTION SHEET

Title: UPDATE AND REISSUE 10 TCR'S				**Date:**
Assigned To: K. M. Hall				**CIN:**
Program WBS Designator: 1.1.2.4				**Due Date:** 9/30/98
PBS No: RL-TW01				
MC #: T01-98-171		**TPA No:**		**Rev:**

MILESTONE LEVEL:	**MILESTONE TYPE:**	**DNFSB STATUS:**	**DELIVERABLE:**	**ADDRESS TO:**
DOE-HQ X DOE-RL DOE-FO CONTRACTOR	EA PEG OTHER	DNFSB (Y/N): COMMIT #: RECOMM #:	Report X Letter Drawing(s) Other (Specify)	DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Generate and issue 10 updated and rewritten tank characterization reports (TCRs) into the current format.

Description of what constitutes completion of this milestone:
The rewritten TCRs will be similar in format to that prepared for tank 241-T-109.
Contractor letter to Fluor Daniel Hanford Inc. for their delivery to DOE-RL indicating completion of the milestone and the date that each TCR was transmitted.

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW01
PBS TITLE:	TANK WASTE CHARTZ'N PROJECT

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE	56,836	47,543	39,024	37,239	35,016	2,949	1,571	2,618	3,190	911	226,897
CENRTC	870										870
GENERAL PLANT PROJECT											-
LINE ITEM *(List Each One)*											
											-
											-
											-
											-
Subtotal Line Items	-		-	-	-	-	-	-	-	-	-
ESCALATION							42	143	265	102	552
TOTAL BCWS/PMB[1]	57,706	47,543	39,024	37,239	35,016	2,949	1,613	2,761	3,455	1,013	226,319
MGMT RESERVE[2]											-
LINE ITEM CONTINGENCY[2] 1)											-
OFFSITE TRANSFERS[3]											-
Subtotal	-		-	-	-	-	-	-	-	-	-
TOTAL	57,706	47,543	39,024	37,239	35,016	2,949	1,613	2,761	3,455	1,013	226,319

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover **NOT** Included.

[2]Management Reserve and Line Item Contingency Held by RL.

[3]Work Performed at Sites Other Than Hanford.

1) CURRENT ESTIMATE OF FY 1998 & FY 1999 NON-PHMC COSTS (NAT'L LAB, RL FUNDING) ARE $825, $825 RESPECTIVELY (SUBJECT TO CHANGE)

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW01
PBS TITLE:	TANK WASTE CHARTZ'N PROJECT

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
OPERATING EXPENSE	1,056												227,953
CENRTC													870
GENERAL PLANT PROJECT													-
LINE ITEM *(List Each One)*													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION	119												671
TOTAL BCWS/PMB[1]	1,175	-	-	-	-	-	-	-	-	-	-	-	229,494
MGMT RESERVE[2]													-
LINE ITEM CONTINGENCY[2] 1)													-
OFFSITE TRANSFERS[3]													-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	1,175	-	-	-	-	-	-	-	-	-	-	-	229,494

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover **NOT** Included.

[2]Management Reserve and Line Item Contingency Held by RL.

[3]Work Performed at Sites Other Than Hanford.

4.2

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW01
PBS TITLE:	TANK WASTE CHARTZ'N PROJECT

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE	54,519	47,543	39,024	37,239	35,016	2,949	1,571	2,618	3,190	911	224,580
CENRTC	124										124
GENERAL PLANT PROJECT											-
LINE ITEM (List each one)											
-											-
											-
											-
											-
											-
Subtotal Line Items	-		-	-	-	-	-	-	-	-	-
ESCALATION							42	143	265	102	552
TOTAL NEW B/A	54,643	47,543	39,024	37,239	35,016	2,949	1,613	2,761	3,455	1,013	225,256

1) CURRENT ESTIMATE OF FY 1998 & FY 1999 NON-PHMC COSTS (NAT'L LAB, RL FUNDING) ARE $825, $825 RESPECTIVELY (SUBJECT TO CHANGE)

TW01.4-3

HNF-SP-1230 Rev. 0

4.2

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW01
PBS TITLE:	TANK WASTE CHARTZ'N PROJECT

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051 FY2055	FY2056-FY2060	FY2061 FY2064	TOTAL FY1997-FY2064
OPERATING EXPENSE	1,056												225,636
CENRTC													124
GENERAL PLANT PROJECT													-
LINE ITEM (List each one)													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION	119												671
TOTAL NEW B/A	1,175												226,431

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS: 1.1
PBS NO: RL-TW01
PBS TITLE: TANK WASTE CHARTZ'N PROJECT

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
CHARACTERIZATION	1130	OP EXP	4,582	3,668	4,315	4,085	3,621	4,199	4,039	3,674	4,004	3,843	3,787	3,726	47,543
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	4,582	3,668	4,315	4,085	3,621	4,199	4,039	3,674	4,004	3,843	3,787	3,726	47,543
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS: 1.1
PBS NO: RL-TW01
PBS TITLE: TANK WASTE CHARTZ'N PROJECT

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL BCWS/PMB[1]			4,582	3,668	4,315	4,085	3,621	4,199	4,039	3,674	4,004	3,843	3,787	3,726	47,543

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

4.4

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1										
PBS Title	PBS NO	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
TANK WASTE CHARTZ'N PROJECT	RL-TW01	286.2	231.6	222.1	216.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2038	FY 2039	FY 2040	FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2048	FY 2049	FY 2050	FY 2051	FY 2052	FY 2053	FY 2054	FY 2055	FY 2056	FY 2057
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2058	FY 2059	FY 2060	FY 2061	FY 2062	FY 2063	FY 2064	FY 2065	FY 2066	FY 2067
TANK WASTE CHARTZ'N PROJECT	RL-TW01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CONTENTS

TANK SAFETY ISSUE RESOLUTION (RL-TW02)

1.0 TECHNICAL BASELINE

1.1 PROJECT MISSION

The purpose of this project is resolution of high-priority tank safety issues to ensure safe storage of waste. This project develops the technical basis for closure of the USQs and removal of all tanks from the Watch List. It also supports upgrades to the Safety Analysis Report, which is the authorization basis for monitoring for safe operations of the tank farms and continued safe storage of the tank contents.

The Tank Safety Issue Resolution Project was established to address hazards associated with the storage of radioactive mixed waste in the large underground storage tanks at the Hanford Site. Safety issues have been raised for both single-shell tanks (SSTs) and double-shell tanks (DSTs) with regard to flammable gas, organics, ferrocyanide, and high heat. In response to Public Law 101-510, Section 3137, "Safety Measures for Waste Tanks at Hanford Nuclear Reservation,", tanks of the highest concern have been placed on the Watch List.

1.2 Drivers for Tank Safety Issue Resolution Project

Source Documents for Tank Safety Issue Resolution Project

Name	Title
DE-AC06-96RL13200	Project Hanford Management Contract, Fluor Daniel Hanford, Inc.
DOE/RL-89-10	Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Rev.4
DOE/RL-96-14	Updated Draft Mission Direction Document, June 1996

1.3 Tank Safety Issue Resolution Project Risk Management

Risk Evaluation Narrative:

The public health and safety risks, worker health and safety risks, and environmental protection risks associated with the Tank Safety Issue Resolution Project are High during interim storage, decrease to Medium during remediation activities assuming planned tank safety issue resolution activities have been performed, and decrease to Low after the waste is retrieved from the tanks. Failure to perform activities to resolve tank safety issues can significantly increase risks during interim storage and remediation. Risks that are currently High and Medium would rise to Urgent and High. The worst-case scenarios during interim storage and waste retrieval activities involve either the buildup and ignition of flammable gases or a condensed phase combustion of organic complexant salts, with a subsequent fire/explosion within a tank. The accident scenario results in the eventual release of respirable-sized radiological and chemical radioactive contaminants to the atmosphere. This release would cause severe and permanent impacts on worker health and safety, significant overexposure to the public, and widespread environmental contamination.

This is a 5 year project (FY 1997-2001) that will resolve the (1) flammable gas, (2) organic and (3) high heat safety issues. This project will transition to Tank Farm Operations at the beginning of fiscal year 2002.

Brief description of Project, hazards and activities:

Flammable Gas - All 177 high level waste storage tanks and other ancillary tanks and vessels generate flammable gases. These gases include hydrogen and ammonia along with others. Sometimes the gases are released at the same rate they are generated. These tanks have a potentialor a steady-state or chronic flammable gas hazard. Other tanks retain some of the gases that are generated. These tanks have the potential for episodic gas release events. These events can occurnaturally due to instabilities that develop in the tank waste, because of intrusive activities, because of weather fronts, and because of seismic events. This PBS provides for continuing studies on thegeneration, retention and release mechanism of flammable gases in waste material. It also provides for flammability experiments on gas compositions in conditions similar to what would be expected in the tanks. The PBS provides for modeling (both with computers and with simulatedwaste) and data evaluation and interpretation (both from the lab and from instrumentation on the tanks). The PBS provides for equipment upgrades, sampling, and monitoring on the tanks. The SY-101 mitigation mixer pump is operated under another PBS (TW03); however, this PBS continues to provide some engineering support for the data collection systems.

Organic - The condensed phase reaction is a reaction between organic salts and nitrate and nitritepresent in the waste. The potential for the reaction in surrogate materials has been demonstrated. Most of the waste is too low in organic salt (fuel) concentration to support a reaction. In addition, most of the waste is currently too wet to allow a reaction. However, there may be concentrations of drier, fuel rich waste in some tanks which could react if ignited. If the project ends without resolving whether reactive waste is present in some of the tanks, operation of the tanks in storage mode may continue indefinitely. The reactive fuel (if present) will continue to degrade as well as to dry out over this period. These competing effects would reduce the risk (loss of fuel) andincrease the risk (loss of moisture) during this time. It is not known which of these competing ffects would dominate. If many tanks are undergoing this

process, the dry out effect might be dominant in some tanks with fuel loss dominant in others. This project seeks to establish through waste sampling, testing, and evaluation whether sufficient concentrations of reactive waste remain in the tanks to pose a hazard. At the present time, it appears that up to 108 tanks potentially contain some reactive waste.

The project hopes to demonstrate through several means that the number of vulnerable tanks can be reduced to a very small number. If the project were terminated, and there are vulnerable tanks, they could remain vulnerable for many decades during which time the risk of ignition occurring would continue to pose a risk to the public, workers, and environment.

