ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 644874

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental [] Direct Revision [X] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	W. R. Swita, Business Mgmt. & CFO, H5-03, 376-0031	[] Yes [X] No	January 8, 1998
	6. Project Title/No./Work Order No.	7. Bldg./Sys./Fac. No.	8. Approval Designator
	Tank Waste Remediation System (TWRS)	N/A	N/A
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.)	10. Related ECN No(s).	11. Related PO No.
	HNF-1946, Rev. 0, Vols. 1-3	N/A	N/A

12a. Modification Work	12b. Work Package No.	12c. Modification Work Complete	12d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 12b) [X] No (NA Blks. 12b, 12c, 12d)	N/A	N/A Design Authority/Cog. Engineer Signature & Date	N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change

13b. Design Baseline Document? [] Yes [X] No

Revised text and figures, when approved will become Revision 1.

14a. Justification (mark one)

Criteria Change	[X]	Design Improvement	[]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[]

14b. Justification Details

Management review and additional information received.

15. Distribution (include name, MSIN, and no. of copies)

See attached.

RELEASE STAMP

JAN 09 1998 DATE: STA: 37 HANFORD RELEASE ID: 20

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ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): 644874

16. Design Verification Required: ☐ Yes ☒ No

17. Cost Impact

ENGINEERING		CONSTRUCTION	
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Additional ☐ $		Additional ☐ $	
Savings ☐ $		Savings ☐ $	

18. Schedule Impact (days): N/A
Improvement ☐
Delay ☐

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	☐	Seismic/Stress Analysis	☐	Tank Calibration Manual	☐
Functional Design Criteria	☐	Stress/Design Report	☐	Health Physics Procedure	☐
Operating Specification	☐	Interface Control Drawing	☐	Spares Multiple Unit Listing	☐
Criticality Specification	☐	Calibration Procedure	☐	Test Procedures/Specification	☐
Conceptual Design Report	☐	Installation Procedure	☐	Component Index	☐
Equipment Spec.	☐	Maintenance Procedure	☐	ASME Coded Item	☐
Const. Spec.	☐	Engineering Procedure	☐	Human Factor Consideration	☐
Procurement Spec.	☐	Operating Instruction	☐	Computer Software	☐
Vendor Information	☐	Operating Procedure	☐	Electric Circuit Schedule	☐
OM Manual	☐	Operational Safety Requirement	☐	ICRS Procedure	☐
FSAR/SAR	☐	IEFD Drawing	☐	Process Control Manual/Plan	☐
Safety Equipment List	☐	Cell Arrangement Drawing	☐	Process Flow Chart	☐
Radiation Work Permit	☐	Essential Material Specification	☐	Purchase Requisition	☐
Environmental Impact Statement	☐	Fac. Proc. Samp. Schedule	☐	Tickler File	☐
Environmental Report	☐	Inspection Plan	☐	N/A	☐
Environmental Permit	☐	Inventory Adjustment Request	☐		☐

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number/Revision
N/A		

21. Approvals

	Signature	Date		Signature	Date
Design Authority	S.H. Rifaey	1/9/98	Design Agent		
Cog. Eng.	N/A		PE		
Cog. Mgr.	N/A		QA		
QA	N/A		Safety		
Safety	N/A		Design		
Environ.	N/A		Environ.		
Other			Other		
Author, WR Swita	W.R. Swita	1/9/98			
Author's Mgr., MJ Peterman	MJ Peterman	1/9/98			

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary

W. R. Swita
Lockheed Martin Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 644874 UC: 2030
Org Code: 72220 Charge Code: D215P
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Key Words: TWRS, Retrieval and Disposal Mission, Baseline Summary

Abstract: The document provides a summary of the proposed Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline (scope, schedule, and cost) developed to demonstrate the Tank Waste Remediation System contractor's Readiness-to-Proceed in support of the Phase 1B mission.

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Janice Aardal 1-9-98
Release Approval Date

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RECORD OF REVISION	(1) Document Number HNF-1946	Page 1

(2) Title Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary

CHANGE CONTROL RECORD

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Document Title: Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary

Approved by:

H. L. Boston, Vice President
Tank Waste Retrieval
Lockheed Martin Hanford Corporation

1/9/98
Date

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Business Management and CFO
Lockheed Martin Hanford Corporation

1/9/98
Date

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Revision 1
Volume 1
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Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary

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M. R. Lewis
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Date Published
January 1998

Prepared by Lockheed Martin Hanford Corporation
Richland, Washington

Prepared for the U.S. Department of Energy

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U.S. Department of Energy under Contract DE-AC-0696-RL13200

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1/9/98
Date

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Lockheed Martin Hanford Corporation

1/9/98
Date

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EXECUTIVE SUMMARY

This document provides a summary of the proposed Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline (scope, schedule, and cost), developed to demonstrate the Tank Waste Remediation System contractor's Readiness-to-Proceed in support of the Phase 1B mission.

The document consists of the following sections:

- *An introduction, including a summary of the document and a description of the Integrated Baseline planning process used to produce the scope, schedule, and cost exhibits*
- *Summary scope descriptions and exhibits, including Level 1 Logics which are key documents for scope definition*
- *Summary schedule descriptions and exhibits, including an updated Project Master Baseline Schedule depicting the Level 1 Logic activities*
- *Summary cost descriptions and exhibits, including a summary spreadsheet and cost-loading report depicting costs resulting from the logic-driven, resource-loaded schedule*
- *Summary program-level description of changes from the* Tank Waste Remediation System Fiscal Year 1998 Multi-Year Work Plan[1] *to the proposed Readiness-to-Proceed Initial Updated Baseline.*

---

[1] Lenseigne, D. L., 1997, *Tank Waste Remediation System Fiscal Year 1998 Multi-Year Work Plan WBS 1.1*, HNF-SP-1230, Rev. 0, prepared by Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

This proposed Baseline has been integrated with the Mission Definition and Direction, Management Plans and Procedures, and the Technical Baseline. The scope, schedules, and associated costs demonstrate that the proposed baseline fully supports the private contractors' facilities for Phase 1B waste treatment. Necessary support activities include the following.

- *Provide Waste Feed Delivery.*
- *Provide interim storage of immobilized high-level waste products.*
- *Provide disposal of immobilized low-activity waste products.*
- *Provide disposal of byproduct wastes generated by the private contractors.*
- *Provide the infrastructure to support construction and operations of the private contractors' facilities.*

The data contained in this proposed Baseline have been incorporated in the Tank Waste Remediation System Retrieval and Disposal Mission Phase 1 Financial Analysis[2] *and will serve as the basis for subsequent formal changes to the Tank Waste Remediation System Fiscal Year 1998 Multi-Year Work Plan Baseline.*

---

[2] Wells, M. W., 1998, *Tank Waste Remediation System Retrieval and Disposal Mission Phase 1 Financial Analysis*, HNF-2017, Rev. 1, prepared by Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

CONTENTS

1.0 INTRODUCTION 1-1
1.1 SUMMARY 1-1
1.2 BASELINE PLANNING PROCESS 1-3

2.0 SCOPE 2-1
2.1 TANK WASTE REMEDIATION SYSTEM PROGRAM LOGIC 2-1
2.2 TWRS RETRIEVAL AND DISPOSAL WORK BREAKDOWN STRUCTURE 2-1
2.3 FEED DELIVERY, STORAGE AND DISPOSAL MISSION SUMMARY 2-1
2.4 LEVEL 1 LOGICS 2-11
2.5 CROSSWALK FROM THE LEVEL 1 LOGIC TO THE WORK BREAKDOWN STRUCTURE 2-11
2.6 TWRS SCOPE/COST NOT INCLUDED IN THE INITIAL UPDATED BASELINE 2-11

3.0 SCHEDULE 3-1
3.1 SUMMARY SCHEDULE 3-1
3.2 SITE MASTER BASELINE SCHEDULE 3-1
3.3 PROJECT MASTER BASELINE SCHEDULE 3-1
3.4 MILESTONE COMPARISON 3-1

4.0 COST 4-1
4.1 SUMMARY COST SPREADSHEET 4-1
4.2 DESCRIPTION OF THE TYPES OF COSTS 4-1
4.3 COST-LOADING REPORT 4-5

5.0 SIGNIFICANT PROGRAM-LEVEL CHANGES 5-1
5.1 RETRIEVAL PROJECT 5-1
5.2 IMMOBILIZED WASTE 5-3
5.3 PRIVATIZATION INFRASTRUCTURE 5-4

6.0 REFERENCES 6-1

APPENDICES

A LEVEL 1 LOGICS ..... A-i

B GUIDANCE AND REQUIREMENTS TO DELIVERABLES CROSSWALK - TWRS RETRIEVAL AND DISPOSAL MISSION INITIAL UPDATED BASELINE SUMMARY ..... B-i

C GUIDANCE AND REQUIREMENTS TO DELIVERABLES CROSSWALK - LEVEL 0 AND LEVEL 1 LOGICS ..... C-i

VOLUME 2 APPENDIX A

LOW-ACTIVITY WASTE FEED LEVEL 1 LOGICS

Figure A-1 LAW 1st Feed Batches, Tank 241-AN-105
Figure A-2 LAW 2nd Feed Batches, Tank 241-AN-104
Figure A-3 LAW 3rd Feed Batches, Tank 241-AW-101
Figure A-4 LAW 4th Feed Batches, Tank 241-AN-103
Figure A-5 LAW 5th Feed Batches, Tanks 241-AP-101 & 241-AW-104
Figure A-6 LAW 6th Feed Batches, Tank 241-AY-101
Figure A-7 LAW 7th & 8th Feed Batches, Tank 241-AN-107
Figure A-8 LAW 9th Feed Batches, Tank 241-AN-102
Figure A-9 LAW 10th Feed Batches, Tank 241-AN-106

VOLUME 3 APPENDIX A

LOW-ACTIVITY WASTE FEED LEVEL 1 LOGICS

Figure A-10 LAW 11th Feed Batches, Tank 241-SY-101
Figure A-11 LAW 12th Feed Batches, Tank 241-SY-103

HIGH-LEVEL WASTE FEED LEVEL 1 LOGICS

Figure A-12 HLW 1st & 2nd Feed Batches, First Tank 241-AZ-101
Figure A-13 HLW 3rd & 4th Feed Batches, First Tank 241-AZ-102
Figure A-14 HLW 5th - 9th Feed Batches, 241-AY-102
Figure A-15 HLW 10th - 12th Feed Batches, Tank 241-C-104

IMMOBILIZED LOW-ACTIVITY WASTE LEVEL 1 LOGICS

Figure A-16 Immobilized Waste (ILAW)

IMMOBILIZED HIGH-LEVEL WASTE LEVEL 1 LOGICS

Figure A-17 Immobilized Waste (IHLW)

INFRASTRUCTURE PHASE 1 LEVEL 1 LOGICS

Figure A-18 Infrastructure Phase 1 Privatization Support

LIST OF FIGURES

1. Readiness-to-Proceed Document Hierarchy. 1-2

2. Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary Documents. 1-4

3. Tank Waste Remediation System Program Logic. 2-3

4. Tank Waste Retrieval and Disposal Work Breakdown Structure. 2-5

5. Feed Delivery, Storage and Disposal Mission Summary. 2-7

6. Summary Schedule. 3-3

7. Site Master Baseline Schedule 3-4

8. Project Master Baseline Schedule. 3-6

LIST OF TABLES

1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure Level 6 2-14

2. Milestone Comparison. 3-52

3. Summary Cost Spreadsheet. 4-3

4. Cost-Loading Report. 4-7

LIST OF TERMS

CEIS	cost estimating input sheet
DST	double-shell tank
FY	fiscal year
HLW	high-level waste
ILAW	immobilized low-activity waste
IHLW	immobilized high-level waste
LAW	low-activity waste
LCC	life-cycle cost
MYWP	Multi-Year Work Plan
PHMC	Project Hanford Management Contract
RL	U.S. Department of Energy, Richland Operations Office
RTP	Readiness-to-Proceed
SST	single-shell tank
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order*
TBR	Technical Basis Review
TWRS	Tank Waste Remediation System
WBS	Work Breakdown Structure

TANK WASTE REMEDIATION SYSTEM RETRIEVAL AND DISPOSAL MISSION INITIAL UPDATED BASELINE SUMMARY

1.0 INTRODUCTION

1.1 SUMMARY

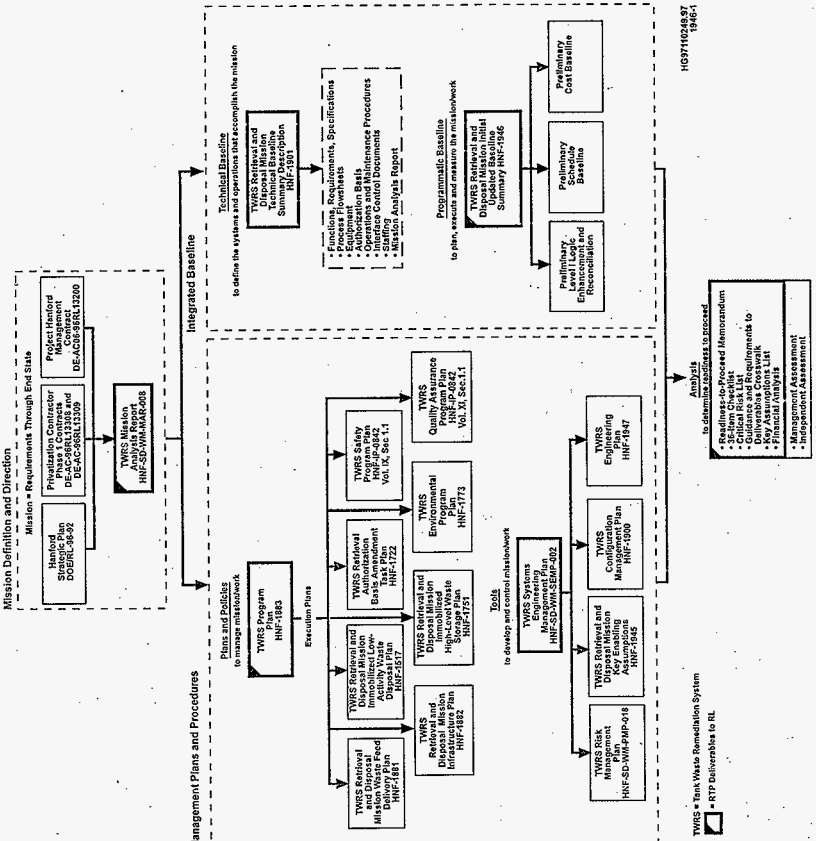
This document provides a summary of the Tank Waste Remediation System (TWRS) Retrieval and Disposal Mission Initial Updated Baseline (scope, schedule, and cost), developed to demonstrate Readiness-to-Proceed (RTP) in support of the TWRS Phase 1B mission. This Updated Baseline is the proposed TWRS plan to execute and measure the mission work scope.

This document and other supporting data demonstrate that the TWRS Project Hanford Management Contract (PHMC) team is prepared to fully support Phase 1B by executing the following scope, schedule, and cost baseline activities.

- Deliver the specified initial low-activity waste (LAW) and high-level waste (HLW) feed batches in a consistent, safe, and reliable manner to support private contractors' operations starting in June 2002.
- Deliver specified subsequent LAW and HLW feed batches during Phase 1B in a consistent, safe, and reliable manner.
- Provide for the interim storage of immobilized HLW (IHLW) products and the disposal of immobilized LAW (ILAW) products generated by the private contractors.
- Provide for disposal of byproduct wastes generated by the private contractors.
- Provide the infrastructure to support construction and operations of the private contractors' facilities.

As shown on Figure 1, Readiness-to-Proceed Document Hierarchy, and as discussed in the *Tank Waste Remediation System Retrieval and Disposal Mission Readiness-to Proceed Memorandum* (Jordan and Boston 1998) and the *Management Assessment of Tank Waste Remediation System Contractor Readiness-to-Proceed with Phase 1B Privatization* (Payne et al. 1998), this Initial Updated Baseline (HNF-1946), also referred to as the Programmatic Baseline, is a key element of the Integrated Baseline. The Integrated Baseline also includes the Technical Baseline as documented in HNF-1901, *Tank Waste Remediation System Retrieval and Disposal Mission Technical Baseline Summary Description* (Treat et al. 1998).

Figure 1. Readiness-to-Proceed Document Hierarchy.



The Programmatic Baseline is consistent with and reflects the scope of work defined in HNF-1901 (Treat et al. 1998). Similarly, this Programmatic Baseline is consistent with and reflects the scope, schedule, and cost necessary to execute the Management Plans and Procedures for the mission/work including the Plans and Policies documented in the *Tank Waste Remediation System Program Plan* (Freeman 1998) and sub-tier plans as well as the Tools to develop and control the mission/work as documented in the *Tank Waste Remediation System Systems Engineering Management Plan* (Peck 1998). The Programmatic Baseline is similarly consistent with the top-level Mission Definition and Direction documented in the *Tank Waste Remediation System Mission Analysis Report* (Acree 1998).

Figure 2 is a graphical depiction of the summary-level exhibits contained in this document. This document includes a short narrative that describes each of the exhibits for scope, schedule, and cost. Additional supporting documentation is available, as requested.

This Initial Updated Baseline represents a more thorough analysis of the scope, schedule, and cost than is contained in the current *Tank Waste Remediation System Fiscal Year 1998 Multi-Year Work Plan* (MYWP) (Lenseigne 1997) Baseline and will serve as the basis for changes to the TWRS Baseline. A discussion of the systematic and controlled planning process used during RTP to develop the Initial Updated Baseline follows.

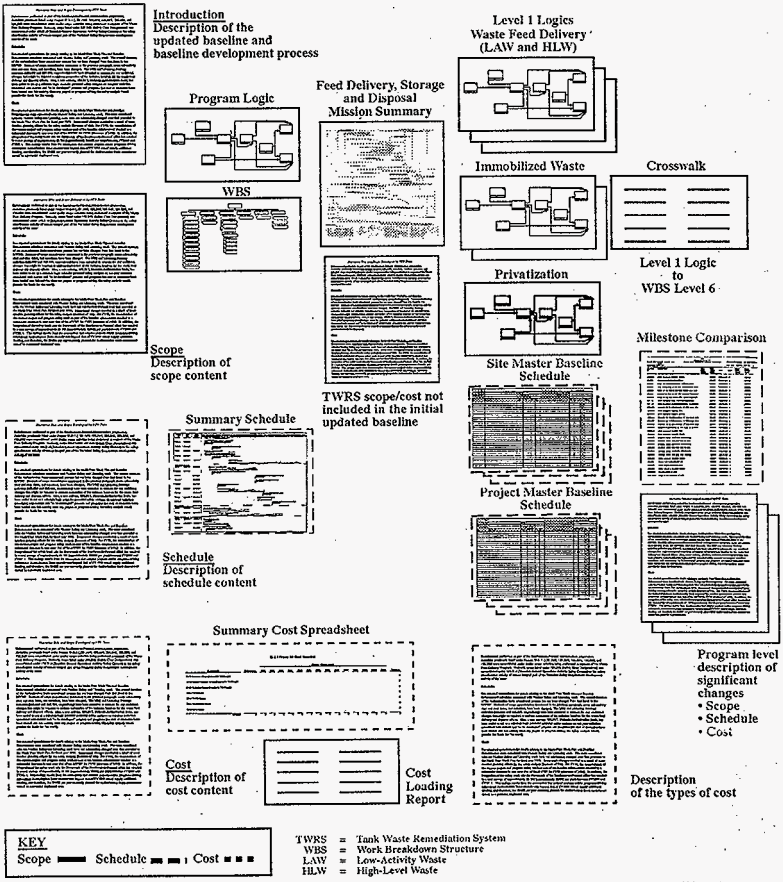
1.2 BASELINE PLANNING PROCESS (SCOPE, SCHEDULE, AND COST)

To conduct the RTP planning process, senior level multi-functional planning teams were formed with technically knowledgeable representatives from Operations; Characterization; Retrieval; Projects; Nuclear Safety; Environmental, Safety, and Health and Quality Assurance; Engineering/Maintenance; U.S. Department of Energy, Richland Operations Office (RL)/Waste Integration Team; Business Management (scheduling and cost estimating); and the Chief Financial Officer. Team leads were assigned to the planning effort commensurate with the type of work being addressed. Use of these multi-functional planning teams ensures that interfaces are identified among performing organizations for each activity and series of activities and that work is integrated among programs, projects, and operations. Using technical product descriptions prepared by the RTP team and integrated planning teams, the Initial Updated Baseline, depicted in Figures 1 and 2, was prepared.

The work scope for the Initial Updated Baseline is defined by Level 1 Logics prepared during RTP for LAW and HLW feed delivery, ILAW and IHLW, and Infrastructure Phase 1. The logics are included in Appendix A. These logics portray most of the required activities to complete the Phase 1B TWRS Retrieval and Disposal mission. Scope driven by logic development ensures consistency with the technical requirements and mission and validates the need for the work. These Level 1 Logics replace the preliminary Feed Delivery Mid-Level Logics developed in fiscal year (FY) 1997 for the current MYWP. Each activity on the Level 1 Logic correlates to Level 7 of the TWRS Retrieval and Disposal work breakdown structure (WBS). Upon completion and validation of the Level 1 Logics by the planning team, a

Figure 2. Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary Documents.

Summary Documents



Technical Basis Review (TBR) sheet was prepared to fully document and define the activity. The TBR sheets include the following information:

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

These TBR sheets were written in accordance with a desk instruction for their preparation and acceptance.

Using the scope and activity definition provided by the Level 1 Logic and TBR sheet, the planning teams prepared draft TBR packages consisting of TBR sheets, Level 2 task or subactivity logic networks, Level 2 Cost Estimating Input Sheets (CEIS), and cost loading reports generated by the Primavera[1] scheduling software. This level of detail was necessary to adequately define and document the basis for the scope, schedule, and resource estimate at an executable task level. The Level 2 subactivity logics provide titles for the tasks, predecessor and

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

successor activities, durations, and logic ties. The Level 2 CEIS defines the scope, resources, and basis of estimate for each task. The following data are documented on each CEIS:

- Header information including task title, TBR number, activity owner, prepared by, date prepared, date updated, schedule activity identification number, financial data system work package/task package number, and duration
- Resource description
- Job category
- Organization code
- Cost element
- Fund type
- Note reference
- Total amount (of resource units)
- Units duration/tag
- Sub-task number
- Sub-task description
- Scope description
- Estimating assumptions/exclusions/risks
- Basis of estimate
- Estimate stage and method
- Reference documents
- Notes.

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

Estimating Work Sheets were prepared instead of the CEIS to document the required information.

Utilizing the Level 1 Logics and data from the TBR packages, a detailed integrated schedule was developed in the Primavera scheduling software. This schedule is a task-oriented, logically driven, resource-loaded critical path schedule that was summarized to produce the Site Master Baseline Schedule (refer to Section 3.2, Figure 7) and the Project Master Baseline Schedule (refer to Section 3.3, Figure 8). This schedule is traceable to the logic, WBS, activity owner (performing organization), and estimating sheets. The schedule was reviewed and revised to refine logic, float, and critical path. Resources from the estimating sheets were loaded and priced in the Primavera Systems, Inc. scheduling software to produce the cost profiles for work defined in the Level 1 Logics. Fiscal year 1998 Fluor Daniel Hanford, Inc. approved labor rate tables were used in the Primavera scheduling software for pricing. The final TBR packages (Rev. 0) were prepared from the approved schedule consisting of and supported by the TBR sheets, subactivity logics, Primavera cost loading reports, and estimating sheets. These packages were signed by the activity owners and the TWRS Retrieval and Disposal Program and placed under configuration control.

In addition to the schedules and costs developed from the Level 1 Logics and TBR packages, additional TWRS Project scope and costs have been included in the Initial Updated Baseline. These costs are summarized in Section 4.0, Cost. Additional detail and analysis are contained in the Financial Analysis (Wells 1998). Data developed in the TBR packages provided bottoms-up enabling assumptions and risk management information used in the Financial Analysis to assess risk.

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2.0 SCOPE

Scope has been defined by specific products developed/updated during the RTP development phase. These products are discussed in the following sections and are included as figures or tables in this section.

2.1 TANK WASTE REMEDIATION SYSTEM PROGRAM LOGIC

The TWRS Program (Level 0) Logic (Figure 3) is the top-level TWRS logic used to identify the structure of activities necessary to achieve the entire integrated TWRS mission (life cycle). The TWRS Program Logic is the top-level basis for the RTP planning and is traceable to the TWRS Retrieval and Disposal Mission Level 1 Logics. The Program Logic has been annotated to identify the major program activities for Safe Storage, Phase 1, Phase 2, and Closure.

2.2 TWRS RETRIEVAL AND DISPOSAL WORK BREAKDOWN STRUCTURE

The TWRS Retrieval and Disposal WBS (Figure 4) depicts all TWRS Retrieval and Disposal mission work scope to WBS Level 6. It has been shaded to differentiate the WBS elements applicable to Phase 1 and Phase 2. The Waste Feed Delivery Level 6 WBS elements were revised as a result of RTP planning to reflect the following: (1) authorized line item project work broken out by fund type and phase; (2) the addition of Project W-314 Phase 1; and (3) additional elements to segregate Retrieval Operations into Single-Shell Tanks, Double-Shell Tanks, Characterization, and Safety Basis. This WBS is used as a framework for scope definition, scheduling, estimating, and managing the work.

2.3 FEED DELIVERY, STORAGE AND DISPOSAL MISSION SUMMARY

The Feed Delivery, Storage and Disposal Mission Summary (Figure 5) provides a graphical summary of the mission for Retrieval, Projects, and Operations related to feed delivery and return of products from the private contractors. This summary uses the information from the *Tank Waste Remediation System Operation and Utilization Plan* (Kirkbride et al. 1997) and is consistent with the RTP schedules.

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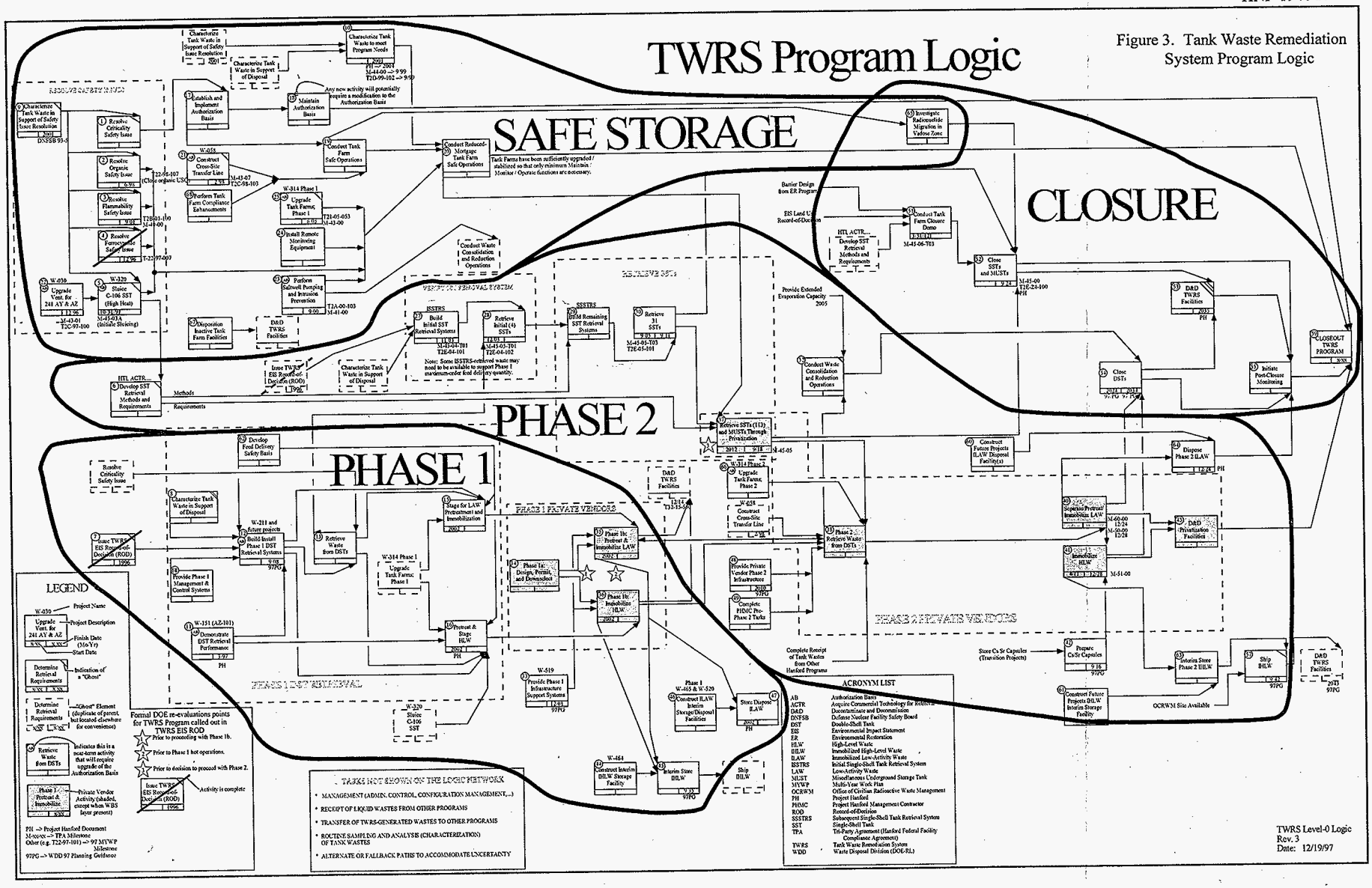

Figure 3. Tank Waste Remediation System Program Logic

Figure 4. Tank Waste Retrieval and Disposal Work Breakdown Structure.

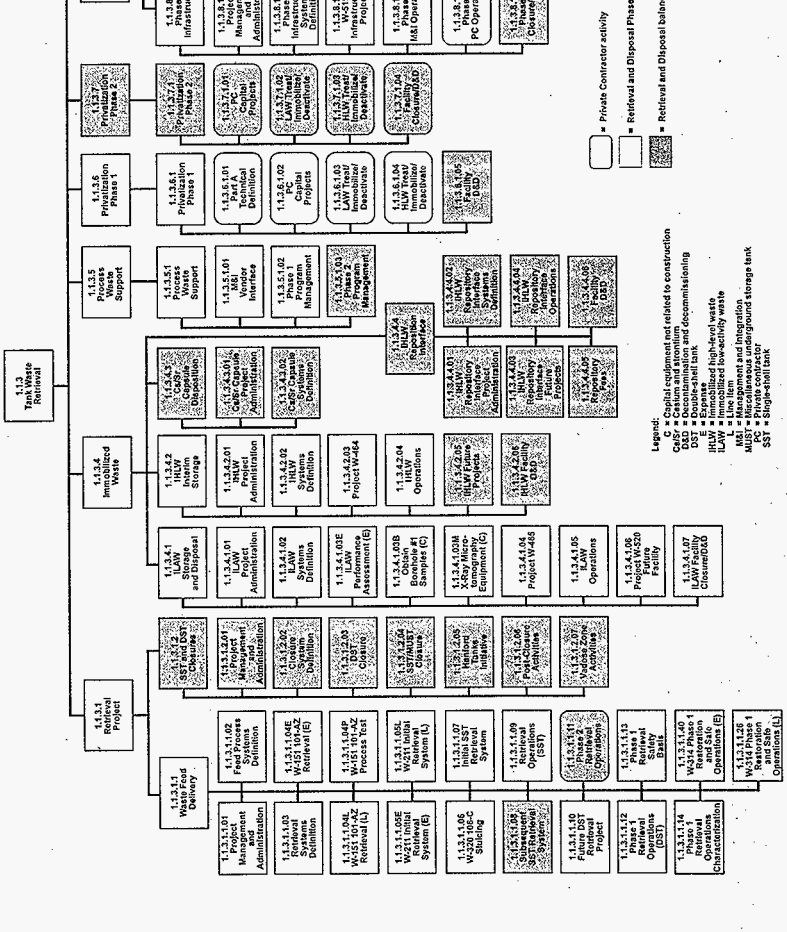

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Figure 5. Feed Delivery, Storage and Disposal Mission Summary (Sheet 1 of 2).

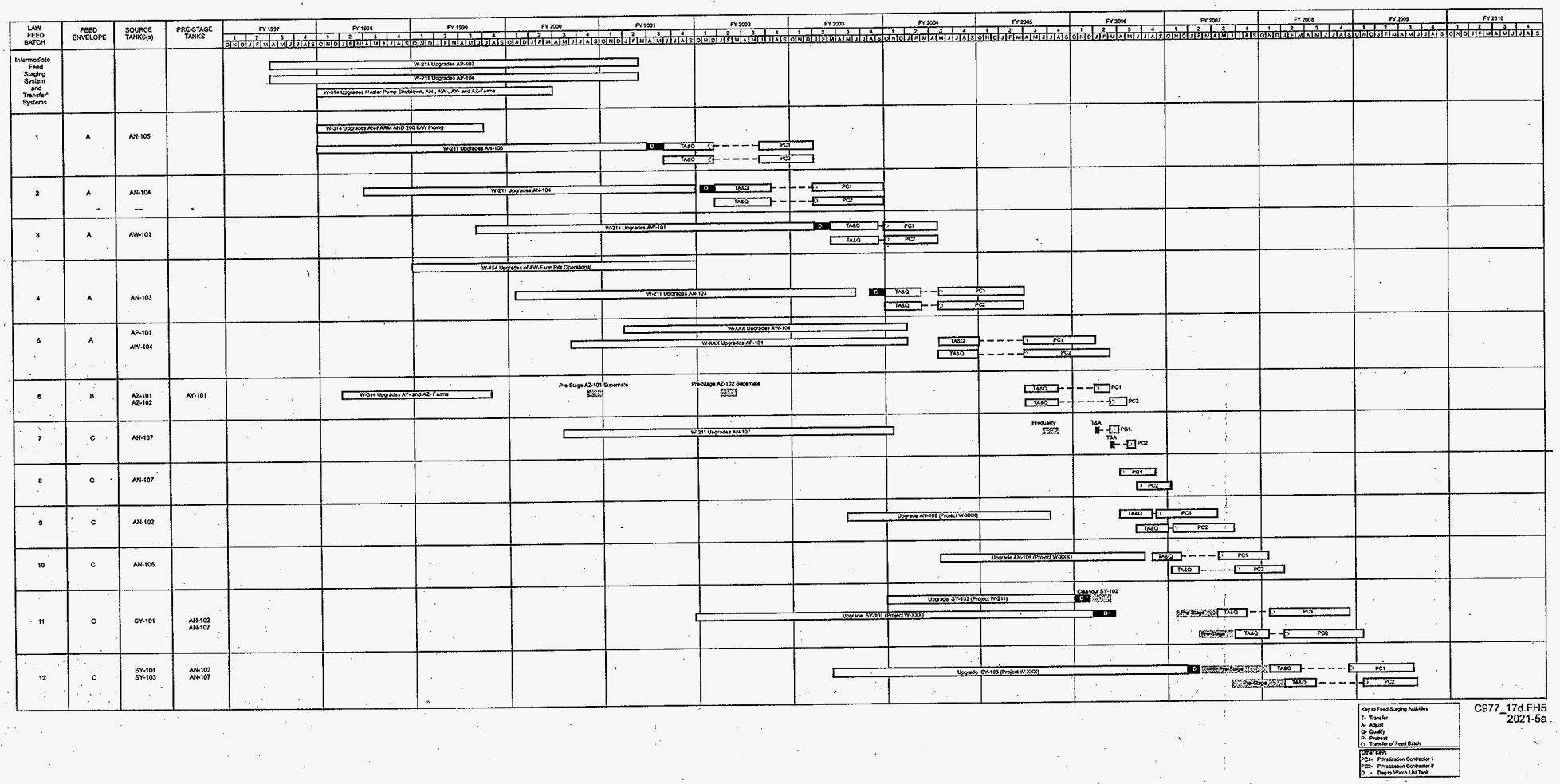

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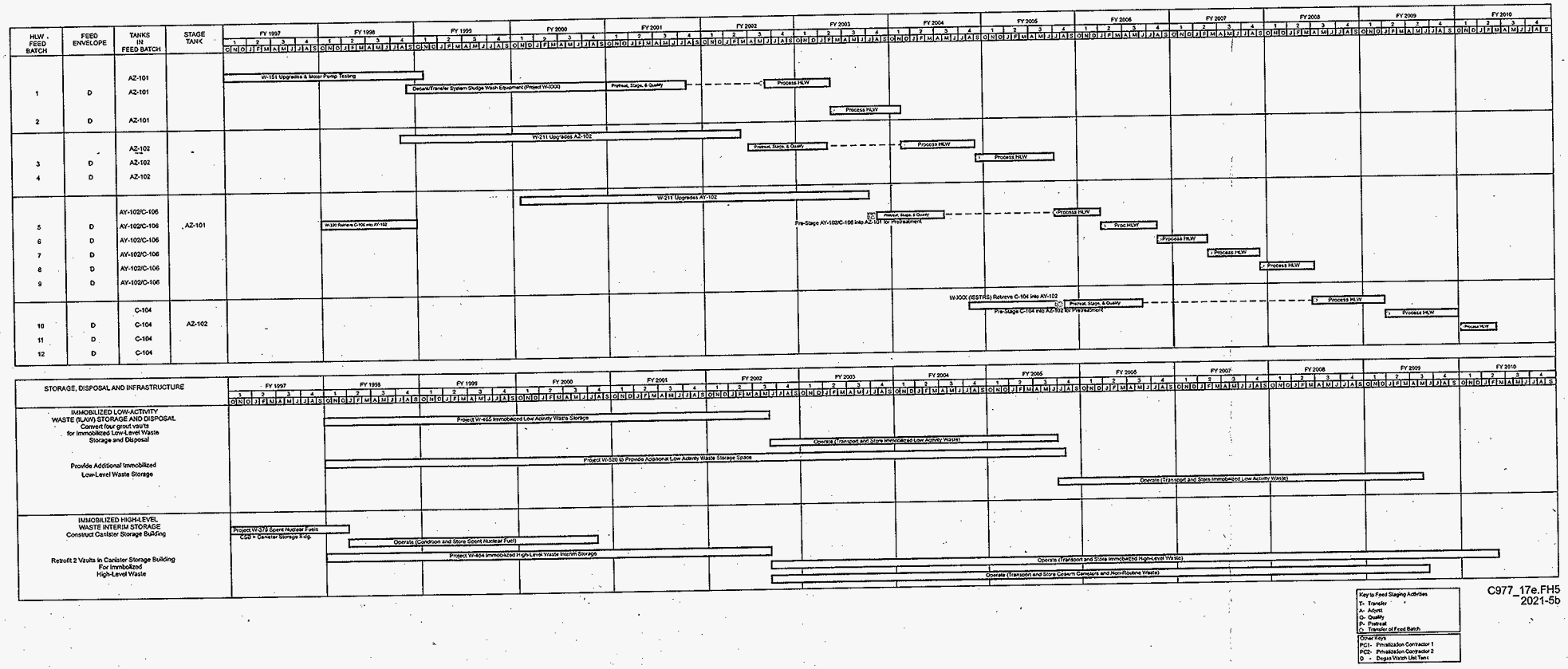
Figure 5. Feed Delivery, Storage and Disposal Mission Summary (Sheet 2 of 2).