It has been estimated that U-105 could contain up to a bounding 25 m3 of reactive waste. If this waste were ignited, the combustion event would release large quantities of 137CsOH (radioactive Cesium hydroxide), NaOH (Sodium hydroxide), and HgOH (Mercury hydroxide). The dose to the offsite public would be 71 mSv (milisieverts) or 7 rem. This exceeds the risk acceptance guideline of 5 mSv. Depending upon the actual concentrations of mercury initially present in the tank, mercury concentrations could exceed the ERPG (Emergency Reaction Protectiv Guidelines) by several thousand times. Corresponding doses to onsite workers of 86 Sv or 8600 rem and toxic ERPGs would also be expected. A wide area down wind would be contaminated by he materials above as well as by lesser amounts of other radio nuclides and toxic chemicals.

Risk reduction metric(s) and demarcation of risk levels:

How will this project reduce Hanford risks? What key project events are planned that will change risk? Activities focus on developing the technical basis for (1) closure of the flammable gas USQ affecting 176 double-shell and single-shell tanks, and organic USQ affecting 177 double-shell and single-shell tanks; and (2) removal of 25 tanks from the Flammable Gas Watch List, 20 tanks from the Organic Watch List, and 1 tank from the High-Heat Watch List. Scope includes updating the authorization basis for monitoring for safe operations of the tank farms and continued safe storage of the tank contents. Specifically for organic tanks, the primary risk reduction measure is to show that with the possibility of one or two exceptions, that the liquids can be safely drained from tanks and that they can be allowed to dry out. The key effort is to show that the conditions of the waste in tanks is such that even when dried out that a condensed phase reaction cannot occur.

Risk performance measures to track changes in risk: For organic tanks, risk reduction should be measured by the numbers of tanks categorized as Safe, Conditionally Safe, or Unsafe. These numbers are expected to change as a preponderance of evidence shows that particular tanks are not vulnerable to this accident and can be recategorized to the Safe category. It is hoped that eventually all 149 SSTs can be placed in this category (all DSTs are classified as Safe due to abundant moisture).

Public Health metric(s): The basic public health metrics are the number tanks for which the USQ has been closed, the number of tanks removed from the Watch List, and the closure of the flammable gas, organic, and high-heat safety issues. Specifically for organic, another basic metric is the likelihood that any of the 149 tanks could suffer a condensed phase reaction. The adiological source term will only decline slightly during the remaining years of the project. A secondary metric could be the number of tanks demonstrably too wet to permit a condensed phase reaction. If the number of these could be kept high, risk could be reduced, but the objective to protect the subsurface environment from leaking tank contents would be compromised.

Worker Health & Safety metric(s): This is the same metric as the Public Health metric above. As workers maintain, survey, and sample tanks, their worker doses and industrial accident levels would be common to all tank farm work, unrelated to the condensed phase hazard (unless a condensed phase burn actually occurred). The burn impact on workers is the primary metric, and is expected to decline over the years of the project

Environmental Health metric(s): This is the same as the Public Health metric above. Reducing the risk of a deflagration and/or detonation reduces the risk that an insult to the environment will occur.

Risk Drivers (primary accident and/or exposure scenarios, with frequency or probability and rough estimate of magnitude):

Flammable gas tank risk sources include potentially as many as 149 SSTs, 28 DSTs which include the aging waste facilities (AWF), 7 double- contained receiver tanks (DCRT), 12 catch tanks,vaults, and 36 inactive miscellaneous underground storage tanks (IMUST). The potential flammable gas burn volumes range from a fraction of 1 m3 up to the bounding quantity of ~600 m3. The frequency of a gas release event sufficient to challenge the dome structure coupled with an ignition source is unlikely, i.e., 10-2 to 10-4 per year. The consequences for these events also range over a spectrum. Small deflagrations will not adversely affect the tank and the HEPA filter will remain intact, thus the consequence would be negligible. Deflagrations large enough to challenge the dome structure have potential onsite consequences of 0.19 Sv (DST), 0.044 Sv (AWF), 0.72 Sv (DST deflagration while removing a mixer pump), and 6.5 Sv (SST). The offsite consequences would be 0.00016 Sv (DST), 0.00004 (AWF), 0.00062 (DST burn while removing a mixer pump), and 0.0057 Sv (SST). Note 1 Sv is 100 rem. Detonations could result in higher consequences of 39 Sv (SST) and 2.7 Sv (DCRT) for the onsite receptor at 100 m and 0.034 Sv SST) and 0.0024 Sv (DCRT) for the offsite receptor.

Organic tank risk sources include potentially as many as 108 SSTs, with potential reaction quantities of a fraction of 1 m3 up to the bounding quantity of 25 m3. There may be other storage facilities where condensed phase organic reactions could occur but most of the hazard is in the SSTs. Activities include continuing sampling and analysis of tank contents, testing with surrogate materials, and further evaluations of the hazard. During these five years, the driving risk scenarios are that ignitors introduced into vulnerable tanks might start propagating reactions. These ignitors ould arise from operations activities or from lightning strikes. The estimated frequency of an ignitor being introduced into one tank is between 10-5 and 10-3 per year. When 108 tanks are considered to be vulnerable, the aggregate frequency becomes 10-3 and 10-1 per year. Worker exposures to dose and industrial accidents are common to work performed at and in support of tank farm operations. The release scenario for the condensed phase reaction involves a release of combustion products for several minutes from cover block cracks potentially followed by cracking of the tank dome, with combustion products also escaping from the ground surface. Near the end of the accident at about 50 minutes, the dome may collapse into the tank due to structural failure induced by combustion pressures and temperatures.

BASELINE risks existing at the beginning of 1997 -"stopped project" risks against which progress will be measured:

Existing conditions, inventories: (1) The flammable gas bounding release (a detonation in a SST) releases 94.5 L of respirable material to air. This material includes radio nuclides as well as toxic chemicals. (2) The organic bounding release is 25 m3 containing up to 2.5 x 1015 Bequerels of 137Cs and lesser amounts of other radio nuclides as well as toxic chemicals. Only the inventory ontained in the burned waste is vulnerable to being released following ignition.

Baseline public health risks: Public risks as they existed at the beginning of 1997 were High-1B, as defined in Table C.1.A of the Ten Year Plan (TYP) Risk Assistance Manual (RAM), due to the potential for this accident in so many tanks and incomplete sampling for several tanks and the potential offsite consequences for this accident. Baseline worker health & safety risks: Worker risks if the project were stopped are High-1B due to the potential for this accident in many tanks and incomplete characterization of the hazard in many tanks. If the program is continued, worker risks associated with tank farm entry and general support continue, including radioactive and toxic dose, as well as industrial accidents. If this project were terminated, actual associated worker doses could be slightly reduced because installation and characterization activities would be stopped. However, for many reasons, it is planned to eventually sample all of the tanks, and so the risks associated with this project would remain.

Baseline environmental health risks: Environmental risks are rated as High-1B due to the potential for airborne releases which could spread radioactive and toxic debris over a very wide area.

Conditions at project completion or transfer and risk-related conditions in the out years that relate to long-term END STATE:

END STATE conditions, inventories: Under the current schedule, the flammable gas and organic USQs and safety issues are to be closed by fiscal year 2001. At this time, (1) the associated hardware and the controls necessary for safe operation of the tanks will be completely transitioned to Operations, and (2) nearly all of the tanks would be reclassified as Safe tanks (not vulnerable to condensed phase reactions) when the tank farms are turned completely over to Operations for long term storage with minimal controls. The hazardous inventory will remain but the numbers of tanks considered to be vulnerable is expected to be reduced. Over many years, the production echanisms for flammable gas will continue to degrade. That is, radioactivity will decay away (less flammable gas from radio lysis) and the organics will continue to age and breakdown (less flammable gas from chemical decomposition). Also, the organic fuel would continue to degrade, providing additional safety margin for this accident. It will take 300 years (approximately 10 half lives of Cs) for almost all of the radioactivity to decay, although a significant amount of radioactivity will still remain, and the residual risks will be proportional to both the amount of radioactivity and fuel remaining. It is expected that the half life of the fuel may be decades but that one or two half lives should be sufficient to render any remaining fuel innocuous.

Endstate public health risks: Long-term health risks are proportional to the number of tanks which may contain (1) flammable gases in concentrations capable of supporting a burn coupled with the likelihood that an ignition source could be introduced and (2) some amount of reactive waste coupled with the likelihood that a capable ignitor could be introduced to vulnerable tanks. The likelihood of exposure depends in part on how close public access will be at that time. The longer that institutional controls remain in place, the more decay will occur, the fuel will degrade to smaller amounts, and the waste will become drier. Since final access levels and the time schedules for implementation have not been determined, it must be assumed that the public will have access to the boundary of the 200 area within decades. By this time (1) the potential for a flammable gas deflagration and/or a detonation is not likely to have been reduced significantly over what it is now, but (2) the organic fuel will have degraded to the point that it is no longer a hazard in any tank. (This remains to be confirmed as the disappearence of fuel is dependent upon both waste temperature and absorbed dose).
Endstate worker health & safety risks: The worker health & safety risks are essentially the same as the public risks above depending upon how long tank support staff is maintained in the 200 Areas to watch over the waste tanks.

Endstate environmental health risks: The risk to the environment from widespread surface contamination will remain as long as some residual waste (fuel) remains in the tanks, subject to ignition.

Risks that REMAIN at the end of each budget year as currently planned:

General rationale: It is assumed that the project will continue in 1997 as planned. If the project is then stopped before 1998, when much of the important evaluation is being performed, the risks will remain relatively high as (1) few tanks will have enough information to close the USQ and the safety issue and (2) few tanks will have been reclassified as Safe. If the project is stopped at the end of 1998, some of the tanks will likely have been reclassified to Safe but many may still remain in the Conditionally Safe category.

Public health and critical project years: Public health risks remain high due to the extreme consequences even up through transition but the likelihood of the accident should be appreciably reduced as (1) tanks are interim stablized and new equipment (such as spark resistant ventilation systems) is installed and (2) tank numbers classified as Conditionally Safe are reduced. If the work is continued during outyears, estimated times for completely degraded fuels in remaining vulnerable tanks may become available.

Worker health & safety and critical project years: Worker risks are similar to the public risk during critical project years with the potential for some slightly increased doses related to (1) installation activities and (2) sampling

performed specifically to resolve organic salt-nitrate safety issues. From fiscal year 2001 on, worker risks would continue but gradually decline over decades to lower and lower potential doses.

Environmental health and critical project years: Environmental risks remain high throughout the period. Because (1) potentially large quantities of tank waste would be dispersed over a large area by a deflagration and/or detonation and (2) because potentially high quantities of mercury compounds may continue indefinitely. This waste contains both long-lived radionuclides and the potential for long term chemical contamination could remain high but the likelihood would decrease as fuel concentrations diminish.

Risk interfaces, Related Projects, Issues: For this Project, the tanks will be turned over to operations with minimal controls when the USQs are closed and the safety issues have been resolved.

Unfunded Compliance Requirements

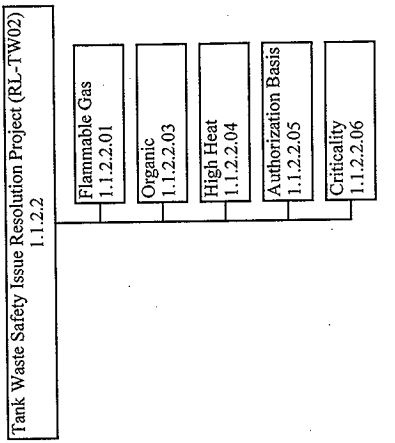
1. TWRS FSAR Implementation - The regulatory driver for this document is DOE Order 5480.23, FSAR. The Implementation plan that was submitted by Westinghouse to comply with the order has never ben revised. Therefore, we run the risk of being in violation of 10CFR820, The Quality Assurance Rule.

Additionally, the FSAR was recommended by the DFSNB in 93-5.

The commencement of work on this activity would require negotiation with the customer as the document is in the approval cycle at present.

2. DNSFB 95-2 SAFETY MANAGEMENT SYSTEM - The driver for the Integrated Safety Management System identified in the 95-2 recommendation is obvious. Two demonstration projects were completed in FY 97. The next milestone is scheduled for November, 1997. All work has stopped.

Work could commence 10/1/97 if funding were provided.



2.1 WBS Hierarchy
TW02.2-1

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
TANK WASTE REMEDIATION SYSTEMS
WBS 1.1

1. PROGRAM/TITLE PARTICIPANT 1.1 Tank Waste Remediation Systems 1.1.2 Waste Storage		
2. WBS ELEMENT CODE/ LEVEL 1.1.2.2 / Level 4	3. WBS ELEMENT TITLE Tank Safety Issue Resolution	
4. CURRENT REV NO 0	5. EFFECTIVE REV DATE October 1, 1997	6. APPROVED CHANGES

ELEMENT DESCRIPTION

1. TECHNICAL BASES

A. GOALS AND OBJECTIVES

The goal of the Tank Safety Issue Resolution Project is to mitigate and/or resolve high priority waste tank safety issues to the fullest extent practicable. The objective is timely resolution of safety issues while ensuring safe storage of tank waste with minimum impact to the environment during the interim period until retrieval for treatment and/or disposal operations begin. The scope includes conducting safety evaluations and proposing/implementing corrective action strategies for mitigating and/or resolving the hazards. Also included is authorization basis development, maintenance, and configuration management.

The Tank Safety Issue Resolution Project consists of the following Level 5 Sub-Projects:

1.1.2.2.01	Flammable Gas
1.1.2.2.02	Ferrocyanide (closed)
1.1.2.2.03	Organic
1.1.2.2.04	High Heat
1.1.2.2.05	Authorization Basis
1.1.2.2.06	Criticality

The Tank Safety Issue Resolution Project (formerly called Waste Tank Safety Program) was established in mid-1990 to address the hazards associated with storage of radioactive mixed waste in the large underground radioactive waste storage double-shell and single-shell tanks at the Hanford Site. This project serves as the focal point for identification and resolution of high priority waste tank safety issues.

Twenty-five (six double-shell and nineteen single-shell) tanks have a potential to generate and release flammable gases (primarily hydrogen and ammonia) mixed with an oxidizer (nitrous oxide); and

eighteen single-shell tanks may contain organic chemicals (exceeding 3 weight percent total organic carbon) mixed with sodium nitrate/nitrite. These tanks all have the potential for runaway exothermic reactions that could result in the release of high-level waste. Two single- shell tanks either have, or have had, a floating layer of organic solvent. One single-shell tank with a heat generation rate greater than 100,000 Btu/hr requires periodic water additions to prevent waste temperatures from exceeding the 300 degrees F operating limit; in the event of a tank leak, if cooling water additions were discontinued, the tank could fail due to high temperature, and result in the release of high-level waste. These thirty-eight tanks (eight organic tanks are also listed as flammable gas tanks) comprise the Watch List and are subject to operating restrictions in and around the tanks to minimize the possibility of an unsafe event occurring. Another safety issue is the potential for nuclear criticality incidents during waste transfers.

Unreviewed safety questions (USQ) have been declared for flammable gas (applies to 176 high-level waste tanks and other ancillary facilities) and organic (applies to all 177 high level waste tanks) because they represent conditions potentially outside the existing safety envelopes.

B. MAJOR END-ITEM DELIVERABLES

The end-item deliverable that will complete this WBS Element is the following Tri-Party Agreement Major Milestone:

- M-40-00 Mitigate/Resolve Tank Safety Issues for High-Priority Watch List Tanks

Supporting deliverables include the following Tri-Party Agreement Interim Milestones:

- M-40-09 Close All Unreviewed Safety Questions for Double-Shell and Single-Shell Tanks
- M-40-12 Nuclear Criticality Safety Issue Resolved

Additional supporting deliverables include:

- Closing the two unreviewed safety questions (identified as of December 31, 1996) per DOE Order 5480.21.
- Closing the seven applicable parts (5.4.3.1 thru 5.4.3.7) of DNFSB 93-5 as described in the "Recommendation 93-5 Implementation Plan", DOE/RL-94-0001, Rev. 1.
- Receiving approval from DOE for removal of 38 tanks (as of December 31, 1996) from the Watch List.
- Establishing an adequate safety basis to bound the known hazards associated with the safety issues and deficiencies (identified as of December 31, 1996). Redefining the safe operating conditions may result in either the removal and/or addition of interim operational safety requirements for waste tanks.

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WBS 1.1

- Issue annual update of the Basis for Interim Operation (BIO).

- Receiving approval from DOE to resolve the safety issues and deficiencies (identified as of December 31, 1996) after either controlling or eliminating the hazards.

2. STATEMENT OF WORK

An adequate, comprehensive, and reliable safety basis for the management and storage of waste by TWRS will be assured. This will be accomplished by developing and maintaining an integrated Authorization Basis (AB) and by resolving outstanding safety issues.

The AB activities will include preparation of the annual update of the BIO, further development of the Final Safety Analysis Report (FSAR) as directed by DOE, amendment of the AB to address emerging issues, control of the AB process to assure full integration and control of project activities, identification of USQs, preparation of USQ closure documentation, and implementation of all AB requirements.

Safety Issue Resolution will evaluate and mitigate the risks of high level wastes stored and maintained by TWRS, beginning with the highest risk tanks. The logic involves a problem definition phase followed by three optional paths leading to resolution of the safety issue for a tank or group of tanks by either controlling or eliminating the hazard. The logic elements are: (1) evaluate and define the problem; (2) in-tank resolution without treatment; (3) in-tank resolution with treatment; and (4) resolution out-of-tank with or without treatment. The path followed is ultimately a function of whether the waste requires treatment and where the waste treatment takes place. The logic sequence for performing work is the same for all tanks. Much of the work within this WBS element is "first-of-a-kind" in nature; and all information gained and decisions made for one tank are shared with the remaining tanks. Work on many tanks and safety issues is being conducted in parallel to resolve the issues as expeditiously as possible.

The problem definition phase consists of reviewing historical records; procuring laboratory and waste monitoring equipment; developing analytical methods; conducting simulant waste studies; obtaining and analyzing waste samples; interpreting characterization and monitoring data; developing predictive models; and performing safety and environmental analyses. Recommendations for closure of the USQs will be made based on updated analyses or mitigation of the hazard. In-tank resolution without treatment consists of developing, procuring, and installing additional equipment to continuously monitor tank parameters (temperature, pressure, gas concentration, surface level, surface moisture, and bulk waste moisture), a function necessary for most tanks in order to complete problem definition; and for some tanks, it may also be adequate to resolve the safety issue. If not, corrective action plans with specific controls will be prepared and implemented to control the hazard. Some of the in-tank resolution with treatment (mitigation) options being considered are moisture control; mixer pumps; heating and dilution; closed-loop cooling; exhausters; and vapor treatment. Scope consists of concept development, design, fabrication, installation, testing, and demonstration of the equipment. The safety envelope will be redefined, operating procedures modified, control limits established, and documentation completed for recommendation of safety issue resolution. Also included in this programs scope are data analysis and interpretation, field surveillance, and statistical evaluations. Operation of mitigation and/or monitoring equipment beyond testing, operational verification and

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turnover to tank farm operations is not within the scope of this WBS Element, nor is resolution out-of-tank with or without treatment (remediation), if required.

This WBS Element is scheduled for completion by 2001 with the following exception: (1) flammable gas double-shell tanks may require waste retrieval (remediation) which may delay safety issue resolution until 2005. The Multi-Year Work Plan reflects planning through Fiscal Year 2001.

Legal Drivers and Order Requirements:

- Public Law 101-510, Section 3137
- Tri-Party Agreement M-40
- DNFSB 93-5
- DOE Orders 5480.21, 5480.22 and 5480.23

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1. Activity Title: FLAMMABLE GAS	2. Date	3. PBS Number RL-TW02	4. Dict Rev
5. Contract WBS No. 1.1.2.2.01	6. Corresponding FDS No. N21	7. Baseline CR No.	
8. Organization Name SAFETY ISSUE RESOLUTION			9. B & R No. EW320072

10. Scope of Work
GOALS AND OBJECTIVES

The goal of the Flammable Gas Project is resolution of the high-priority flammable gas safety issue to ensure safe storage of waste. The objectives are to provide (1) the technical basis for closure of the Unreviewed Safety Question (USQ) and upgrade of the Final Safety Analysis Report (FSAR); (2) the basis for monitoring for safe storage; and (3) the technical basis for closure of the safety issue (including effective application of Authorization Basis controls and removal of tanks from the Watch List).