2.4 LEVEL 1 LOGICS

The Level 1 Logics were developed to define and detail the Phase 1 PHMC team scope of work and sequence of activities required to complete the TWRS Retrieval and Disposal Mission as reflected in the TWRS Retrieval and Disposal WBS. Level 1 Logics were prepared for Low-Activity Waste Feed (11 sheets), High-Level Waste Feed (4 sheets), Immobilized LAW (1 sheet), Immobilized HLW (1 sheet), and Infrastructure Phase 1 (1 sheet). These Logics are located in Appendix A (Volumes 2 and 3).

These logics were used as the basis for preparation of the TBR packages, which define and document the scope, schedule, and cost estimates, and are under configuration control. The Level 1 Logics identify primary activity owners including Environmental, Nuclear Safety and Licensing, Characterization, Retrieval, TWRS private contractors, Operations, Projects, and RL. A critical path for each feed batch is shown. Only selected logic activities for the TWRS private contractors and RL are shown in the Level 1 Logics to depict necessary interfaces. As discussed in Section 4.0, a limited number of Phase 1 TWRS Retrieval and Disposal Mission activities are not included in the Level 1 Logics.

2.5 CROSSWALK FROM THE LEVEL 1 LOGIC TO THE WORK BREAKDOWN STRUCTURE

This crosswalk (Table 1) shows the TWRS Retrieval and Disposal Level 1 Logic (activity number and title) crosswalked to the WBS Level 6.

2.6 TWRS SCOPE/COST NOT INCLUDED IN THE INITIAL UPDATED BASELINE

This section describes the TWRS Project scope/cost not included in the Phase 1 TWRS Retrieval and Disposal Mission Initial Updated Baseline. For a discussion of what costs are included, see Sections 4.1, Summary Cost Spreadsheet, and Section 4.2, Description of the Types of Cost.

The TWRS scope/cost not included in the Initial Updated Baseline is broken down as follows:

- Required Waste Management facilities base operations and interfaces are funded by the Waste Management Program (outside of TWRS):
  - 222-S Laboratory support to tank characterization
  - 242-A Evaporator support to AY/AZ Farm Sludge Washing and Dilute Wastes

- Effluent Treatment Facility treatment of 242-A Evaporator condensate

- Liquid Effluent Retention Facility treatment of radioactive or dangerous liquid effluents generated by private contractors

- Treated Effluent Disposal Facility treatment of non-radioactive, non-dangerous liquid effluents generated by private contractors.

- Ongoing TWRS Safe Storage work scope for Tank Farm Operations (TW03), Tank Waste Characterization (TW01), and Tank Safety Issue Resolution (TW02) is funded elsewhere as documented in the TWRS FY 1998 MYWP (Lenseigne 1997). The following are not Phase 1 related costs:

  - Operation and maintenance of the single-shell tank (SST) farms and double-shell tank (DST) farms, including Environmental, Safety and Health training, maintenance, operations, surveillance and engineering

  - Tank Farm Upgrade Project W-314 after FY 2000 (Phase 2 of W-314)

  - Characterization work scope responding to Defense Nuclear Facilities Safety Board (DNFSB) 93-5, *DNFSB Recommendation 93-5 to the Secretary of Energy Regarding Hanford Tank Sampling and Characterization* (DNFSB 1993) and *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1996) M-44 commitments; includes Characterization work scope through FY 2001

  - Waste Tank Safety work scope planned for resolution of unreviewed safety questions surrounding flammable gas and organics through FY 2001.

- Management Support (TW10) to TWRS (excluding the allocated TWRS Retrieval and Disposal business volume share) for Environmental oversight, Systems Engineering, reengineering, program integration, RL support, Quality Assurance, Safety and Health oversight, life-cycle cost estimating, PHMC fee, etc. This work is funded elsewhere in the TWRS and is documented in the TWRS FY 1998 MYWP (Lenseigne 1997).

- Costs for operation of the Phase 1 private contractors' facilities and payment for immobilized product produced. (Refer to the Privatization Phase 1 boxes in Figure 4, TWRS Retrieval and Disposal WBS.) This work is funded separately by RL outside of the TWRS FY 1998 MYWP (Lenseigne 1997).

- The Phase 1 Privatization Regulatory Unit, which is separately funded by the U.S. Department of Energy outside of the TWRS Project.

- Retrieval and Disposal as well as private contractors' activities required to support Phase 2. Refer to the gray shaded boxes in Figure 4, TWRS Retrieval and Disposal Work Breakdown Structure. This work is funded elsewhere in the TWRS Project and is documented in the TWRS FY 1998 MYWP (Lenseigne 1997).

- Decontamination/decommissioning and closure of Retrieval and Disposal and private contractor facilities with the exception of the immobilized low-activity waste grout vaults.

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
050.010	11310106 [1]	W-320 Project Management
050.020	11310106	Design New Eqpmnt - W-320 Includes C-106/AY-102
050.030	11310106	Construct New Eqpmnt - W-320 Includes C-106
050.040	11310106	Construct/ATP Original Equipment for W-320
050.045	11310106	Design/Equipment Support for W-320
050.050	11310106	Perform OTP for W-320
050.060	11310106	Prepare Safety Doc Basis for Interim Ops - W-320
050.070	11310106	Prep/Conduct ORR/Receive RL Approval - W-320
050.080	11310112	Interface (xfr Part of AY-102 Supernatant Out)
050.085	11310106	DOE-RL ORR for W-320
050.090	11310106	Sluice Sludge Into AY-102 - W-320
050.100	11310106	Design Additional Equipment W-320
050.110	11310106	Construct Additional Equipment W-320
050.120	11310106	Test Additional Equipment W-320
050.130	11310106	Process Control Document - W-320
110.010	1131014E [1]	W-151 Project Management
	1131014P [1]	W-151 Project Management
110.020 [2]		Install (2) 300 HP Mixer Pumps in 241-AZ-101
110.030	1131014E	Apprd Safety Basis for Mixer Pump Perform Test
110.040 [2]		Develop Mixer Pump Plans and Procedures
110.045	1131014P	Revise/Iss Mixer Pump Test Plans/Procedures
110.047	11310102	Perf Mixer Pump Test Sampling & Analysis
110.050	1131014E	Conduct LMHC Readiness Assessment
110.060	1131014E	DOE Approval to Operate
110.070	1131014E	Perform Mixer Pump Test (W-151)
	1131014P	Perform Mixer Pump Test (W-151)
110.090	1131014P	Prepare Test Report (W-151)
120.A00	1131015E [1]	W-211 Project Management
	1131015L [1]	W-211 Project Management
120.A88	11310110	Prepare for ORR AZ-101
120.B10	11310110	Dsn/Install Central Control Room/Shift Ofc Facl
120.B30 [2]		Revise W-211 FDC for Staging Tanks
120.B35	1131015L	W-211 Design AP-102/AP-104 Retrieval Systems

[1] Activity on the PMBS (Figure 8) but not on Level 1 Logics

[2] Activity on the Level 1 Logic which is closed or completed; not shown on the schedule

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
120.B40	11310112	Prepare AP-102/AP-104 for Turnover to Project
120.B42	1131015L	W-211 Equip Procure AP-102/AP-104 Retrieval Syst
120.B45	1131015L	W-211 Construct AP-102/AP-104 Retrieval Systems
120.B50	1131015E	W-211 Startup AP-102/AP-104 Retrieval Systems
120.B58	1131015E	Prep for ORR on AP-102 & 104
120.B60	1131015E	Contract Independent ORR on AP-102 & 104
120.B65	1131015E	DOE ORR on AP-102 & 104
120.C05	11310102	Obtain AY-101 Samples
XXX[5]	XXX[5]	Sample and Analyze AY-102 per RL/PC Requirements
120.C10	11310102	Characterize AY-101
120.C12	11310102	Review AY-101 Historical Data
120.C14	11310102	Establish Dilution Rqmts for AY-101 Process Test
120.C15	11310102	Confirm Plans and Requirements for AY-101
120.C20	11310102	Update BBI & TCR For Tank AY-101
120.C25	11310103	Evaluate Equipment Rqmts in AY-101
120.C30	11310110	Upgrade Waste Tank AY-101 as Required
120.D05 [3]		Develop DQO: Potential LAW
XXX[5]	XXX[5]	Sample and Analyze AN-105 per RL/PC Requirements
120.D07	11310102	Develop LAW Confirm Tank T Meets Batch X DQO
120.D08	11310102	Develop Waste Transfer to PC DQO
120.D09	11310102	Develop In Tank Processing Control DQO
120.D10	11310102	Evaluate AN-105 Samples for Adequate Matls
120.D11	11310102	Develop DQO: PH 1 Tank Waste Transfer Control
120.D12	11310102	Develop HLW Waste Delivery toPC DQO
120.D15	11310102	Rvw AN-105 Historical Data/Conf if Add'l Info Rq
120.D20	11310102	Estab Dilution Reqmnts/Diss Behav for AN-105
120.D25	11310102	Characterize AN-105
120.D30	11310102	Update Best Basis Inventory and TCR for AN-105
120.D35	11310102	Perf Max Implied Radionuclide Concentrate Study
120.D40	11310102	Confirm Plans and Requirements for AN-105
120.D45	11310102	Establish New Envelope Limits (A/B Versus C)
120.D50	11310102	Do Envelopes Apply to Bulk Comp or Liquid Phase?

[3] RL Activity on the Level 1 Logic but not on the PMBS (Figure 8).

[5] Placeholder activity not in schedule; contractor scope is undefined.

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
120.D55	11310102	Establish Methods/Proc to Estab Feed Composition
120.D60 [2]		Revise W-211 FDC for AN-105
120.D60 [2]		Revise W-211 FDC for AN-105
120.D65	1131015L	W-211 Design AN-105 Retrieval System
120.D72	1131015L	W-211 Equip Procurement AN-105 Retrieval System
120.D75	1131015L	W-211 Construction AN-105 Retrieval System
120.D80	1131015E	W-211 Startup AN-105 Retrieval System
120.D88	1131015E	Prep ORR AN-105
120.D90	1131015E	Contract Independent ORR AN-105
120.D95	1131015E	DOE ORR AN-105
120.E05	11310102	Evaluate AN-104 Samples for Adequate Matls
XXX[5]	XXX[5]	Sample and Analyze AN-104 Per RL/PC Requirements
120.E10	11310102	Estab Dilution Reqmnts/Diss Behav for AN-104
120.E15	11310102	Review AN-104 Historical Data
120.E20	11310102	Characterize AN-104
120.E25	11310102	Update Best Basis Inventory and TCR for AN-104
120.E35	11310102	Confirm Plans and Requirements for AN-104
120.E40	11310103	Revise W-211 FDC for AN-104
120.E50	1131015L	W-211 Design AN-104 Retrieval System
120.E52	1131015L	W-211 Equip Procurement AN-104 Retrieval System
120.E55	1131015L	W-211 Construction AN-104 Retrieval System
120.E60	1131015E	W-211 Startup AN-104 Mixing & Retrieval System
120.E68	1131015E	Prep for Readiness Rvw on 241-AN-104
120.E70	1131015E	Contractor Independent ORR for 241-AN-104
120.E75	1131015E	DOE ORR for 241-AN-104
120.F40	1131015L	W-211 Design AZ-102 Retrieval System
120.F50	1131015L	W-211 Construction AZ-102 Retrieval System
120.F52	1131015L	W-211 Equip Procurement AZ-102 Retrieval System
120.F60	1131015E	W-211 Startup AZ-102 Retrieval System
120.F68	1131015E	Prepare for ORR AZ-102
120.F80	1131015E	Contractor Independent ORR for AZ-102
120.F90	1131015E	DOE ORR for AZ-102

[2] Activity on the Level 1 Logic which is closed or completed; not shown on the schedule

[5] Placeholder activity not in schedule; contractor scope is undefined

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
120.G05	11310102	Evaluate AW-101 Samples Adequate Matls
120.G10	11310102	Estab Dilution Reqmnts/Diss Behav for AW-101
120.G15	11310102	Review AW-101 Historical Data
120.G20	11310102	Characterize AW-101
XXX[5]	XXX[5]	Sample and Analyze AW-101 per RL/PC Requirements
120.G25	11310102	Update Best Basis Inventory and TCR for AW-101
120.G35	11310102	Confirm Plans and Requirements for AW-101
120.G37	11310102	Eval Waste Retrieval Equip Req'd for Tanks 5 On
120.G38	11310103	Decn Board/Acqn Strategy PHI Ret After AN-104
120.G39	11310103	Adjust Acquistion Strategy WFD System
120.G40	11310103	Revise W-211 FDC for AW-101
120.G50	1131015L	W-211 Design AW-101 Retrieval System
120.G52	1131015L	W-211 Equip Procurement AW-101 Retrieval System
120.G55	1131015L	W-211 Construction AW-101 Retrieval System
120.G60	1131015E	W-211 Startup AW-101 Retrieval System
120.G68	1131015E	Prep for ORR on AW-101
120.G70	1131015E	Contract Independent ORR on AW-101
120.G75	1131015E	DOE ORR on AW-101
120.H10	1131015L	W-211 Design AY-102 Retrieval System
120.H15	1131015L	W-211 Equip Procurement AY-102 Retrieval System
120.H20	1131015L	W-211 Construction AY-102 Retrieval System
120.H30	1131015E	W-211 Startup AY-102 Retrieval System
120.H50	1131015E	Contractor Independent ORR AY-102
120.H60	1131015E	DOE ORR AY-102
120.H68	1131015E	Prepare for ORR AY-102
120.J05	11310102	Evaluate AN-103 Samples for Adequate Matls
120.J10	11310102	Estab Dilution Reqmnts/Diss Behav for AN-103
120.J15	11310102	Review AN-103 Historical Data
120.J20	11310102	Characterize AN-103
XXX[5]	XXX[5]	Sample and Analyze AN-103 Per RL/PC Requirements
120.J25	11310102	Update Best Basis Inventory and TCR for AN-103
120.J35	11310102	Confirm Plans and Requirements for AN-103
120.J40	11310103	Revise W-211 FDC for AN-103
120.J50	1131015L	W-211 Design AN-103 Retrieval System

[5] Placeholder activity not in schedule; contractor scope is undefined.

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
120.J52	1131015L	W-211 Equip Procurement AN-103 Retrieval System
120.J55	1131015L	W-211 Construction AN-103 Retrieval System
120.J60	1131015E	W-211 Startup AN-103 Retrieval System
120.J68	1131015E	Prep for ORR on 241-AN-103
120.J70	1131015E	Contractor Independent ORR for 241-AN-103
120.J75	1131015E	DOE ORR for 241-AN-103
120.K05	11310102	Evaluate AN-107 Samples for Adequate Matls
120.K10	11310102	Estab Dilution Reqmnts/Diss Behav for AN-107
120.K15	11310102	Review AN-107 Historical Data
120.K20	11310102	Characterize AN-107
XXX[5]	XXX[5]	Sample and Analyze AN-107 Per RL/PC Requirements
120.K25	11310102	Update Best Basis Inventory and TCR for AN-107
120.K35	11310102	Confirm Plans and Requirements for AN-107
120.K40	11310103	Revise W-211 FDC for AN-107
120.K50	1131015L	W-211 Design AN-107 Retrieval System
120.K52	1131015L	W-211 Equip Procurement AN-107 Retrieval System
120.K55	1131015L	W-211 Construction AN-107 Retrieval System
120.K60	1131015E	Upgrd W-211 OTP/Ops Docmntn for AN-107 (Ops)
120.K68	1131015E	Prep for ORR for 241-AN-107
120.K70	1131015E	Contractor Independent ORR for 241-AN-107
120.K75	1131015E	DOE ORR for 241-AN-107
120.L05	11310102	Evaluate AN-102 Samples for Adequate Matls
120.L10	11310102	Estab Dilution Reqmnts/Diss Behav for AN-102
120.L15	11310102	Review AN-102 Historical Data
120.L20	11310102	Characterize AN-102
XXX[5]	XXX[5]	Sample and Analyze AN-102 Per RL/PC Requirements
120.L25	11310102	Update Best Basis Inventory and TCR for AN-102
120.L35	11310102	Confirm Plans and Requirements for AN-102
120.L36	11310103	Approve FDC for Project W-TBD
120.L37	11310103	Provide Documentation for W-TBD Validation
120.L38	11310110	Validate Project W-TBD
120.L39	11310110	Define Project Management for W-TBD
120.L40	11310103	Prep W-TBD Prj Definition/Tech Basis/FDC
120.L41	11310103	241-AN-102 Upgrades: Prep Tech Rqmnts & CDR

[5] Placeholder activity not in schedule; contractor scope is undefined.

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
120.L50	11310110	241-AN-102 Upgrades: Design & Enviro. Permits
120.L55	11310110	241-AN-102 Upgrades: Const/ATP/Turnover/H14 Dwgs
120.L60	11310110	241-AN-102 Upgrades: Startup/OTP/Ops Documents
120.L68	11310110	Prep for ORR for 241-AN-102
120.L70	11310110	Contractor Independent ORR for 241-AN-102
120.L75	11310110	DOE ORR for 241-AN-102
120.M05	11310102	Evaluate AN-106 Samples for Adequate Matls
120.M10	11310102	Estab Dilution Reqmnts/Diss Behav for AN-106
120.M15	11310102	Review AN-106 Historical Data
120.M20	11310102	Characterize AN-106
XXX[5]	XXX[5]	Sample and Analyze AN-106 Per RL/PC Requirements
120.M25	11310102	Update Best Basis Inventory and TCR for AN-106
120.M35	11310102	Confirm Plans and Requirements for AN-106
120.M40	11310103	241-AN-106 Upgrades: Prep Tech Rqmnts & CDR
120.M50	11310110	241-AN-106 Upgrades: Design & Enviro. Permits
120.M55	11310110	241-AN-106 Upgrades: Const/ATP/Turnover/H14 Dwgs
120.M60	11310110	241-AN-106 Upgrades: Startup/OTP/Ops Documents
120.M68	11310110	Prep for ORR on Tank 241-AN-106
120.M70	11310110	Contractor Independent ORR for 241-AN-106
120.M75	11310110	DOE ORR for 241-AN-106
120.P22	1131015E	Contractor Independent ORR for SY-102
120.P25	1131015E	DOE Operational Readiness Review for SY-102
120.P32	11310103	Validate SY-102 Design to DST Specification
120.P35[2]		Design 102-SY Mixing and Retrieval System
120.P56[2]		Procure W-211 Eqiuipment for 102-SY
120.P60	1131015L	W-211 Construction SY-102 Retrieval System
120.P70	1131015E	W-211 Startup SY-102 Retrieval System
120.P90	1131015E	Prep for ORR on 241-SY-102 Project W-211
120.R05	11310102	Evaluate SY-101 Samples for Adequate Matls
120.R10	11310102	Estab Dilution Reqmnts/Diss Behav for SY-101
120.R15[2]	11310102	Review SY-101 Historical Data
120.R20	11310102	Characterize SY-101

[2] Activity on the Level 1 Logic which is closed or completed; not shown on the schedule

[5] Placeholder activity not in schedule; contractor scope is undefined.

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
XXX[5]	XXX[5]	Sample and Analyze SY-101 Per RL/PC Requirements
120.R25	11310102	Update Best Basis Inventory and TCR for SY-101
120.R35	11310102	Confirm Plans and Requirements for SY-101
120.R40	11310103	Revise W-TBD Design Specifications for SY-101
120.R50	11310110	Design Upgrade W-TBD for SY-101
120.R52	11310110	Equipment Procurement for SY-101
120.R55	11310110	Construct/Test/Project Turnover of SY-101
120.R60	11310110	Startup for SY-101 (W-TBD) Mixing & Retr Sys
120.R68	11310110	Prep for ORR on 241-SY-101
120.R70	11310110	Contract Independent ORR on 241-SY-101
120.R75	11310110	DOE ORR on 241-SY-101
120.T05	11310102	Evaluate SY-103 Samples for Adequate Matls
120.T10	11310102	Estab Dilution Reqmnts/Diss Behav for SY-103
120.T15	11310102	Review SY-103 Historical Data
120.T20	11310102	Characterize SY-103
XXX[5]	XXX[5]	Sample and Analyze SY-103 Per RL/PC Requirements
120.T25	11310102	Update Best Basis Inventory and TCR for SY-103
120.T35	11310102	Confirm Plans and Requirements for SY-103
120.T40	11310103	Revise W-TBD Design Specifications for SY-103
120.T50	11310110	Design Upgrade W-TBD for SY-103
120.T52	11310110	Equipment Procurement W-TBD for SY-103
120.T55	11310110	Construct/Test/Project Turnover of SY-103
120.T60	11310110	Startup for SY-103 (W-TBD) Mixing & Retr Sys
120.T68	11310110	Prep for ORR on SY-103
120.T70	11310110	Contract Independent ORR on SY-103
120.T75	11310110	DOE ORR on SY-103
120.V05	11310102	Obtain AP-101 Samples
120.V10	11310102	Characterize AP-101
XXX[5]	XXX[5]	Sample and Analyze AP-101 Per RL/PC Requirements
120.V12	11310102	Review AP-101 Historical Data
120.V14	11310102	Establish Dilution Rqmts for AP-101 Process Test
120.V15	11310102	Confirm Plans and Requirements for AP-101
120.V20	11310102	Update BBI & TCR For Tank AP-101
120.V25	11310103	Evaluate Equipment Rqmts in AP-101
120.V30	11310110	Upgrade Waste Tank AP-101 as Required

[5] Placeholder activity not in schedule; contractor scope is undefined.

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
120.W05	11310102	Obtain AW-104 Samples
120.W10	11310102	Characterize AW-104
XXX[5]	XXX[5]	Sample and Analyze AW-104 Per RL/PC Requirements
120.W12	11310102	Review AW-104 Historical Data
120.W14	11310102	Establish Dilution Rqmts for AW-104 Process Test
120.W15	11310102	Confirm Plans and Requirements for AW-104
120.W20	11310102	Update BBI & TCR For Tank AW-104
120.W25	11310103	Evaluate Equipment Rqmts in AW-104
120.W30	11310110	Upgrade Waste Tank AW-104 as Required
120.X01[3]	11350101	DOE-RL Private Contr Samp & Data Requiments
130.010	11310102	Phase I Tank Waste Transfer Control
130.015	11310112	Manage Waste Transfer System During Xfer Sys Upg
130.B05	11310102	ID Reqd Spares WFD 1st Batches LAW & LAW
130.B10	11310112	Procure WFD Spare Equip (Operations)
130.B15	11310112	Prep to Maintain the WFD Sys Operable
130.B16	11310112	Maintain WFD Sys Operable
130.B17	11310113	Devel Tech Basis: Rem Waste F/Watchlist Tanks
130.B20	11310113	Obtain Permission to Add Diluent to FGWL DSTs
130.B25	11310112	Degas AN-105
130.B30	11310112	Mob/Retr Wst in AN-105/Rec Feed in AP-102/AP-104
130.B40	11310112	Perform Bootstrap Transfers
130.B45	11310102	Prepare for Sampling During LAW Feed Staging
130.B55	11310112	Prepare Batch 1 Process Control Plan AN-105
130.B62	11310110	Upgrd Valve Pits AW-A&B - W-454-Replace Jumpers
130.B65	11310101	TWRS Management Assessment (LAW)
130.B70	11310101	Prepare Plan/Document for Mgmt Assessment (LAW)
130.B75	11310102	Compare RAM/O&M Concept w/ OTP Results
130.B80	11310102	Assess Sec. Waste Util & Samp Anly Agnst Plans
130.C10	11310112	Retrieve Waste in AY-101/Receive Feed in AP-102
130.C20	11310112	Retrieve Waste in AY-101/Receive Feed in AP-104
130.C25	11310112	Prepare AY-101 Process Control Plan
130.E10	11310112	Degas AN-104
130.E25	11310112	Prepar AN-104 Process Control Plan

[3] RL Activity on the Level 1 Logic but not on the PMBS (Figure 8).

[5] Placeholder activity not in schedule; contractor scope is undefined.

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
130.E30	11310112	Mob/Retr Wst in AN-104/Rec Feed in AP-102/104
130.F10	11310112	B.S. Xfer AZ-102 Supernate into AY-101/AN-104
130.F20	11310112	Prepare AZ-102 PRocess Control Plan
130.G10	11310112	Degas AW-101
130.G25	11310112	Prepare AW-101 Procoess Control Plan
130.G30	11310112	Mob/Retr Wst in AW-101/Rec Feed in AP-102
130.G40	11310112	Transfer 2nd Vendor Waste From AW-101 to AP-104
130.H10	11310112	Bootstrap Trans AY-102 Supernate into AN-105
130.H20	11310112	Prepare Tank 241-AY-102 Process Control Plan
130.J10	11310112	Degas AN-103
130.J20	11310112	Prepare C-104/AZ-101 Process Control Plan
130.J25	11310112	Prepare AN-103 Process Control Plan
130.J30	11310112	Transfer Wst in AN-103/Rec Feed in AP-102
130.J40	11310112	Transfer Wst in AN-103/Rec Feed in AP-104
130.K20	11310112	Prepare AN-107 Process Control Plan
130.K30	11310112	Transfer Wst in AN-107/Rec Feed in AP-102
130.K40	11310112	Transfer Wst in AN-107/Rec Feed in AP-104
130.L20	11310112	Prepare AN-102 Process Control Plan
130.L30	11310112	Transfer Wst in AN-102/Rec Feed in AP-102
130.L40	11310112	Transfer Wst in AN-102/Rec Feed in AP-104
130.M20	11310112	Prepare AN-106 Process Control Plan
130.M30	11310112	Transfer Wst in AN-106/Rec Feed in AP-102
130.M40	11310112	Transfer Wst in AN-106/Rec Feed in AP-104
130.N10	11310102	Prep for Sampling During HLW Feed Staging AZ-101
130.N20	11310112	Prepare Process Ctrl Plan AZ-101
130.N30	11310112	Btstrap Trans AZ-101 to AY-101
		W-058 Declaration of Readiness (shown on Logic as an interface)
130.P50	11310112	Mob/Retr Wst in SY-102/Rec Feed in AW-105
130.R10	11310112	Degas SY-101
130.R25	11310112	Prepare SY-101 Process Control Plan
130.R30	11310112	Mob/Retr 1st Wst in SY-101/Rec Feed in SY-102
130.R35	11310112	X-Site Transf 1st SY-101 from SY-102 to AN-102
130.R40	11310112	Mob/Retr 2nd Wst in SY-101/Rec Feed in SY-102
130.R45	11310112	Transfer 1st SY-101 from AN-102 to AP-102
130.R50	11310112	X-Site Transf 2nd SY-101 from SY-102 to AN-107
130.R55	11310112	Transf 2nd SY-101 from AN-107 to AP-104

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
130.T10	11310112	Degas SY-103
130.T25	11310112	Prepare SY-103 Process Control Plan
130.T30	11310112	Mob/Retr Wst in SY-103/Rec Feed in SY-102
130.T35	11310112	X-Site Trfr Btch 1 SY-103/Feed SY-102 to AN-102
130.T40	11310112	Mob/Retr Wst in SY-103/Rec Feed in SY-102
130.T45	11310112	Trfr Btch 1 SY-103 Feed from AN-102 to AP-102
130.T50	11310112	X-Site Trfr Btch 2 SY-103/Feed SY-102 to AN-107
130.T55	11310112	Trfr Btch 2 SY-103 Feed from AN-107 to AP-104
130.V10	11310112	Retrieve Waste in AP-101/Receive Feed in AP-102
130.V20	11310112	Retrieve Waste in AP-101/Receive Feed in AP-104
130.V25	11310112	Prep AP-101/AW-104 Batch Process Control Plan
130.W10	11310112	Retrieve Waste in AW-104/Receive Feed in AP-102
130.W20	11310112	Retrieve Waste in AW-104/Receive Feed in AP-104
150.B04	11310102	Perform Feed Rate Trade Study
150.B06	11310102	Establish Feed Rates (RL Decision)
150.B08	11310102	Maintain WFD Char Matrices, Prob Spec DQOs
150.B10	11310113	Safety Analysis and Evaluation
150.B14	11310113	Develop/Establish TSRs
150.B16	11310113	Update/Amend Auth Basis for WFD Activities
150.B17	11310102	Maintain Authorization Basis
150.B18[2]		Determine Equipment Needed to Retreive DSTs
150.B20[2]		Establish TWRs O & UP
150.B22	11310102	Maintain Operations Utilization Plan
150.B24	11310102	Maintain ICDs
150.B28[2]		Establish when 102-SY Sludge Needs to be Removed
150.B30[2]		Establish Acquisition Strategy
150.B32	11310112	Mix AN-105 Feed in AP-102
150.B34	11310114	Obtain AN-105 Feed Qual Samples from AP-102
150.B36	11310114	Provide AN-105 Samples from AP-102 to PC 1
150.B38	11310114	Analy AN-105 Smpls/Interpret Results from AP-102
150.B40	11310114	Prov AN-105 Feed Batch Info from AP-102 to PC 1
150.B42	11310112	Adjust AN-105 Feed in AP-102

[2] Activity on the Level 1 Logic which is closed or completed; not shown on the schedule

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
150.B44	11310112	Deliver AN-105 Feed to AP-106
150.B48	11310112	Mix AN-105 Feed in AP-104
150.B50	11310114	Obtain AN-105 Feed Qual Samples from AP-104
150.B52	11310114	Provide AN-105 Samples from AP-104 to PC 2
150.B54	11310114	Analy AN-105 Smpls/Interpret Results from AP-104
150.B56	11310114	Provide AN-105 Feed Batch Info to PC 2
150.B58	11310112	Adjust AN-105 Feed in AP-104
150.B60	11310112	Deliver AN-105 Feed to AP-108
150.B66	11380102	Ready PHMC Oper/Maint Doc-AP-108 Turnover
150.B68	11310112	Execute Tank Turnover Procedure - PC 2
150.B70	11310112	RL Declares AP-108 Ready - Contractor 2
150.B76	11380102	Ready PHMC Oper/Maint Doc-AP-106 Turnover
150.B78	11310112	Execute Tank Turnover Procedure - PC 1
150.B80	11310112	RL Declares AP-106 Ready - Contractor 1
150.B82	11310102	Perform Feed Tank Fill Status Trade Study
150.B84	11310102	Establish Feed Tank Fill Status (RL Decision)
150.B86	11310112	Final ICD for Waste Feed Tank AP-106 - PC 1
150.B88	11380102	Prep AP-106 for Turnover to Private Contractor
150.B90	11310112	Final ICD for LAW Feed - PC 2
150.B92	11310112	Final ICD for LAW Feed - PC 1
150.B94	11380102	Establish Interface Reqmnts for Tank Turnover
150.B96	11380102	Final ICD for Waste Feed Tank AP-108 - PC 2
150.B98	11380102	Prep AP-108 for Turnover to Private Contractor
150.C05	11310112	Mix AY-101 Feed in AP-102
150.C10	11310114	Obtain AY-101 Feed Qual Samples from AP-102
150.C15	11310114	Provide AY-101 Samples from AP-102 to PC 1
150.C20	11310114	Analy AY-101 Smpls/Interpret Results from AP-102
150.C25	11310114	Provide AY-101 Feed Batch Info to PC 1
150.C30	11310112	Adjust AY-101 Feed in AP-102
150.C35	11310112	Deliver AY-101 Feed from AP-102 to AP-106
150.C40	11310112	Mix AY-101 Feed in AP-104
150.C45	11310114	Obtain AY-101 Feed Qual Samples from AP-104
150.C50	11310114	Provide AY-101 Samples from AP-104 to PC 2
150.C55	11310114	Analy AY-101 Smpls/Interpret Results from AP-104
150.C60	11310114	Prov AY-101 Feed Batch Info from AP-104 to PC 2
150.C65	11310112	Adjust AY-101 Feed in AP-104
150.C70	11310112	Deliver AY-101 Feed from AP-104 to AP-108

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
150.E05	11310112	Mix AN-104 Feed in AP-102
150.E10	11310114	Obtain AN-104 Feed Qual Samples from AP-102
150.E15	11310114	Provide AN-104 Samples from AP-102 to PC 1
150.E20	11310114	Analy AN-104 Smpls/Interpret Results from AP-102
150.E25	11310114	Provide AN-104 Feed Batch Info to PC 1
150.E30	11310112	Adjust AN-104 Feed in AP-102
150.E35	11310112	Deliver AN-104 Feed from AP-102 to AP-106
150.E40	11310112	Mix AN-104 Feed in AP-104
150.E45	11310114	Obtain AN-104 Feed Qual Samples from AP-104
150.E50	11310114	Provide AN-104 Samples from AP-104 to PC 2
150.E55	11310114	Analy AN-104 Smpls/Interpret Results from AP-104
150.E60	11310114	Prov AN-104 Feed Batch Info from AP-104 to PC 2
150.E64	11310112	Empty AP-107 Into AN-104 for Vendor Returns
150.E65	11310112	Adjust AN-104 Feed in AP-104
150.E70	11310112	Deliver AN-104 Feed from AP-104 to AP-108
150.G05	11310112	Mix AW-101 Feed in AP-102
150.G10	11310114	Obtain AW-101 Feed Qual Samples from AP-102
150.G15	11310114	Provide AW-101 Samples from AP-102 to PC 1
150.G20	11310114	Analy AW-101 Smpls/Interpret Results from AP-102
150.G25	11310114	Prov AW-101 Feed Batch Info from AP-102 to PC 1
150.G30	11310112	Adjust AW-101 Feed in AP-102
150.G35	11310112	Deliver AW-101 Feed from AP-102 to AP-106
150.G40	11310112	Mix AW-101 Feed in AP-104
150.G45	11310114	Obtain AW-101 Feed Qual Samples from AP-104
150.G50	11310114	Provide AW-101 Samples from AP-104 to PC 2
150.G55	11310114	Analy AW-101 Smpls/Interpret Results from AP-104
150.G60	11310114	Prov AW-101 Feed Batch Info from AP-104 to PC 2
150.G65	11310112	Adjust AW-101 Feed in AP-104
150.G70	11310112	Deliver AW-101 Feed from AP-104 to AP-108
150.J05	11310112	Mix AN-103 Feed in AP-102
150.J10	11310114	Obtain AN-103 Feed Qual Samples from AP-102
150.J15	11310114	Provide AN-103 Samples from AP-102 to PC 1
150.J20	11310114	Analy AN-103 Smpls/Interpret Results from AP-102
150.J25	11310114	Provide AN-103 Feed Batch Info to PC 1
150.J30	11310112	Adjust AN-103 Feed in AP-102
150.J35	11310112	Deliver AN-103 Feed from AP-102 to AP-106
150.J40	11310112	Mix AN-103 Feed in AP-104

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
150.J45	11310114	Obtain AN-103 Feed Qual Samples from AP-104
150.J50	11310114	Provide AN-103 Samples from AP-104 to PC 2
150.J55	11310114	Analy AN-103 Smpls/Interpret Results from AP-104
150.J60	11310114	Prov AN-103 Feed Batch Info from AP-104 to PC 2
150.J65	11310112	Adjust AN-103 Feed in AP-104
150.J70	11310112	Deliver AN-103 Feed from AP-104 to AP-108
150.K05	11310112	Mix AN-107 Feed in AP-102
150.K10	11310114	Obtain AN-107 Feed Qual Samples from AP-102
150.K15	11310114	Provide AN-107 Samples from AP-102 to PC 1
150.K20	11310114	Analy AN-107 Smpls/Interpret Results from AP-102
150.K25	11310114	Prov AN-107 Feed Batch Info from AP-102 to PC 1
150.K30	11310112	Adjust AN-107 Feed
150.K35	11310112	Deliver AN-107 Feed from AP-102 to AP-106
150.K37	11310112	Deliver AN-107 Feed from AP-102 to AP-106
150.K70	11310112	Deliver AN-107 Feed from AP-104 to AP-108
150.K72	11310112	Deliver AN-107 Feed from AP-104 to AP-108
150.L05	11310112	Mix AN-102 Feed in AP-102
150.L10	11310114	Obtain AN-102 Feed Qual Samples from AP-102
150.L15	11310114	Provide AN-102 Samples from AP-102 to PC 1
150.L20	11310114	Analy AN-102 Smpls/Interpret Results from AP-102
150.L25	11310114	Prov AN-102 Feed Batch Info from AP-102 to PC 1
150.L30	11310112	Adjust AN-102 Feed in AP-102
150.L35	11310112	Deliver AN-102 Feed from AP-102 to AP-106
150.L40	11310112	Mix AN-102 Feed in AP-104
150.L45	11310114	Obtain AN-102 Feed Qual Samples from AP-104
150.L50	11310114	Provide AN-102 Samples from AP-104 to PC 2
150.L55	11310114	Analy AN-102 Smpls/Interpret Results from AP-104
150.L60	11310114	Provi AN-102 Feed Batch Info from AP-104 to PC 2
150.L65	11310112	Adjust AN-102 Feed in AP-104
150.L70	11310112	Deliver AN-102 Feed from AP-104 to AP-108
150.M05	11310112	Mix AN-106 Feed in AP-102
150.M10	11310114	Obtain AN-106 Feed Qual Samples from AP-102
150.M15	11310114	Provide AN-106 Samples from AP-102 to PC 1
150.M20	11310114	Analy AN-106 Smpls/Interpret Results from AP-102
150.M25	11310114	Prov AN-106 Feed Batch Info from AP-102 to PC 1
150.M30	11310112	Adjust AN-106 Feed in AP-102
150.M35	11310112	Deliver AN-106 Feed from AP-102 to AP-106

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
150.M40	11310112	Mix AN-106 Feed in AP-104
150.M45	11310114	Obtain AN-106 Feed Qual Samples from AP-104
150.M50	11310114	Provide AN-106 Samples from AP-104 to PC 2
150.M55	11310114	Analy AN-106 Smpls/Interpret Results from AP-104
150.M60	11310114	Prov AN-106 Feed Batch Info from AP-104 to PC 2
150.M65	11310112	Adjust AN-106 Feed in AP-104
150.M70	11310112	Deliver AN-106 Feed from AP-104 to AP-108
150.R05	11310112	Mix SY-101 Feed in AP-102
150.R10	11310114	Obtain SY-101 Feed Qual Samples from AP-102
150.R15	11310114	Provide SY-101 Samples from AP-102 to PC 1
150.R20	11310114	Analy SY-101 Smpls/Interpret Results from AP-102
150.R25	11310114	Prov SY-101 Feed Batch Info from AP-102 to PC 1
150.R30	11310112	Adjust SY-101 Feed in AP-102
150.R35	11310112	Deliver SY-101 Feed from AP-102 to AP-106
150.R40	11310112	Mix SY-101 Feed in AP-104
150.R45	11310114	Obtain SY-101 Feed Qual Samples from AP-104
150.R50	11310114	Provide SY-101 Samples from AP-104 to PC 2
150.R55	11310114	Analy SY-101 Smpls/Interpret Results from AP-104
150.R60	11310114	Prov SY-101 Feed Batch Info from AP-104 to PC 2
150.R65	11310112	Adjust SY-101 Feed in AP-104
150.R70	11310112	Deliver SY-101 Feed from AP-104 to AP-108
150.T05	11310112	Mix SY-103 Feed in AP-102
150.T10	11310114	Obtain SY-103 Feed Qual Samples from AP-102
150.T15	11310114	Provide SY-103 Samples from AP-102 to PC 1
150.T20	11310114	Analy SY-103 Smpls/Interpret Results from AP-102
150.T25	11310114	Prov SY-103 Feed Batch Info from AP-102 to PC 1
150.T30	11310112	Adjust SY-103 Feed in AP-102
150.T35	11310112	Deliver SY-103 Feed from AP-102 to AP-106
150.T40	11310112	Mix SY-103 Feed in AP-104
150.T45	11310114	Obtain SY-103 Feed Qual Samples from AP-104
150.T50	11310114	Provide SY-103 Samples from AP-104 to PC 2
150.T55	11310114	Analy SY-103 Smpls/Interpret Results from AP-104
150.T60	11310114	Prov SY-103 Feed Batch Info from AP-104 to PC 2
150.T65	11310112	Adjust SY-103 Feed in AP-104
150.T70	11310112	Deliver SY-103 Feed from AP-104 to AP-108
150.V05	11310112	Mix AP-101 Feed in AP-102
150.V10	11310114	Obtain AP-101 Feed Qual Samples from AP-102