The Flammable Gas Safety Issue is associated with those waste tanks that generate, retain and release flammable gas mixtures (hydrogen, ammonia, methane, nitrous oxide) into the dome space. If an ignition source were present during a gas release there could be a potential for a deflagration which, in turn, could lead to an increased risk of the release of radioactive waste. The original flammable gas USQ was declared in 1990, updated July 30, 1996, and approved November 1, 1996. As it is currently defined, USQ TF-96-0433 applies to 176 high-level waste tanks and other ancillary facilities. In addition, 25 tanks are considered Flammable Gas Watch List tanks; this list was created in response to Public Law 101-510, Section 3137, Safety Measures for Waste Tanks at Hanford Nuclear Reservation.

Mitigative actions may be required for some tanks; such actions will have to be developed and implemented on a tank by tank basis. However, mitigation may be required only if a tank's dome space exceeds the criteria (currently 25% of the LFL). Currently, the tanks of highest concern are 5 double-shell tanks (SY-103, AW-101, AN-103, AN-104, and AN-105), which exhibit episodic releases of flammable gas. This situation has been mitigated for SY-101 with the use of a mixer pump; and the USQ for this tank was closed on June 21, 1996. Removal of pumpable liquid from single-shell tanks (SST) will prevent episodic releases (thus far, episodic releases have not been observed in SSTs); this activity will be conducted by Tank Farm Operations (1.1.2.1) in accordance with the Tri-Party Agreement (TPA). Final resolution of the safety issue for some tanks may require retrieval of the waste by Waste Retrieval (1.1.3.1) and treatment as high level waste. Some of the flammable gas tanks are also considered organic tanks; the tasks associated with the Organic Safety Issue are covered by the Organic Project (1.1.2.2.3).

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Scope of Work (cont):

MAJOR END-ITEM DELIVERABLES

- Document and approve the technical basis for gas generation, retention, and release.

- Incorporate the technical basis for flammable gas DSTs and SSTs into the Tank Farms FSAR.

- Close the Flammable Gas USQ.

- Resolve the Flammable Gas Safety Issue.

- Remove the Flammable Gas Tanks from the Watch List.

STATEMENT OF WORK

The scope of this activity includes defining the hazard of flammable gases through waste characterization, laboratory evaluations, mechanistic studies, tank data evaluation, and identifying ways to mitigate the hazard. The objective is to close the USQ, and develop and apply tank safety criteria to remove all of the tanks from the Flammable Gas Watch List by either controlling or eliminating the hazard.

Specific tasks include a multi-laboratory study using waste to determine the chemical and physical mechanisms of gas generation, developing physical and numerical models to simulate gas release phenomenon and to evaluate strategies for mitigation of flammable gas releases, developing analytical techniques for characterization of chelators in tank waste, flammability monitoring, obtaining and analyzing dome space grab samples, retained gas sampling (RGS) and analysis, core sampling and analysis (provided by Waste Characterization 1.1.2.4), evaluating and interpreting data, performance analysis of each tank, installing gas monitoring cabinets, ventilation system upgrades, hooking up instruments to the tank monitor and control system (TMACS), supporting the Basis for Interim Operations (BIO), defining the process for removal of tanks from the Watch List, establishing the technical basis for the USQ, preparing hazard assessments, redefining tank safety envelopes, and preparing documentation for closure of the USQ.

Planning Assumptions:

1) Closure of the USQ, as required by TPA M-40-09, applies only to the tanks on the Flammable Gas Watch List. This includes 5 DSTs and 19 SSTs; USQ has been closed for SY-101.

2) FY98 Funding Authorization will be established at Sandia National Laboratories (SNL) by October 8, 1997. This is required in order to meet the schedule for USQ closure. SNL provides critical support for SCOPE (expert elicitation, analysis framework, analysis tool).

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Scope of Work (cont):

3) The SCOPE Analysis Framework and Analysis Tool can identify valid risk reductions for controls optimization based on expert elicitation results. If no changes in controls can be identified, then the flammable gas technical basis in the Authorization Basis will be updated, based on SCOPE results, and this will allow for USQ closure.

4) Completion of additional gas monitors (4 SHMS for tanks, 2 spare SHMS and probes for DSTs) is required in order to comply with DNFSB Recommendation 93-5 milestone 5.4.3.5.b.

5) The majority of equipment upgrades will be completed in FY98. The only work in FY99 will be to complete connections of equipment to TMACS, complete turnover to Operations and to provide support to the existing gas monitoring systems.

6) All equipment upgrades and operational schedules assume that a viable work force is available and that there will be no tank farm 'stand downs' during the period that the work is being conducted.

7) Evolutions in the resolution of Safety Issues, the TWRS EIS, the TWRS BIO (or FSAR) will not impact the technical basis for equipment installation or plant acceptance for operation.

8) Characterization needs can be met with 4 tanks in FY98 for RGS. No additional tank characterization will be needed for resolution of the safety issue.

9) No additional laboratory work or modeling efforts will be required after FY98 for resolution of the safety issue.

10) FY97 Project Management allocations for LMHC and FDH will be covered by ADS 1200 in FY98.

Legal Drivers and Order Requirements:

- Public Law 101-510, Section 3137
- Tri-Party Agreement M-40
- DNFSB 93-5
- DOE Orders 5480.21, 5480.22 and 5480.23

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8/27/1997

1. Activity Title: ORGANICS	2. Date	3. PBS Number RL-TW02	4. Dict Rev
5. Contract WBS No. 1.1.2.2.03	6. Corresponding FDS No. N23	7. Baseline CR No.	
8. Organization Name SAFETY ISSUE RESOLUTION			9. B & R No. EW3120072

10. Scope of Work
TECHNICAL BASES

GOALS AND OBJECTIVES

The goal of the Organic Project is resolution of the high-priority organic safety issue to ensure safe storage of waste. The objectives are to provide (1) the technical basis for closure of the Unreviewed Safety Question (USQ) and upgrade of the Final Safety Analysis Report (FSAR); (2) the basis for monitoring for safe storage; and (3) the technical basis for closure of the safety issue (removal of tanks from the Watch List).

A study in 1990 defined an upper limit of '10 weight percent organic equivalent to sodium acetate' which corresponds to 3 weight percent total organic carbon (TOC) as an acceptable concentration of TOC in tank waste. Eighteen single-shell tanks (SST), 241-A-101, AX-102, B-103, S-102, S-111, SX-103, SX-106, T-111, TX-105, TX-118, TY-104, U-103, U-105, U-106, U-107, U-111, U-203 and U-204, have been identified as possibly exceeding this criterion and are, therefore, included on the Organic Watch List; this list was created in response to Public Law 101-510, Section 3137, "Safety Measures for Waste Tanks at Hanford Nuclear Reservation." Under a scenario involving significant bulk overheating of the waste (180 degree C to 250 degree C), it may be postulated that a mixture of organic-nitrate/ nitrite solids might react rapidly, possibly damaging the tank and leading to releases of radioactive materials to the environment. This is believed to have a very low probability of occurrence; however, because the margin between the minimum ignition temperature and the measured tank temperatures is large. Also included on the Organic Watch List are SSTs 241-C-103, because of the presence of a floating layer of organic solvent, and 241-C-102, because it formerly contained a floating layer of organic solvent.

A USQ on the organic complexant hazard was declared on May 16, 1996. The USQ applies to all 177 Hanford high-level waste tanks. Information from theoretical analyses, laboratory testing, and waste characterization will be required to close the USQ. This information will be incorporated into a DOE approved safety analysis and the authorization basis will be amended to close the USQ.

Two options are possible for resolving the organic safety issue: (1) demonstrate through analysis, laboratory testing, and waste

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Scope of Work (cont):
characterization that the probability of a condensed-phase propagating chemical reaction is acceptably small and that no further action is required; or (2) mitigation/remediation of the waste. Due to the length of time before the retrieval and treatment technology is available, option 2 will require implementation of monitoring upgrades and in-tank treatment to ensure safe interim storage. Eight of the tanks, 241-A-101, S-102, S-111, SX-103, SX-106, U-103, U-105, and U-107, are also on the Flammable Gas Watch List, and tasks involving those tanks will be coordinated with the Flammable Gas Project (1.1.2.2.1). Removal of pumpable liquid from SSTs for interim stabilization as stipulated in the Tri-Party Agreement will be conducted by Tank Farm Operations (1.1.2.1).

MAJOR END-ITEM DELIVERABLES

1. Document the technical basis for a condensed-phase propagating chemical reaction and an organic solvent combustion event.
2. Close the Organic USQ.
3. Resolve the Organic Safety Issue.
4. Remove the Organic Tanks from the Watch List.

STATEMENT OF WORK

Efforts will focus on activities to determine if the tanks contain unacceptable concentrations of organic chemical and to evaluate conditions necessary for a condensed-phase propagating chemical reaction. The waste will be characterized and models developed for each tank to bound its safety. The organic Watch List criteria will be applied to each tank, and requirements for continued safe interim storage identified. Specific tasks include, core sampling and analysis, interpreting data, developing methods for characterizing organic functional groups and species, developing models, testing of waste surrogates, simulants, and actual waste to establish the safety boundaries for each tank, hooking up of instruments to the tank monitor and control system (TMACS) or installation of pressure monitors, removal and disposal of any inoperable or interfering equipment from the waste tanks, evaluating alternative mitigation concepts, testing of the preferred mitigation alternative(s), and selection of a viable mitigation concepts(s). Design, procurement, installation, and demonstration of mitigation will proceed on a tank-by-tank basis. Development of instruments to evaluate the performance of the in-tank mitigation is also included.

Scope includes development, procurement/fabrication and deployment of a surface moisture measurement and control system, if necessary. Moisture concentrations of the waste surface (down to 14 centimeters) are needed to assist in the determination of safe storage of the organic-bearing waste. The moisture is required to be determined off-riser due to suspected higher concentrations of moisture directly underneath the riser. There have been significant questions by oversight groups on this issue. The system being developed will be able to measure moisture up to 6 feet away from the riser, and the neutron detector and electromagnetic induction systems being

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Scope of Work (cont):
used are being modified based on work done for the Ferrocyanide Project (1.1.2.2.2) in FY 1994 and FY 1995.

Legal Drivers and Order Requirements:

- Public Law 101-510, Section 3137
- Tri-Party Agreement M-40
- DNFSB 93-5
- DOE Orders 5480.21, 5480.22 and 5480.23

2.2 WBS Dictionary

HANFORD SITE WORK BREAKDOWN STRUCTURE DICTIONARY
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WBS: 1.1

8/27/1997

1. Activity Title: HIGH HEAT	2. Date	3. PBS Number RL-TW02	4. Dict Rev
5. Contract WBS No. 1.1.2.2.04	6. Corresponding FDS No. N24	7. Baseline CR No.	
8. Organization Name SAFETY ISSUE RESOLUTION			9. B & R No. EW3120072

10. Scope of Work
TECHNICAL BASES

GOALS AND OBJECTIVES

The goal of the High Heat Project is resolution of the high-priority high heat safety issue to ensure safe storage of waste. The objectives are to provide (1) the technical basis for upgrade of the Final Safety Analysis Report (FSAR); (2) the basis for monitoring for safe storage; and (3) the technical basis for closure of the safety issue (removal of tank from the Watch List).

A high-heat tank is defined as a single-shell tank (SST) with a heat generation rate of 11.8 kw (40,000 Btu/h) or greater. Because of the need for cooling water additions and the potential for structural damage if temperatures are not controlled, tank 241-C-106 has been placed on the High Heat Watch List; this list was created in response to Public Law 101-510, Section 3137, Safety Measures for Waste Tanks at Hanford Nuclear Reservation. Tank 241-C-106 has been used for high-level radioactive waste storage since mid 1947 and currently is approximately half-full. Heat-generating sludge was inadvertently transferred into the tank in the late 1960's. The high heat generation (over 100,00 Btu/h in 1995) resulted in a safety issue that, if left alone, the structure might fail from high temperature, allowing high-level radioactive waste to be released to the environment. Since mid-1971, water has been added periodically to the tank to prevent waste temperatures in excess of the 300 degrees F operating limit by keeping a liquid cover over the sludge and promoting heat removal by evaporative cooling through active filtered ventilation. Although the cooling method is effective, it poses a potential hazard should a tank leak develop. In the event of a tank leak, the liquid would drain into the ground and further cooling water additions might add to the environmental impact. If cooling water additions are stopped, the sludge would heat to temperatures greater than established safety limits and may cause tank structural damage and an unacceptable radioactive release to the environment.

The logic for resolution of this high-heat tank safety issue uses a graded approach considering alternative cooling methods. Although the existing cooling method (water additions with forced ventilation) is effective, an action response plan has been implemented to deal with a leaking tank

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Scope of Work (cont):
situation. A chiller is being installed by Waste Retrieval (1.1.3.1) to provide a constant dome space temperature of 40 degrees F. It has been concluded that a small quantity of drainable liquid on the waste surface is required for cooling even with the chiller. At this time, the only identified remediation method is retrieval of the waste. Sluicing is currently scheduled to begin in late FY 1998 by Project W-320, Tank 241-C-106 Sluicing, to satisfy Tri-Party Agreement Milestone M-45-03A, Initiate Sluicing Retrieval of 241-C-106.

MAJOR END-ITEM DELIVERABLES

1. Complete supporting technical document on the High-Heat Safety Issue.
2. Resolve the High-Heat Safety Issue for Tank 241-C-106.
3. Remove High-Heat Tank 241-C-106 from the Watch List.

STATEMENT OF WORK

The focus of activities for resolution of the high-heat tank safety issue consists of using a thermal hydraulic model for predicting the thermal behavior of tank 241-C-106 and predicting water evaporation rates required to maintain waste temperatures within safety criteria for the tank, both with and without a chiller, for the air in the dome space. When the chiller becomes operational (FY 1997 or 1998), tank temperatures and conditions will be monitored and compared with the tank performance predicted by modeling.

All work will be coordinated with the pre-retrieval and retrieval activities, being conducted by Waste Retrieval (1.1.3.1), in order to ensure tank safety at all times. Thermal hydraulic analyses will be conducted during the course of waste retrieval to assess temperature behavior and determine how much waste must be removed to lower the tank heat load to eliminate evaporative cooling. Supporting technical documentation to resolve the high-heat safety issue will be submitted after retrieval of waste.

Legal Drivers and Order Requirements

- Public Law 101-510, Section 3137
- Tri-Party Agreement M-40
- DNFSB 93-5
- DOE Orders 5480.22 and 5480.23

2.2 WBS Dictionary

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8/27/1997

1. Activity Title: AUTHORIZATION BASIS MANAGEMENT	2. Date	3. PBS Number RL-TW02	4. Dict Rev
5. Contract WBS No. 1.1.2.2.05	6. Corresponding FDS No. N25	7. Baseline CR No.	
8. Organization Name NUCLEAR SAFETY AND LICENSING			9. B & R No. EW3120072

10. Scope of Work
GOALS AND OBJECTIVES

The goal of this activity is to provide technical direction and guidance to assure effective and efficient Tank Waste Remediation System (TWRS) operations within the parameters of the TWRS Authorization Basis (AB).

This activity provides for major revisions to the Final Safety Analysis Report (FSAR) including the Basis for Interim Operation (BIO), AB implementation, AB database, safety equipment list (SEL), project amendments to the FSAR/BIO, unreviewed safety question (USQ) screenings and determinations, and general licensing issues.

MAJOR END-ITEM DELIVERABLES

- FSAR Revision 0 (dependant on RL review and approval)
- Revised Technical Safety Requirements (TSR)
- BIO annual updates
- BIO/FSAR amendment submittals
- Implement DNFSB 97-2
- Issuance of FSAR Compliance Implementation Plan (CIP)
- Issue Criticality Inspection Report
- Issue USQ closure documents
- Issue procedures to assure maintenance of a cohesive AB for TWRS

STATEMENT OF WORK

(1) Provide for RL directed upgrades to safety analysis documents (BIO, FSAR, and TSR), FSAR completion (including RL review support), BIO/FSAR/TSR maintenance, and generation/maintenance of related TWRS governing procedures.

(2) Provide the technical direction, interpretation and guidance for TWRS AB matters. This includes maintaining the implementation of the AB and related documents, and guidance for integrating projects into the AB.

(3) Maintain an integrated authorization basis for TWRS. This includes the development of necessary tools; the coordination and assistance necessary to fully integrate new projects into the authorization basis in

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Scope of Work (cont):
accordance with the requirements of the Safety Management System as set forth in HNF-IP-0842; the resolution of emerging authorization basis issues; and the coordination and integration of TWRS criticality issues.

(4) Provide support to TWRS for emerging risk assessment issues.

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1. Activity Title: CRITICALITY	2. Date	3. PBS Number RL-TW02	4. Dict Rev
5. Contract WBS No. 1.1.2.2.06	6. Corresponding FDS No. N26	7. Baseline CR No.	
8. Organization Name SAFETY ISSUE RESOLUTION			9. B & R No. EW3120072

10. Scope of Work
TECHNICAL BASES

GOALS AND OBJECTIVES

The goal of the Criticality Project is resolution of the criticality safety issue to ensure safe storage of waste. The objectives are to provide (1) the technical basis for upgrade of the Final Safety Analysis Report (FSAR); (2) the basis for monitoring for safe storage and transfers; and (3) the technical basis for closure of the safety issue.

Address the various stages of waste transference and the possibility for changes in the potential for nuclear criticality incidents during waste transfers. Resolve the potential for nuclear criticality incidents by providing sufficient monitoring, analysis, and revision of appropriate safety documentation.