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
150.V15	11310114	Provide AP-101 Samples from AP-102 to PC 1
150.V20	11310114	Analy AP-101 Smpls/Interpret Results from AP-102
150.V25	11310114	Provide AP-101 Feed Batch Info to PC 1
150.V30	11310112	Adjust AP-101 Feed in AP-102
150.V35	11310112	Deliver AP-101 Feed from AP-102 to AP-106
150.V40	11310112	Mix AP-101 Feed in AP-104
150.V45	11310114	Obtain AP-101 Feed Qual Samples from AP-104
150.V50	11310114	Provide AP-101 Samples from Ap-104 to PC 2
150.V55	11310114	Analy AP-101 Smpls/Interpret Results from AP-104
150.V60	11310114	Prov AP-101 Feed Batch Info From Ap-104 to PC 2
150.V65	11310112	Adjust AP-101 Feed in AP-104
150.V70	11310112	Deliver AP-101 Feed from AP-104 to AP-108
160.A00	11310102	Final ICD for HLW Feed (ID 20)
160.A02	11350101	Contract and ICD
160.A06[2]		Obtain and Update Data
160.A08[2]		Prepare HLW Pre-Treatment AGA
160.A10[2]		Determine Hardware Requirements
160.A12	11310102	Estab Tech (Process) Reqmnts-Phase I Sldg Pret
160.A13	11310101	Prepare Plan/Document for Mgmt Assessment (HLW)
160.A14[2]		Update TWRS Baseline and O/UP
160.A15	11310102	Assess Sec Waste, Util Samp Anly Agst Plan (HLW)
160.A16	11310102	Prep DQO for Privatization Char of Pot HLW Feed
160.A17	11310102	Compare RAM/O&M Concept w/ OTP Results (HLW)
160.A18	11310101	TWRS Management Assessment (HLW)
160.A19	11310102	Retr. Revise Pretreat Rqmts (AZ-101/2 & AY-102)
160.A20	11310102	Finalize HLW Pretreat Rqmts (AZ-101/2 & AY-102)
160.A22	11310102	Determine Appropriate Alternative Tanks
160.A25	11310102	Update BBI & TCR to Reflect Process Test AZ-101
160.A26	11310103	Devel Tech Rqmts & CDR For Addl Eqpt in AZ-101
160.A32	11310110	Redesign Addl Eqpt Req'd for Sludge Wash-AZ-101
160.A36	11310110	Construct Equip Req'd for Sludge Washing-AZ-101
160.A38	11310110	Upgrade AZ-101 W-xxx
160.A40	11310110	Contractor Independent ORR for AZ-101
160.A41	11310102	Develop Draft Sludge Wash Temp Control Rqmts

[2] Activity on the Level 1 Logic which is closed or completed; not shown on the schedule

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
160.A42	11310110	DOE ORR for AZ-101
160.A43	11310102	Optimize PH1 Feed Sludge Wash by Proc Simulation
160.A44	11310102	Deter if Existing Data Meets DQO Needs - AZ-101
160.A46	11310102	Take Additional Grab Samples from AZ-101
160.A48	11310102	Perf/Doc Smpl Analysis/Sldg Wash Test-AZ-101
160.A50	11310102	Verify that AZ-101 is Acceptable for Feed to PC
160.A52	11310112	Pretreat AZ-101 (In-Tank Sludge Washing)
160.A62	11310112	Perf Final Decant/Add Transfer Solution - AZ-101
160.A64	11310112	Mix Waste to Resuspend Solids for AZ-101
160.A66	11310114	Obtain HLW Feed Qual Grab Samples AZ-101 Solids
160.A68	11310114	Eval Samples/Establish MT for AZ-101
160.A70	11360104	PC Conduct Waste Form Qualification - AZ-101
160.A72	11310112	Deliver Second Batch of Feed from AZ-101
160.A74	11310114	Provide Separate Samples to the PC - AZ-101
160.A76	11310114	Prov MT Non-Volatile Oxides Exclude Na/Si-AZ-101
160.A78	11310112	Deliver First Batch of Feed from AZ-101
160.F00	11310102	Deter if Existing Data Meets DQO Needs - AZ-102
160.F05	11310102	Obtain Core Smpls/Prep Subsmpls/Comp for AZ-102
160.F10	11310102	Perf/Doc Smpl Analysis/SldgWash Testing - AZ-102
160.F12	11310102	Update BBI and TCR for AZ-102
160.F15	11310102	Confirm that AZ-102 is Acceptable for Feed to PC
160.F30	11310103	Revise W-211 FDC for AZ-102
160.F50	11310114	Obtain HLW Feed Qual Grab Samples AZ-102 Solids
160.F55	11310114	Eval Smpls/Estab MTof Non-Volatile for AZ-102
160.F65	11310112	Pretreat AZ-102 (In-Tank Sludge Washing)
160.F70	11310112	Perf Final Decant/Add Transfer Solution - AZ-102
160.F75	11310112	Mix Waste to Resuspend Solids for AZ-102
160.F80	11310102	PC Conduct Waste Form Qual Confirmation-AZ-102
160.F85	11310114	Provide Separate Samples to Private Contractor
160.F90	11310114	Provide MT Non-Volatile Oxides Excluding Na/Si
160.F95	11310112	Deliver First Batch of Feed from AZ-102
160.F99	11310112	Deliver Second Batch of Feed from AZ-102
160.H00	11310102	Deter if Existing Data Meets DQO Needs - AY-102
160.H05	11310102	Obtn Core Smpls/Prep Subsmpls/Comp for AY-102
160.H17	11310103	Revise W-211 FDC for AY-102
160.H20	11310102	Perf/Doc Smpl Analysis/Sldg Wash Testing-AY-102
160.H22	11310102	Update BBI and TCR for AY-102

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
160.H25	11310114	Confirm that AY-102 is Acceptable for Feed to PC
160.H27	11310112	Pretreat AY-102 (In-Tank Sludge Washing)
160.H45	11310112	Perf Final Decant/Add Transfer Solution-AY-102
160.H47	11310112	Mix Waste to Resuspend Solids for AY-102
160.H50	11310114	Obtain HLW Feed Qual Grab Samples AY-102 Solids
160.H55	11310114	Eval Smpls/Estab MT of Non-Volatile for AY-102
160.H60	11310114	PC Conduct Waste Form Qual/Confirmation-AY-102
160.H65	11310114	Provide MT Non-Volatile Oxides Excluding Na/Si
160.H70	11310114	Provide Separate Samples to PC - AY-102
160.H75	11310112	Deliver First Batch of Feed from AY-102
160.H80	11310112	Deliver Second Batch of Feed from AY-102
160.H85	11310112	Deliver Third Batch of Feed from AY-102
160.H90	11310112	Deliver Fourth Batch of Feed from AY-102
160.H95	11310112	Deliver Fifth Batch of Feed from AY-102
160.J00	11310102	Deter if Existing Data Meets DQO Needs - C-104
160.J05	11310102	Obtain Core Smpls/Prep Subsmpls/Comp for C-104
160.J10	11310102	Perf/Doc Smpl Analysis/SldgWash Testing C-104
160.J12	11310102	Update BBI and TCR for C-104
160.J15	11310102	Confirm that C-104 is Acceptable for Feed to PC
160.J50	11310114	Obtain HLW Feed Qual Grab Samp C-104/AZ-101
160.J55	11310114	Eval Smpls/Estab MT of Non-Volatile for C-104
160.J65	11310112	Pretreat C-104/AZ-101 (In-Tank Sludge Washing)
160.J70	11310112	Perf Decant/Add Transfer Solution - C-104/AZ-101
160.J75	11310112	Mix Waste to Resuspend Solids for C-104/AZ-101
160.J80	11310102	PC Conduct Waste Form Qual Confirm -C-104/AZ-101
160.J85	11310114	Provide Separate Samples to Private Contractor
160.J90	11310114	Provide MT Non-Volatile Oxides Excluding Na/Si
160.J95	11310112	Deliver 1st Batch of Feed from C-104/AZ-101
160.J97	11310112	Deliver 2nd Batch of Feed from C-104/AZ-101
160.J99	11310112	Deliver 3rd Batch of Feed from C-104/AZ-101
250.110	11310126 [1]	Project W-314 (Phase I) Management
250.120	11310126 [1]	Project W-314 (Phase I) Permits/Safety Analysis
250.130	11310140 [1]	Project W-314 (Phase I) Implementation
250.4A0	11310126	W-314 Master Pump Shut Down Upgrades

[1] Activity on the PMBS (Figure 8) but not on Level 1 Logics

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
250.4C0	11310126	W-314 Upgrades to AN Farm
250.4D0	11310126	W-314 AZ Farm Upgrades
250.4E0	11310126	W-314 200 E/W Piping Upgrades
250.4E5	11310126	Prepare AW Farm for Construction Actitivies
	11310112	Prepare AW Farm for Construction Activities
250.4F0	11310126	W-314 AW Farm Upgrades
250.4G0	11310126	W-314 Upgrades to AY Farm
250.C01	11310126	Prepare AN Tank Farm for W-314 Construction
270.J99A	11310103	ISSTRS Prj 1st Tank C-104 & Retrieve to AN-105
270.J99B	11310107	ISSTRS Prj 1st Tank C-104 & Retrieve to AN-105
270.J99C	11310109	ISSTRS Prj 1st Tank C-104 & Retrieve to AN-105
330.010	11380101	Project Administration/Management/Engineering
	11380103	Project Administration/Management/Engineering
	11380104	Project Administration/Management/Engineering
330.020	11380102	Systems Definition
	11380103	Systems Definition
330.030	11380103	IC Document Revisions/IC Drawings
330.040	11380103	Compl Infrastructure Electrical Sys Contract Pkg
330.050	11380103	Design/Construction/Startup Electrical System
330.060	11380103	Dsn/Construction Site Sys for PC Construction
330.070	11380103	Dsn/Construct/S/up Water, Site, Liq Eff Systems
330.080	11380104	Maint/Op/Provide Vendor Utils for Constr PC PhI
	11380105	Maint/Op/Provide Vendor Utils for Constr PC PhI
330.090	11380104	Maint/Op/Prov Vendor Utils/Wst Disp S/up PC PhI
	11380105	Maint/Op/Prov Vendor Utils/Wst Disp S/up PC PhI
330.100	11380104	Maint/Op/Prov Vendor/Wst Disp Prodctn PC PhI
	11380105	Maint/Op/Prov Vendor/Wst Disp Prodctn PC PhI
330.120	11380104	Provide Vendor Staff Training
340.030 [4]		Prepare Technical Reports and ICDs
350.015	11360101	PC Complete Phase 1A Deliverables
350.040	11360102	Modify AP-106 As Needed/Tie-In - PC 1
350.050 [4]		Private Contractor #1 Construct LAW Immobilization Facility
350.070 [4]		Private Contractor #1 Startup/Test LAW Immobilization Facility
350.090	11360103	PC 1 Processes AN-105 Feed from AP-106

[4] Private Contractor activity on the Level 1 Logics but not on the Figure 8 Schedule

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
350.100	11360103	PC 1 Processes AN-104 Feed from AP-106
350.110	11360103	PC 1 Processes AW-101 Feed from AP-106
350.120	11360103	PC 1 Processes AN-103 Feed from AP-106
350.123	11360103	PC 1 Processes AP-101 Feed from AP-106
350.125	11360103	PC 1 Processes AY-101 Feed from AP-106
350.130	11360103	PC 1 Processes AN-107 Feed from AP-106
350.135	11360103	Contract #1 Process 7th Feed Batch
350.140	11360103	PC 1 Processes AN-102 Feed from AP-106
350.150	11360103	PC 1 Processes AN-106 Feed from AP-106
350.160	11360103	PC 1 Processes SY-101 Feed from AP-106
350.170	11360103	PC 1 Processes SY-103 Feed from AP-106
350.230	11360102	Modify AP-108 As Needed/Tie-In - PC 2
350.240	11360103	PC 2 Processes AN-105 Feed from AP-108
350.250	11360103	PC 2 Processes AN-104 Feed from AP-108
350.260	11360103	PC 2 Processes AW-101 Feed from AP-108
350.270	11360103	PC 2 Processes AN-103 Feed from AP-108
350.273	11360103	PC 2 Processes AW-104 Feed from AP-108
350.275	11360103	PC 2 Processes AY-101 Feed from AP-108
350.280	11360103	PC 2 Processes AN-107 Feed from AP-108
350.285	11360103	Contractor #1 Process 7th Feed Batch
350.290	11360103	PC 2 Processes AN-102 Feed from AP-108
350.300	11360103	PC 2 Processes AN-106 Feed from AP-108
350.310	11360103	PC 2 Processes SY-101 Feed from AP-108
350.320	11360103	PC 2 Processes SY-103 Feed from AP-108
350.X05	11310112	Transfer PC#1 & PC#2 Solids to AP-107
360.020	11360102 [1]	Final Design HLW/LAW Immobilization Facility
360.040	11360102	Tie-In Feed Line to Valve Pit Provided by W-211
360.050 [4]		Construct HLW/LAW Facility
360.070 [4]		Startup/Test LAW Immobilization Facility
360.080	11360104	Phase 1B Proc/Immb First Batch HLW Feed-AZ-101
360.090	11360104	Phase 1B Proc/Immb Second Batch HLW Feed-AZ-101
360.100	11360104	Phase 1B Proc/Immob Third Batch HLW Feed-AZ-102

[1] Activity on the PMBS (Figure 8) but not on Level 1 Logics

[4] Private Contractor activity on the Level 1 Logics but not on the Figure 8 Schedule

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
360.110	11360104	Phase 1B Proc/Immob Fourth Batch HLW Feed-AZ-102
360.120	11360104	Phase 1B Proc/Immb Fifth Batch HLW Feed-AZ-102
360.130	11360104	Phase 1B Proc/Immb Sixth Batch HLW Feed-AZ-102
360.140	11360104	Phase 1B Proc/Immb Seventh Batch HLW Feed-AY-102
360.150	11360104	Phase 1B Proc/Immb Eighth Batch HLW Feed-AY-102
360.160	11360104	Phase 1B Proc/Immb Ninth Batch HLW Feed-AY-102
360.170	11360104	Phase 1B Proc/Immob Tenth Btch of HLW Feed C-104
360.180	11360104	Phase 1B Proc/Immob Eleventh Batch of HLW C-104
360.190	11360104	Phase 1B Proc/Immob Twelveth Batch of HLW C-104
440.010	11340201	IHLW Interim Storage Administration/Management
	11340202	IHLW Interim Storage Administration/Management
XXX[2]	XXX[2]	Prepare ICD's 13, 14 & 17
440.020	11340202	Prepare/Maintain ICDs (ID 13,14,17)
440.030	11340202	Project Management Plans
XXX[2]	XXX[2]	Prepare IHLW Storage DRD
440.040	11340202	Maintain Technical Requirements (DRD)
XXX[2]	XXX[2]	Initiate Conceptual Design ; W-464
440.050	11340203	IHLW Storage Conceptual Design (W-464)
440.060	11340203	Advanced Conceptual Design (W-464)
440.070	11340203	Project Validation (W-464)
440.090	11340203	Procure Equipment (W-464)
440.100	11340203	Design IHLW Storage Facility (W-464)
440.110	11340104	Prepare NEPA Documentation (W-464)
	11340203	Prepare NEPA Documentation (W-464)
440.115	11340203	Prepare RCRA Permits (W-464)
440.120	11340104	Authorization Basis Development & Appr (W-464)
	11340203	Authorization Basis Development & Appr (W-464)
440.140	11340203	Modify/Construct System (W-464)
450.010	11340203	Prep OTPs/Conduct Readiness Assessmnt (Phase I)
450.030	11340204	Transport/Receive/Interim Store IHLW (Phase I)
460.005	11340101	ILAW Disposal Administration/Management
	11340102	ILAW Disposal Administration/Management

[2] Activity on the Level 1 Logic which is closed or completed; not shown on the schedule

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
460.010 [2]		Prepare ICD # 15
460.015	11340102	Maintain ICDs
	11340104	Maintain ICDs
460.020 [2]		Negotiate Incidental Waste Clarification
460.025 [2]		Prepare ILAW DRD
460.030	11340102	Maintain Technical Requirements (DRD)
460.035	11340102	Project Management Plan
460.040	11340104	ILAW Storage Conceptual Design (W-465)
460.045	11340104	ILAW Storage Adv Conceptual Design (W-465)
460.060	11340104	Project Validation (W-465)
460.065	11340104	ILAW Storage Detailed Design (W-465)
460.070	11340104	Modify Vaults (W-465)
460.075	11340102	Prepare NEPA Documentation (W-465)
	11340104	Prepare NEPA Documentation (W-465)
460.080	11340104	Prepare RCRA Permits (W-465)
460.085	11340104	Authorization Basis Development & Appr (W-465)
460.090 [2]		Prepare AGA Disposal Facilities
460.095	11340102	Prepare/Maintain DRD - Disposal Facilities
460.105	11340106	Conceptual Design - Disposal Facilities (W-520)
460.110	11340106	Advanced Conceptual Dsn - Disposal Fac (W-520)
460.112	11340106	Validate Project (W-520)
460.115	11340106	Design Disposal Facilities (W-520)
460.120	11340106	Construct Disposal Facilities (W-520)
460.125	11340106	Regulatory Requirements for Disposal Facilities
460.130	11340106	Authorization Basis Development and Approval
XXX [2]	XXX [2]	Interim PA Review
460.140	1134013E	1998 Performance Assessment
460.145	11340103	Data Collection for 2001 Performance Assessment
	1134018C	Data Collection for 2001 Performance Assessment
	1134019C	Data Collection for 2001 Performance Assessment
460.155	11340103	2001 Performance Assessment
460.160	11340105	Data Collection for Performance Assessment
460.170	11340105	Maintain ILAW Phase I Performance Assessment

[2] Activity on the Level 1 Logic which is closed or completed; not shown on the schedule

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure (23 sheets)

Level 1 Logic Number	Level 6 WBS	Description
470.010	11340104	Procedures/Training/OTP/ORR (Initial Phase I)
	11340105	Procedures/Training/OTP/ORR (Initial Phase I)
470.040	11340105	Interim Store ILAW Operations (Initial Phase I)
470.060	11340104	Procedures/Training/OTP/ORR (Balance Phase I)
470.075	11340105	Dispose ILAW Operations (Balance Phase I)
470.080	11340107	Close ILAW Disposal Facilities
490.090	11340202 [1]	Negotiate RW Requirements
620.010 [2]		Develop Waste Feed Delivery System Description Draft
620.015	11310102	Develop Waste Feed Delivery Safety Basis DQO
620.020	11310102	Maintain Waste Feed Delivery System Summary
620.030	11310113	Perform Feed Delivery USQ Process for HLW/LLW
620.050	11310113	Develop Waste Feed Delivery Licensing Strategy
620.055	11310102	Develop Waste Feed Delivery Permitting DQO
620.060	11310102	Eval Envrmmntl Baseline HLW/LLW Feed Delivery
620.070	1131010 [2]	Update Environmental Baseline
620.090	11310102	Maintain Environmtl Baseline for Phase I Ext Ops
620.095	11310101	Dev/Iss Draft WFD Tech Baseline Summary
620.097	11310101	Update WFD Technical Baseline Summary
H.01.02 [2]		Select Double-Shell Tank Retrieval System
H.01.08 [2]		Establish Test Objectives and Acceptance Criteria
H.03.44 [2]		Resolve Flammable Gas Risk
H.03.45 [2]		Resolve Steam Bump Risk
H.03.46 [2]		Stop Construction; Begin W-320 Re-Baselining
H.03.47 [2]		Develop/Issue W-320 Change Request
H.03.48 [2]		Grant DOE Approval to Proceed with W-320 Per CR
LG.00.18 [2]		Obtain RL Concurrence on 241-AP-102/104 Upgrades
LG.00.38 [2]		Establish TRU Definition and Calculation

[1] Activity on the PMBS (Figure 8) but not on Level 1 Logics

[2] Activity on the Level 1 Logic which is closed or completed; not shown on the schedule

Table 1. Crosswalk from the Level 1 Logic to the Work Breakdown Structure Level 6 (23 sheets)

List of Terms

CDR	Conceptual Design Report
CSB	Canister Storage Building
DNFSB	Defense Nuclear Facilities Safety Board
DOE-RL	U. S. Department of Energy, Richland Operations Office
DQO	Data Quality Objective
DRD	design requirement document
DST	double-shell tank
EIS	Environmental Impact Statement
FDC	Functional Design Criteria
FGWL	flammable gas watch list
ICD	interface control document
IHLW	immobilized high-level waste
ILAW	immobilized low-activity waste
ISF	interim storage facility
ISSTRS	Initial Single-Shell Tank Retrieval System
LAW	low-activity waste
LLW	low-level waste
LMHC	Lockheed Martin Hanford Corporation
NEPA	*National Environmental Policy Act of 1969*, 42 USC 4321, et seq.
ORR	operational readiness review
OTP	operational test plan
PA	performance assessment
PC	private contractor
PMBS	Project Master Baseline Schedule
PHMC	Project Hanford Management Contract
RCRA	*Resource Conservation and Recovery Act of 1976*, 42 USC 6901, et seq.
ROD	Record of Decision
S&D	storage and disposal
SST	single-shell tank
TCR	Tank Characterization Report
USQ	unreviewed safety question
WFD	waste feed delivery

3.0 SCHEDULE

The TWRS schedule has been updated to reflect changes that resulted from the RTP development phase. The schedule products are discussed in the following sections and are included as figures or tables in this section.

3.1 SUMMARY SCHEDULE

The TWRS Retrieval and Disposal Summary Schedule for the Phase 1B mission is illustrated in Figure 6. The major programmatic start and end points to support the private contractors are depicted.

3.2 SITE MASTER BASELINE SCHEDULE

The Site Master Baseline Schedule is illustrated in Figure 7. This schedule is an initial update to reflect the integrated RTP planning effort for Phase 1B of the TWRS Retrieval and Disposal Program. This schedule is traceable top down from the Program Logic (Figure 3) by the activity identification number. It is also traceable to the lower level schedules through the Level 1 Logic numbers.

3.3 PROJECT MASTER BASELINE SCHEDULE

The Project Master Baseline Schedule is illustrated in Figure 8. This schedule is an initial update to reflect the integrated RTP planning effort for Phase 1B of the TWRS Retrieval and Disposal Program. This schedule has been summarized from the lower level detail, includes each Level 1 Logic activity grouped by Level 6 WBS element, and shows critical path. This schedule is consistent with the Level 1 Logics and TBR packages and is supported by the lower level logic network.

3.4 MILESTONE COMPARISON

Table 2 provides a comparison of RL, Headquarters, and Tri-Party Agreement milestones between the baseline contained in the TWRS FY 1998 MYWP (Lenseigne 1997), the Tri-Party Agreement, and the revised RTP planning for Phase 1B of the TWRS Retrieval and Disposal Program. The RTP milestone dates are consistent with the MYWP detail schedule milestone dates with one exception: T09-02-002. However, the date shown meets the Tri-Party Agreement commitment.

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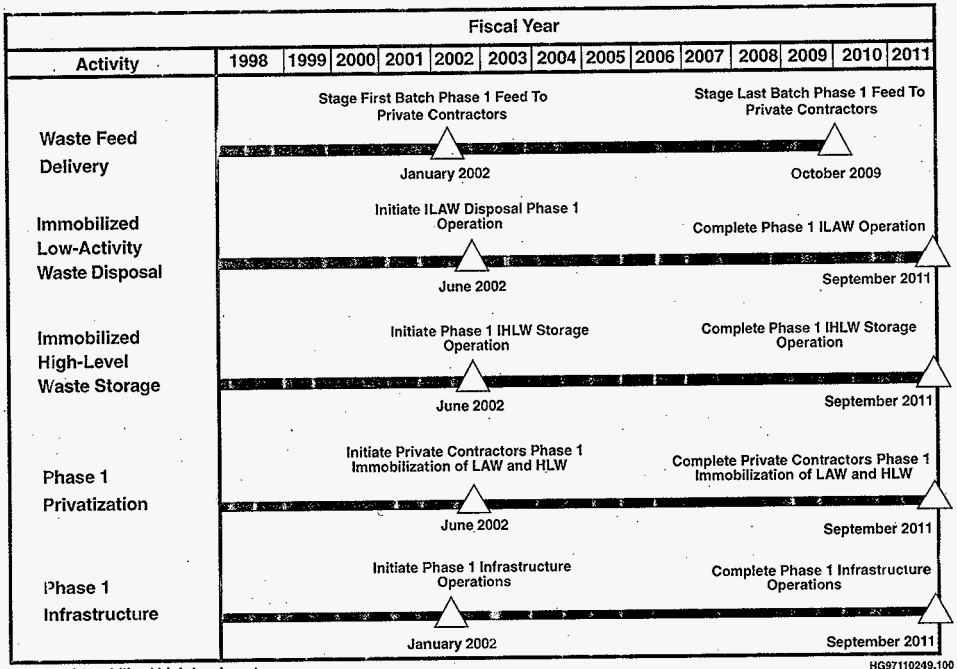
Figure 6. Summary Schedule.



IHLW = immobilized high-level waste
ILAW = immobilized low-activity waste
HLW = high-level waste
LAW = low-activity waste

Figure 7. Site Master Baseline Schedule (Sheet 1 of 2).

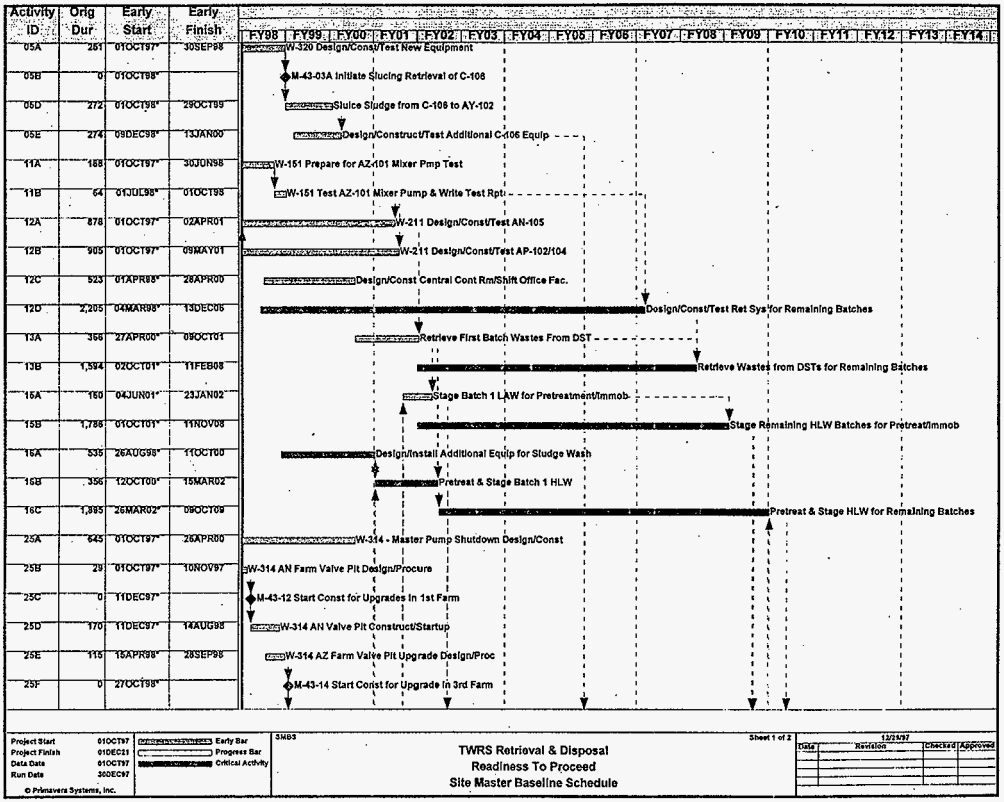


Figure 7. Site Master Baseline Schedule (Sheet 2 of 2).

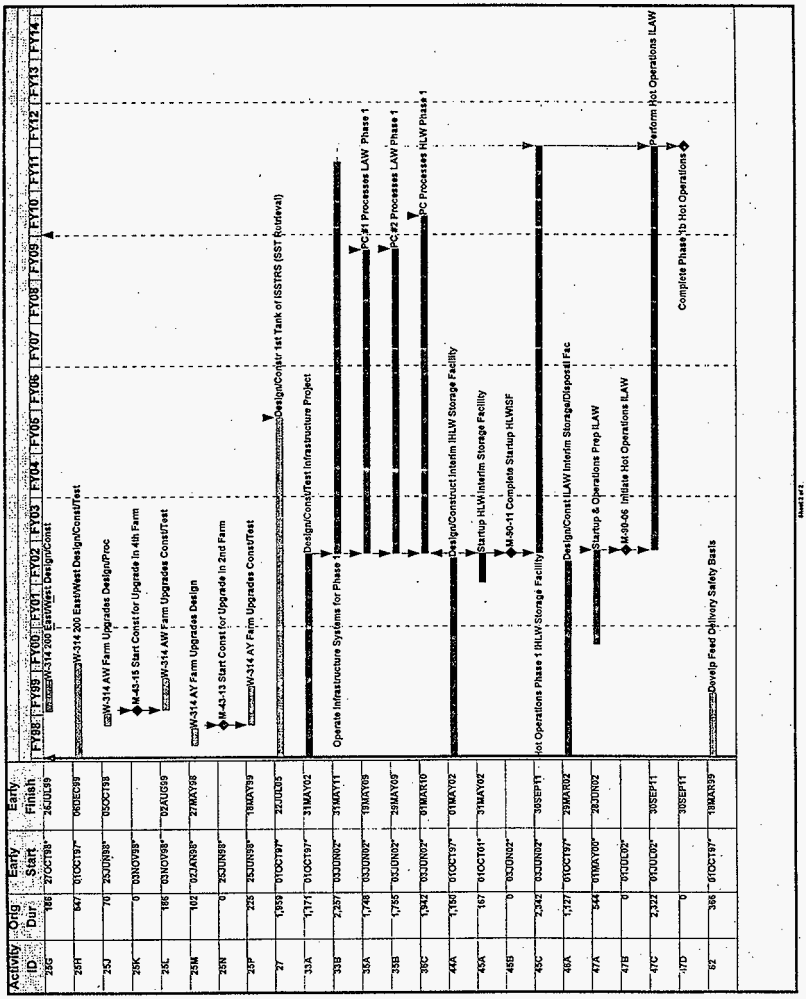
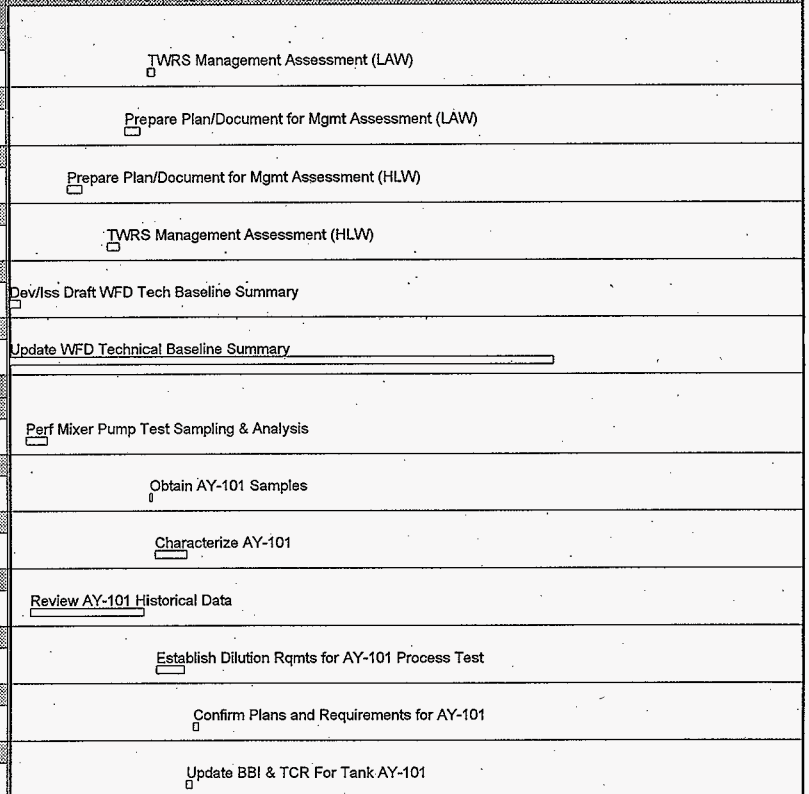


Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
11310101 PROJECT MGT/ADMINISTRATION		
TWRS Management Assessment (LAW)		
130.B65	26APR01*	06JUL01
Prepare Plan/Document for Mgmt Assessment (LAW)		
130.B70	27SEP00	13FEB01
Prepare Plan/Document for Mgmt Assessment (HLW)		
160.A13	05APR99*	18AUG99
TWRS Management Assessment (HLW)		
160.A18	11APR00	26JUL00
Dev/Iss Draft WFD Tech Baseline Summary		
620.095	01OCT97	05JAN98
Update WFD Technical Baseline Summary		
620.097	01OCT97	30SEP11
11310102 FEED PROCESS SYSTEM DEF.		
Perf Mixer Pump Test Sampling & Analysis		
110.047	24FEB98*	15SEP98
Obtain AY-101 Samples		
120.C05	01MAY01*	21MAY01
Characterize AY-101		
120.C10	14JUN01*	12APR02
Review AY-101 Historical Data		
120.C12	01APR98	15MAR01
Establish Dilution Rqmts for AY-101 Process Test		
120.C14	28JUN01*	18MAR02
Confirm Plans and Requirements for AY-101		
120.C15	11JUN02	09AUG02
Update BBI & TCR For Tank AY-101		
120.C20	15APR02	04JUN02



Project Start	01OCT97	Early Bar
Project Finish	30SEP11	Progress Bar
Data Date	01OCT97	Critical Activity
Run Date	30DEC97	

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ISUM

Sheet 1 of 46

Lockheed Martin Hanford Company

RTP ROLLUP TO PMBS LEVEL

with CRITICAL PATH

Figure 8 Project Master Baseline Schedule

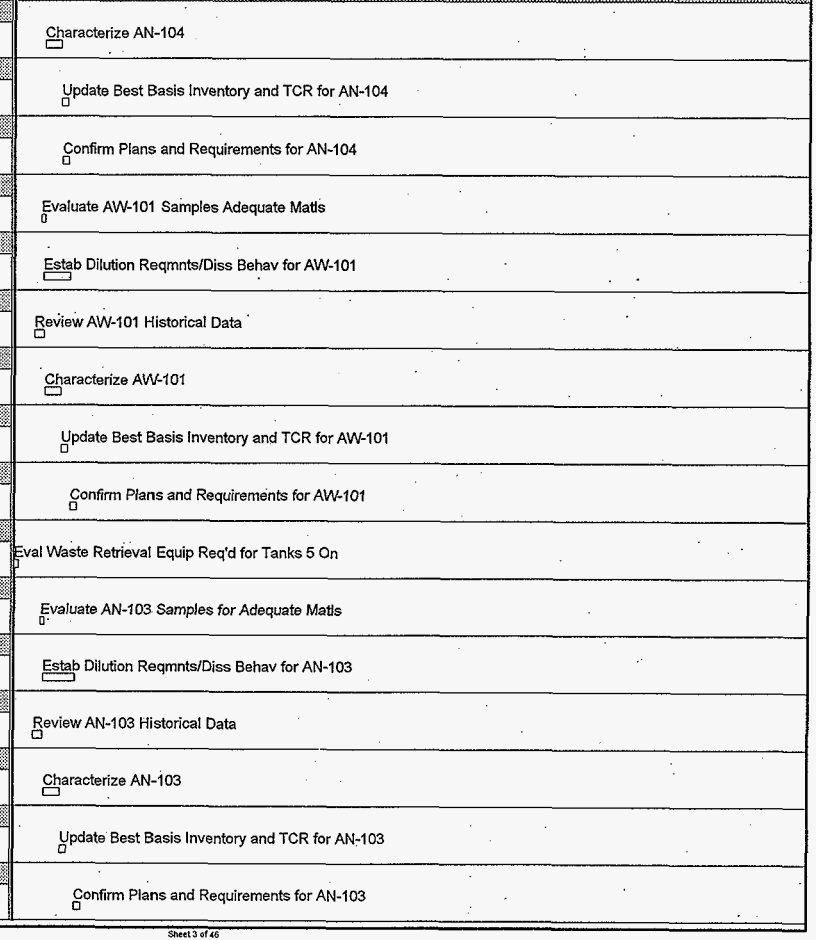
Activity ID	Early start	Early finish	
Develop LAW Confirm Tank T Meets Batch X DQO			
120.D07	01OCT97	31MAR98	Develop LAW Confirm Tank T Meets Batch X DQO
Develop Waste Transfer to PC DQO			
120.D08	01OCT97	30JAN98	Develop Waste Transfer to PC DQO
Develop In Tank Processing Control DQO			
120.D09	01OCT97	20JAN98	Develop In Tank Processing Control DQO
Evaluate AN-105 Samples for Adequate Matls			
120.D10	01JUN98	09JUL98	Evaluate AN-105 Samples for Adequate Matls
Develop DQO: PH 1 Tank Waste Transfer Control			
120.D11	01OCT97	31MAR98	Develop DQO: PH 1 Tank Waste Transfer Control
Develop HLW Waste Delivery toPC DQO			
120.D12	01OCT97	01DEC97	Develop HLW Waste Delivery toPC DQO
Rvw AN-105 Historical Data/Conf if Add'l Info Rq			
120.D15	01APR98	23JUN98	Rvw AN-105 Historical Data/Conf if Add'l Info Rq
Estab Dilution Reqmnts/Diss Behav for AN-105			
120.D20	24JUN98	10MAR99	Estab Dilution Reqmnts/Diss Behav for AN-105
Characterize AN-105			
120.D25	10JUL98	09DEC98	Characterize AN-105
Update Best Basis Inventory and TCR for AN-105			
120.D30	10DEC98	02FEB99	Update Best Basis Inventory and TCR for AN-105
Perf Max Implied Radionuclide Concentrate Study			
120.D35	01OCT97	27FEB98	Perf Max Implied Radionuclide Concentrate Study
Confirm Plans and Requirements for AN-105			
120.D40	11MAR99	07MAY99	Confirm Plans and Requirements for AN-105
Do Envelopes Apply to Bulk Comp or Liquid Phase?			
120.D50		26MAY98*	Do Envelopes Apply to Bulk Comp or Liquid Phase?
Evaluate AN-104 Samples for Adequate Matls			
120.E05	01JUN98	09JUL98	Evaluate AN-104 Samples for Adequate Matls
Estab Dilution Reqmnts/Diss Behav for AN-104			
120.E10	24JUN98	21DEC98	Estab Dilution Reqmnts/Diss Behav for AN-104
Review AN-104 Historical Data			
120.E15	01APR98	23JUN98	Review AN-104 Historical Data

FY98 | FY99 | FY00 | FY01 | FY02 | FY03 | FY04 | FY05 | FY06 | FY07 | FY08 | FY09 | FY10 | FY11 | FY12 | FY13 | FY14 | FY15 | FY16 | FY17