MAJOR END-ITEM DELIVERABLES

1. Document technical basis for nuclear criticality safety. 2. Resolve the Criticality Safety Issue.

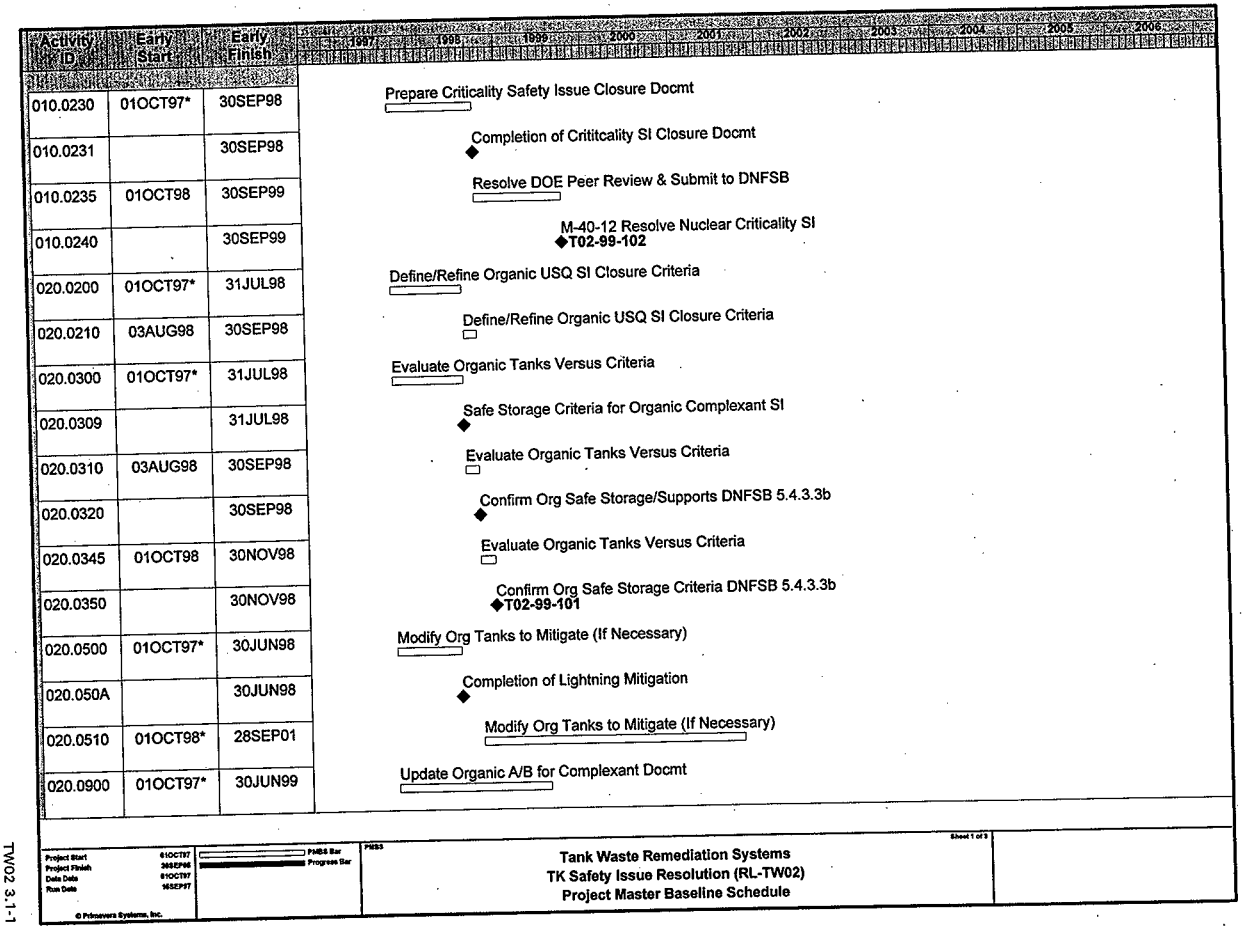
STATEMENT OF WORK

Remaining tasks include completing and submitting appropriate documentation to satisfy safety concerns and resolve the nuclear criticality safety issue.

Legal Drivers and Order Requirements

- Public Law 101-510, Section 3137
- Tri-Party Agreement M-40
- DNFSB 93-5
- DOE Orders 5480.21, 5480.22 and 5480.23

Proj Lvl (PBS #)	FDS Act Number	Activity Title	Activity Manager	Responsible Organization	Cost Account
RL-TW02		TANK SAFETY ISSUE RESOLUTION PROJECT			
	N21	FLAMMABLE GAS	GD Johnson	SAFETY ISSUE RESOLUTION	
	N23	ORGANICS	JE Meacham	SAFETY ISSUE RESOLUTION	
	N24	HIGH HEAT	DR Bratzel	SAFETY ISSUE RESOLUTION	
	N25	AUTHORIZATION BASIS MANAGEMENT	TC Geer	NUCLEAR SAFETY AND LICENSING	
	N26	CRITICALITY	DR Bratzel	SAFETY ISSUE RESOLUTION	


Activity ID
Early Start
Early Finish
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
010.0230 01OCT97* 30SEP98
Prepare Criticality Safety Issue Closure Docmt
010.0231 30SEP98
Completion of Crititcality SI Closure Docmt
010.0235 01OCT98 30SEP99
Resolve DOE Peer Review & Submit to DNFSB
010.0240 30SEP99
M-40-12 Resolve Nuclear Criticality SI
T02-99-102
020.0200 01OCT97* 31JUL98
Define/Refine Organic USQ SI Closure Criteria
020.0210 03AUG98 30SEP98
Define/Refine Organic USQ SI Closure Criteria
020.0300 01OCT97* 31JUL98
Evaluate Organic Tanks Versus Criteria
020.0309 31JUL98
Safe Storage Criteria for Organic Complexant SI
020.0310 03AUG98 30SEP98
Evaluate Organic Tanks Versus Criteria
020.0320 30SEP98
Confirm Org Safe Storage/Supports DNFSB 5.4.3.3b
020.0345 01OCT98 30NOV98
Evaluate Organic Tanks Versus Criteria
020.0350 30NOV98
Confirm Org Safe Storage Criteria DNFSB 5.4.3.3b
T02-99-101
020.0500 01OCT97* 30JUN98
Modify Org Tanks to Mitigate (If Necessary)
020.050A 30JUN98
Completion of Lightning Mitigation
020.0510 01OCT98* 28SEP01
Modify Org Tanks to Mitigate (If Necessary)
020.0900 01OCT97* 30JUN99
Update Organic A/B for Complexant Docmt
Project Start 01OCT97
Project Finish 30SEP99
Data Date 01OCT97
Run Date 16SEP97
PMB Bar
Progress Bar
PMBS
Tank Waste Remediation Systems
TK Safety Issue Resolution (RL-TW02)
Project Master Baseline Schedule
Sheet 1 of 3
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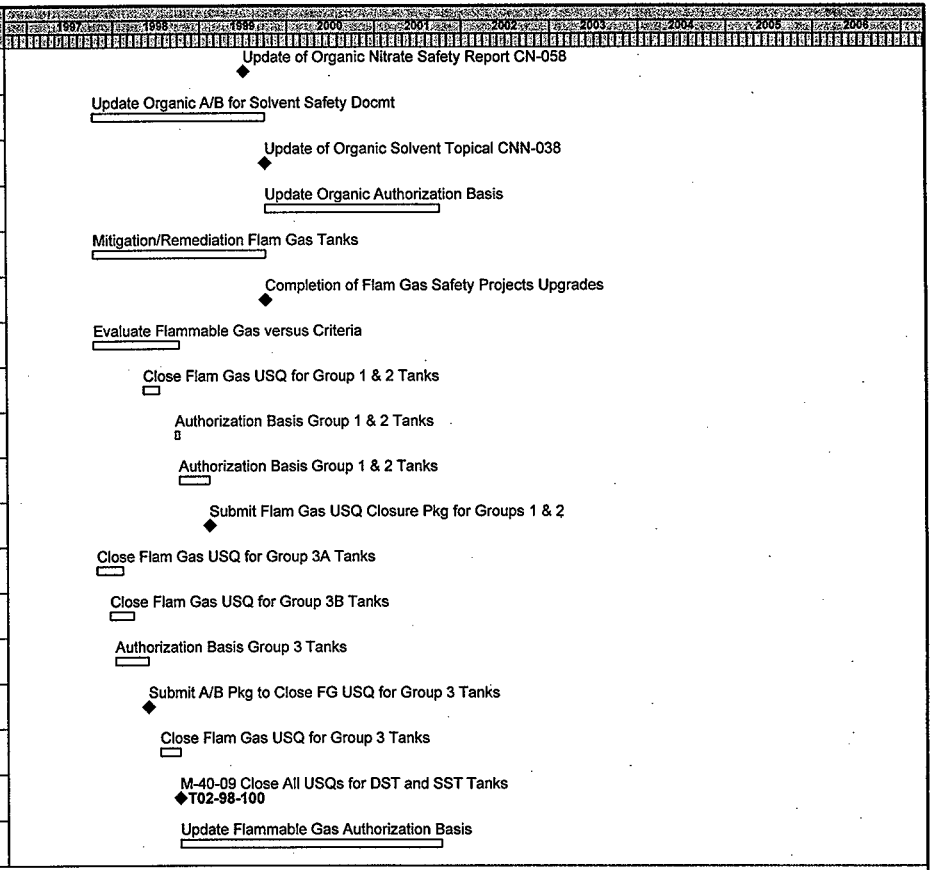
Activity ID	Early Start	Early Finish
020.0910		30JUN99
020.0912	01OCT97*	30SEP99
020.0915		30SEP99
020.0920	01OCT99	28SEP01
030.0200	01OCT97*	30SEP99
030.020A		30SEP99
030.020A1	01OCT97*	30SEP98
030.0400	01MAY98*	07JUL98
030.0450	14SEP98*	30SEP98
030.0505	01OCT98	05FEB99
030.051A		05FEB99
030.0600	14OCT97*	02FEB98
030.0700	08DEC97*	20MAR98
030.0750	30DEC97*	15MAY98
030.0755		15MAY98
030.0757	08JUL98*	28SEP98
030.075A		30SEP98
030.0910	01OCT98	28SEP01



Activity ID	Early Start	Early Finish	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
030.0912	01OCT97*	28SEP01	Close USQ for Ancillary Facilities									
030.0915		28SEP01						M-40-00 Mit/Resolve High Priority Tanks SIs ◆T02-01-100				
050.0950	01OCT97*	28MAY99			Evaluate Heat & Settling Data							
050.095A		28MAY99				Submit Docmt to RL to Resolve HH SI ◆						
050.0960	01JUN99	30SEP99				Remove C-106 from Watch List						
050.096B		30SEP99				Transmit to DNFSB Rpt to Resolve HH SI ◆T02-99-100						
170.3170	01OCT97*	30SEP05	Maintain Authorization Basis for TWRS									

Activity ID	Early Start	Early Finish	1997 OCT	NOV	DEC	JAN	FEB	MAR	APR	1998 MAY	JUN	JUL	AUG	SEP
010.0230	01OCT97*	30SEP98	Prepare Criticality Safety Issue Closure Docmt											
010.0231		30SEP98												Completion of Crititcality SI Closure Docmt
020.0200	01OCT97*	31JUL98	Define/Refine Organic USQ SI Closure Criteria											
020.0210	03AUG98	30SEP98												Define/Refine Organic USQ SI Closure Criteria
020.0300	01OCT97*	31JUL98	Evaluate Organic Tanks Versus Criteria											
020.0309		31JUL98												Safe Storage Criteria for Organic Complexant SI
020.0310	03AUG98	30SEP98												Evaluate Organic Tanks Versus Criteria
020.0320		30SEP98												Confirm Org Safe Storage/Supports DNFSB 5.4.3.3b
020.0500	01OCT97*	30JUN98	Modify Org Tanks to Mitigate (If Necessary)											
020.050A		30JUN98												Completion of Lightning Mitigation
020.0900	01OCT97*	30JUN99	Update Organic A/B for Complexant Docmt											
020.0912	01OCT97*	30SEP99	Update Organic A/B for Solvent Safety Docmt											
030.0200	01OCT97*	30SEP99	Mitigation/Remediation Flam Gas Tanks											
030.020A1	01OCT97*	30SEP98	Evaluate Flammable Gas versus Criteria											
030.0400	01MAY98*	07JUL98												Close Flam Gas USQ for Group 1 & 2 Tanks
030.0450	14SEP98*	30SEP98												Authorization Basis Group 1 & 2 Tanks

Project Start 01OCT97
Project Finish 30SEP98
Data Date 01OCT97
Run Date 15SEP97

PMBS Bar
Progress Bar

PMBS

Tank Waste Remediation Systems
TK Safety Issue Resolution (RL-TW02)
Project Master Baseline Sch. (FY98)

Sheet 1 of 2

TW02 3.2-1

Activity ID	Early Start	Early Finish	1997 OCT	NOV	DEC	JAN	FEB	MAR	APR	1998 MAY	JUN	JUL	AUG	SEP
030.0600	14OCT97*	02FEB98	Close Flam Gas USQ for Group 3A Tanks											
030.0700	08DEC97*	20MAR98			Close Flam Gas USQ for Group 3B Tanks									
030.0750	30DEC97*	15MAY98				Authorization Basis Group 3 Tanks								
030.0755		15MAY98								Submit A/B Pkg to Close FG USQ for Group 3 Tanks				
030.0757	08JUL98*	28SEP98										Close Flam Gas USQ for Group 3 Tanks		
030.075A		30SEP98												M-40-09 Close All USQs for DST and SST Tanks T02-98-100
030.0912	01OCT97*	28SEP01	Close USQ for Ancillary Facilities											
050.0950	01OCT97*	28MAY99	Evaluate Heat & Settling Data											
170.3170	01OCT97*	30SEP05	Maintain Authorization Basis for TWRS											

MILESTONE CONTROL #	TPA-MS NUMBER	TPA TYPE	MS LEVEL	MS TITLE	TYPE	DATES PLANNED BASELINE	DATES APPROVED BASELINE	DATES REVISED BASELINE	PROJ CIN	PBS #
T02-99-102	M-40-12	I	HQ	RESOLVE NUCLEAR CRITICALITY SAFETY ISSUE	EA	9/30/99				RL-TW02
T02-01-100	M-40-00	M	HQ	MITIG./RESOLVE TANK SAFETY ISSUES HIGH PRIORITY WATCH LIST TANKS	EA	9/28/01				RL-TW02
T02-98-100	M-40-09	I	HQ	CLOSE ALL UNREVIEWED SAFETY QUESTIONS (USQ) FOR DST'S AND SST'S	EA	9/30/98				RL-TW02

TPA milestone dates on the Milestone Log/MDS represent the schedule date.
Table 3-1 lists the dates found in the Tri-Party Agreement.

PHMC

MILESTONE DESCRIPTION SHEET

Title: CLOSE ALL UNREVIEWED SAFETY QUESTIONS (USQ) FOR DST'S AND SST'S				**Date:**
Assigned To: G. D. Johnson				**CIN:**
Program WBS Designator: 1.1.2.2				**Due Date:** 9/30/98
PBS No: RL-TW02				
MC #: T02-98-100		**TPA No:** M-40-09		**Rev:**
MILESTONE LEVEL: X DOE-HQ DOE-RL DOE-FO CONTRACTOR	**MILESTONE TYPE:** X EA PEG OTHER	**DNFSB STATUS:** DNFSB (Y/N): COMMIT #: RECOMM #:	**DELIVERABLE:** X Report X Letter Drawing(s) Other (Specify)	**ADDRESS TO:** DOE-HQ X DOE-RL Other (Specify)

Milestone Description:
Four Unreviewed Safety Questions (USQ) had been identified on Hanford double-shell and single-shell waste tanks as of September 30, 1993: high flammable gas concentrations, potentially explosive mixtures of ferrocyanide, potential for nuclear criticality, and existence of a separable organic phase (floating layer). For each USQ, data will be collected and safety documentation, including new operating safety envelopes, and appropriate work controls, will be submitted for approval. This will be followed by USQ screening and evaluation submitted for approval, and finally by a recommendation for USQ closure. The recommendation for closure of a USQ will be transmitted to RL when a tank, group of tanks, or all tanks have been sufficiently reviewed to remove the USQ restrictions. The anticipated order of USQ closure is as follows: ferrocyanide (closed), floating organic layer (closed), criticality (closed), tank 241-SY-101 (closed), and 24 remaining Flammable Gas Watch

Description of what constitutes completion of this milestone:
Submit the contractor reviewed Authorization Basis amendment package (consisting of the Flammable Gas Implementation Plan and recommended TSRs) to RL by 5/15/98 to close the flammable gas USQ for Facility Group 3A and 3B tanks on the FGWL (reference: T02-98-101).
Submit the contractor reviewed Authorization Basis amendment package (consisting of the Flammable Gas Implementation Plan and recommended TSRs) to RL by 7/7/98 to close the flammable gas USQ for Facility Group 1 and 2 tanks on the FGWL.
RL transmittal to Washington State Department of Ecology and U.S. Environmental Protection Agency (EPA) by 9/30/98 of USQ closure notification in accordance with DOE Order 5480.21 for all USQs on double-shell and single-shell tanks identified as of September 30, 1993.

PHMC

MILESTONE DESCRIPTION SHEET

Continuation Page

Program WBS Designator: 1.1.2.2 **MC #:** T02-98-100

Milestone description: (con't)
List (FGWL) double-shell and single-shell tanks. The parties recognize that this does not constitute closure of the recently updated (July 1996) and approved (November 1996) flammable gas USQ affecting 176 high-level waste tanks and other ancillary facilities.

The purpose of this MDS is to reduce flammable gas risk in Group 1 and 2 FGWL tanks and close the flammable gas USQ for Group 1 and 2 FGWL tanks. Scope shall consist of submittal of the Authorization Basis amendment package for the Basis for Interim Operations (BIO) Facility Group 1 and 2 tanks on the FGWL. The amendment package will be contractor reviewed and will consist of the Flammable Gas Implementation Plan and recommended Technical Safety Requirements (TSRs). The completed package will contain all of the documentation necessary to obtain RL approval to modify the authorization basis to include flammable gas controls and allow operations in group 1 and 2 tanks on the FGWL.

Enabling assumptions for successful completion:

1. PHMC Detailed Transfer Agreement for FY 1998 SNL funding will be submitted to RL by 10/3/97; RL Interoffice Work Order (funding authorization) will be submitted to DOE-AL and SNL by 10/8/97 to prevent schedule disruption.

2. RL Tier 2 review comments for the Group 1 and 2 Safety Controls Optimization by Performance Evaluation (SCOPE) Analysis Framework and expert elicitation results are resolved and signed off by June 5, 1998.

3. RL will conduct an in-process Tier 2 review during the Controls Analysis activity for the Group 1 and 2 tanks with successful in-process resolution of all comments (i.e., the schedule will not be disrupted).

4. The intent of the SCOPE Analysis Framework and Analysis Tool is to identify valid risk reductions for controls optimization based on expert elicitation results. The flammable gas technical basis in the Authorization Basis will be updated, based on SCOPE results, and this will allow for closure of the USQ for Group 1 and 2 tanks on the FGWL.

5. USQ closure will be specific to those FGWL waste tanks identified in Tri-Party Agreement milestone M-40-09 as of September 30, 1993 since the scope of the flammable gas USQ has continuosly expanded since this milestone was originally defined:

'The anticipated order of USQ closure is as follows: ... 241-SY Farm flammable gas tanks, 241-AW-101 flammable gas tank, 241-AN Farm flammable gas tanks, and 18 single-shell flammable gas tanks.'

The identified waste tanks include:
241-SY-103
241-AW-101
241-AN Farm (AN-103, AN-104, and AN-105)
19 single-shell tanks (A-101, AX-101, AX-103, S-102, S-111, S-112, SX-

101, SX-102, SX-103, SX-104, SX-105, SX-106, SX-109, T-110, U-103, U-105, U-107, U-108, and U-109)

6. Evolutions in the resolution of related safety issues, project funding (i.e., no layoffs affecting project workscope), the TWRS EIS, or Tank Farms BIO (or FSAR) will not impact the technical basis for closure of the flammable gas USQ.

If above assumptions are determined to not be valid and beyond the control and without fault or negligence of the contractor, this MDS must be renegotiated.

Supporting Milestones:

1. Submit Detailed Transfer Agreement to RL by 10/3/97 for Sandia National Laboratory (SNL) FY 1998 funding.

2. Complete and sign-off RL Tier 2 review by 6/5/98 for the Group 1 and 2 SCOPE Analysis Framework and expert elicitation results.

3. Submit contractor reviewed Authorization Basis amendment package to RL by 7/7/98 for Group 1 and 2 FGWL tanks.

4. Complete Tier 2 review by 7/28/98 of the Authorization Basis amendment package to close the USQ for Group 1 and 2 FGWL tanks.

5. Complete Tier 3 review by 9/1/98 of the Authorization Basis amendment package to close the USQ for Group 1 and 2 FGWL tanks.

Description of what constitutes completion of this milestone: (con't)

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1										
PBS NO:	RL-TW02										
PBS TITLE:	TANK SAFETY ISSUE RESOL'N PJT										SUBTOT
FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY1997-FY2006
OPERATING EXPENSE	25,562	28,022	22,247	22,090	8,312	1,500	1,500	1,500	1,500		112,233
CENRTC	8,508	2,500	5,187	189							16,384
GENERAL PLANT PROJECT											-
LINE ITEM *(List Each One)*											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION							41	82	125		248
TOTAL BCWS/PMB	34,070	30,522	27,434	22,279	8,312	1,500	1,541	1,582	1,625	-	128,865
MGMT RESERVE[2]											-
LINE ITEM CONTINGENCY[2]											-
OFFSITE TRANSFERS[3] 1)											-
											-
Subtotal	-	-	-	-	-	-	-	-	-	-	-
TOTAL	34,070	30,522	27,434	22,279	8,312	1,500	1,541	1,582	1,625	-	128,865

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover **NOT** Included.

[2]Management Reserve and Line Item Contingency Held by RL.

[3]Work Performed at Sites Other Than Hanford.