Sheet 2 of 46

Activity ID	Early start	Early finish
Characterize AN-104		
120.E20	10JUL98	09DEC98
Update Best Basis Inventory and TCR for AN-104		
120.E25	10DEC98	02FEB99
Confirm Plans and Requirements for AN-104		
120.E35	22DEC98	23FEB99
Evaluate AW-101 Samples Adequate Matls		
120.G05	01JUN98	09JUL98
Estab Dilution Reqmnts/Diss Behav for AW-101		
120.G10	24JUN98	10MAR99
Review AW-101 Historical Data		
120.G15	01APR98	23JUN98
Characterize AW-101		
120.G20	10JUL98	09DEC98
Update Best Basis Inventory and TCR for AW-101		
120.G25	10DEC98	02FEB99
Confirm Plans and Requirements for AW-101		
120.G35	11MAR99	07MAY99
Eval Waste Retrieval Equip Req'd for Tanks 5 On		
120.G37	01OCT97	28OCT97
Evaluate AN-103 Samples for Adequate Matls		
120.J05	01JUN98	09JUL98
Estab Dilution Reqmnts/Diss Behav for AN-103		
120.J10	24JUN98	29APR99
Review AN-103 Historical Data		
120.J15	01APR98	23JUN98
Characterize AN-103		
120.J20	10JUL98	09DEC98
Update Best Basis Inventory and TCR for AN-103		
120.J25	10DEC98	02FEB99
Confirm Plans and Requirements for AN-103		
120.J35	30APR99	29JUN99

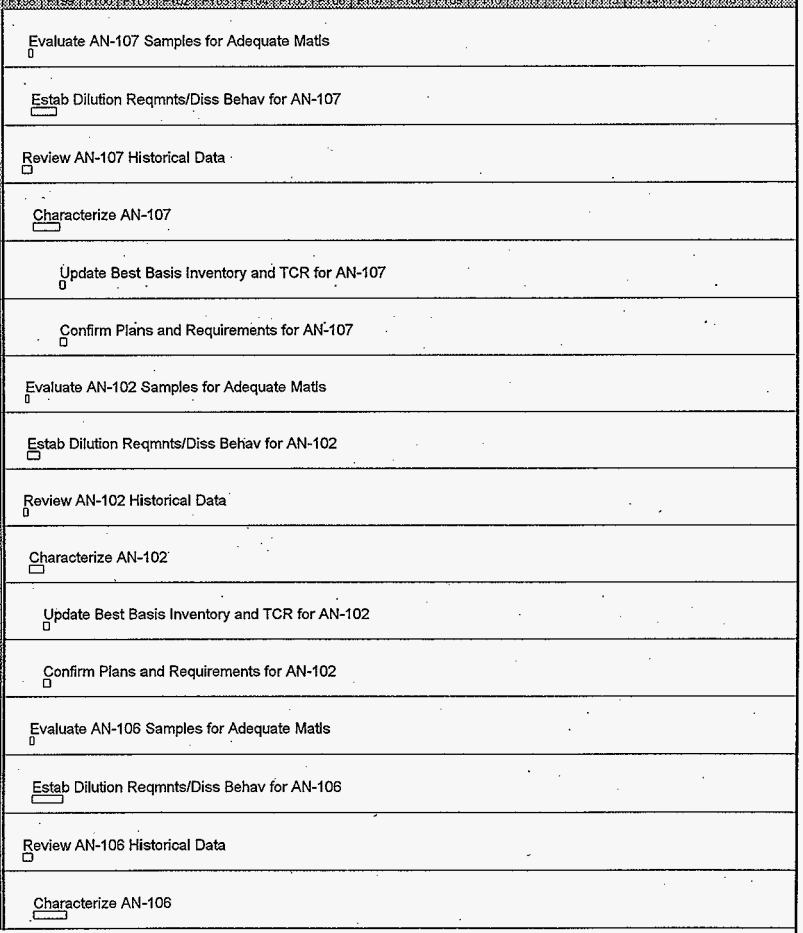
Figure 8 Project Master Baseline Schedule



Sheet 3 of 46

Figure 8 Project Master Baseline Schedule

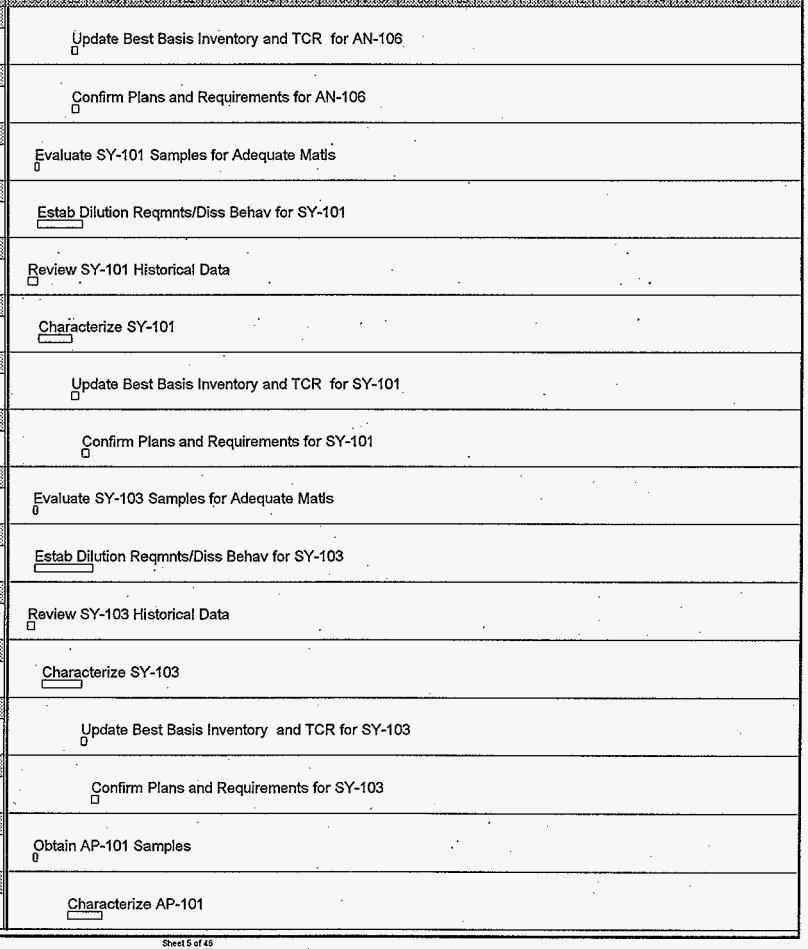
Activity ID	Early start	Early finish
Evaluate AN-107 Samples for Adequate Matls		
120.K05	01JUN98	09JUL98
Estab Dilution Reqmnts/Diss Behav for AN-107		
120.K10	24JUN98	17FEB99
Review AN-107 Historical Data		
120.K15	01APR98	23JUN98
Characterize AN-107		
120.K20	10JUL98	15MAR99
Update Best Basis Inventory and TCR for AN-107		
120.K25	16MAR99	04MAY99
Confirm Plans and Requirements for AN-107		
120.K35	16MAR99	12MAY99
Evaluate AN-102 Samples for Adequate Matls		
120.L05	24APR98	18MAY98
Estab Dilution Reqmnts/Diss Behav for AN-102		
120.L10	05MAY98	03SEP98
Review AN-102 Historical Data		
120.L15	01APR98	04MAY98
Characterize AN-102		
120.L20	19MAY98	01OCT98
Update Best Basis Inventory and TCR for AN-102		
120.L25	02OCT98	20NOV98
Confirm Plans and Requirements for AN-102		
120.L35	02OCT98	02DEC98
Evaluate AN-106 Samples for Adequate Matls		
120.M05	01JUN98	09JUL98
Estab Dilution Reqmnts/Diss Behav for AN-106		
120.M10	24JUN98	15APR99
Review AN-106 Historical Data		
120.M15	01APR98	23JUN98
Characterize AN-106		
120.M20	16JUL98*	13MAY99



Sheet 4 of 46

Activity ID	Early start	Early finish
Update Best Basis Inventory and TCR for AN-106		
120.M25	14MAY99	07JUL99
Confirm Plans and Requirements for AN-106		
120.M35	14MAY99	15JUL99
Evaluate SY-101 Samples for Adequate Matls		
120.R05	01JUN98	09JUL98
Estab Dilution Reqmnts/Diss Behav for SY-101		
120.R10	24JUN98	27AUG99
Review SY-101 Historical Data		
120.R15	01APR98	23JUN98
Characterize SY-101		
120.R20	10JUL98	21MAY99
Update Best Basis Inventory and TCR for SY-101		
120.R25	24MAY99	15JUL99
Confirm Plans and Requirements for SY-101		
120.R35	30AUG99	27OCT99
Evaluate SY-103 Samples for Adequate Matls		
120.T05	19MAY98	22JUN98
Estab Dilution Reqmnts/Diss Behav for SY-103		
120.T10	09JUN98	02DEC99
Review SY-103 Historical Data		
120.T15	01APR98	08JUN98
Characterize SY-103		
120.T20	12AUG98*	25AUG99
Update Best Basis Inventory and TCR for SY-103		
120.T25	26AUG99	15OCT99
Confirm Plans and Requirements for SY-103		
120.T35	03DEC99	03FEB00
Obtain AP-101 Samples		
120.V05	01JUN98	09JUL98
Characterize AP-101		
120.V10	19APR99*	13MAR00

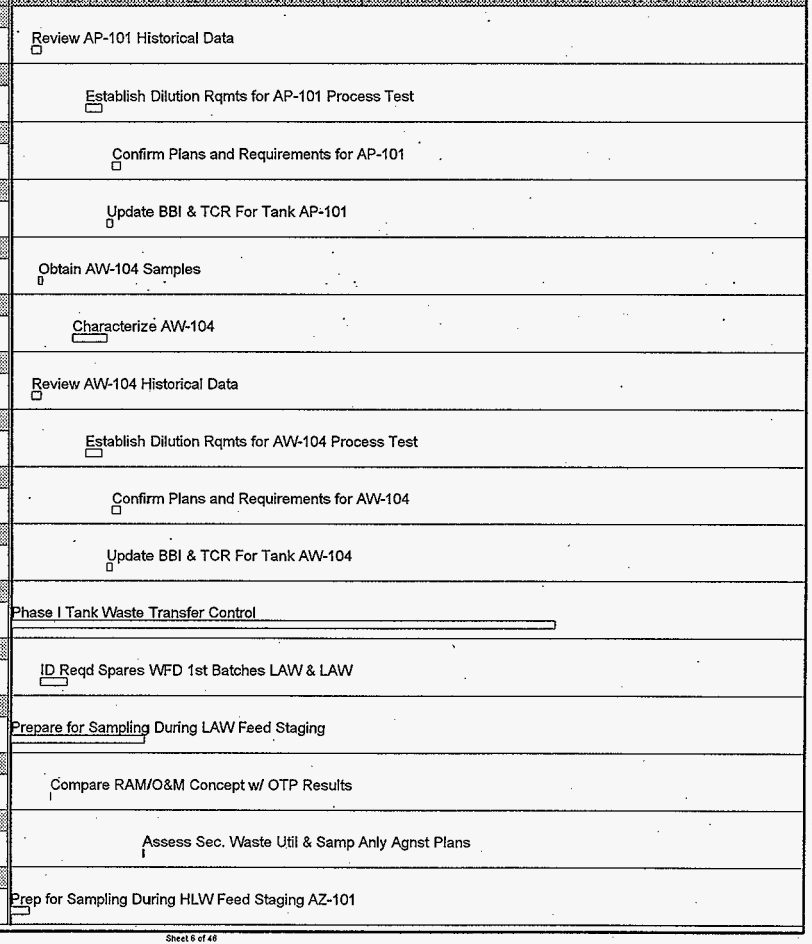
Figure 8 Project Master Baseline Schedule



Sheet 5 of 46

Activity ID	Early start	Early finish
Review AP-101 Historical Data		
120.V12	01APR98	23JUN98
Establish Dilution Rqmts for AP-101 Process Test		
120.V14	01SEP99*	19JAN00
Confirm Plans and Requirements for AP-101		
120.V15	09MAY00	10JUL00
Update BBI & TCR For Tank AP-101		
120.V20	14MAR00	02MAY00
Obtain AW-104 Samples		
120.W05	01JUN98	09JUL98
Characterize AW-104		
120.W10	19APR99*	13MAR00
Review AW-104 Historical Data		
120.W12	01APR98	23JUN98
Establish Dilution Rqmts for AW-104 Process Test		
120.W14	01SEP99*	19JAN00
Confirm Plans and Requirements for AW-104		
120.W15	09MAY00	10JUL00
Update BBI & TCR For Tank AW-104		
120.W20	14MAR00	02MAY00
Phase I Tank Waste Transfer Control		
130.010	01OCT97	30SEP11
ID Reqd Spares WFD 1st Batches LAW & LAW		
130.B05	25JUN98*	26FEB99
Prepare for Sampling During LAW Feed Staging		
130.B45	01OCT97	05MAR01
Compare RAM/O&M Concept w/ OTP Results		
130.B75	01OCT98	07OCT98
Assess Sec. Waste Util & Samp Anly Agnst Plans		
130.B80	01MAR01	07MAR01
Prep for Sampling During HLW Feed Staging AZ-101		
130.N10	01OCT97	13MAR98

Figure 8 Project Master Baseline Schedule



Sheet 6 of 46

Figure 8 Project Master Baseline Schedule

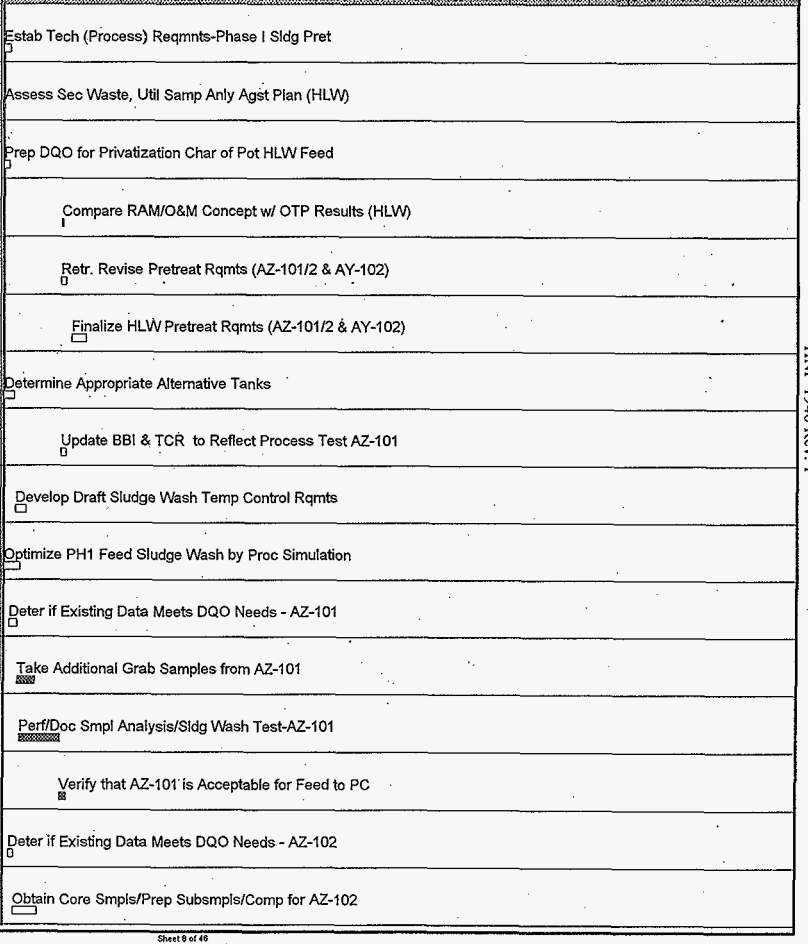
Activity ID	Early start	Early finish	
Perform Feed Rate Trade Study			
150.B04	01OCT97	20JAN98	Perform Feed Rate Trade Study
Establish Feed Rates (RL Decision)			
150.B06	21JAN98	10FEB98	Establish Feed Rates (RL Decision)
Maintain WFD Char Matrices, Prob Spec DQOs			
150.B08	01OCT97	30SEP11	Maintain WFD Char Matrices, Prob Spec DQOs
Maintain Authorization Basis			
150.B17	17FEB00	17FEB00	Maintain Authorization Basis
Maintain Operations Utilization Plan			
150.B22	01OCT97	30SEP98	Maintain Operations Utilization Plan
150.B22B	01OCT98	30SEP99	Maintain Operations Utilization Plan
150.B22F	01OCT99	30SEP11	Maintain Operations Utilization Plan
M-45-02D Sub Annual SST Ret Seg Doc to Ecology			
150.B22A		30SEP98	M-45-02C Sub Annual SST Ret Seg Doc to Ecology
M-45-02C Sub Annual SST Ret Seg Doc to Ecology			
150.B22E		30SEP99	M-45-02D Sub Annual SST Ret Seg Doc to Ecology
Maintain ICDs			
150.B24	01OCT97	30SEP03	Maintain ICDs
Perform Feed Tank Fill Status Trade Study			
150.B82	01OCT97	04MAR98	Perform Feed Tank Fill Status Trade Study
Establish Feed Tank Fill Status (RL Decision)			
150.B84	05MAR98	25MAR98	Establish Feed Tank Fill Status (RL Decision)
Final ICD for Waste Feed Tank AP-106 - PC 1			
150.B86	27MAY98*	26MAY98	Final ICD for Waste Feed Tank AP-106 - PC 1
Final ICD for LAW Feed - PC 2			
150.B90	27MAY98	26MAY98	Final ICD for LAW Feed - PC 2
Final ICD for LAW Feed - PC 1			
150.B92	27MAY98	26MAY98	Final ICD for LAW Feed - PC 1
Final ICD for HLW Feed (ID 20)			
160.A00	27MAY98*	26MAY98	Final ICD for HLW Feed (ID 20)

FY98 | FY99 | FY00 | FY01 | FY02 | FY03 | FY04 | FY05 | FY06 | FY07 | FY08 | FY09 | FY10 | FY11 | FY12 | FY13 | FY14 | FY15 | FY16 | FY17

Sheet 7 of 46

Activity ID	Early start	Early finish
Estab Tech (Process) Reqmnts-Phase I Sldg Pret		
160.A12	01OCT97*	25NOV97
Assess Sec Waste, Util Samp Anly Agst Plan (HLW)		
160.A15	01OCT97	07OCT97
Prep DQO for Privatization Char of Pot HLW Feed		
160.A16	01OCT97	11NOV97
Compare RAM/O&M Concept w/ OTP Results (HLW)		
160.A17	05APR99*	09APR99
Retr. Revise Pretreat Rqmts (AZ-101/2 & AY-102)		
160.A19	16MAR99*	11MAY99
Finalize HLW Pretreat Rqmts (AZ-101/2 & AY-102)		
160.A20	28JUN99*	15NOV99
Determine Appropriate Alternative Tanks		
160.A22	01OCT97	09JAN98
Update BBI & TCR to Reflect Process Test AZ-101		
160.A25	18MAR99*	06MAY99
Develop Draft Sludge Wash Temp Control Rqmts		
160.A41	21JAN98	29APR98
Optimize PH1 Feed Sludge Wash by Proc Simulation		
160.A43	01OCT97	18FEB98
Deter if Existing Data Meets DQO Needs - AZ-101		
160.A44	12NOV97	26JAN98
Take Additional Grab Samples from AZ-101		
160.A46	27JAN98	24JUL98
Perf/Doc Smpl Analysis/Sldg Wash Test-AZ-101		
160.A48	27FEB98*	17MAR99
Verify that AZ-101 is Acceptable for Feed to PC		
160.A50	18MAR99	14MAY99
Deter if Existing Data Meets DQO Needs - AZ-102		
160.F00	12NOV97	07JAN98
Obtain Core Smpls/Prep Subsmpls/Comp for AZ-102		
160.F05	08JAN98	14AUG98

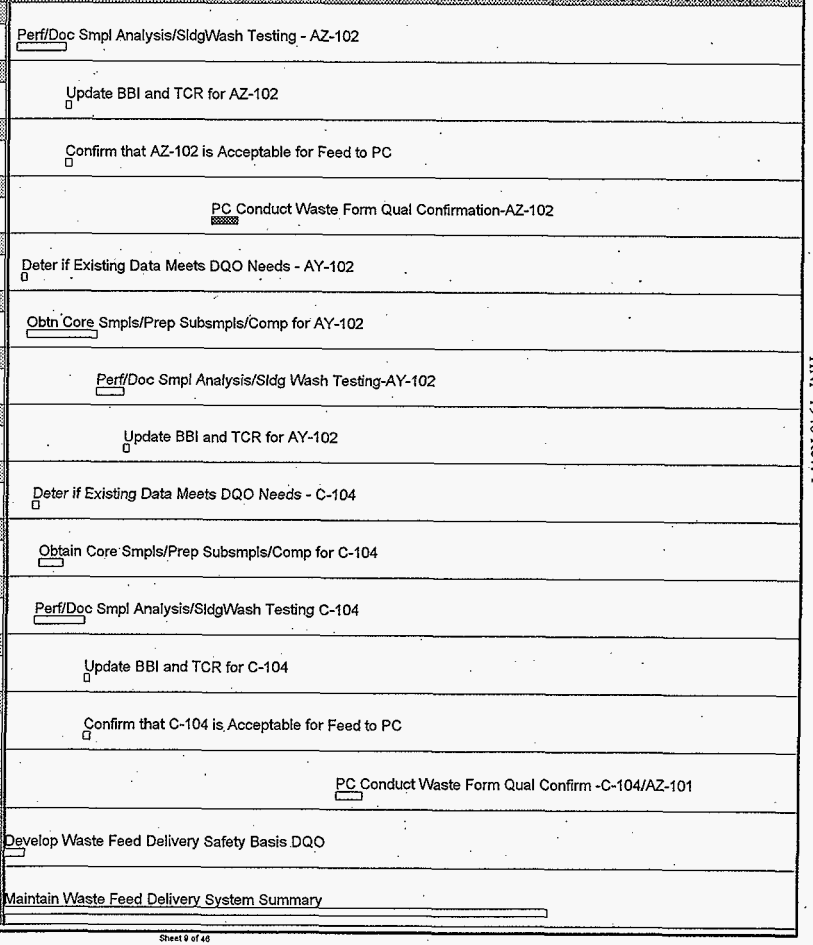
Figure 8 Project Master Baseline Schedule



Sheet 8 of 46

Activity ID	Early start	Early finish
Perf/Doc Smpl Analysis/SldgWash Testing - AZ-102		
160.F10	04DEC97*	17MAR99
Update BBI and TCR for AZ-102		
160.F12	18MAR99*	06MAY99
Confirm that AZ-102 is Acceptable for Feed to PC		
160.F15	18MAR99*	14MAY99
PC Conduct Waste Form Qual Confirmation-AZ-102		
160.F80	17DEC02	27AUG03
Deter if Existing Data Meets DQO Needs - AY-102		
160.H00	27JAN98*	19MAR98
Obtn Core Smpls/Prep Subsmpls/Comp for AY-102		
160.H05	20MAR98	12JAN00
Perf/Doc Smpl Analysis/Sldg Wash Testing-AY-102		
160.H20	13JAN00	27SEP00
Update BBI and TCR for AY-102		
160.H22	02OCT00*	20NOV00
Deter if Existing Data Meets DQO Needs - C-104		
160.J00	27MAY98	17JUL98
Obtain Core Smpls/Prep Subsmpls/Comp for C-104		
160.J05	20JUL98	26FEB99
Perf/Doc Smpl Analysis/SldgWash Testing C-104		
160.J10	18JUN98*	29SEP99
Update BBI and TCR for C-104		
160.J12	01OCT99	19NOV99
Confirm that C-104 is Acceptable for Feed to PC		
160.J15	01OCT99	01DEC99
PC Conduct Waste Form Qual Confirm -C-104/AZ-101		
160.J80	04APR06	12DEC06
Develop Waste Feed Delivery Safety Basis DQO		
620.015	01OCT97	31MAR98
Maintain Waste Feed Delivery System Summary		
620.020	01OCT97	30SEP11

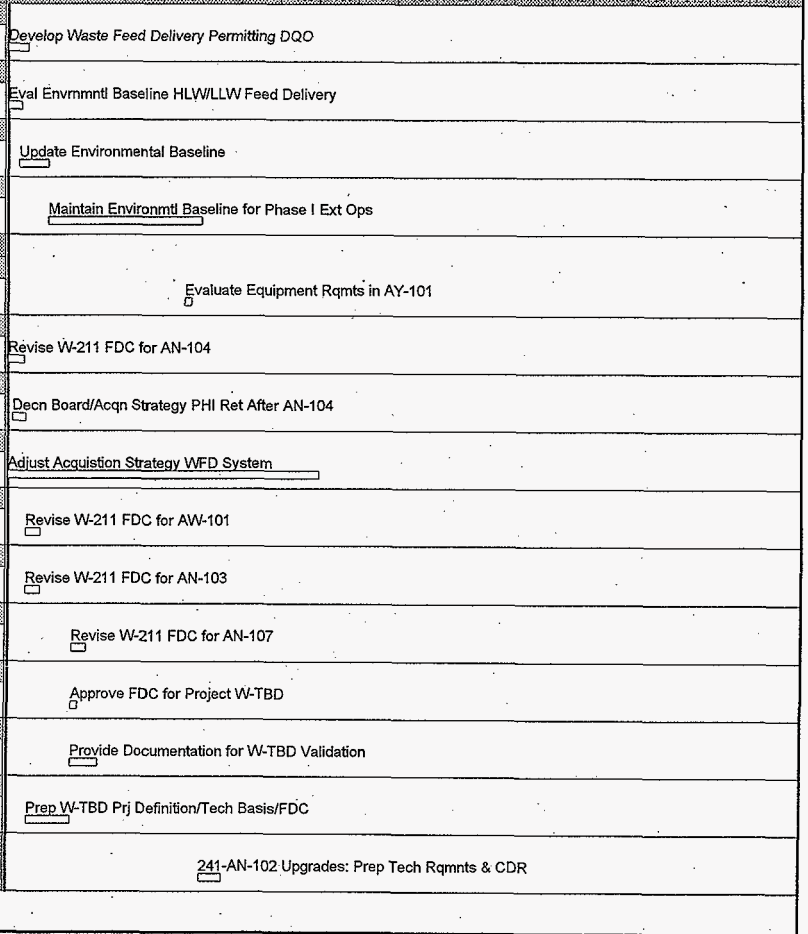
Figure 8 Project Master Baseline Schedule



Sheet 9 of 46

Figure 8 Project Master Baseline Schedule

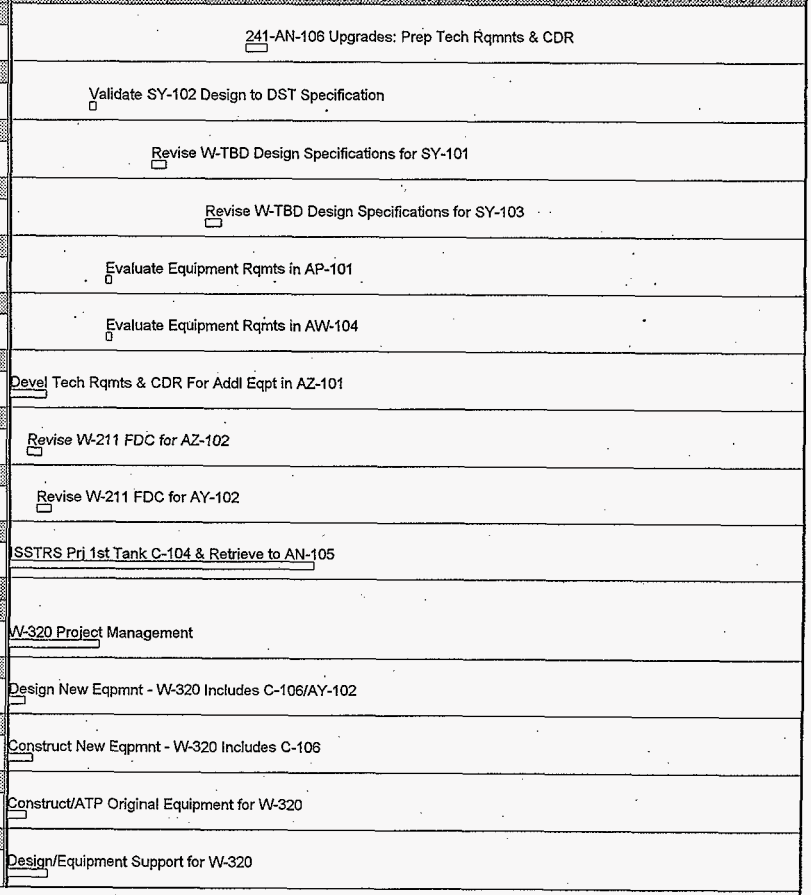
Activity ID	Early start	Early finish
Develop Waste Feed Delivery Permitting DQO		
620.055	01OCT97	31MAR98
Eval Envrnmntl Baseline HLW/LLW Feed Delivery		
620.060	01OCT97	29JAN98
Update Environmental Baseline		
620.070	02JAN98*	30SEP98
Maintain Environmtl Baseline for Phase I Ext Ops		
620.090	01OCT98*	30SEP02
11310103 RETRIEVAL SYSTEMS DEF.		
Evaluate Equipment Rqmts in AY-101		
120.C25	15APR02	10JUN02
Revise W-211 FDC for AN-104		
120.E40	01OCT97	19FEB98
Decn Board/Acqn Strategy PHI Ret After AN-104		
120.G38	29OCT97	03MAR98
Adjust Acquistion Strategy WFD System		
120.G39	01OCT97	30SEP05
Revise W-211 FDC for AW-101		
120.G40	04MAR98	20JUL98
Revise W-211 FDC for AN-103		
120.J40	04MAR98	20JUL98
Revise W-211 FDC for AN-107		
120.K40	13MAY99	29SEP99
Approve FDC for Project W-TBD		
120.L36	13MAY99	19JUL99
Provide Documentation for W-TBD Validation		
120.L37	13MAY99	01FEB00
Prep W-TBD Prj Definition/Tech Basis/FDC		
120.L40	01APR98	12MAY99
241-AN-102 Upgrades: Prep Tech Rqmnts & CDR		
120.L41	01OCT02*	22APR03



Sheet 10 of 46

Figure 8 Project Master Baseline Schedule

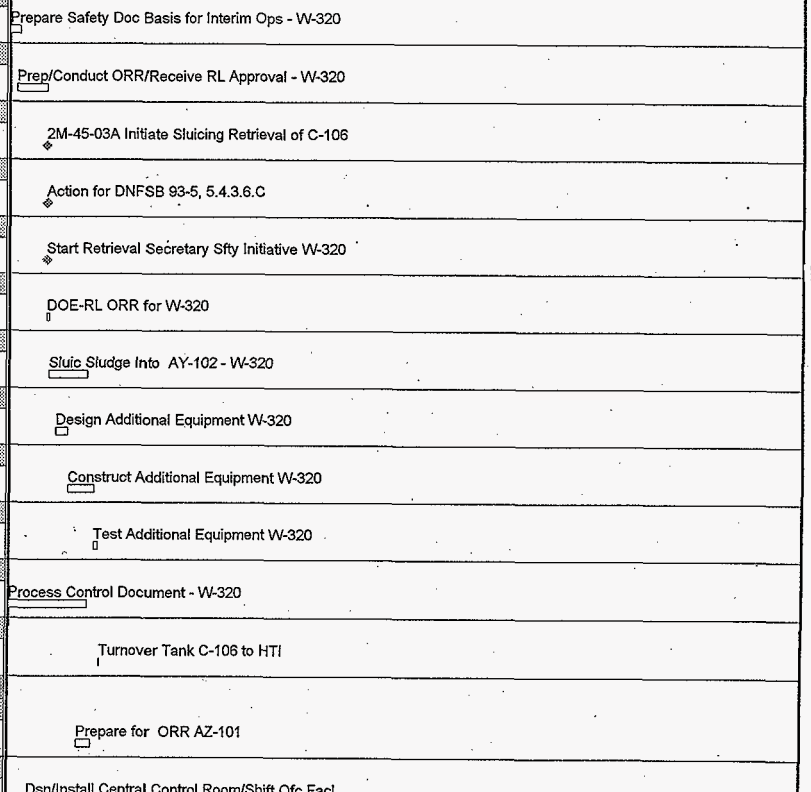
Activity ID	Early start	Early finish
241-AN-106 Upgrades: Prep Tech Rqmnts & CDR		
120.M40	01OCT03*	21APR04
Validate SY-102 Design to DST Specification		
120.P32	29SEP99*	29NOV99
Revise W-TBD Design Specifications for SY-101		
120.R40	03MAY01	18SEP01
Revise W-TBD Design Specifications for SY-103		
120.T40	01OCT02*	19FEB03
Evaluate Equipment Rqmts in AP-101		
120.V25	14MAR00	08MAY00
Evaluate Equipment Rqmts in AW-104		
120.W25	14MAR00	08MAY00
Devel Tech Rqmts & CDR For Addl Eqpt in AZ-101		
160.A26	01OCT97	25AUG98
Revise W-211 FDC for AZ-102		
160.F30	04MAR98	20JUL98
Revise W-211 FDC for AY-102		
160.H17	28MAY98*	13OCT98
ISSTRS Prj 1st Tank C-104 & Retrieve to AN-105		
270.J99	01OCT97	22JUL05
11310106 W-320 C106 SLUICING		
W-320 Project Management		
050.010	01OCT97	28JAN00
Design New Eqpmnt - W-320 Includes C-106/AY-102		
050.020	01OCT97	26FEB98
Construct New Eqpmnt - W-320 Includes C-106		
050.030	01OCT97	06MAY98
Construct/ATP Original Equipment for W-320		
050.040	01OCT97	19MAR98
Design/Equipment Support for W-320		
050.045	01OCT97	30SEP98



Sheet 11 of 46

Activity ID	Early start	Early finish
Perform OTP for W-320		
050.050	01OCT97	19JUN98
Prepare Safety Doc Basis for Interim Ops - W-320		
050.060	01OCT97	31DEC97
Prep/Conduct ORR/Receive RL Approval - W-320		
050.070	01DEC97*	04SEP98
2M-45-03A Initiate Sluicing Retrieval of C-106		
050.079A		04SEP98
Action for DNFSB 93-5, 5.4.3.6.C		
050.079B		04SEP98
Start Retrieval Secretary Sfty Initiative W-320		
050.079C		04SEP98
DOE-RL ORR for W-320		
050.085	08SEP98	06OCT98
Sluic Sludge Into AY-102 - W-320		
050.090	07OCT98	06OCT99
Design Additional Equipment W-320		
050.100	09DEC98	25MAR99
Construct Additional Equipment W-320		
050.110	26MAR99	08DEC99
Test Additional Equipment W-320		
050.120	09DEC99	13JAN00
Process Control Document - W-320		
050.130	01OCT97	30SEP99
Turnover Tank C-106 to HTI		
050.150	31JAN00	28JAN00
11310110 FUTURE DST RETRIEVAL PROJECTS		
Prepare for ORR AZ-101		
120.A88	08JUL99	18NOV99
Dsn/Install Central Control Room/Shift Ofc Facl		
120.B10	01APR98*	28APR00

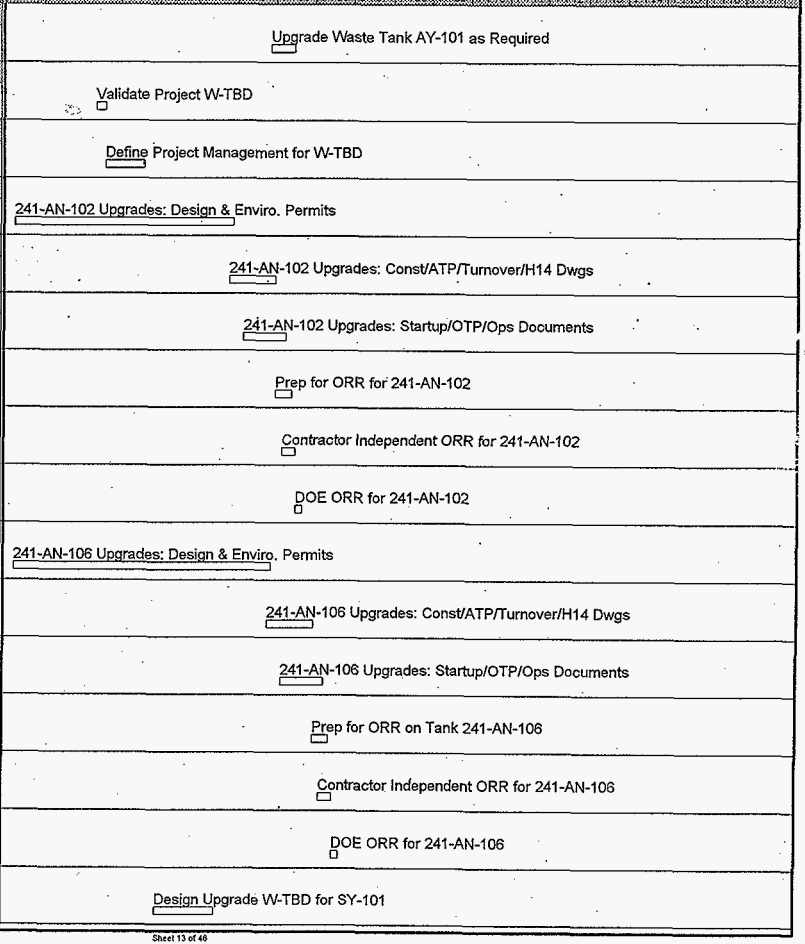
Figure 8 Project Master Baseline Schedule