1) CURRENT ESTIMATE OF FY 1998 & FY 1999 NON-PHMC COSTS (NAT'L LAB, RL FUNDING) ARE $4,410, $825 RESPECTIVELY (SUBJECT TO CHANGE)

TANK WASTE REMEDIATION SYSTEM
SUMMARY OF LIFE CYCLE COST BASELINE (BCWS) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)
FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW02
PBS TITLE:	TANK SAFETY ISSUE RESOL'N PJT

FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051-FY2055	FY2056-FY2060	FY2060-FY2064	FY1997-FY2064
OPERATING EXPENSE													112,233
CENRTC													16,384
GENERAL PLANT PROJECT													-
LINE ITEM *(List Each One)*													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION													248
TOTAL BCWS/PMB[1]	-	-	-	-	-	-	-	-	-	-	-	-	128,865
MGMT RESERVE[2]													-
LINE ITEM CONTINGENCY[2]													-
OFFSITE TRANSFERS[3] 1)													-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	128,865

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover **NOT** Included.
[2]Management Reserve and Line Item Contingency Held by RL.
[3]Work Performed at Sites Other Than Hanford.

TANK WASTE REMEDIATION SYSTEM

4.2 SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)

FY 1998

($000s)

PROJECT WBS:	1.1
PBS NO:	RL-TW02
PBS TITLE:	TANK SAFETY ISSUE RESOL'N PJT

FUND TYPE	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	SUBTOT FY1997-FY2006
OPERATING EXPENSE	25,194	28,022	22,247	22,090	8,312	1,500	1,500	1,500	1,500		111,865
CENRTC	7,506	2,500	5,187	189							15,382
GENERAL PLANT PROJECT											-
LINE ITEM (List each one)											
											-
											-
											-
											-
											-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-
ESCALATION							41	82	125		248
TOTAL NEW B/A	32,700	30,522	27,434	22,279	8,312	1,500	1,541	1,582	1,625	-	127,495

1) CURRENT ESTIMATE OF FY 1998 & FY 1999 NON-PHMC COSTS (NAT'L LAB, RL FUNDING) ARE $4,410, $825 RESPECTIVELY (SUBJECT TO CHANGE)

TW02.4-3

HNF-SP-1230 Rev. 0

TANK WASTE REMEDIATION SYSTEM

4.2 SUMMARY OF LIFE CYCLE BUDGET AUTHORITY (B/A) BY YEAR BY BY PROJECT BASELINE SUMMARY (PBS)

FY 1998

($000s)

PROJECT WBS:	1.1												
PBS NO:	RL-TW02												
PBS TITLE:	TANK SAFETY ISSUE RESOL'N PJT												TOTAL
FUND TYPE	FY2007-FY2010	FY2011-FY2015	FY2016-FY2020	FY2021-FY2025	FY2026-FY2030	FY2031-FY2035	FY2036 FY2040	FY2041-FY2045	FY2046 FY2050	FY2051 FY2055	FY2056-FY2060	FY2061 FY2064	FY1997-FY2064
OPERATING EXPENSE													111,865
CENRTC													15,382
GENERAL PLANT PROJECT													-
LINE ITEM (List each one)													-
													-
													-
													-
													-
													-
Subtotal Line Items	-	-	-	-	-	-	-	-	-	-	-	-	-
ESCALATION													248
TOTAL NEW B/A	-	-	-	-	-	-	-	-	-	-	-	-	127,495

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS: 1.1
PBS NO: RL-TW02
PBS TITLE: TANK SAFETY ISSUE RESOLT'N PROJECT

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY.	JUN	JUL	AUG	SEP	TOTAL
SAFETY	1110	OP EXP	2,702	2,243	2,754	2,645	2,301	2,635	2,519	2,178	2,153	2,124	1,935	1,833	28,022
		CENRTC	130	181	307	377	348	350	266	160	158	137	86	-	2,500
		GPP													-
		LI													-
		SUBTOT	2,832	2,424	3,061	3,022	2,649	2,985	2,785	2,338	2,311	2,261	2,021	1,833	30,522
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover Is **NOT** Included.

4.3

TANK WASTE REMEDIATION SYSTEMS
FY 1998 COST BASELINE (BCWS) BY MONTH
BY PROJECT BASELINE SUMMARY (PBS)
BY ACTIVITY DATA SHEET (ADS)
EXECUTION YEAR

($000s)

PROJECT WBS: 1.1
PBS NO: RL-TW02
PBS TITLE: TANK SAFETY ISSUE RESOLT'N PROJECT

ADS TITLE	ADS NO	FUND TYPE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
		OP EXP													-
		CENRTC													-
		GPP													-
		LI													-
		SUBTOT	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL BCWS/PMB[1]			2,832	2,424	3,061	3,022	2,649	2,985	2,785	2,338	2,311	2,261	2,021	1,833	30,522

[1]Budgeted Cost of Work Scheduled (BCWS) Equals Performance Measurement Baseline (PMB); Expense Carryover is **NOT** Included.

4.4

Tank Waste Remediation Systems
STAFFING
AVERAGE ANNUAL FULL TIME EQUIVALENTS
(includes Major Subcontractors but not Enterprise Companies)
(FTE'S)

Project WBS:	1.1										
PBS Title	PBS NO	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	100.7	80.7	52.2	23.5	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2038	FY 2039	FY 2040	FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2048	FY 2049	FY 2050	FY 2051	FY 2052	FY 2053	FY 2054	FY 2055	FY 2056	FY 2057
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		FY 2058	FY 2059	FY 2060	FY 2061	FY 2062	FY 2063	FY 2064	FY 2065	FY 2066	FY 2067
TANK SAFETY ISSUE RESOLT'N PROJECT	RL-TW02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CONTENTS

TANK FARM OPERATIONS PROJECT (RL-TW03)

1.0 TECHNICAL BASELINE

1.1 PROJECT MISSION

This project's primary objective is to operate, maintain, and upgrade the tank farm facilities to assure the safe storage of the tank wastes until it is retrieved; ongoing activities include: maintenance of tank farm facilities, receipt and transfer of radioactive liquid waste from other Hanford facilities.

In addition, the program is pumping interstitial liquid from the single-shell tanks (SSTs) (interim stabilization), disconnecting piping to prevent further liquid intrusion (isolation), and reducing surface contamination above the tanks to bring them to a controlled, clean, and interim stable condition.

1.2 Drivers for Tank Farms Operations Project

Source Documents for Tank Farms Operations Project

Name	Title
DE-AC06-96RL13200	Project Hanford Management Contract, Fluor Daniel Hanford, Inc.
DOE/RL-89-10	Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Rev.4
DOE/RL-96-14	Updated Draft Mission Direction Document, June 1996
Tank Waste Remediation System Mission Analysis, WHC-SD-WM-MAR-008, Revision 2	Tank Waste Remediation System Mission Analysis (TWRS MAR)
TBD	
TBD (candidates: "Hanford Defense Waste EIS", DOE/EIS-0212, pg S-5; "Hanford Federal Facility Agreement and Consent Order", 89-10, rev 3, pg D-77, D-79, D-92, D-93, M-42-00, M-46-00, M-46-01; "TWRS EIS",)	

1.3 Tank Farms Operations Project Risk Management

Risk Evaluation Narrative: In a hypothetical "walk away" and "do nothing" scenario all Tank Farm Operations activities would cease. This includes the following critical activities that maintain tank waste safety: 1) Active ventilation systems for the double-shell tanks (DSTs) and single-shell tanks (SSTs) would be shut down, which would lead to an increase in flammable gas concentrations (i.e., >= lower flammability limit (LFL) in the flammable gas Watch List tanks) in less than one year. With a presence of an ignition source such as lightening or a range fire, a flammable gas deflagration accident could occur causing severe onsite and offsite consequences for non-tank farm Hanford workers, the public, and the environment. 2) Passive ventilation systems for the tanks would not be maintained and hence there would be no changing of HEPA filters, which would eventually clog-up and lead to an increased flammable gas concentration in the passively ventilated tanks within 1-5 years. With a presence of an ignition source such as lightening or a range fire, a flammable gas deflagration accident could occur causing severe on-site and off-site consequences for non-tank farm Hanford workers, the public, and the environment. 3) Mixer pump operation would cease in tank 101-SY, which would lead to Gas Release Events (GREs or tank burp) in that tank, similar to the GREs which occurred prior to the installation of the mixer pump. Tank burps in tank 101-SY are known to have caused flammable gas concentrations to increase greater than 25% of the past LFL. Tank burps used to occur approximately every 200 days prior to the installation of the mixer pump. With a presence of an ignition source such as lightening or a range fire, a flammable gas deflagration accident could occur causing severe on-site and off-site consequences for non-tank farm Hanford workers, the public, and the environment. Probability is high, that such an event would occur within 1-5 years subsequent to the ceasation of the mixer pump operation. 4) Addition of the cooling water to tank C-106 would stop. Tank C-106 is a high-heat tank that needs the addition of approximately 8,000 gallons of water per month to prevent it from drying out and over heating. Similarly, for other tanks with high-heat/high organic waste content, moisture and temperature is controlled. If these tanks dry out and temperature is allowed to exceed 205 degrees Farenheit, there is a potential for a chemical run-away reaction accident with severe on-site and off-site consequences. The probability is high, that such an event would occur within 1-5 years subsequent to the ceasation of adding cooling water to this tank. 5) Salt-well pumping of SSTs would stop. Stopping the salt-well pumping would lead to increased release of radioactive and hazardous material to the groundwater. There are approximately 60 SSTs which are assumed leakers at this time. Historical data

suggests that additional SSTs are failing (leaking) at the rate of two per year. Release of material to the groundwater would have serious long-term consequences to the environment would occur > 100 years. Ultimately, the stoppage of work in tank farms would result in violations of the law, violations of the Tri-Party Agreement, numerous fines and penalties, and other costly consequences. The likelihood of impacts to the environment and the probability rating from Table C.1.A in the TYP guidance would be 1A-U from 1997-2005 and would change to 1C-H in the final year of the project which is 2006. The Table 1, Ecological Risk Impact would be Impact Level 1, Recovery Time would be irreversible or > 20 years, loss of serious habitat would be "lost", the biological condition would be "very poor", and the geographic impact would be "wide".

Unfunded Regulatory Commitments

Interim Stabilization and Emergency Pumping $13,200 M. This work supports various M-41-XX interim TPA milestones and this effort has been deferred a year. Thus, the TPA milestones will have to be renegotiated.

As Built Drawings $3,000 M. Only 50% of the work originally planned for FY 1998 is funded. This puts us in violation of the WAC code and WDOE.

Tank Isolation & Abandoned Equipment $5,999 M. This work has been deferred a year or more. This puts us in violation of the WAC code and TPA (M-91-00).