Sheet 12 of 46

Figure 8 Project Master Baseline Schedule

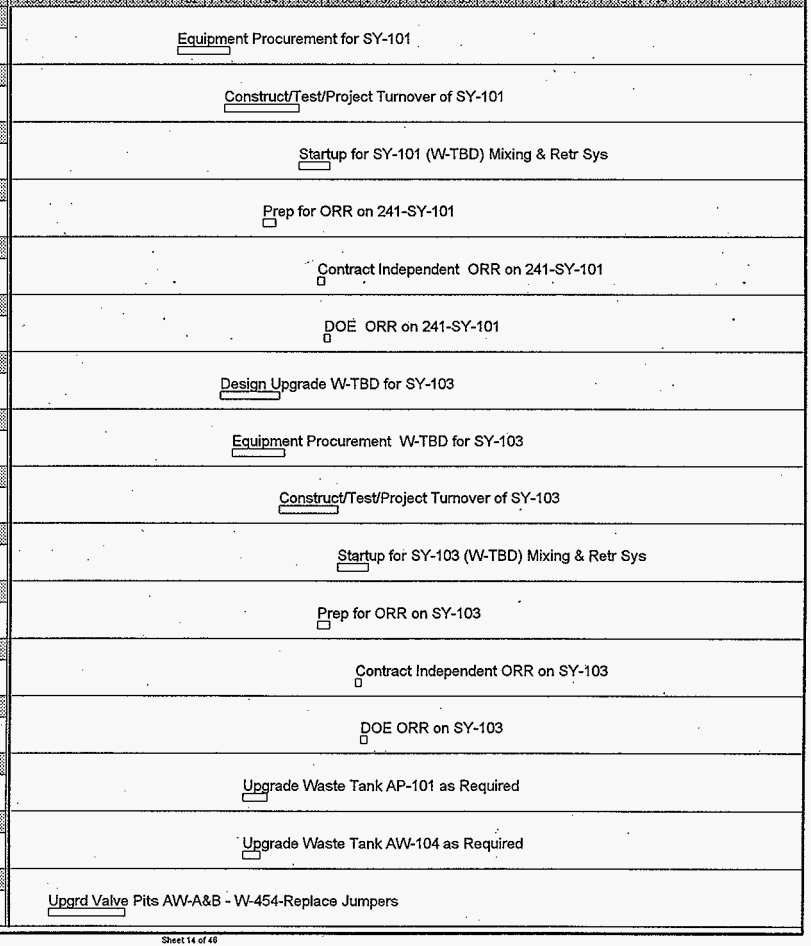
Activity ID	Early start	Early finish
Upgrade Waste Tank AY-101 as Required		
120.C30	12AUG04*	24MAR05
Validate Project W-TBD		
120.L38	02FEB00	02MAY00
Define Project Management for W-TBD		
120.L39	03MAY00	02MAY01
241-AN-102 Upgrades: Design & Enviro. Permits		
120.L50	02JAN98*	29AUG03
241-AN-102 Upgrades: Const/ATP/Turnover/H14 Dwgs		
120.L55	21JUL03*	01OCT04
241-AN-102 Upgrades: Startup/OTP/Ops Documents		
120.L60	04DEC03*	12JAN05
Prep for ORR for 241-AN-102		
120.L68	04OCT04	03MAR05
Contractor Independent ORR for 241-AN-102		
120.L70	01DEC04*	07APR05
DOE ORR for 241-AN-102		
120.L75	08APR05	07JUN05
241-AN-106 Upgrades: Design & Enviro. Permits		
120.M50	02JAN98*	30AUG04
241-AN-106 Upgrades: Const/ATP/Turnover/H14 Dwgs		
120.M55	20JUL04*	30SEP05
241-AN-106 Upgrades: Startup/OTP/Ops Documents		
120.M60	03DEC04*	11JAN06
Prep for ORR on Tank 241-AN-106		
120.M68	03OCT05	02MAR06
Contractor Independent ORR for 241-AN-106		
120.M70	30NOV05*	06APR06
DOE ORR for 241-AN-106		
120.M75	07APR06	06JUN06
Design Upgrade W-TBD for SY-101		
120.R50	19SEP01	25MAR03



Sheet 13 of 46

Figure 8 Project Master Baseline Schedule

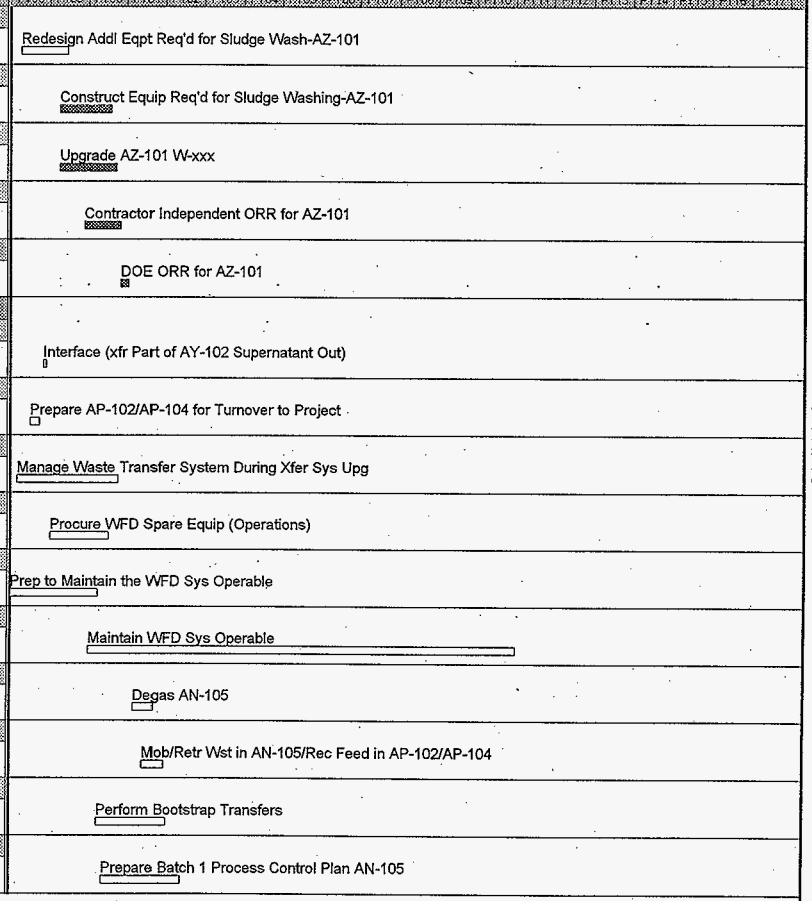
Activity ID	Early start	Early finish
Equipment Procurement for SY-101		
120.R52	23JAN02	19MAY03
Construct/Test/Project Turnover of SY-101		
120.R55	26MAR03	25FEB05
Startup for SY-101 (W-TBD) Mixing & Retr Sys		
120.R60	28FEB05	16DEC05
Prep for ORR on 241-SY-101		
120.R68	25MAR04	12JUL04
Contract Independent ORR on 241-SY-101		
120.R70	22AUG05	17OCT05
DOE ORR on 241-SY-101		
120.R75	18OCT05	16DEC05
Design Upgrade W-TBD for SY-103		
120.T50	20FEB03	19AUG04
Equipment Procurement W-TBD for SY-103		
120.T52	19JUN03	14OCT04
Construct/Test/Project Turnover of SY-103		
120.T55	20AUG04	22FEB06
Startup for SY-103 (W-TBD) Mixing & Retr Sys		
120.T60	23FEB06	13DEC06
Prep for ORR on SY-103		
120.T68	22AUG05	07DEC05
Contract Independent ORR on SY-103		
120.T70	17AUG06	12OCT06
DOE ORR on SY-103		
120.T75	13OCT06	13DEC06
Upgrade Waste Tank AP-101 as Required		
120.V30	01OCT03*	11MAY04
Upgrade Waste Tank AW-104 as Required		
120.W30	01OCT03*	12MAR04
Upgrd Valve Pits AW-A&B - W-454-Replace Jumpers		
130.B62	01OCT98*	27SEP00



Sheet 14 of 48

Figure 8 Project Master Baseline Schedule

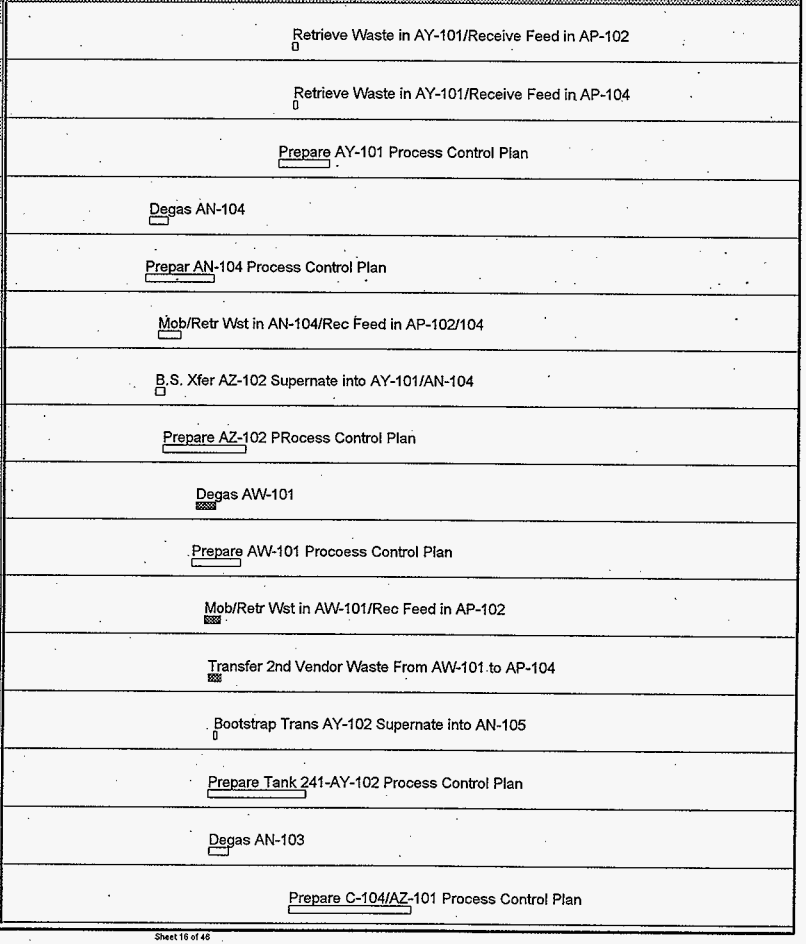
Activity ID	Early start	Early finish
Redesign Addl Eqpt Req'd for Sludge Wash-AZ-101		
160.A32	02JAN98	11MAR99
Construct Equip Req'd for Sludge Washing-AZ-101		
160.A36	07JAN99	27APR00
Upgrade AZ-101 W-xxx		
160.A38	07JAN99	23JUN00
Contractor Independent ORR for AZ-101		
160.A40	02SEP99*	01AUG00
DOE ORR for AZ-101		
160.A42	02AUG00*	11OCT00
11310112 PH 1 RETRIEVAL OPS (DST)		
Interface (xfr Part of AY-102 Supernatant Out)		
050.080	03AUG98*	01SEP98
Prepare AP-102/AP-104 for Turnover to Project		
120.B40	01APR98*	01JUL98
Manage Waste Transfer System During Xfer Sys Upg		
130.015	01DEC97*	30JUN00
Procure WFD Spare Equip (Operations)		
130.B10	01OCT98*	10APR00
Prep to Maintain the WFD Sys Operable		
130.B15	01OCT97	31DEC99
Maintain WFD Sys Operable		
130.B16	01OCT99*	30SEP10
Degas AN-105		
130.B25	04DEC00*	01JUN01
Mob/Retr Wst in AN-105/Rec Feed in AP-102/AP-104		
130.B30	05MAR01*	17SEP01
Perform Bootstrap Transfers		
130.B40	04JAN00*	09OCT01
Prepare Batch 1 Process Control Plan AN-105		
130.B55	17FEB00	25FEB02



Sheet 15 of 46

Activity ID	Early start	Early finish
Retrieve Waste in AY-101/Receive Feed in AP-102		
130.C10	18FEB05*	01APR05
Retrieve Waste in AY-101/Receive Feed in AP-104		
130.C20	25FEB05*	01APR05
Prepare AY-101 Process Control Plan		
130.C25	15OCT04*	01FEB06
Degas AN-104		
130.E10	04JUN01	30NOV01
Prepar AN-104 Process Control Plan		
130.E25	27APR01*	07FEB03
Mob/Retr Wst in AN-104/Rec Feed in AP-102/104		
130.E30	04SEP01*	05APR02
B.S. Xfer AZ-102 Supernate into AY-101/AN-104		
130.F10	06AUG01*	05NOV01
Prepare AZ-102 PRocess Control Plan		
130.F20	24OCT01*	12DEC03
Degas AW-101		
130.G10	03SEP02*	28FEB03
Prepare AW-101 Procoess Control Plan		
130.G25	29JUL02*	31OCT03
Mob/Retr Wst in AW-101/Rec Feed in AP-102		
130.G30	02DEC02*	25APR03
Transfer 2nd Vendor Waste From AW-101 to AP-104		
130.G40	06JAN03*	06MAY03
Bootstrap Trans AY-102 Supernate into AN-105		
130.H10	03MAR03*	04APR03
Prepare Tank 241-AY-102 Process Control Plan		
130.H20	17JAN03*	26JUL05
Degas AN-103		
130.J10	03FEB03*	29JUL03
Prepare C-104/AZ-101 Process Control Plan		
130.J20	01MAR05*	17APR08

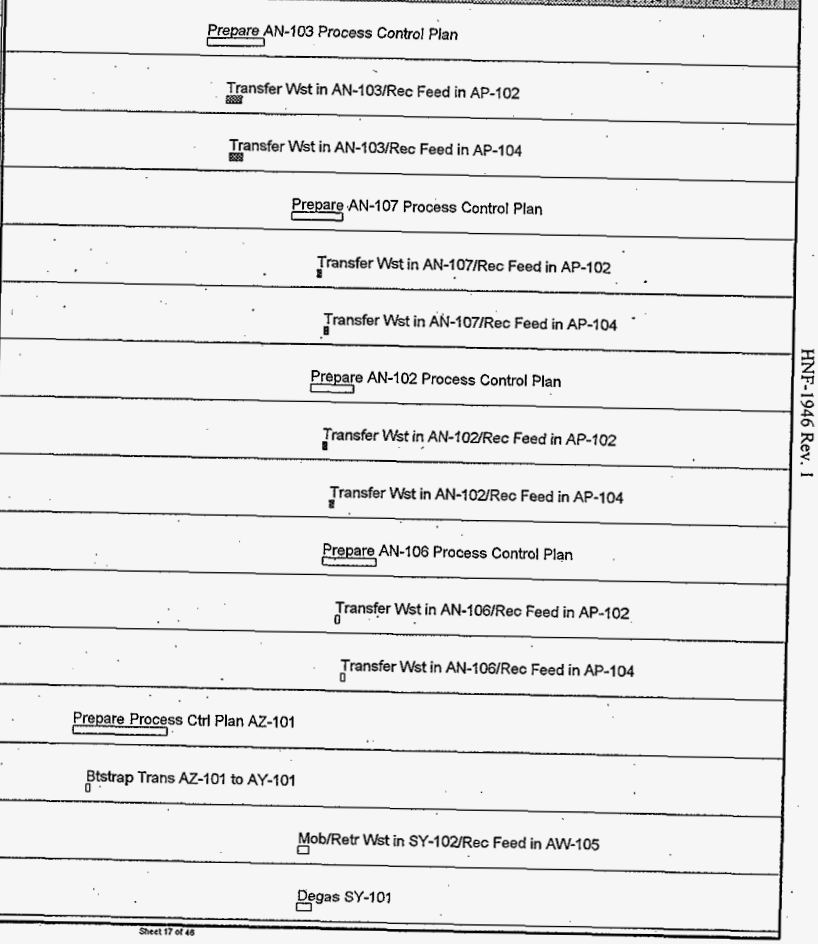
Figure 8 Project Master Baseline Schedule



Sheet 16 of 46

Figure 8 Project Master Baseline Schedule

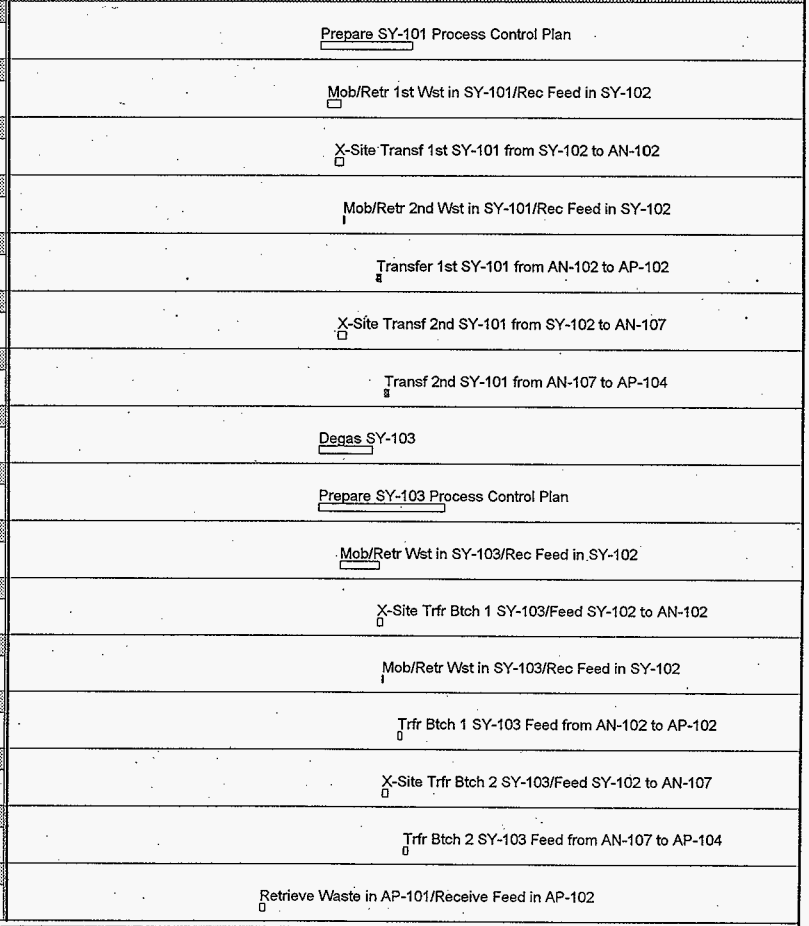
Activity ID	Early start	Early finish
Prepare AN-103 Process Control Plan		
130.J25	23DEC02*	11JUN04
Transfer Wst in AN-103/Rec Feed in AP-102		
130.J30	01JUL03*	26NOV03
Transfer Wst in AN-103/Rec Feed in AP-104		
130.J40	04AUG03*	05DEC03
Prepare AN-107 Process Control Plan		
130.K20	31MAR05*	07JUL06
Transfer Wst in AN-107/Rec Feed in AP-102		
130.K30	01DEC05*	11JAN06
Transfer Wst in AN-107/Rec Feed in AP-104		
130.K40	10FEB06*	20MAR06
Prepare AN-102 Process Control Plan		
130.L20	26OCT05*	21NOV06
Transfer Wst in AN-102/Rec Feed in AP-102		
130.L30	03MAR06*	07APR06
Transfer Wst in AN-102/Rec Feed in AP-104		
130.L40	08MAY06*	15JUN06
Prepare AN-106 Process Control Plan		
130.M20	10MAR06*	18JUL07
Transfer Wst in AN-106/Rec Feed in AP-102		
130.M30	28JUL06*	01SEP06
Transfer Wst in AN-106/Rec Feed in AP-104		
130.M40	02OCT06*	06NOV06
Prepare Process Ctrl Plan AZ-101		
130.N20	16NOV99*	09APR02
Btstrap Trans AZ-101 to AY-101		
130.N30	30MAR00*	05MAY00
Mob/Retr Wst in SY-102/Rec Feed in AW-105		
130.P50	03OCT05*	12JAN06
Degas SY-101		
130.R10	03OCT05*	14FEB06



Sheet 17 of 46

Figure 8 Project Master Baseline Schedule

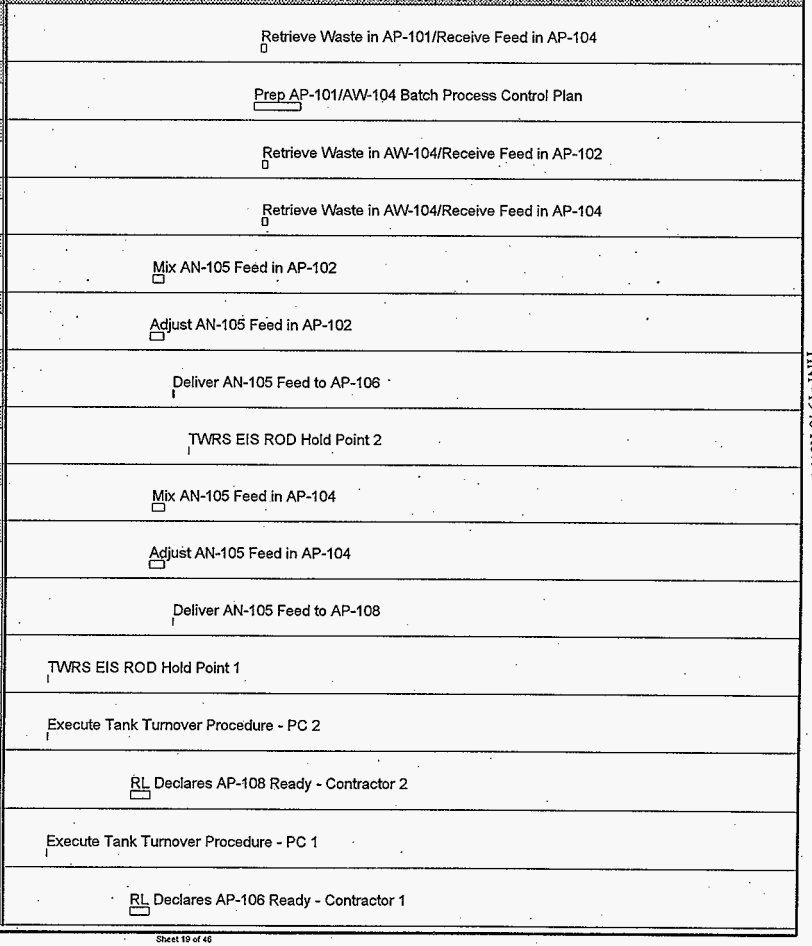
Activity ID	Early start	Early finish
Prepare SY-101 Process Control Plan		
130.R25	13OCT05*	11FEB08
Mob/Retr 1st Wst in SY-101/Rec Feed in SY-102		
130.R30	14DEC05	21APR06
X-Site Transf 1st SY-101 from SY-102 to AN-102		
130.R35	27FEB06*	12MAY06
Mob/Retr 2nd Wst in SY-101/Rec Feed in SY-102		
130.R40	15MAY06	22MAY06
Transfer 1st SY-101 from AN-102 to AP-102		
130.R45	26MAR07*	30APR07
X-Site Transf 2nd SY-101 from SY-102 to AN-107		
130.R50	21MAR06*	09JUN06
Transf 2nd SY-101 from AN-107 to AP-104		
130.R55	29MAY07*	05JUL07
Degas SY-103		
130.T10	03OCT05*	09FEB07
Prepare SY-103 Process Control Plan		
130.T25	03OCT05*	15DEC08
Mob/Retr Wst in SY-103/Rec Feed in SY-102		
130.T30	14APR06*	18APR07
X-Site Trfr Btch 1 SY-103/Feed SY-102 to AN-102		
130.T35	04APR07*	21MAY07
Mob/Retr Wst in SY-103/Rec Feed in SY-102		
130.T40	22MAY07	30MAY07
Trfr Btch 1 SY-103 Feed from AN-102 to AP-102		
130.T45	18OCT07*	21NOV07
X-Site Trfr Btch 2 SY-103/Feed SY-102 to AN-107		
130.T50	06JUN07*	25JUL07
Trfr Btch 2 SY-103 Feed from AN-107 to AP-104		
130.T55	17DEC07*	25JAN08
Retrieve Waste in AP-101/Receive Feed in AP-102		
130.V10	09APR04*	25MAY04



Sheet 18 of 46

Activity ID	Early start	Early finish
Retrieve Waste in AP-101/Receive Feed in AP-104		
130.V20	14APR04*	25MAY04
Prep AP-101/AW-104 Batch Process Control Plan		
130.V25	02FEB04*	19APR05
Retrieve Waste in AW-104/Receive Feed in AP-102		
130.W10	23APR04*	09JUN04
Retrieve Waste in AW-104/Receive Feed in AP-104		
130.W20	28APR04*	09JUN04
Mix AN-105 Feed in AP-102		
150.B32	02JUL01*	12OCT01
Adjust AN-105 Feed in AP-102		
150.B42	04JUN01*	09OCT01
Deliver AN-105 Feed to AP-106		
150.B44	04JAN02*	11JAN02
TWRS EIS ROD Hold Point 2		
150.B46H	03JUN02*	31MAY02
Mix AN-105 Feed in AP-104		
150.B48	02JUL01*	22OCT01
Adjust AN-105 Feed in AP-104		
150.B58	04JUN01*	17OCT01
Deliver AN-105 Feed to AP-108		
150.B60	15JAN02*	23JAN02
TWRS EIS ROD Hold Point 1		
150.B63H	16NOV98*	13NOV98
Execute Tank Turnover Procedure - PC 2		
150.B68	16NOV98	16NOV98
RL Declares AP-108 Ready - Contractor 2		
150.B70	04JAN01*	02JUL01
Execute Tank Turnover Procedure - PC 1		
150.B78	16NOV98	16NOV98
RL Declares AP-106 Ready - Contractor 1		
150.B80	04JAN01*	02JUL01

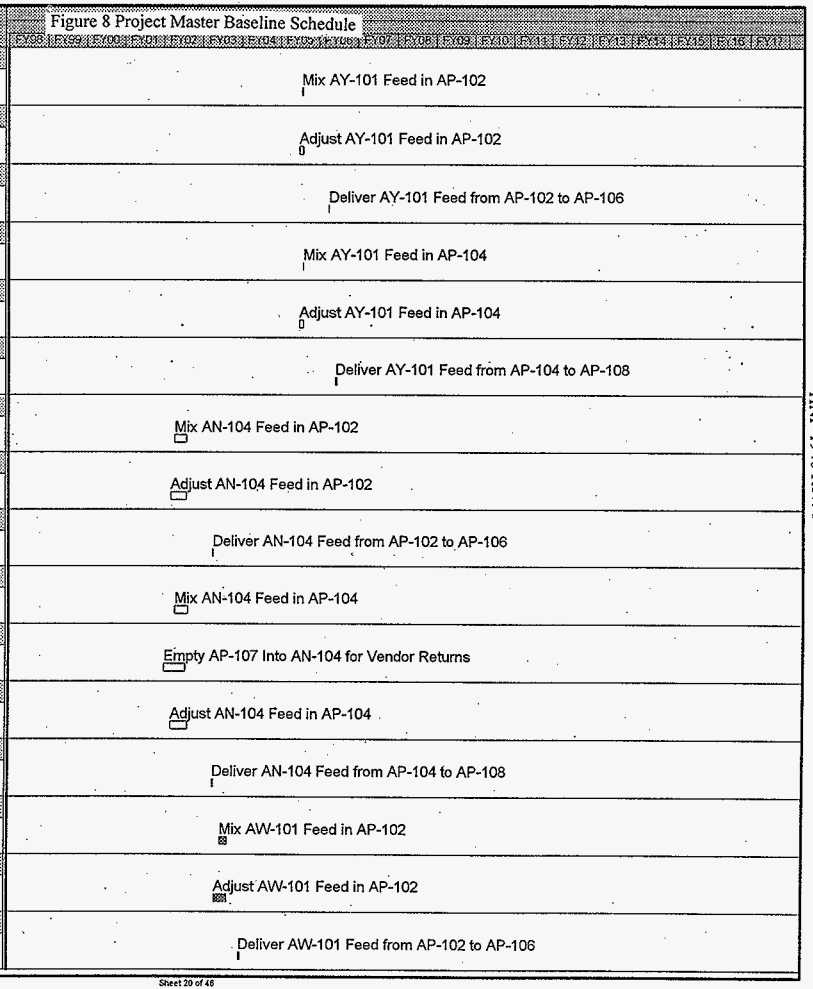
Figure 8 Project Master Baseline Schedule



Sheet 19 of 46

Figure 8 Project Master Baseline Schedule

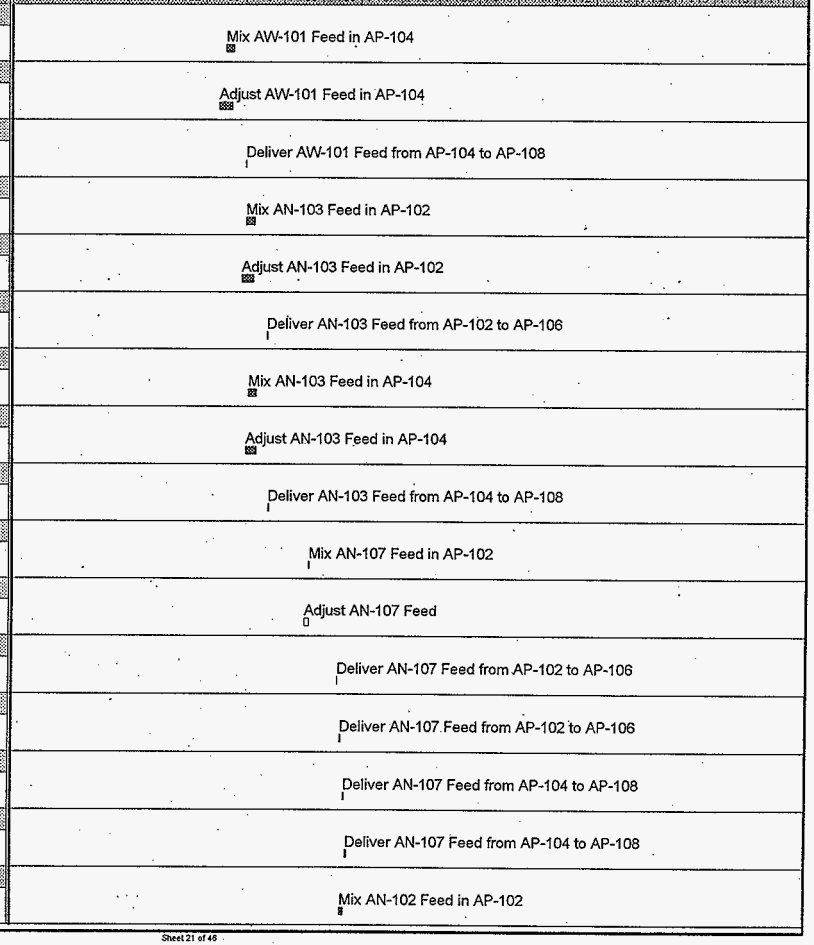
Activity ID	Early start	Early finish
Mix AY-101 Feed in AP-102		
150.C05	25APR05*	06MAY05
Adjust AY-101 Feed in AP-102		
150.C30	23MAR05*	03MAY05
Deliver AY-101 Feed from AP-102 to AP-106		
150.C35	28DEC05*	30DEC05
Mix AY-101 Feed in AP-104		
150.C40	29APR05*	06MAY05
Adjust AY-101 Feed in AP-104		
150.C65	28MAR05*	03MAY05
Deliver AY-101 Feed from AP-104 to AP-108		
150.C70	02MAR06*	10MAR06
Mix AN-104 Feed in AP-102		
150.E05	02JAN02*	01MAY02
Adjust AN-104 Feed in AP-102		
150.E30	03DEC01*	26APR02
Deliver AN-104 Feed from AP-102 to AP-106		
150.E35	31DEC02*	08JAN03
Mix AN-104 Feed in AP-104		
150.E40	02JAN02*	10MAY02
Empty AP-107 Into AN-104 for Vendor Returns		
150.E64	01OCT01*	17APR02
Adjust AN-104 Feed in AP-104		
150.E65	03DEC01*	06MAY02
Deliver AN-104 Feed from AP-104 to AP-108		
150.E70	06JAN03*	13JAN03
Mix AW-101 Feed in AP-102		
150.G05	24MAR03*	30MAY03
Adjust AW-101 Feed in AP-102		
150.G30	03FEB03*	27MAY03
Deliver AW-101 Feed from AP-102 to AP-106		
150.G35	23SEP03	01OCT03



Sheet 20 of 46

Figure 8 Project Master Baseline Schedule

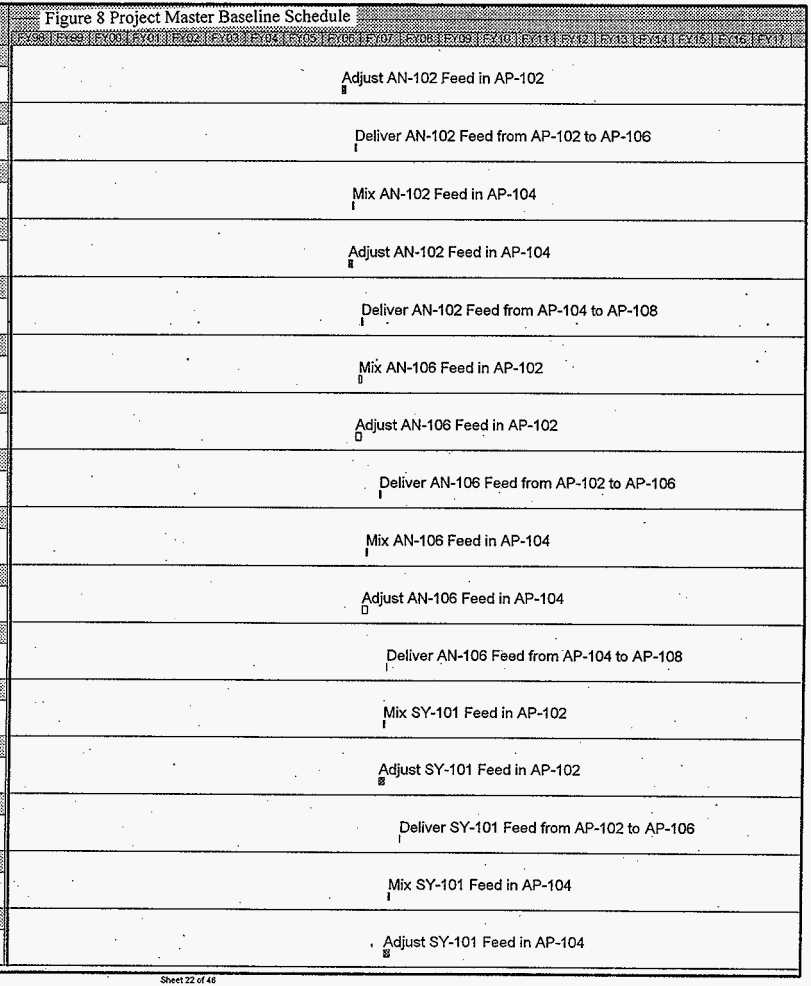
Activity ID	Early start	Early finish
Mix AW-101 Feed in AP-104		
150.G40	01APR03*	10JUN03
Adjust AW-101 Feed in AP-104		
150.G65	03FEB03*	05JUN03
Deliver AW-101 Feed from AP-104 to AP-108		
150.G70	29SEP03	06OCT03
Mix AN-103 Feed in AP-102		
150.J05	01OCT03*	29DEC03
Adjust AN-103 Feed in AP-102		
150.J30	02SEP03*	24DEC03
Deliver AN-103 Feed from AP-102 to AP-106		
150.J35	28APR04	06MAY04
Mix AN-103 Feed in AP-104		
150.J40	03NOV03*	13JAN04
Adjust AN-103 Feed in AP-104		
150.J65	01OCT03*	08JAN04
Deliver AN-103 Feed from AP-104 to AP-108		
150.J70	03MAY04*	11MAY04
Mix AN-107 Feed in AP-102		
150.K05	23MAY05*	01JUN05
Adjust AN-107 Feed		
150.K30	25APR05*	27MAY05
Deliver AN-107 Feed from AP-102 to AP-106		
150.K35	21FEB06*	01MAR06
Deliver AN-107 Feed from AP-102 to AP-106		
150.K37	22MAR06*	30MAR06
Deliver AN-107 Feed from AP-104 to AP-108		
150.K70	01MAY06*	05MAY06
Deliver AN-107 Feed from AP-104 to AP-108		
150.K72	30MAY06*	05JUN06
Mix AN-102 Feed in AP-102		
150.L05	03APR06	12MAY06



Sheet 21 of 46

Figure 8 Project Master Baseline Schedule

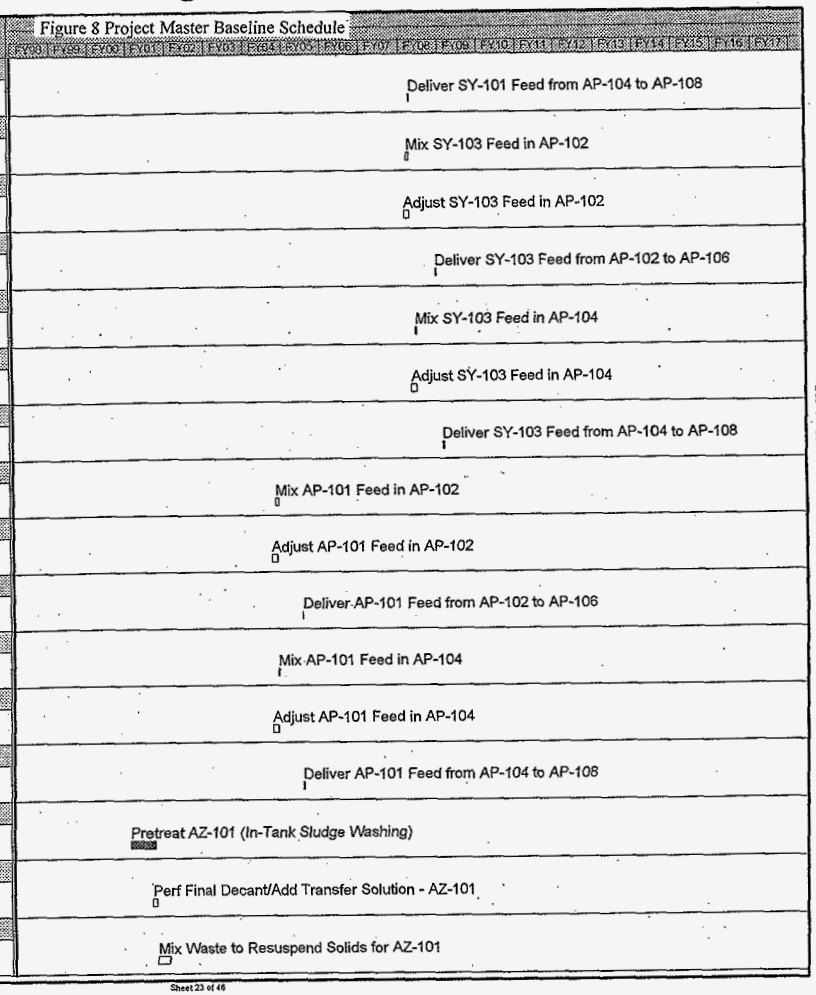
Activity ID	Early start	Early finish
Adjust AN-102 Feed in AP-102		
150.L30	03APR06*	09MAY06
Deliver AN-102 Feed from AP-102 to AP-106		
150.L35	07AUG06*	14AUG06
Mix AN-102 Feed in AP-104		
150.L40	10JUL06*	19JUL06
Adjust AN-102 Feed in AP-104		
150.L65	09JUN06*	14JUL06
Deliver AN-102 Feed from AP-104 to AP-108		
150.L70	12OCT06*	20OCT06
Mix AN-106 Feed in AP-102		
150.M05	15SEP06*	06OCT06
Adjust AN-106 Feed in AP-102		
150.M30	18AUG06*	03OCT06
Deliver AN-106 Feed from AP-102 to AP-106		
150.M35	03APR07*	11APR07
Mix AN-106 Feed in AP-104		
150.M40	27NOV06*	11DEC06
Adjust AN-106 Feed in AP-104		
150.M65	24OCT06*	06DEC06
Deliver AN-106 Feed from AP-104 to AP-108		
150.M70	11JUN07*	15JUN07
Mix SY-101 Feed in AP-102		
150.R05	17MAY07*	05JUN07
Adjust SY-101 Feed in AP-102		
150.R30	16APR07*	31MAY07
Deliver SY-101 Feed from AP-102 to AP-106		
150.R35	29OCT07*	02NOV07
Mix SY-101 Feed in AP-104		
150.R40	23JUL07*	07AUG07
Adjust SY-101 Feed in AP-104		
150.R65	21JUN07*	02AUG07



Sheet 22 of 46

Figure 8 Project Master Baseline Schedule

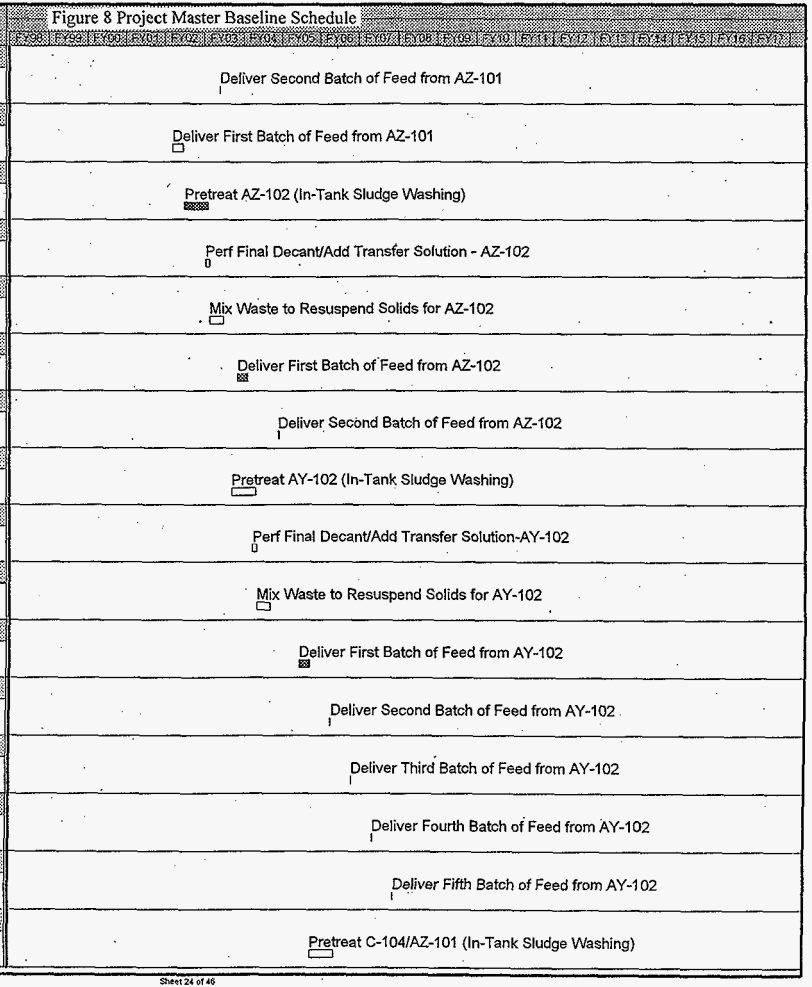
Activity ID	Early start	Early finish
Deliver SY-101 Feed from AP-104 to AP-108		
150.R70	02JAN08*	10JAN08
Mix SY-103 Feed in AP-102		
150.T05	10DEC07*	31DEC07
Adjust SY-103 Feed in AP-102		
150.T30	08NOV07*	27DEC07
Deliver SY-103 Feed from AP-102 to AP-106		
150.T35	28AUG08*	05SEP08
Mix SY-103 Feed in AP-104		
150.T40	19FEB08*	03MAR08
Adjust SY-103 Feed in AP-104		
150.T65	14JAN08*	27FEB08
Deliver SY-103 Feed from AP-104 to AP-108		
150.T70	03NOV08*	11NOV08
Mix AP-101 Feed in AP-102		
150.V05	08JUL04*	26JUL04
Adjust AP-101 Feed in AP-102		
150.V30	28MAY04*	19JUL04
Deliver AP-101 Feed from AP-102 to AP-106		
150.V35	11MAR05*	18MAR05
Mix AP-101 Feed in AP-104		
150.V40	13JUL04*	26JUL04
Adjust AP-101 Feed in AP-104		
150.V65	03JUN04*	19JUL04
Deliver AP-101 Feed from AP-104 to AP-108		
150.V70	16MAR05	24MAR05
Pretreat AZ-101 (In-Tank Sludge Washing)		
160.A52	05OCT00*	18MAY01
Perf Final Decant/Add Transfer Solution - AZ-101		
160.A62	16APR01*	25MAY01
Mix Waste to Resuspend Solids for AZ-101		
160.A64	29MAY01	17SEP01



Sheet 23 of 46

Figure 8 Project Master Baseline Schedule

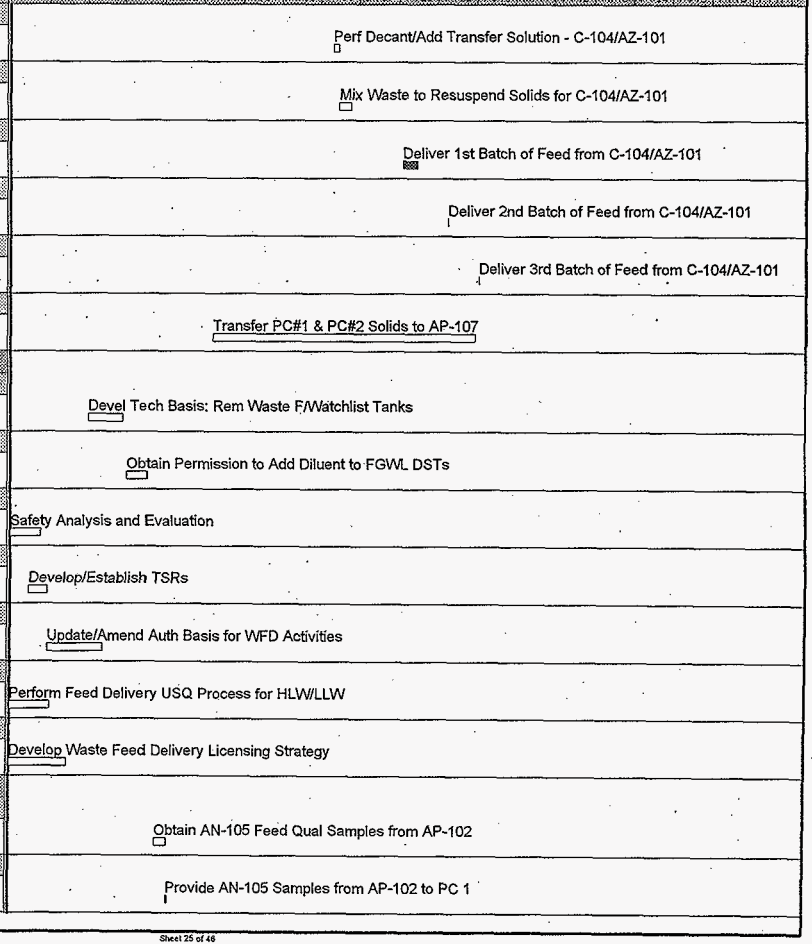
Activity ID	Early start	Early finish
Deliver Second Batch of Feed from AZ-101		
160.A72	18FEB03*	19FEB03
Deliver First Batch of Feed from AZ-101		
160.A78	03DEC01*	08MAR02
Pretreat AZ-102 (In-Tank Sludge Washing)		
160.F65	26MAR02*	06NOV02
Perf Final Decant/Add Transfer Solution - AZ-102		
160.F70	04OCT02*	15NOV02
Mix Waste to Resuspend Solids for AZ-102		
160.F75	18NOV02	14MAR03
Deliver First Batch of Feed from AZ-102		
160.F95	04AUG03*	10NOV03
Deliver Second Batch of Feed from AZ-102		
160.F99	30AUG04	31AUG04
Pretreat AY-102 (In-Tank Sludge Washing)		
160.H27	18JUN03*	29JAN04
Perf Final Decant/Add Transfer Solution-AY-102		
160.H45	29DEC03*	06FEB04
Mix Waste to Resuspend Solids for AY-102		
160.H47	09FEB04	07JUN04
Deliver First Batch of Feed from AY-102		
160.H75	07MAR05*	22JUN05
Deliver Second Batch of Feed from AY-102		
160.H80	09JAN06	06JAN06
Deliver Third Batch of Feed from AY-102		
160.H85	26JUL06	27JUL06
Deliver Fourth Batch of Feed from AY-102		
160.H90	12FEB07	12FEB07
Deliver Fifth Batch of Feed from AY-102		
160.H95	30AUG07	31AUG07
Pretreat C-104/AZ-101 (In-Tank Sludge Washing)		
160.J65	15JUL05*	24FEB06



Sheet 24 of 46

Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
Perf Decant/Add Transfer Solution - C-104/AZ-101		
160.J70	24JAN06*	08MAR06
Mix Waste to Resuspend Solids for C-104/AZ-101		
160.J75	09MAR06	06JUL06
Deliver 1st Batch of Feed from C-104/AZ-101		
160.J95	05NOV07	18MAR08
Deliver 2nd Batch of Feed from C-104/AZ-101		
160.J97	29DEC08*	24DEC08
Deliver 3rd Batch of Feed from C-104/AZ-101		
160.J99	08OCT09*	09OCT09
Transfer PC#1 & PC#2 Solids to AP-107		
350.X05	09DEC02*	02SEP09
11310113 PH 1 RETRIEVAL SAFETY BASIS		
Devel Tech Basis: Rem Waste F/Watchlist Tanks		
130.B17	01OCT99*	25AUG00
Obtain Permission to Add Diluent to FGWL DSTs		
130.B20	02OCT00*	02APR01
Safety Analysis and Evaluation		
150.B10	01OCT97	08JUL98
Develop/Establish TSRs		
150.B14	16MAR98	15SEP98
Update/Amend Auth Basis for WFD Activities		
150.B16	16SEP98	16FEB00
Perform Feed Delivery USQ Process for HLW/LLW		
620.030	01OCT97	30SEP98
Develop Waste Feed Delivery Licensing Strategy		
620.050	01OCT97	18MAR99
11310114 PH 1 RETR OPS (CHARACTERIZATION)		
Obtain AN-105 Feed Qual Samples from AP-102		
150.B34	28JUN01*	19OCT01
Provide AN-105 Samples from AP-102 to PC 1		
150.B36	22OCT01*	30OCT01



Sheet 25 of 46

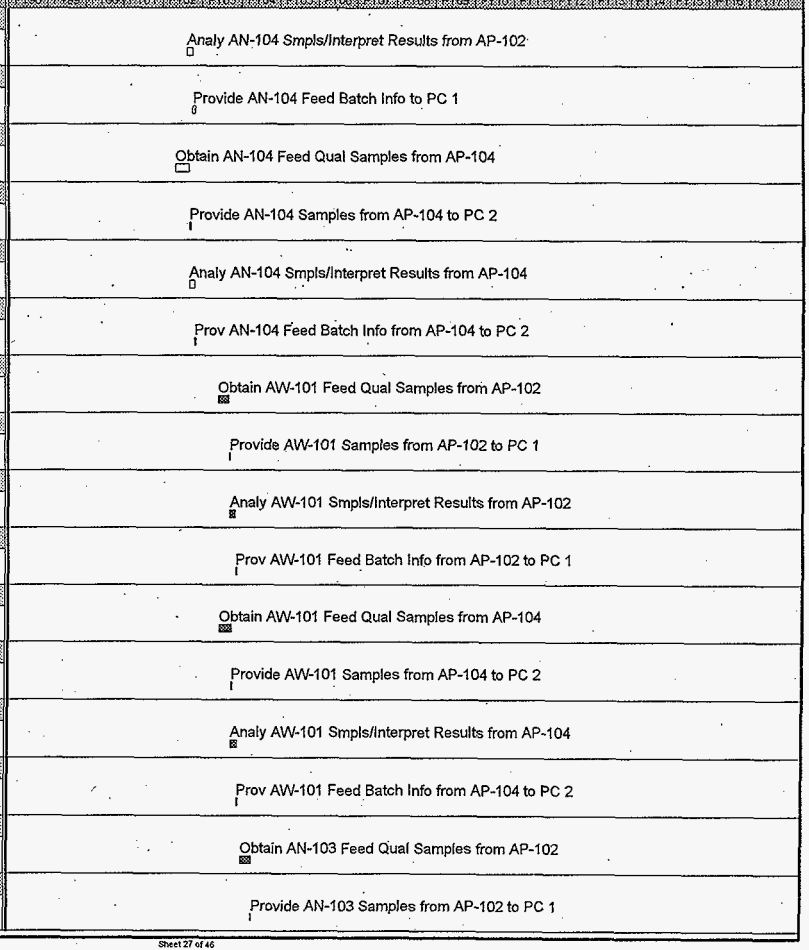
Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish	
Analy AN-105 Smpls/Interpret Results from AP-102			
150.B38	22OCT01*	13DEC01	Analy AN-105 Smpls/Interpret Results from AP-102
Prov AN-105 Feed Batch Info from AP-102 to PC 1			
150.B40	14DEC01*	03JAN02	Prov AN-105 Feed Batch Info from AP-102 to PC 1
Obtain AN-105 Feed Qual Samples from AP-104			
150.B50	11JUL01*	29OCT01	Obtain AN-105 Feed Qual Samples from AP-104
Provide AN-105 Samples from AP-104 to PC 2			
150.B52	30OCT01*	07NOV01	Provide AN-105 Samples from AP-104 to PC 2
Analy AN-105 Smpls/Interpret Results from AP-104			
150.B54	30OCT01*	27DEC01	Analy AN-105 Smpls/Interpret Results from AP-104
Provide AN-105 Feed Batch Info to PC 2			
150.B56	28DEC01*	14JAN02	Provide AN-105 Feed Batch Info to PC 2
Obtain AY-101 Feed Qual Samples from AP-102			
150.C10	15APR05*	23MAY05	Obtain AY-101 Feed Qual Samples from AP-102
Provide AY-101 Samples from AP-102 to PC 1			
150.C15	24MAY05*	02JUN05	Provide AY-101 Samples from AP-102 to PC 1
Analy AY-101 Smpls/Interpret Results from AP-102			
150.C20	24MAY05*	18JUL05	Analy AY-101 Smpls/Interpret Results from AP-102
Provide AY-101 Feed Batch Info to PC 1			
150.C25	19JUL05	02AUG05	Provide AY-101 Feed Batch Info to PC 1
Obtain AY-101 Feed Qual Samples from AP-104			
150.C45	21APR05*	27MAY05	Obtain AY-101 Feed Qual Samples from AP-104
Provide AY-101 Samples from AP-104 to PC 2			
150.C50	31MAY05*	08JUN05	Provide AY-101 Samples from AP-104 to PC 2
Analy AY-101 Smpls/Interpret Results from AP-104			
150.C55	31MAY05*	21JUL05	Analy AY-101 Smpls/Interpret Results from AP-104
Prov AY-101 Feed Batch Info from AP-104 to PC 2			
150.C60	22JUL05	05AUG05	Prov AY-101 Feed Batch Info from AP-104 to PC 2
Obtain AN-104 Feed Qual Samples from AP-102			
150.E10	28DEC01*	08MAY02	Obtain AN-104 Feed Qual Samples from AP-102
Provide AN-104 Samples from AP-102 to PC 1			
150.E15	09MAY02*	17MAY02	Provide AN-104 Samples from AP-102 to PC 1

Sheet 26 of 46

Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
Analy AN-104 Smpls/Interpret Results from AP-102		
150.E20	09MAY02*	01JUL02
Provide AN-104 Feed Batch Info to PC 1		
150.E25	02JUL02*	18JUL02
Obtain AN-104 Feed Qual Samples from AP-104		
150.E45	24JAN02*	17MAY02
Provide AN-104 Samples from AP-104 to PC 2		
150.E50	20MAY02*	29MAY02
Analy AN-104 Smpls/Interpret Results from AP-104		
150.E55	20MAY02*	11JUL02
Prov AN-104 Feed Batch Info from AP-104 to PC 2		
150.E60	12JUL02*	26JUL02
Obtain AW-101 Feed Qual Samples from AP-102		
150.G10	27FEB03*	06JUN03
Provide AW-101 Samples from AP-102 to PC 1		
150.G15	09JUN03*	17JUN03
Analy AW-101 Smpls/Interpret Results from AP-102		
150.G20	09JUN03*	31JUL03
Prov AW-101 Feed Batch Info from AP-102 to PC 1		
150.G25	01AUG03*	15AUG03
Obtain AW-101 Feed Qual Samples from AP-104		
150.G45	03MAR03*	01JUL03
Provide AW-101 Samples from AP-104 to PC 2		
150.G50	02JUL03*	14JUL03
Analy AW-101 Smpls/Interpret Results from AP-104		
150.G55	02JUL03*	22AUG03
Prov AW-101 Feed Batch Info from AP-104 to PC 2		
150.G60	25AUG03	09SEP03
Obtain AN-103 Feed Qual Samples from AP-102		
150.J10	29SEP03*	06JAN04
Provide AN-103 Samples from AP-102 to PC 1		
150.J15	07JAN04*	15JAN04



Sheet 27 of 46

Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish	
Analy AN-103 Smpls/Interpret Results from AP-102			
150.J20	07JAN04*	01MAR04	Analy AN-103 Smpls/Interpret Results from AP-102
Provide AN-103 Feed Batch Info to PC 1			
150.J25	02MAR04	16MAR04	Provide AN-103 Feed Batch Info to PC 1
Obtain AN-103 Feed Qual Samples from AP-104			
150.J45	02OCT03*	20JAN04	Obtain AN-103 Feed Qual Samples from AP-104
Provide AN-103 Samples from AP-104 to PC 2			
150.J50	21JAN04*	29JAN04	Provide AN-103 Samples from AP-104 to PC 2
Analy AN-103 Smpls/Interpret Results from AP-104			
150.J55	21JAN04*	15MAR04	Analy AN-103 Smpls/Interpret Results from AP-104
Prov AN-103 Feed Batch Info from AP-104 to PC 2			
150.J60	16MAR04	30MAR04	Prov AN-103 Feed Batch Info from AP-104 to PC 2
Obtain AN-107 Feed Qual Samples from AP-102			
150.K10	16MAY05*	22JUN05	Obtain AN-107 Feed Qual Samples from AP-102
Provide AN-107 Samples from AP-102 to PC 1			
150.K15	23JUN05*	01JUL05	Provide AN-107 Samples from AP-102 to PC 1
Analy AN-107 Smpls/Interpret Results from AP-102			
150.K20	23JUN05*	15AUG05	Analy AN-107 Smpls/Interpret Results from AP-102
Prov AN-107 Feed Batch Info from AP-102 to PC 1			
150.K25	16AUG05	30AUG05	Prov AN-107 Feed Batch Info from AP-102 to PC 1
Obtain AN-102 Feed Qual Samples from AP-102			
150.L10	30MAR06*	19MAY06	Obtain AN-102 Feed Qual Samples from AP-102
Provide AN-102 Samples from AP-102 to PC 1			
150.L15	22MAY06*	31MAY06	Provide AN-102 Samples from AP-102 to PC 1
Analy AN-102 Smpls/Interpret Results from AP-102			
150.L20	22MAY06*	13JUL06	Analy AN-102 Smpls/Interpret Results from AP-102
Prov AN-102 Feed Batch Info from AP-102 to PC 1			
150.L25	14JUL06	28JUL06	Prov AN-102 Feed Batch Info from AP-102 to PC 1
Obtain AN-102 Feed Qual Samples from AP-104			
150.L45	02JUN06*	26JUL06	Obtain AN-102 Feed Qual Samples from AP-104
Provide AN-102 Samples from AP-104 to PC 2			
150.L50	27JUL06*	04AUG06	Provide AN-102 Samples from AP-104 to PC 2

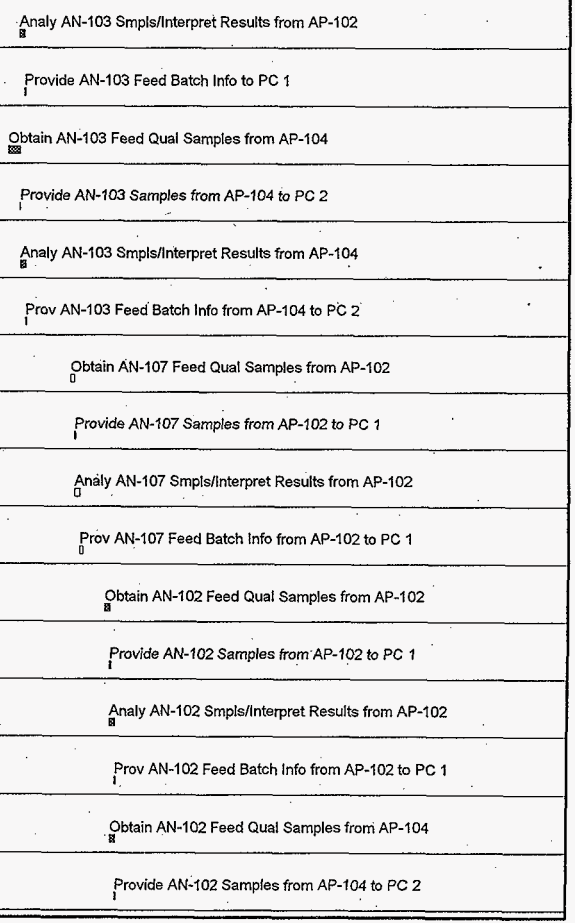


Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish	Activity
Analy AN-102 Smpls/Interpret Results from AP-104			
150.L55	27JUL06*	19SEP06	Analy AN-102 Smpls/Interpret Results from AP-104
Provi AN-102 Feed Batch Info from AP-104 to PC 2			
150.L60	20SEP06	04OCT06	Provi AN-102 Feed Batch Info from AP-104 to PC 2
Obtain AN-106 Feed Qual Samples from AP-102			
150.M10	11SEP06*	17OCT06	Obtain AN-106 Feed Qual Samples from AP-102
Provide AN-106 Samples from AP-102 to PC 1			
150.M15	18OCT06*	26OCT06	Provide AN-106 Samples from AP-102 to PC 1
Analy AN-106 Smpls/Interpret Results from AP-102			
150.M20	18OCT06*	12DEC06	Analy AN-106 Smpls/Interpret Results from AP-102
Prov AN-106 Feed Batch Info from AP-102 to PC 1			
150.M25	13DEC06	29DEC06	Prov AN-106 Feed Batch Info from AP-102 to PC 1
Obtain AN-106 Feed Qual Samples from AP-104			
150.M45	17NOV06*	29DEC06	Obtain AN-106 Feed Qual Samples from AP-104
Provide AN-106 Samples from AP-104 to PC 2			
150.M50	02JAN07*	10JAN07	Provide AN-106 Samples from AP-104 to PC 2
Analy AN-106 Smpls/Interpret Results from AP-104			
150.M55	02JAN07*	21FEB07	Analy AN-106 Smpls/Interpret Results from AP-104
Prov AN-106 Feed Batch Info from AP-104 to PC 2			
150.M60	22FEB07	08MAR07	Prov AN-106 Feed Batch Info from AP-104 to PC 2
Obtain SY-101 Feed Qual Samples from AP-102			
150.R10	10MAY07*	18JUN07	Obtain SY-101 Feed Qual Samples from AP-102
Provide SY-101 Samples from AP-102 to PC 1			
150.R15	19JUN07*	27JUN07	Provide SY-101 Samples from AP-102 to PC 1
Analy SY-101 Smpls/Interpret Results from AP-102			
150.R20	19JUN07*	09AUG07	Analy SY-101 Smpls/Interpret Results from AP-102
Prov SY-101 Feed Batch Info from AP-102 to PC 1			
150.R25	10AUG07	24AUG07	Prov SY-101 Feed Batch Info from AP-102 to PC 1
Obtain SY-101 Feed Qual Samples from AP-104			
150.R45	13JUL07*	20AUG07	Obtain SY-101 Feed Qual Samples from AP-104
Provide SY-101 Samples from AP-104 to PC 2			
150.R50	21AUG07*	29AUG07	Provide SY-101 Samples from AP-104 to PC 2

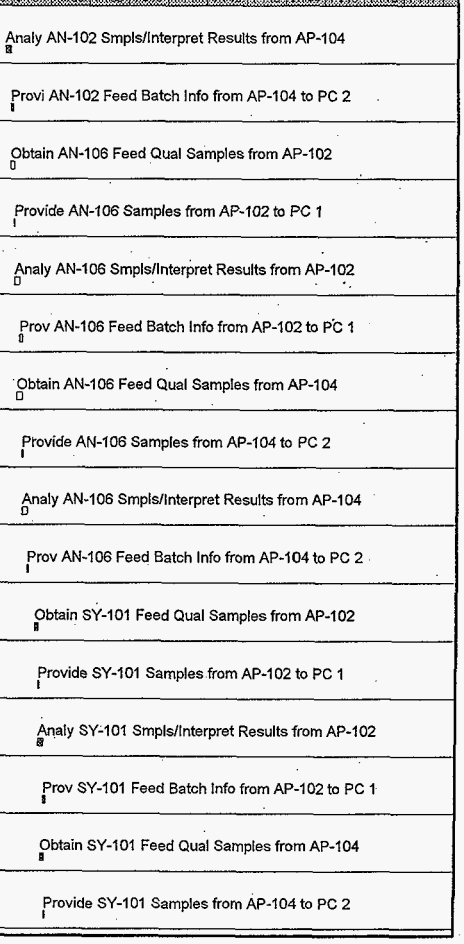
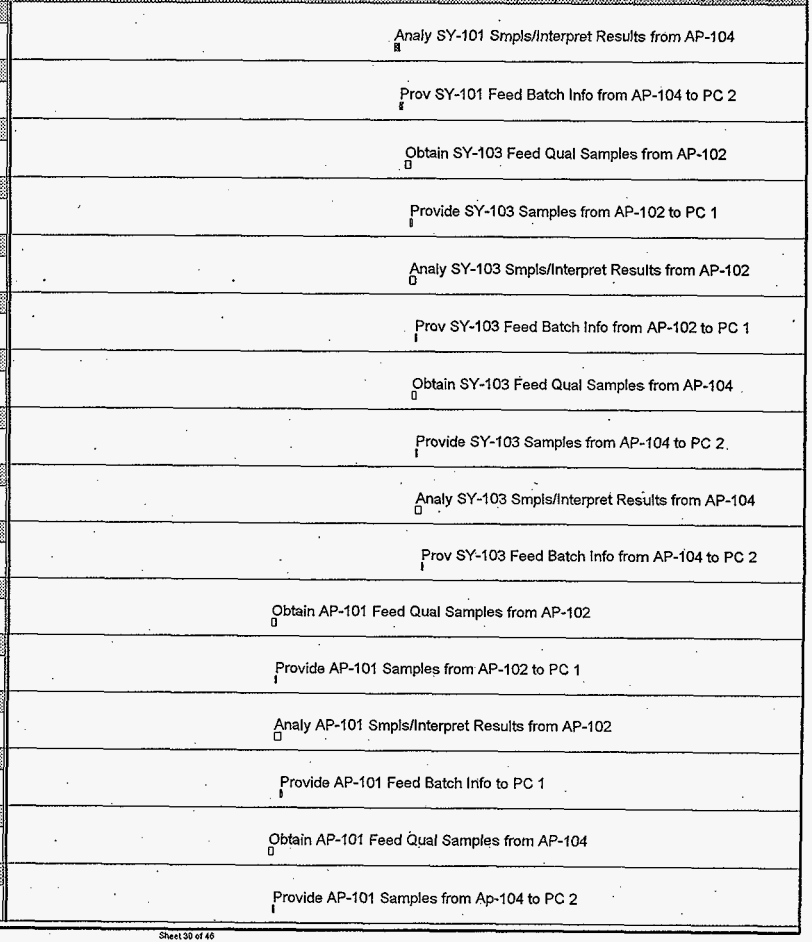


Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
Analy SY-101 Smpls/Interpret Results from AP-104		
150.R55	21AUG07*	11OCT07
Prov SY-101 Feed Batch Info from AP-104 to PC 2		
150.R60	12OCT07	26OCT07
Obtain SY-103 Feed Qual Samples from AP-102		
150.T10	30NOV07*	11JAN08
Provide SY-103 Samples from AP-102 to PC 1		
150.T15	14JAN08*	22JAN08
Analy SY-103 Smpls/Interpret Results from AP-102		
150.T20	14JAN08*	05MAR08
Prov SY-103 Feed Batch Info from AP-102 to PC 1		
150.T25	06MAR08	20MAR08
Obtain SY-103 Feed Qual Samples from AP-104		
150.T45	07FEB08*	17MAR08
Provide SY-103 Samples from AP-104 to PC 2		
150.T50	18MAR08*	26MAR08
Analy SY-103 Smpls/Interpret Results from AP-104		
150.T55	18MAR08*	08MAY08
Prov SY-103 Feed Batch Info from AP-104 to PC 2		
150.T60	09MAY08	23MAY08
Obtain AP-101 Feed Qual Samples from AP-102		
150.V10	02JUL04*	11AUG04
Provide AP-101 Samples from AP-102 to PC 1		
150.V15	12AUG04*	20AUG04
Analy AP-101 Smpls/Interpret Results from AP-102		
150.V20	12AUG04*	13OCT04
Provide AP-101 Feed Batch Info to PC 1		
150.V25	14OCT04	28OCT04
Obtain AP-101 Feed Qual Samples from AP-104		
150.V45	09JUL04*	16AUG04
Provide AP-101 Samples from Ap-104 to PC 2		
150.V50	17AUG04*	25AUG04



Sheet 30 of 46

Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
Analy AP-101 Smpls/Interpret Results from AP-104		
150.V55	17AUG04	18OCT04
Prov AP-101 Feed Batch Info From Ap-104 to PC 2		
150.V60	19OCT04	02NOV04
Obtain HLW Feed Qual Grab Samples AZ-101 Solids		
160.A66	02APR01*	08JUN01
Eval Samples/Establish MT for AZ-101		
160.A68	11JUN01*	01AUG01
Provide Separate Samples to the PC - AZ-101		
160.A74	11JUN01*	22JUN01
Prov MT Non-Volatile Oxides Exclude Na/Si-AZ-101		
160.A76	02AUG01	16AUG01
Obtain HLW Feed Qual Grab Samples AZ-102 Solids		
160.F50	03SEP02*	02DEC02
Eval Smpls/Estab MTof Non-Volatile for AZ-102		
160.F55	03DEC02*	27JAN03
Provide Separate Samples to Private Contractor		
160.F85	03DEC02*	16DEC02
Provide MT Non-Volatile Oxides Excluding Na/Si		
160.F90	28JAN03*	11FEB03
Confirm that AY-102 Is Acceptable for Feed to PC		
160.H25	02OCT00*	30NOV00
Obtain HLW Feed Qual Grab Samples AY-102 Solids		
160.H50	01DEC03*	23FEB04
Eval Smpls/Estab MT of Non-Volatile for AY-102		
160.H55	24FEB04*	15APR04
PC Conduct Waste Form Qual/Confirmation-AY-102		
160.H60	09MAR04	12NOV04
Provide MT Non-Volatile Oxides Excluding Na/Si		
160.H65	16APR04	30APR04
Provide Separate Samples to PC - AY-102		
160.H70	24FEB04*	08MAR04

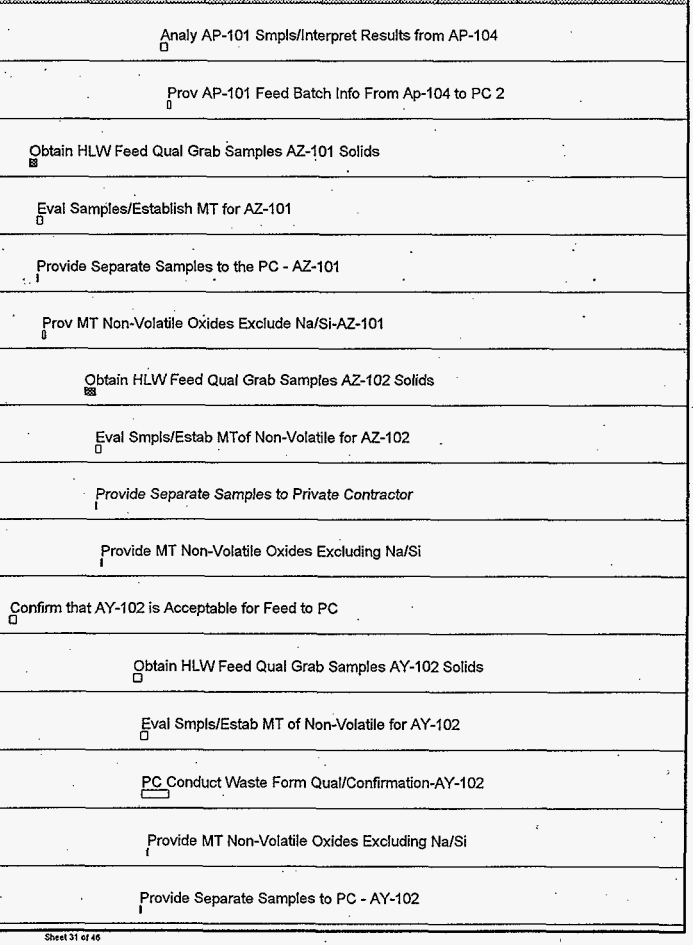
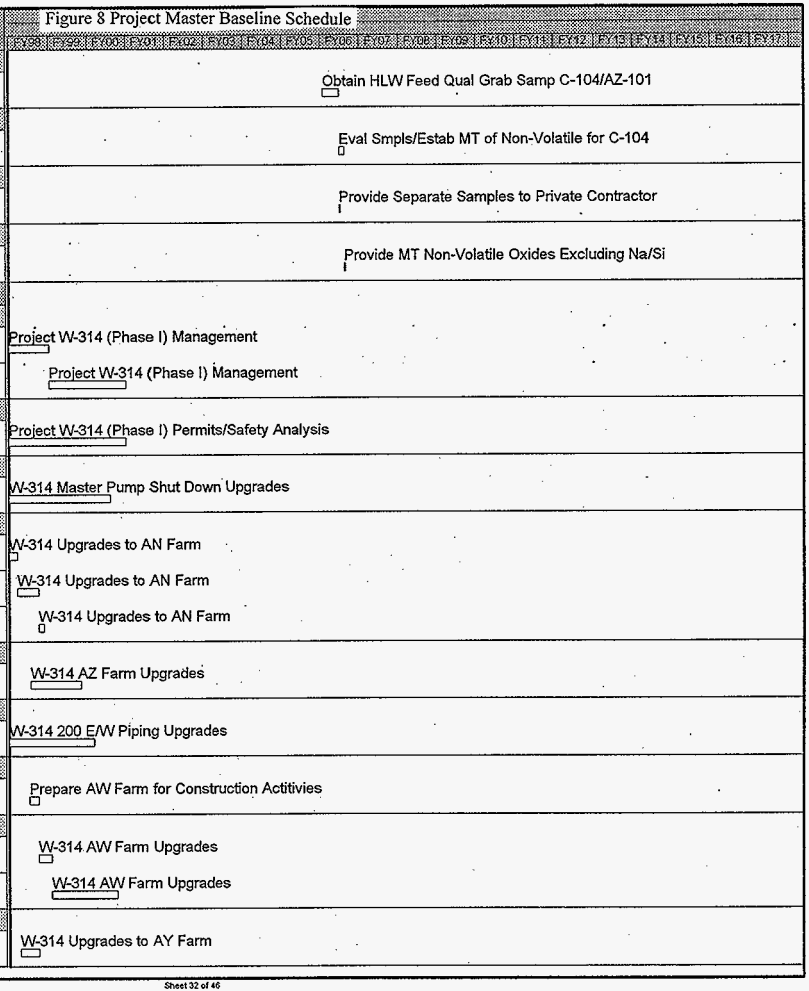


Figure 8 Project Master Baseline Schedule

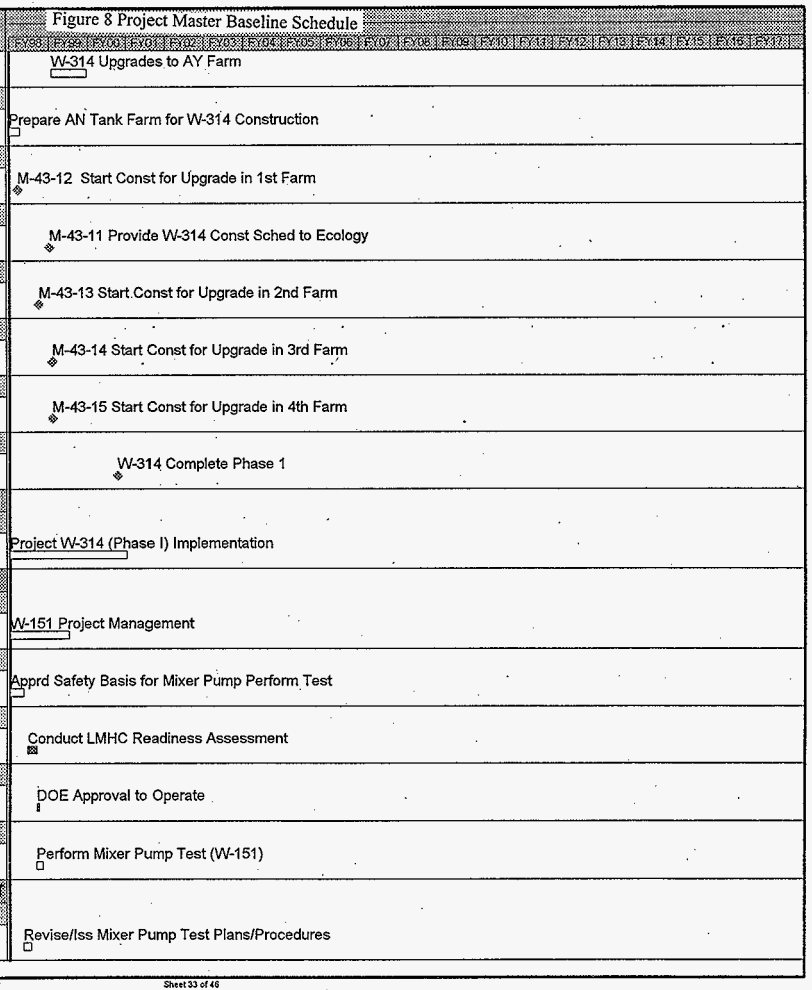
Activity ID	Early start	Early finish
Obtain HLW Feed Qual Grab Samp C-104/AZ-101		
160.J50	24OCT05*	20MAR06
Eval Smpls/Estab MT of Non-Volatile for C-104		
160.J55	21MAR06	11MAY06
Provide Separate Samples to Private Contractor		
160.J85	21MAR06*	03APR06
Provide MT Non-Volatile Oxides Excluding Na/Si		
160.J90	12MAY06*	26MAY06
1131012C W-314 PH 1 REST/SAFE OPS (L)		
Project W-314 (Phase I) Management		
250.110	01OCT97	30SEP98
250.110A	01OCT98	02OCT00
Project W-314 (Phase I) Permits/Safety Analysis		
250.120	01OCT97	29SEP00
W-314 Master Pump Shut Down Upgrades		
250.4A0	01OCT97	26APR00
W-314 Upgrades to AN Farm		
250.4C0	01OCT97	10DEC97
250.4C0A	11DEC97	24JUN98
250.4C0B	25JUN98	14AUG98
W-314 AZ Farm Upgrades		
250.4D0	15APR98*	26JUL99
W-314 200 E/W Piping Upgrades		
250.4E0	01OCT97	06DEC99
Prepare AW Farm for Construction Actitivies		
250.4E5	01APR98*	01JUL98
W-314 AW Farm Upgrades		
250.4F0	25JUN98*	02NOV98
250.4F0A	03NOV98	30JUN00
W-314 Upgrades to AY Farm		
250.4G0	02JAN98*	24JUN98



Sheet 32 of 46

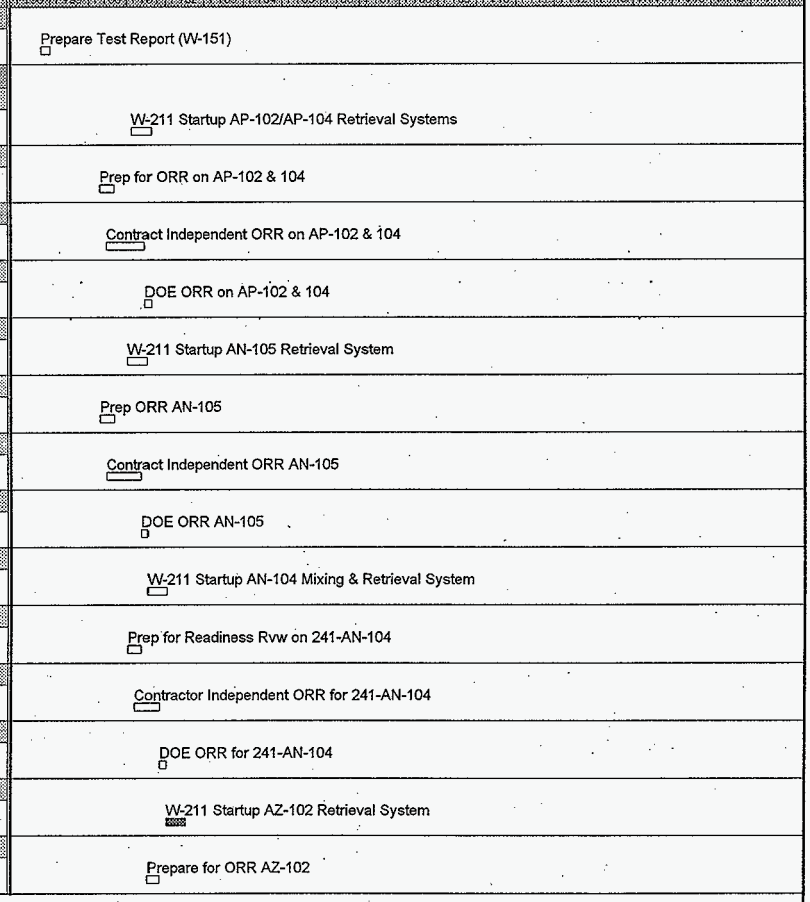
Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
250.4G0A	27OCT98	20SEP99
Prepare AN Tank Farm for W-314 Construction		
250.C01	01OCT97	06JAN98
M-43-12 Start Const for Upgrade in 1st Farm		
250.T01	11DEC97*	
M-43-11 Provide W-314 Const Sched to Ecology		
250.T011		30SEP98*
M-43-13 Start Const for Upgrade in 2nd Farm		
250.T013	25JUN98*	
M-43-14 Start Const for Upgrade in 3rd Farm		
250.T014	27OCT98*	
M-43-15 Start Const for Upgrade in 4th Farm		
250.T015	03NOV98*	
W-314 Complete Phase 1		
250.TA		30JUN00*
1131I0140 W-314 PH 1 REST/SAFE OPS (E)		
Project W-314 (Phase I) Implementation		
250.130	01OCT97	29SEP00
1131I014E PROJECT W-151 101-AZ RETRIEVAL (L)		
W-151 Project Management		
110.010	01OCT97	30MAR99
Apprd Safety Basis for Mixer Pump Perform Test		
110.030	01OCT97	23JAN98
Conduct LMHC Readiness Assessment		
110.050	09MAR98*	29MAY98
DOE Approval to Operate		
110.060	01JUN98	29JUN98
Perform Mixer Pump Test (W-151)		
110.070	05JUN98	07AUG98
1131I014P PROJECT W-151 101-AZ PROCESS TEST		
Revise/Iss Mixer Pump Test Plans/Procedures		
110.045	26JAN98	16APR98



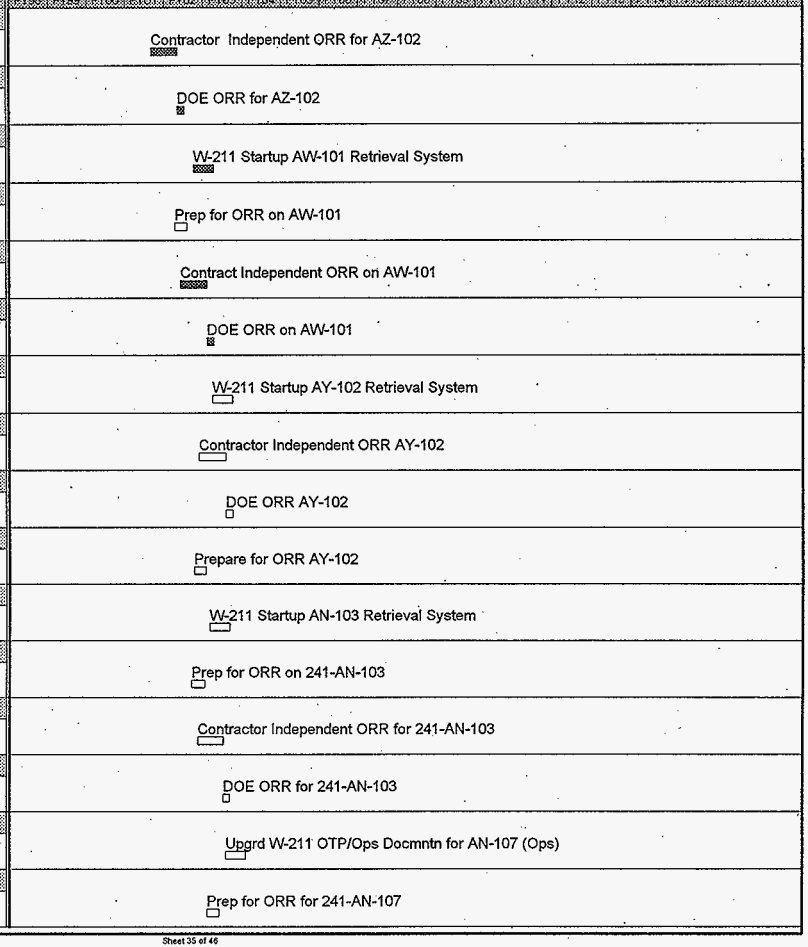
Activity ID	Early start	Early finish
Prepare Test Report (W-151)		
110.090	15JUL98	30SEP98
1131015F W-211 INITIAL TANK RET SYSTEMS (E)		
W-211 Startup AP-102/AP-104 Retrieval Systems		
120.B50	08NOV00	09MAY01
Prep for ORR on AP-102 & 104		
120.B58	13JAN00	25MAY00
Contract Independent ORR on AP-102 & 104		
120.B60	10MAR00	12MAR01
DOE ORR on AP-102 & 104		
120.B65	13MAR01	09MAY01
W-211 Startup AN-105 Retrieval System		
120.D80	02OCT00	02APR01
Prep ORR AN-105		
120.D88	13JAN00	25MAY00
Contract Independent ORR AN-105		
120.D90	10MAR00*	31JAN01
DOE ORR AN-105		
120.D95	01FEB01	02APR01
W-211 Startup AN-104 Mixing & Retrieval System		
120.E60	04APR01	01OCT01
Prep for Readiness Rvw on 241-AN-104		
120.E68	04OCT00	05FEB01
Contractor Independent ORR for 241-AN-104		
120.E70	01DEC00	31JUL01
DOE ORR for 241-AN-104		
120.E75	01AUG01	28SEP01
W-211 Startup AZ-102 Retrieval System		
120.F60	28SEP01	01APR02
Prepare for ORR AZ-102		
120.F68	03APR01	31JUL01

Figure 8 Project Master Baseline Schedule



Activity ID	Early start	Early finish
Contractor Independent ORR for AZ-102		
120.F80	30MAY01	30JAN02
DOE ORR for AZ-102		
120.F90	31JAN02	01APR02
W-211 Startup AW-101 Retrieval System		
120.G60	01JUL02	31DEC02
Prep for ORR on AW-101		
120.G68	02JAN02	30APR02
Contract Independent ORR on AW-101		
120.G70	28FEB02	28OCT02
DOE ORR on AW-101		
120.G75	29OCT02	31DEC02
W-211 Startup AY-102 Retrieval System		
120.H30	26DEC02	24JUN03
Contractor Independent ORR AY-102		
120.H50	23AUG02	23APR03
DOE ORR AY-102		
120.H60	24APR03	23JUN03
Prepare for ORR AY-102		
120.H68	26JUN02	24OCT02
W-211 Startup AN-103 Retrieval System		
120.J60	02DEC02	30MAY03
Prep for ORR on 241-AN-103		
120.J68	03JUN02	01OCT02
Contractor Independent ORR for 241-AN-103		
120.J70	31JUL02	01APR03
DOE ORR for 241-AN-103		
120.J75	02APR03	30MAY03
Upgrd W-211 OTP/Ops Docmntn for AN-107 (Ops)		
120.K60	01MAY03	31OCT03
Prep for ORR for 241-AN-107		
120.K68	01NOV02	21FEB03

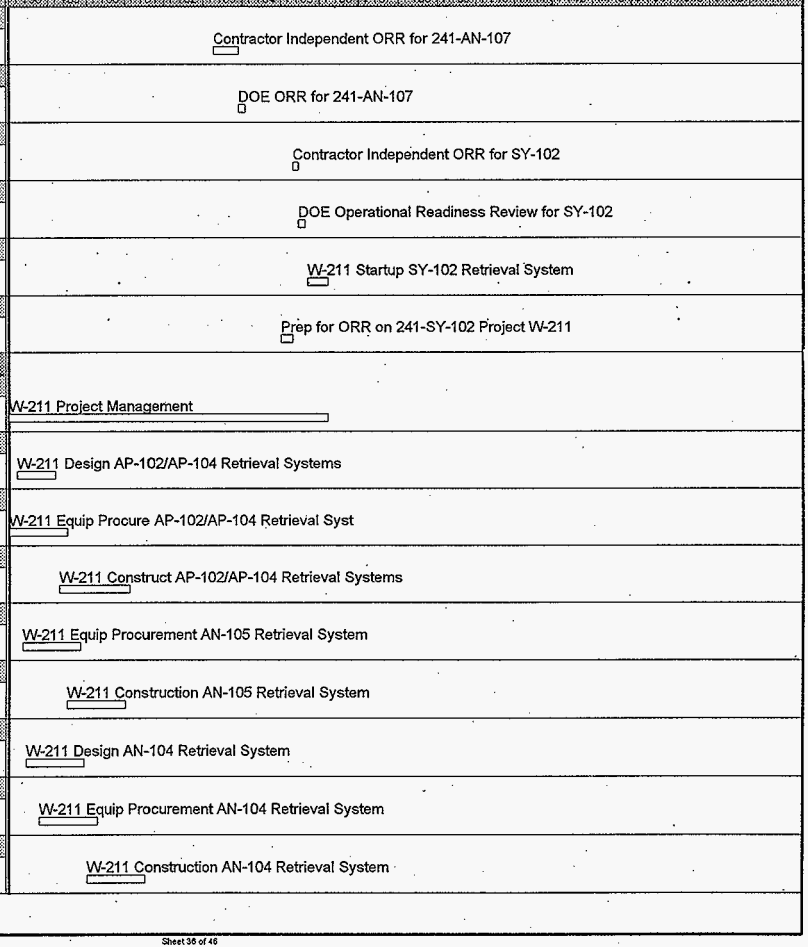
Figure 8 Project Master Baseline Schedule



Sheet 35 of 46

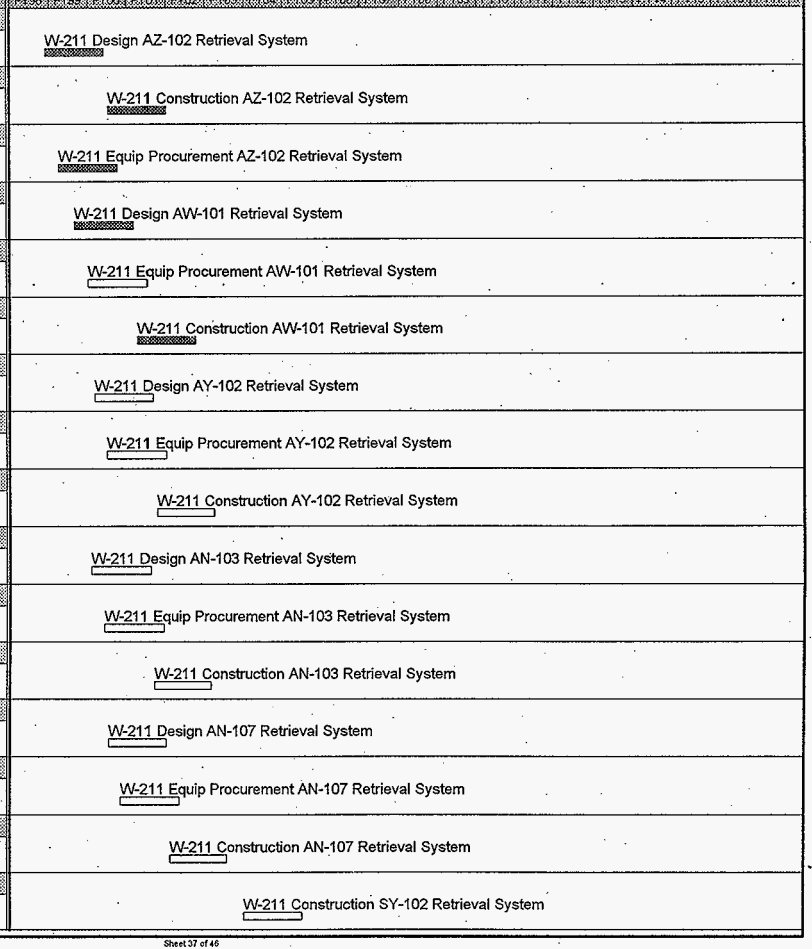
Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
Contractor Independent ORR for 241-AN-107		
120.K70	03JAN03	28AUG03
DOE ORR for 241-AN-107		
120.K75	29AUG03	28OCT03
Contractor Independent ORR for SY-102		
120.P22	20JAN05	10MAR05
DOE Operational Readiness Review for SY-102		
120.P25	11MAR05	09MAY05
W-211 Startup SY-102 Retrieval System		
120.P70	08JUN05*	08DEC05
Prep for ORR on 241-SY-102 Project W-211		
120.P90	30SEP04	19JAN05
1131015L W-211 INITIAL TANK RET SYSTEMS (L)		
W-211 Project Management		
120.A00	01OCT97	08DEC05
W-211 Design AP-102/AP-104 Retrieval Systems		
120.B35	09DEC97*	08DEC98
W-211 Equip Procure AP-102/AP-104 Retrieval Syst		
120.B42	01OCT97	31MAR99
W-211 Construct AP-102/AP-104 Retrieval Systems		
120.B45	13JAN99	07NOV00
W-211 Equip Procurement AN-105 Retrieval System		
120.D72	02FEB98*	30JUL99
W-211 Construction AN-105 Retrieval System		
120.D75	29MAR99	29SEP00
W-211 Design AN-104 Retrieval System		
120.E50	04MAR98	02SEP99
W-211 Equip Procurement AN-104 Retrieval System		
120.E52	07JUL98	05JAN00
W-211 Construction AN-104 Retrieval System		
120.E55	05OCT99	03APR01



Activity ID	Early start	Early finish
W-211 Design AZ-102 Retrieval System		
120.F40	01SEP98*	29FEB00
W-211 Construction AZ-102 Retrieval System		
120.F50	03APR00	27SEP01
W-211 Equip Procurement AZ-102 Retrieval System		
120.F52	04JAN99	30JUN00
W-211 Design AW-101 Retrieval System		
120.G50	01JUN99*	30NOV00
W-211 Equip Procurement AW-101 Retrieval System		
120.G52	01OCT99	30MAR01
W-211 Construction AW-101 Retrieval System		
120.G55	02JAN01	28JUN02
W-211 Design AY-102 Retrieval System		
120.H10	29NOV99	23MAY01
W-211 Equip Procurement AY-102 Retrieval System		
120.H15	24MAR00	24SEP01
W-211 Construction AY-102 Retrieval System		
120.H20	26JUN01	23DEC02
W-211 Design AN-103 Retrieval System		
120.J50	01NOV99*	30APR01
W-211 Equip Procurement AN-103 Retrieval System		
120.J52	01MAR00	30AUG01
W-211 Construction AN-103 Retrieval System		
120.J55	01JUN01	27NOV02
W-211 Design AN-107 Retrieval System		
120.K50	03APR00*	27SEP01
W-211 Equip Procurement AN-107 Retrieval System		
120.K52	01AUG00	31JAN02
W-211 Construction AN-107 Retrieval System		
120.K55	31OCT01	30APR03
W-211 Construction SY-102 Retrieval System		
120.P60	01OCT03*	31MAR05

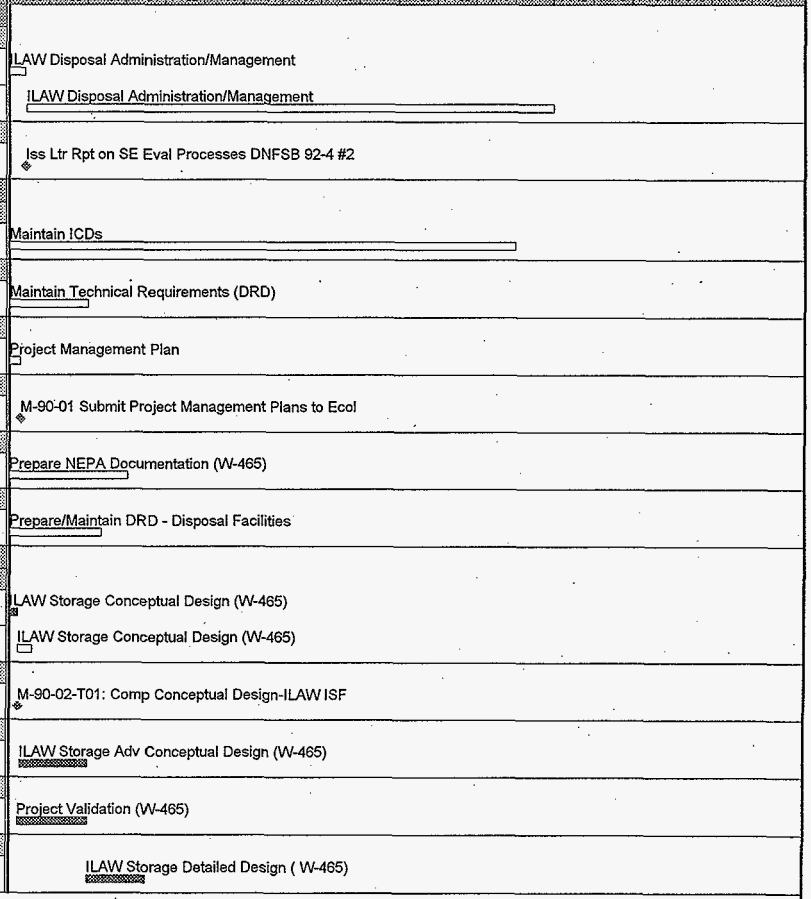
Figure 8 Project Master Baseline Schedule



Sheet 37 of 46

Figure 8 Project Master Baseline Schedule

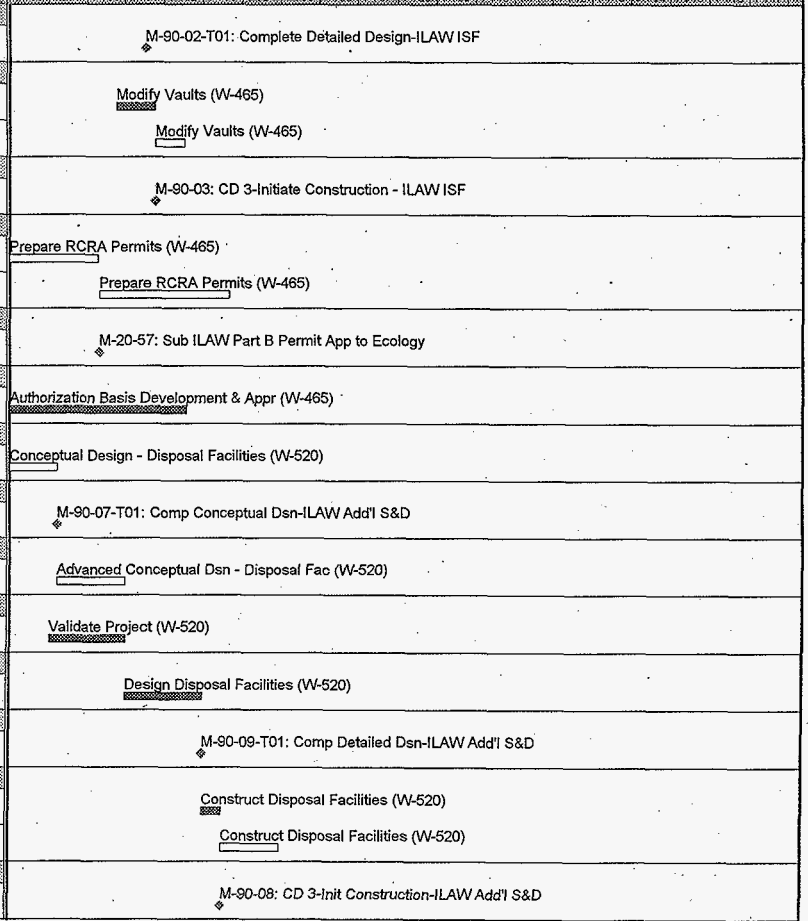
Activity ID	Early start	Early finish	
11340101 ILAW PROJECT ADMINISTRATION			
ILAW Disposal Administration/Management			
460.005	01OCT97	27FEB98	ILAW Disposal Administration/Management
460.005B	02MAR98	30SEP11	ILAW Disposal Administration/Management
Iss Ltr Rpt on SE Eval Processes DNFSB 92-4 #2			
460.005A		27FEB98*	Iss Ltr Rpt on SE Eval Processes DNFSB 92-4 #2
11340102 ILAW SYSTEMS DEFINITION			
Maintain ICDs			
460.015	01OCT97	30SEP10	Maintain ICDs
Maintain Technical Requirements (DRD)			
460.030	01OCT97	30SEP99	Maintain Technical Requirements (DRD)
Project Management Plan			
460.035	01OCT97	31DEC97	Project Management Plan
M-90-01 Submit Project Management Plans to Ecol			
460.035A		31DEC97	M-90-01 Submit Project Management Plans to Ecol
Prepare NEPA Documentation (W-465)			
460.075	01OCT97	13OCT00	Prepare NEPA Documentation (W-465)
Prepare/Maintain DRD - Disposal Facilities			
460.095	01OCT97	31JAN00	Prepare/Maintain DRD - Disposal Facilities
11340104 PROJECT W-465			
ILAW Storage Conceptual Design (W-465)			
460.040	01OCT97	12DEC97	ILAW Storage Conceptual Design (W-465)
460.040A	16DEC97	30APR98	ILAW Storage Conceptual Design (W-465)
M-90-02-T01: Comp Conceptual Design-ILAW ISF			
460.040E		15DEC97*	M-90-02-T01: Comp Conceptual Design-ILAW ISF
ILAW Storage Adv Conceptual Design (W-465)			
460.045	02JAN98*	30SEP99	ILAW Storage Adv Conceptual Design (W-465)
Project Validation (W-465)			
460.060	16DEC97*	30SEP99	Project Validation (W-465)
ILAW Storage Detailed Design (W-465)			
460.065	01OCT99*	30MAR01	ILAW Storage Detailed Design (W-465)



Sheet 38 of 46

Figure 8 Project Master Baseline Schedule

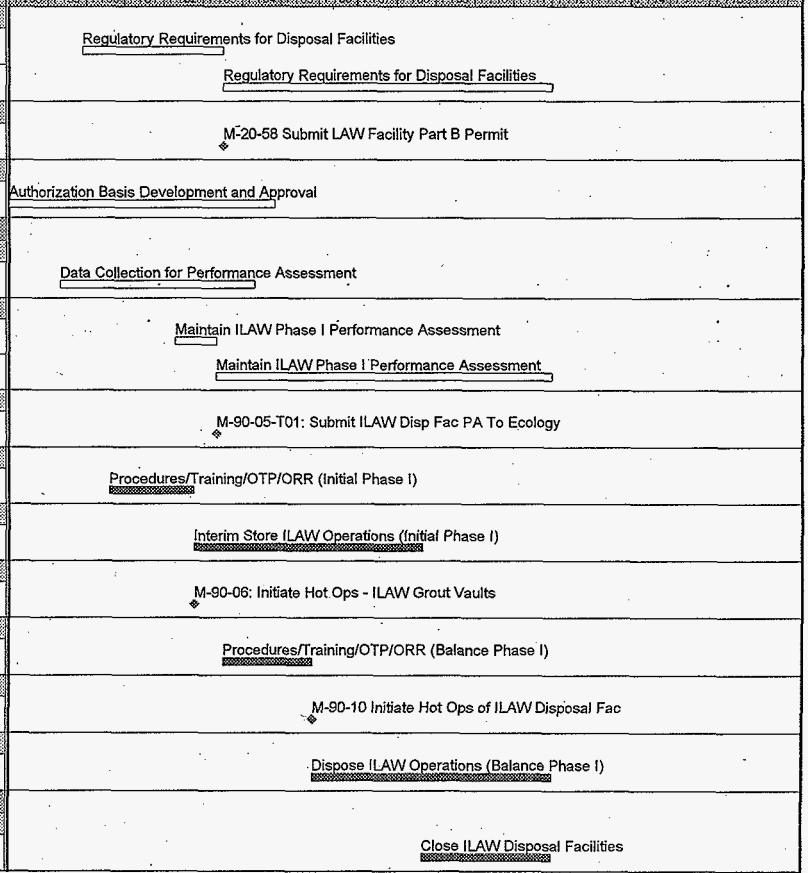
Activity ID	Early start	Early finish
M-90-02-T01: Complete Detailed Design-ILAW ISF		
460.065K		30MAR01*
Modify Vaults (W-465)		
460.070	05JUL00*	28JUN01
460.070A	29JUN01	28MAR02
M-90-03: CD 3-Initiate Construction - ILAW ISF		
460.070H	29JUN01*	
Prepare RCRA Permits (W-465)		
460.080	01OCT97	14JAN00
460.080A	18JAN00	03JUN03
M-20-57: Sub ILAW Part B Permit App to Ecology		
460.080D		17JAN00*
Authorization Basis Development & Appr (W-465)		
460.085	01OCT97	01MAY02
Conceptual Design - Disposal Facilities (W-520)		
460.105	01OCT97	15DEC98
M-90-07-T01: Comp Conceptual Dsn-ILAW Add'l S&D		
460.105H		15DEC98*
Advanced Conceptual Dsn - Disposal Fac (W-520)		
460.110	16DEC98	29SEP00
Validate Project (W-520)		
460.112	01OCT98	29SEP00
Design Disposal Facilities (W-520)		
460.115	02OCT00	30SEP02
M-90-09-T01: Comp Detailed Dsn-ILAW Add'l S&D		
460.115I		30SEP02*
Construct Disposal Facilities (W-520)		
460.120	01OCT02	31MAR03
460.120D	01APR03	30SEP04
M-90-08: CD 3-Init Construction-ILAW Add'l S&D		
460.120C	01APR03*	



Sheet 39 of 46

Figure 8 Project Master Baseline Schedule

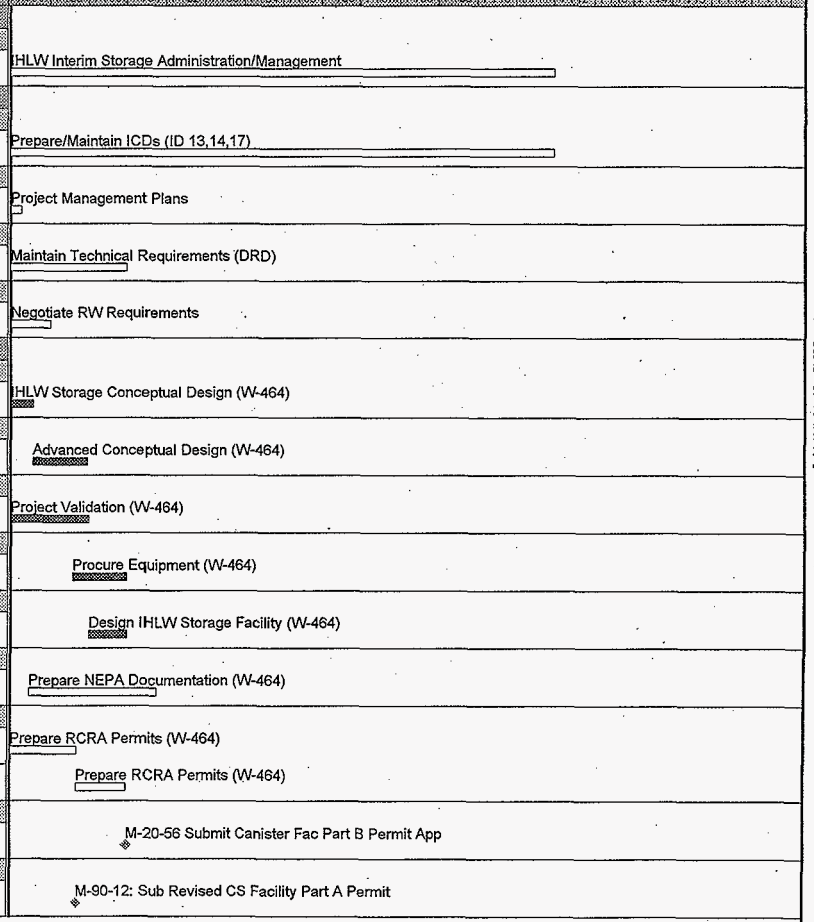
Activity ID	Early start	Early finish
Regulatory Requirements for Disposal Facilities		
460.125	01SEP99*	31MAR03
460.125B	01APR03	30SEP11
M-20-58 Submit LAW Facility Part B Permit		
460.125A		31MAR03*
Authorization Basis Development and Approval		
460.130	01OCT97	04AUG04
11340105 ILAW OPERATIONS		
Data Collection for Performance Assessment		
460.160	01FEB99*	30JAN04
Maintain ILAW Phase I Performance Assessment		
460.170	02JAN02*	31JAN03
460.170G	03FEB03	30SEP11
M-90-05-T01: Submit ILAW Disp Fac PA To Ecology		
460.170F		31JAN03*
Procedures/Training/OTP/ORR (Initial Phase I)		
470.010	01MAY00*	28JUN02
Interim Store ILAW Operations (Initial Phase I)		
470.040	01JUL02	02JUN08
M-90-06: Initiate Hot Ops - ILAW Grout Vaults		
470.040A	01JUL02	
Procedures/Training/OTP/ORR (Balance Phase I)		
470.060	01APR03*	29JUL05
M-90-10 Initiate Hot Ops of ILAW Disposal Fac		
470.069A	02AUG05*	
Dispose ILAW Operations (Balance Phase I)		
470.075	02AUG05	30SEP11
11340107 ILAW FACILITY CLOSURE AND D&D		
Close ILAW Disposal Facilities		
470.080	03JUN08	30SEP11



Sheet 40 of 46

Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
11340201 IHLW PROJECT ADMINISTRATION		
IHLW Interim Storage Administration/Management		
440.010	01OCT97	30SEP11
11340202 IHLW SYSTEMS DEFINITION		
Prepare/Maintain ICDs (ID 13,14,17)		
440.020	01OCT97	23SEP11
Project Management Plans		
440.030	01OCT97	31DEC97
Maintain Technical Requirements (DRD)		
440.040	01OCT97	29SEP00
Negotiate RW Requirements		
490.090	01OCT97	30SEP98
11340203 PROJECT W-464		
IHLW Storage Conceptual Design (W-464)		
440.050	01OCT97	30APR98
Advanced Conceptual Design (W-464)		
440.060	01MAY98*	23SEP99
Project Validation (W-464)		
440.070	01OCT97	30SEP99
Procure Equipment (W-464)		
440.090	03MAY99*	29SEP00
Design IHLW Storage Facility (W-464)		
440.100	01OCT99*	29SEP00
Prepare NEPA Documentation (W-464)		
440.110	17MAR98*	02JUL01
Prepare RCRA Permits (W-464)		
440.115	01OCT97	10JUN99
440.115D	11JUN99	29SEP00
M-20-56 Submit Canister Fac Part B Permit App		
440.115A		29SEP00*
M-90-12: Sub Revised CS Facility Part A Permit		
440.115C		10JUN99*



Sheet 41 of 46

Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
Authorization Basis Development & Appr (W-464)		
440.120	01OCT97	01MAY02
Modify/Construct System (W-464)		
440.140	02OCT00*	28SEP01
Prep OTPs/Conduct Readiness Assessmnt (Phase I)		
450.010	01OCT01*	31MAY02
M-90-11: Complete Startup-Phase I-HLW ISF (CSB)		
450.010D		31MAY02*
11340204 IHLW OPERATIONS		
Transport/Receive/Interim Store IHLW (Phase I)		
450.030	03JUN02*	30SEP11
11350101 M&I Vendor Interface		
DOE-RL Private Contr Samp & Data Requiments		
120.X01		02FEB98*
Contract and ICD		
160.A02	27MAY98*	26MAY98
11360103 LAW Treat/Immob/Deact		
PC 1 Processes AN-105 Feed from AP-106		
350.090	03JUN02	08JAN03
PC 1 Processes AN-104 Feed from AP-106		
350.100	09JAN03	01OCT03
PC 1 Processes AW-101 Feed from AP-106		
350.110	02OCT03	06MAY04
PC 1 Processes AN-103 Feed from AP-106		
350.120	07MAY04	18MAR05
PC 1 Processes AP-101 Feed from AP-106		
350.123	21MAR05	30DEC05
PC 1 Processes AY-101 Feed from AP-106		
350.125	03JAN06	01MAR06
PC 1 Processes AN-107 Feed from AP-106		
350.130	02MAR06	30MAR06

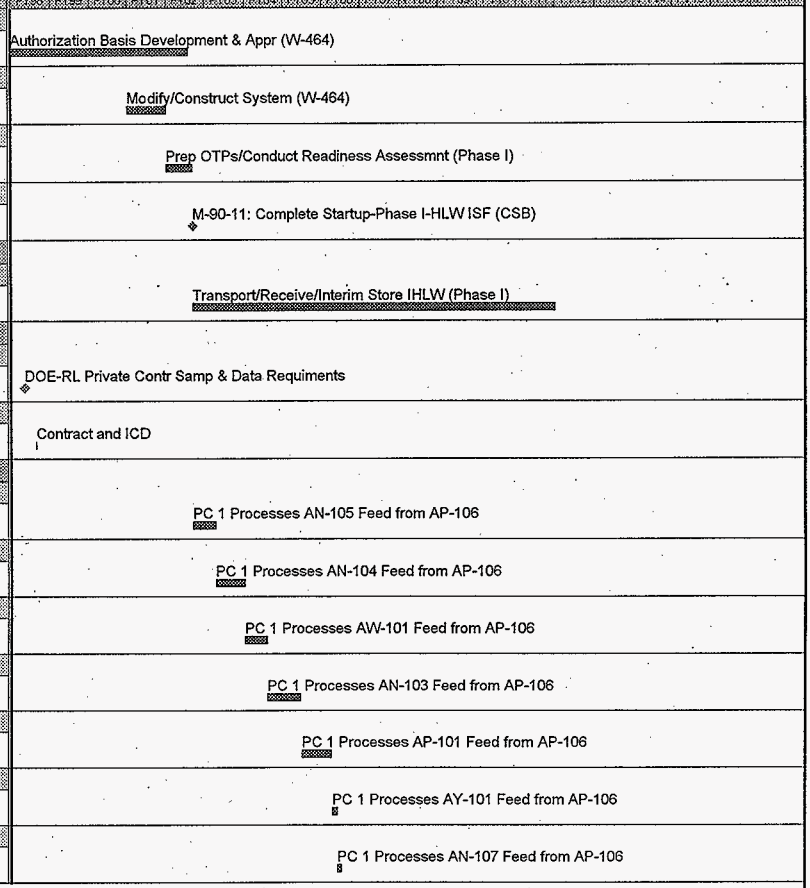
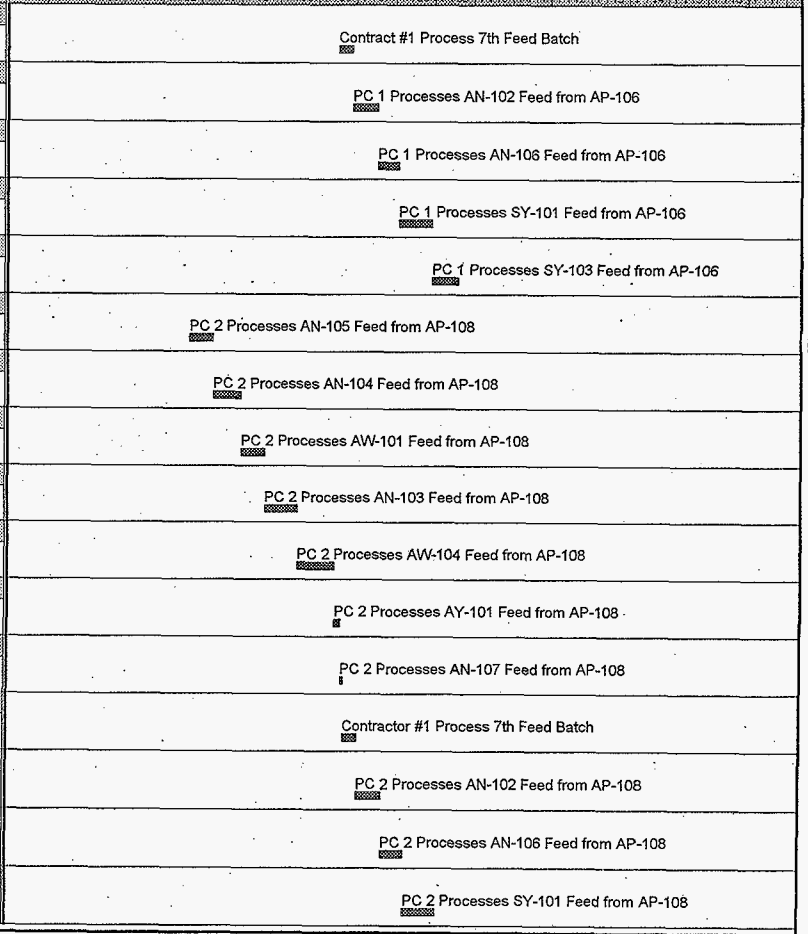


Figure 8 Project Master Baseline Schedule

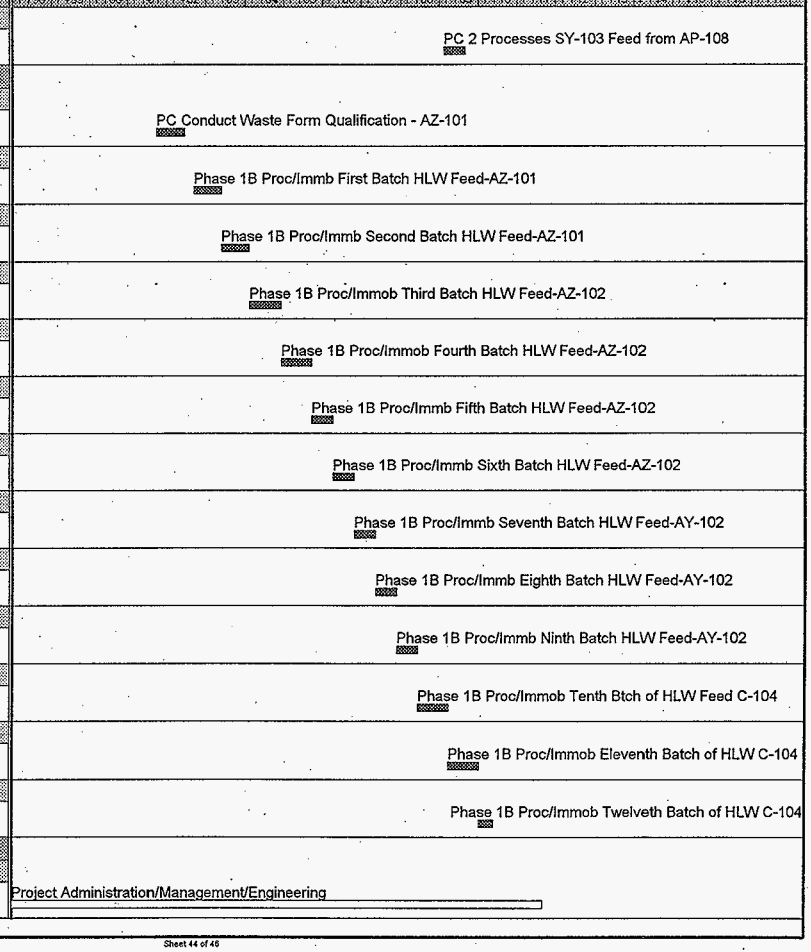
Activity ID	Early start	Early finish
Contract #1 Process 7th Feed Batch		
350.135	31MAR06	14AUG06
PC 1 Processes AN-102 Feed from AP-106		
350.140	15AUG06	11APR07
PC 1 Processes AN-106 Feed from AP-106		
350.150	12APR07	02NOV07
PC 1 Processes SY-101 Feed from AP-106		
350.160	05NOV07	05SEP08
PC 1 Processes SY-103 Feed from AP-106		
350.170	08SEP08	19MAY09
PC 2 Processes AN-105 Feed from AP-108		
350.240	03JUN02	13JAN03
PC 2 Processes AN-104 Feed from AP-108		
350.250	14JAN03	06OCT03
PC 2 Processes AW-101 Feed from AP-108		
350.260	07OCT03	11MAY04
PC 2 Processes AN-103 Feed from AP-108		
350.270	12MAY04	24MAR05
PC 2 Processes AW-104 Feed from AP-108		
350.273	25MAR05	10MAR06
PC 2 Processes AY-101 Feed from AP-108		
350.275	13MAR06	05MAY06
PC 2 Processes AN-107 Feed from AP-108		
350.280	08MAY06	05JUN06
Contractor #1 Process 7th Feed Batch		
350.285	06JUN06	20OCT06
PC 2 Processes AN-102 Feed from AP-108		
350.290	23OCT06	15JUN07
PC 2 Processes AN-106 Feed from AP-108		
350.300	18JUN07	10JAN08
PC 2 Processes SY-101 Feed from AP-108		
350.310	11JAN08	11NOV08



Sheet 43 of 46

Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
PC 2 Processes SY-103 Feed from AP-108		
350.320	12NOV08	29MAY09
11360104 HLW Treat/Immob/Deact		
PC Conduct Waste Form Qualification - AZ-101		
160.A70	25JUN01	07MAR02
Phase 1B Proc/Immb First Batch HLW Feed-AZ-101		
360.080	03JUN02	19FEB03
Phase 1B Proc/Immb Second Batch HLW Feed-AZ-101		
360.090	20FEB03	10NOV03
Phase 1B Proc/Immob Third Batch HLW Feed-AZ-102		
360.100	11NOV03	31AUG04
Phase 1B Proc/Immob Fourth Batch HLW Feed-AZ-102		
360.110	01SEP04	22JUN05
Phase 1B Proc/Immb Fifth Batch HLW Feed-AZ-102		
360.120	23JUN05	06JAN06
Phase 1B Proc/Immb Sixth Batch HLW Feed-AZ-102		
360.130	09JAN06	27JUL06
Phase 1B Proc/Immb Seventh Batch HLW Feed-AY-102		
360.140	28JUL06	12FEB07
Phase 1B Proc/Immb Eighth Batch HLW Feed-AY-102		
360.150	13FEB07	31AUG07
Phase 1B Proc/Immb Ninth Batch HLW Feed-AY-102		
360.160	04SEP07	18MAR08
Phase 1B Proc/Immob Tenth Btch of HLW Feed C-104		
360.170	19MAR08	24DEC08
Phase 1B Proc/Immob Eleventh Batch of HLW C-104		
360.180	29DEC08	09OCT09
Phase 1B Proc/Immob Twelveth Batch of HLW C-104		
360.190	12OCT09	01MAR10
1138010 PH-1 INFR. PROJ. MGT / ADM.		
Project Administration/Management/Engineering		
330.010	01OCT97	31MAY11



Sheet 44 of 46

Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
11380102 PH-1 INFR. SYSTEM DEFINITION		
Ready PHMC Oper/Maint Doc-AP-108 Turnover		
150.B66	27MAY98*	13NOV98
Ready PHMC Oper/Maint Doc-AP-106 Turnover		
150.B76	27MAY98*	13NOV98
Prep AP-106 for Turnover to Private Contractor		
150.B88	27MAY98	09JUN98
Establish Interface Reqmnts for Tank Turnover		
150.B94	01OCT97	23JAN98
Final ICD for Waste Feed Tank AP-108 - PC 2		
150.B96	27MAY98*	26MAY98
Prep AP-108 for Turnover to Private Contractor		
150.B98	27MAY98	11JUN98
Systems Definition		
330.020	01OCT97	29SEP00
11380103 PH-1 INFR. PROJECT W-519 INFR. PRJ		
IC Document Revisions/IC Drawings		
330.030	01OCT97	30SEP98
Compl Infrastructure Electrical Sys Contract Pkg		
330.040	01OCT97	17AUG98
Design/Construction/Startup Electrical System		
330.050	01OCT98	31OCT00
Dsn/Construction Site Sys for PC Construction		
330.060	01OCT98	31DEC99
Dsn/Construct/S/up Water, Site, Liq Eff Systems		
330.070	01OCT98	30MAR01
11380104 PH-1 INFR. M&I OPERATIONS		
Maint/Op/Provide Vendor Utils for Constr PC Phl		
330.080	04JAN00	31DEC01
Maint/Op/Prov Vendor Utils/Wst Disp S/up PC Phl		
330.090	02JAN02	31MAY02

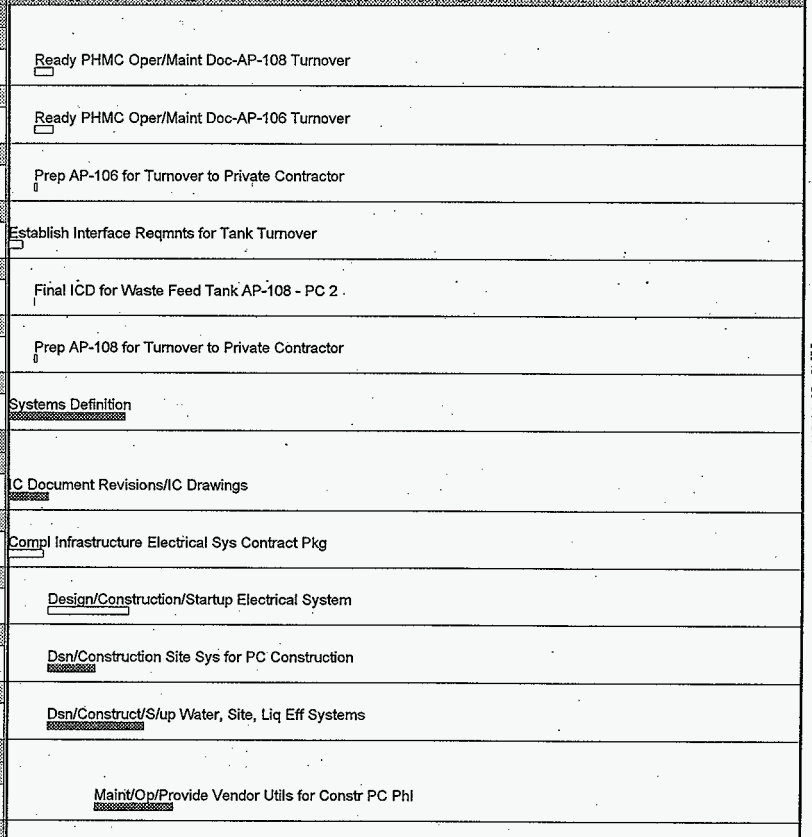
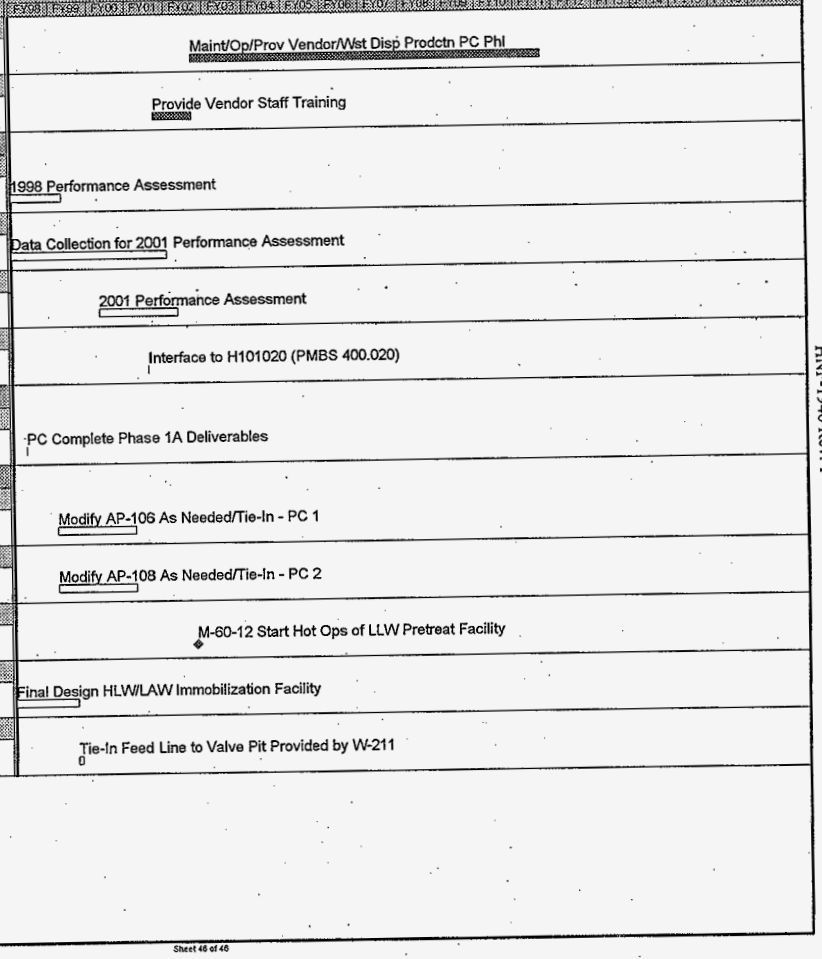


Figure 8 Project Master Baseline Schedule

Activity ID	Early start	Early finish
Maint/Op/Prov Vendor/Wst Disp Prodctn PC Phl		
330.100	03JUN02	31MAY11
Provide Vendor Staff Training		
330.120	01JUN01*	31MAY02
11340103		
1998 Performance Assessment		
460.140	01OCT97	15JAN99
Data Collection for 2001 Performance Assessment		
460.145	01OCT97	28SEP01
2001 Performance Assessment		
460.155	04JAN00*	31DEC01
Interface to H101020 (PMBS 400.020)		
460.155A	02APR01*	30MAR01
11360101		
PC Complete Phase 1A Deliverables		
350.015	27JAN98*	26JAN98
11360102		
Modify AP-106 As Needed/Tie-In - PC 1		
350.040	17NOV98	15NOV00
Modify AP-108 As Needed/Tie-In - PC 2		
350.230	17NOV98	15NOV00
M-60-12 Start Hot Ops of LLW Pretreat Facility		
350.239	03JUN02*	
Final Design HLW/LAW Immobilization Facility		
360.020	01OCT97	06MAY99
Tie-In Feed Line to Valve Pit Provided by W-211		
360.040	07MAY99	07JUN99



Sheet 46 of 46

Milestones Level 1-5 : RTP vs TPA vs MYWP Due Dates

Table 2. Milestone Comparison

WBS #	Activity ID	Description	Milestone #	Milestone Type	RTP Dates	TPA Dates	MYWP Detail Dates
11310106	05079A	M-45-03A Initiate Sluicing Retrieval of C-106	T04-98-161	2	04-Sep-98	31-Oct-97	30-Sep-98
11310106	05079B	Action for DNFSB 93-5, 5.4.3.6.C	T04-98-161	5	04-Sep-98	N/A	30-Sep-98
11310106	05079C	Start Retrieval Secretary Sfty Initiative W-320	T04-98-161	4	04-Sep-98	N/A	30-Sep-98
11310102	15B22E1A	M-45-02D Sub Annual SST Ret Seg Doc to Ecology	T04-99-241	2	30-Sep-99	30-Sep-99	30-Sep-99
11310102	15B22EA	M-45-02C Sub Annual SST Ret Seg Doc to Ecology	T04-98-241	2	30-Sep-98	30-Sep-98	30-Sep-98
11310126	25T011	M-43-11 Provide W-314 Const Sched to Ecology	T03-98-054	2	30-Sep-98	30-Sep-98	30-Sep-98
11310126	25T012	M-43-12 Start Const for Upgrade in 1st Farm	T03-99-055	2	11-Dec-97	30-Jun-99	30-Jun-99
11310126	25T013	M-43-13 Start Const for Upgrade in 2nd Farm	T03-00-056	2	25-Jun-98	30-Jun-00	30-Jun-00
11310126	25T014	M-43-14 Start Const for Upgrade in 3rd Farm	T03-01-057	2	27-Oct-98	31-Mar-01	31-Mar-01
11310126	25T015	M-43-15 Start Const for Upgrade in 4th Farm	T03-02-058	2	03-Nov-98	31-Mar-02	29-Mar-02
11360102	35239A	M-60-12 Start Hot Ops of LLW Pretreat Facility	T06-02-131	2	03-Jun-02	31-Dec-02	03-Jun-02
11340203	44115C1	M-90-12: Sub Revised CS Facility Part A Permit	T09-99-100	2	10-Jun-99	30-Jun-99	01-Jun-99
11340203	44115D9M	M-20-56: Sub CSB Part B Application to Ecology	T09-01-100	2	29-Sep-00	31-Dec-00	29-Sep-00
11340203	45010D	M-90-11: Complete Startup-Phase I-HLW ISF (CSB)	T09-03-003	2	31-May-02	31-Dec-02	31-May-02
11340101	46005A7	Iss Ltr Rpt on SE Eval Processes DNFSB 92-4 #2	T09-98-101	4	27-Feb-98	N/A	N/A
11340102	46035AM	M-90-01: Sub Project Management Plan to Ecology	T09-98-100	2	31-Dec-97	31-Dec-97	31-Dec-97
11340104	46040E	M-90-02-T01: Comp Conceptual Design-ILAW ISF	T09-98-022	3	15-Dec-97	15-Dec-97	15-Dec-97
11340104	46065K	M-90-04-T01: Complete Detailed Design - ILAW ISF	T09-01-010	3	30-Mar-01	30-Jun-01	29-Jun-01
11340104	46070H	M-90-03: CD 3-Initiate Construction - ILAW ISF	T09-00-003	2	29-Jun-01	30-Jun-01	29-Jun-01
11340104	46080D8	M-20-57: Sub ILAW Part B Permit App to Ecology	T09-01-021	2	17-Jan-00	31-Dec-00	17-Jan-00
11340104	46105H	M-90-07-T01: Comp Conceptual Dsn-ILAW Add'l S&	T09-99-011	3	15-Dec-98	30-Jun-00	15-Dec-98
11340104	46115I	M-90-09-T01: Comp Detailed Dsn - ILAW Add'l S&D	T09-04-001	3	30-Sep-02	31-Mar-03	30-Sep-02
11340104	46120C	M-90-08: CD 3-Init Construction-ILAW Add'l S&D	T09-05-005	2	01-Apr-03	30-Jun-03	01-Apr-03
11340104	46125H	M-20-58: Sub ILAW Disp Part B Permit App to Ecol	T09-01-020	2	31-Mar-03	31-Dec-03	31-Mar-03
11340105	46170F	M-90-05-T01: Submit ILAW Disp Fac PA To Ecology	T09-03-101	3	31-Jan-03	31-Dec-01	31-Jan-03
11340105	47040A	M-90-06: Initiate Hot Ops - ILAW Grout Vaults	T09-02-002	2	01-Jul-02	31-Dec-02	04-Jun-02
11340105	47069CM	M-90-10: Initiate Hot Operations - ILAW Module 1	T09-06-100	2	02-Aug-05	31-Dec-05	02-Aug-05

Milestone Type
2 = Tri-Party Agreement Interim
3 = Tri-Party Agreement Target
4 = DOE-Headquarters
5 = DOE-RL

Table 2. Milestone Comparison
List of Terms

CSB	Canister Storage Building
DNFSB	Defense Nuclear Facilities Safety Board
HLW	high-level waste
ILAW	immobilized low-activity waste
ISF	Interim Storage Facility
LLW	low-level waste
MYWP	Multi-Year Work Plan
PA	Performance Assessment
RTP	Readiness-to-Proceed
S&D	Storage and Disposal
SST	single-shell tank
TPA	Tri-Party Agreement

4.0 COST

The TWRS Retrieval and Disposal and other supporting TWRS Project estimates and costs have been updated to reflect the changes that resulted during the RTP development phase. The cost products are discussed in the following sections and are included as tables in this section.

4.1 SUMMARY COST SPREADSHEET

The cost spreadsheet (Table 3) summarizes the preliminary TWRS dollars, by fiscal year (FY 1998 through FY 2011), necessary to perform the following activities:

- TWRS Retrieval and Disposal Program for Phase 1B scope based on the revised RTP planning
- TWRS Phase 1B scope required to support the TWRS Retrieval and Disposal mission
- Scope Transfer Shortfalls identified since submittal of the TWRS FY 1998 MYWP for activities that are transitioned to the TWRS Retrieval and Disposal Program from elsewhere in the TWRS Project.

A complete summary and analysis of TWRS Project costs, including those shown in this document related to the Retrieval and Disposal Phase 1B mission, are included in the Financial Analysis (Wells 1998).

4.2 DESCRIPTION OF THE TYPES OF COSTS

This section describes the types of costs which are included in the Initial Updated Baseline as shown on Table 3, Summary Cost Spreadsheet.

The TWRS Retrieval and Disposal Program costs for Phase 1B Logics are the estimates for Phase 1 work defined by the Level 1 Logics for Waste Feed Delivery (LAW and HLW), Immobilized Waste (ILAW and IHLW), and Infrastructure Phase 1. Technical Basis Review packages were prepared to document these costs as part of the RTP process. The values include escalation through FY 2006 and are in constant year dollars (FY 2006) thereafter.

Other TWRS Retrieval and Disposal Program costs for Phase 1B support scope (not in Logics) include estimates for Project Management and Administration, Feed Process System

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Table 3. Summary Cost Spreadsheet

WBS LVL 6	WBS TITLE		FY 98 UNESC	FY 99 UNESC	FY 00 UNESC	FY 01 UNESC	FY 02 UNESC	FY 03 UNESC	FY 04 UNESC	FY 05 UNESC	FY 06 UNESC	FY 07 UNESC	FY 08 UNESC	FY 09 UNESC	FY 10 UNESC	FY 11 UNESC	TOTAL UNESC
1/8/98	FILE: AL-4.XLS(PH1B_BSLN)																
PHASE 1B LOGICS																	
	RETRIEVAL	TW04	72,126	86,346	72,687	49,307	53,118	42,615	46,678	28,852	15,617	7,796	6,041	4,489	4,314	1,294	491,180
	INFRASTRUCTURE	TW08	3,649	17,376	19,990	13,703	44,680	41,189	41,353	41,189	41,024	41,189	41,189	41,189	41,189	27,241	456,150
	IMMOBILIZED WASTE	TW09	11,001	9,908	32,067	51,954	30,265	63,133	82,305	8,162	9,931	9,912	9,833	9,746	9,135	9,065	346,417
	SUBTOTAL		86,776	113,630	124,744	114,964	128,063	146,937	170,336	78,203	66,572	58,897	57,063	55,424	54,638	37,600	1,293,747
	ESCAL'N THRU 2006 @ 2.7%		-	3,068	6,827	9,566	14,401	20,923	29,525	16,033	15,814	13,991	13,555	13,166	12,979	8,932	178,781
*	TOTAL BASELINE (ESCALATED)		86,776	116,698	131,571	124,530	142,464	167,760	199,861	94,236	82,386	72,888	70,618	68,590	67,617	46,532	1,472,528
OTHER TWR PHASE 1B SUPPORT SCOPE (Not in logic)																	
O 11310101	PROJECT MGMT / ADMIN.	TW04	7,299	5,202	5,665	5,618	2,673	5,886	7,944	5,682	4,876	4,802	4,706	4,642	4,705	3,886	73,386
11310102	FEED PROC SYSTEMS DEF.	TW04	279	685	974	551	508	483	488	494	509	485	455	464	449	369	7,194
11310103	RETRIEVAL SYSTEMS DEF.	TW04	1,631	1,741	860	829	1,018	1,688	1,798	2,099	1,064	861	860	862	836	842	17,230
11310109	RETRIEVAL OPS (SST)	TW04	400	3,246	579	5,347	-	8,594	6,318	6,292	6,268	6,268	6,402	6,250	6,250	6,292	68,507
11310110	FUTURE DST RETREIVAL PRJ'S	TW04	15	187	182	1,065	1,025	1,042	1,067	970	681	-	-	-	-	-	6,234
11310114	PH 1 RETREIVAL OPS(CHAR'ZN)	TW04	-	-	-	-	-	154	369	143	-	-	-	-	-	-	665
O 11350101	WIT / MGMT SYS-PNNL	TW05	7,800	7,205	8,343	8,124	15,282	14,880	13,082	11,079	32,636	32,525	34,118	32,654	33,988	32,655	264,371
	OTHER - ESCALATION		-	493	910	1,792	2,306	4,635	5,385	5,486	10,941	10,676	11,056	10,659	10,982	10,463	85,783
	SUBTOTAL OTHER SUPPORT		17,624	18,760	17,533	23,326	22,812	37,160	36,450	32,245	56,997	55,617	57,597	55,531	57,210	54,508	543,371
	SUBTOTAL - BASELINE		104,400	135,458	149,104	147,856	165,276	204,920	236,311	126,481	139,383	128,505	128,216	124,122	124,828	101,040	2,015,900
OTHER TWRS PHASE 1B SUPPORT SCOPE																	
*	ESH / QA (BUS. VOL.)	TW10	600	500	500	600	600	700	800	1,400	-	-	-	-	-	-	5,700
*	PERFORMANCE FEE (BUS. VOL.)	TW10	5,200	6,300	7,400	9,400	11,200	11,700	11,700	11,700	-	-	-	-	-	-	74,600
	CHAR'ZN SUPPORT TO EVAPORATOR	TW01	-	1,300	1,300	1,300	-	-	-	-	-	-	-	-	-	-	3,900
	CENTRAL INSTRUMENT CONTROL FACIL	TW03	800	600	600	-	-	-	-	-	-	-	-	-	-	-	2,000
	CROSS SITE X-FER LINE	TW03	2,500	500	-	-	-	-	-	-	-	-	-	-	-	-	3,000
*	MGMT SUPP'T: PGM. PLANNING (BUS VOL)	TW10	2,300	2,200	2,000	2,400	2,400	2,800	3,600	4,500	-	-	-	-	-	-	22,200
*	MGMT SUPP'T: S.E. / REENGRG (BUS. VOL.)	TW10	800	500	500	600	600	700	800	800	-	-	-	-	-	-	5,100
	SUBTOTAL-OTHER TWRS SUPPORT SCOPE		12,000	11,900	12,300	14,300	14,800	15,900	16,900	18,400	-	-	-	-	-	-	116,500
	SUBTOTAL - PHASE 1B BASELINE		116,400	147,358	161,404	162,156	180,076	220,820	253,211	144,881	139,383	128,505	128,216	124,122	124,828	101,040	2,132,400
* INCLUDED IN "OTHER TWR PHASE 1B SCOPE (NOT IN LOGIC)" STARTING IN FY 2006																	
RETRIEVAL SCOPE TRANSFER SHORTFALLS																	
	SST SUSTAINING OPERS	TW03	-	-	-	-	(7,000)	(7,000)	(7,000)	5,000	5,000	5,000	5,000	5,000	5,000	5,000	14,000
	CHAR'ZN BASE LOAD SUPP'T (ADS 1130)	TW01	(3,841)	(6,466)	(1,928)	(59)	(427)	-	-	-	-	-	-	-	-	-	(12,721)
	DST BASELINE OMISSION	TW03	-	-	-	17,551	17,116	17,043	16,970	16,897	10,000	10,000	10,000	10,000	10,000	10,000	145,577
	CHAR'ZN SUSTAIN'G OPERS (GRAB SAMPLE	TW01	-	-	-	-	7,200	-	-	-	-	-	-	-	-	-	7,200
	SAFETY A. B. SUSTAIN OPERS	TW02	-	1,410	2,832	2,650	2,770	2,852	2,938	3,025	4,783	4,783	4,783	4,783	4,783	4,783	47,175
	LIQUID EFFLUENT PROCESSING(WST MGMT)	TW08	-	-	-	-	(5,752)	(17,258)	(17,258)	(17,258)	(17,258)	(17,258)	(17,258)	(17,258)	(17,258)	(11,506)	(155,322)
	SUBTOTAL-RETRIEVAL SHORTFALLS		(3,841)	(5,056)	904	20,142	13,907	(4,363)	(4,350)	7,664	2,525	2,525	2,525	2,525	2,525	8,277	45,909
	TOTAL BASELINE		112,559	142,302	162,308	182,298	193,983	216,457	248,861	152,545	141,908	131,030	130,741	126,647	127,353	109,317	2,178,309

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Definition, Retrieval System Definition, Retrieval Operations (Single-Shell Tank), Future Double-Shell Tank Retrieval Projects, Phase 1 Retrieval Operations (Characterization), and Process Waste Support costs associated with Management and Integration Contractor Vendor Interface and Phase 1 Program Management by the RL/Pacific Northwest National Laboratory Waste Integration Team. These activities and costs are essential to the Retrieval and Disposal Program, but were not covered or only partially covered by activities in the Level 1 Logics. The costs used are from the TWRS FY 1998 MYWP (Lenseigne 1997) with escalation through FY 2006 and constant year dollars (FY 2006) thereafter.

Other TWRS Phase 1B Support Scope includes the costs for a pro-rata share of the TWRS cross-cutting activities and other miscellaneous activities (funded elsewhere in the TWRS Project) that are connected to and necessary to support the TWRS Retrieval and Disposal Program as defined by the RTP assessment. Activities include Environmental, Safety and Health/Quality Assurance management and oversight based on a business volume share; Performance Fee based on a business volume share; Characterization support to the evaporator; Central Instrument Control Facility; the Cross-Site Transfer Line; management support for program planning; and Systems Engineering and reengineering, based on a business volume share. The cost numbers used are from the TWRS FY 1998 MYWP (Lenseigne 1997) with escalation through FY 2006 and constant year dollars (FY 2006) thereafter.

Retrieval Scope Transfer Shortfalls are cost disconnects that have been identified during RTP and since the development of the TWRS FY 1998 MYWP (Lenseigne 1997) for activities that will be transitioned to the TWRS Retrieval and Disposal Program. Although these activities are not specific to the Phase 1 Level 1 Logics, additional resources are required to fund these activities. They include SST sustaining operation, Characterization base load support, DST baseline omission, Characterization sustaining operations, Safety Authorization Basis sustaining operations, and liquid effluent processing. Liquid effluent processing costs are included in the "Phase 1B Logics" baseline and are deducted here as it has been determined that this work is funded by the Waste Management Program. These cost numbers include escalation through FY 2006 and constant year dollars (FY 2006) thereafter.

In summary, life-cycle cost (LCC) estimates have been prepared for the Phase 1 Retrieval and Disposal scope of work. Estimates include Total Estimated Costs (TEC), Total Project Costs (TPC), and LLC through FY 2011. Life-cycle cost analyses have been performed in accordance with selected criteria from the U.S. Department of Energy Good Practice Guide, GPG-FM-002, *Critical Decision Criteria*. A detailed discussion and analysis of these costs are included in the Financial Analysis (Wells 1998).

4.3 COST-LOADING REPORT

The cost-loading report (Table 4) summarizes the TWRS Retrieval and Disposal costs by fiscal year (FY 1998 through FY 2011) necessary to perform work defined by the Level 1 Logics and the Project Master Baseline Schedule. The dollars are unescalated. These are the same costs on Table 3 as "Phase 1B Logics."

Table 4 provides a summary by Level 6 WBS element followed by the additional details of Level 1 Logic activities. Pricing of resources to generate these costs was done in the Primavera scheduling software using input from the TBR packages and approved labor rate tables.

Section 5 of the Financial Analysis (Wells 1998) identifies follow-on activities that may result in changes to the preliminary cost and schedule data. These potential changes will be incorporated into the final schedule and cost submittal in July 1998.

Table 4 Cost Loading Report

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

REPORT DATE 29DEC97
16:30
RTP COST ($K) by WBS Level 6

TOTAL USAGE FOR YEAR

RTP 17DEC97

DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
11310101	PROJECT MGT/ADMINISTRATION	374	490	175	543	108	108	108	108	108	108	108	108	108	108
11310102	FEED PROCESS SYSTEM DEF.	11726	13854	5698	2295	2636	1978	1410	1410	1335	1335	1362	1317	1223	1185
11310103	RETRIEVAL SYSTEMS DEF.	2321	2561	699	99	148	478	425	45						
11310106	W-320 C-106 SLUICING	13947	5498	688											
11310107	INITIAL SST RETRIEVAL SYSTEM			5627	6758	6731	6758	5466							
11310109	RETRIEVAL OPS (SST)							703	2900						
11310110	FUTURE DST RETRIEVAL PROJECTS	1107	4404	2490	296	6713	12929	17286	11166	4454	5				
11310112	PH 1 RETRIEVAL OPS (DST)	282	1092	3163	4723	4673	4270	4689	4027	6426	4548	3632	3063	2983	
11310113	PH 1 RETRIEVAL SAFETY BASIS	783	835	264	5										
11310114	PH 1 RETR OPS (CHARACTERIZATION)		27		824	1750	1552	2476	1429	1633	1802	941			
11310126	W-314 PH 1 REST/SAFE OPS (L)	23412	22126	3900											
11310140	W-314 PH 1 REST/SAFE OPS (E)	2312	3191	6048											
1131014E	PROJECT-W-151 101-AZ RETRIEVAL (L)	301													
1131014P	PROJECT W-151 101-AZ PROCESS TEST	388	31												
1131015E	W-211 INITIAL TANK RET SYSTEMS (EXPEN	1260	1218	2168	4417	2976	3806	1542	1920	571					
1131015L	W-211 INITIAL TANK RET SYS (LINE ITEM)	13912	31020	41765	29348	27388	10636	12572	5849	1093					
11340101	ILAW PROJECT ADMINISTRATION	851	775	749	693	689	856	860	856	853	856	856	856	856	856
11340102	ILAW SYSTEMS DEFINITION	752	209	38		97							297	297	
11340104	PROJECT W-465	1139	1652	6482	17686	13925									
11340105	ILAW OPERATIONS		1109	3287	4155	2812	3447	3906	4241	6025	5991	5310	4015	4015	4015
11340106	PROJECT W-520 FUTURE FACILITIES	2194	1369	1642	5660	9686	55765	74461							229
11340107	ILAW FACILITY CLOSURE AND D&D											602	1513	902	902
1134013B	Obtain Borehole #1 Samples (C)	132													
1134013E	ILAW PERFORMANCE ASSESSMENT (E)	3531	3476	1270	405	5									
1134013M	X-Ray Microtomography Equip (C)	120													
11340201	IHLW PROJECT ADMINISTRATION	170	107	104	138	138	138	139	138	138	138	138	138	138	138
11340202	IHLW SYSTEMS DEFINITION	644	149	86	69	68	61	61	61	60	61	61	61	61	59
11340203	PROJECT W-464	1469	1061	18407	23148	1902									
11340204	IHLW OPERATIONS					948	2866	2877	2866	2855	2866	2866	2866	2866	2866
11380101	PH-1 INFR. PROJ. MGT / ADM.	358	464	378	419	212	213	214	213	212	213	213	213	213	141
11380102	PH-1 INFR. SYSTEM DEFINITION	978	1529	11											
11380103	PH-1 INFR. PROJECT W-519 INFRAS PRJ	2315	15383	16453	440										
11380104	PH-1 INFR. M&I OPERATIONS			75	8764	17483	287	288	287	286	287	287	287	287	190
11380105	PH-1 INFR. PC OPERATIONS			3072	4080	26984	40689	40851	40689	40526	40689	40689	40689	40689	26910
	REPORT TOTAL	86777	113628	124741	114965	128071	146838	170334	78204	66575	58898	57065	55423	54637	37599

Table 4 Cost Loading Report

REPORT DATE 29DEC97
16:45
RTP COST ($K) by WBS Level 6 by Level 7

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

TOTAL USAGE FOR YEAR

RTP 17DEC97

DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
11310101	PROJECT MGT/ADMINISTRATION														
130.B65	TWRS Management Assessment (LAW)				65										
130.B70	Prepare Plan/Document for Mgmt Assessment (LAW)			2	369										
160.A13	Prepare Plan/Document for Mgmt Assessment (HLW)		379												
160.A18	TWRS Management Assessment (HLW)			65											
620.095	Dev/Iss Draft WFD Tech Baseline Summary	295													
620.097	Update WFD Technical Baseline Summary	79	111	109	109	108	108	108	108	108	108	108	108	108	108
TOTAL	11310101	374	490	175	543	108	108	108	108	108	108	108	108	108	108
11310102	FEED PROCESS SYSTEM DEF.														
110.047	Perf Mixer Pump Test Sampling & Analysis	253													
120.C05	Obtain AY-101 Samples				10										
120.C10	Characterize AY-101				24	402									
120.C12	Review AY-101 Historical Data	2			15										
120.C14	Establish Dilution Rqmts for AY-101 Process Test				12	59									
120.C15	Confirm Plans and Requirements for AY-101					24									
120.C20	Update BBI & TCR For Tank AY-101					26									
120.D07	Develop LAW Confirm Tank T Meets Batch X DQO	32													
120.D08	Develop Waste Transfer to PC DQO	35													
120.D09	Develop In Tank Processing Control DQO	32													
120.D10	Evaluate AN-105 Samples for Adequate Matls	10													
120.D11	Develop DQO: PH 1 Tank Waste Transfer Control	32													
120.D12	Develop HLW Waste Delivery toPC DQO	17													
120.D15	Rvw AN-105 Historical Data/Conf if Add'l Info Rq	42													
120.D20	Estab Dilution Reqmnts/Diss Behav for AN-105	138	107												
120.D25	Characterize AN-105	83	48												
120.D30	Update Best Basis Inventory and TCR for AN-105		27												
120.D35	Perf Max Implied Radionuclide Concentrate Study	62													
120.D40	Confirm Plans and Requirements for AN-105		25												
120.E05	Evaluate AN-104 Samples for Adequate Matls	11													
120.E10	Estab Dilution Reqmnts/Diss Behav for AN-104	131	41												
120.E15	Review AN-104 Historical Data	42													
120.E20	Characterize AN-104	83	48												
120.E25	Update Best Basis Inventory and TCR for AN-104		27												
120.E35	Confirm Plans and Requirements for AN-104		25												
120.G05	Evaluate AW-101 Samples Adequate Matls	11													

Table 4 Cost Loading Report

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16:45
RTP COST ($K) by WBS Level 6 by Level 7

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

TOTAL USAGE FOR YEAR

RTP 17DEC97

DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
120.G15	Review AW-101 Historical Data	42													
120.G20	Characterize AW-101	83	48												
120.G25	Update Best Basis Inventory and TCR for AW-101		27												
120.G35	Confirm Plans and Requirements for AW-101		25												
120.G37	Eval Waste Retrieval Equip Req'd for Tanks 5 On	27													
120.J05	Evaluate AN-103 Samples for Adequate Matls	11													
120.J10	Estab Dilution Reqmnts/Diss Behav for AN-103	142	152												
120.J15	Review AN-103 Historical Data	42													
120.J20	Characterize AN-103	83	48												
120.J25	Update Best Basis Inventory and TCR for AN-103		27												
120.J35	Confirm Plans and Requirements for AN-103		25												
120.K05	Evaluate AN-107 Samples for Adequate Matls	11													
120.K10	Estab Dilution Reqmnts/Diss Behav for AN-107	12	61												
120.K15	Review AN-107 Historical Data	17													
120.K20	Characterize AN-107	25	413												
120.K25	Update Best Basis Inventory and TCR for AN-107		27												
120.K35	Confirm Plans and Requirements for AN-107		25												
120.L05	Evaluate AN-102 Samples for Adequate Matls	11													
120.L10	Estab Dilution Reqmnts/Diss Behav for AN-102	74													
120.L15	Review AN-102 Historical Data	17													
120.L20	Characterize AN-102	443	1												
120.L25	Update Best Basis Inventory and TCR for AN-102		27												
120.L35	Confirm Plans and Requirements for AN-102		25												
120.M05	Evaluate AN-106 Samples for Adequate Matls	11													
120.M10	Estab Dilution Reqmnts/Diss Behav for AN-106	12	61												
120.M15	Review AN-106 Historical Data	42													
120.M20	Characterize AN-106	25	413												
120.M25	Update Best Basis Inventory and TCR for AN-106		27												
120.M35	Confirm Plans and Requirements for AN-106		25												
120.R05	Evaluate SY-101 Samples for Adequate Matls	11													
120.R10	Estab Dilution Reqmnts/Diss Behav for SY-101	40	203												
120.R15	Review SY-101 Historical Data	42													
120.R20	Characterize SY-101	340	1334												
120.R25	Update Best Basis Inventory and TCR for SY-101		27												
120.R35	Confirm Plans and Requirements for SY-101		5	19											
120.T05	Evaluate SY-103 Samples for Adequate Matls	11													
120.T10	Estab Dilution Reqmnts/Diss Behav for SY-103	40	175	27											
120.T15	Review SY-103 Historical Data	34													

Table 4 Cost Loading Report

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

REPORT DATE 29DEC97
16:45
RTP COST ($K) by WBS Level 6 by Level 7

TOTAL USAGE FOR YEAR

RTP 17DEC97

DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
120.T25	Update Best Basis Inventory and TCR for SY-103		18	9											
120.T35	Confirm Plans and Requirements for SY-103			24											
120.V05	Obtain AP-101 Samples	11													
120.V10	Characterize AP-101		24	405											
120.V12	Review AP-101 Historical Data	17													
120.V14	Establish Dilution Rqmts for AP-101 Process Test		12	60											
120.V15	Confirm Plans and Requirements for AP-101			24											
120.V20	Update BBI & TCR For Tank AP-101			26											
120.W05	Obtain AW-104 Samples	11													
120.W10	Characterize AW-104		24	405											
120.W12	Review AW-104 Historical Data	17													
120.W14	Establish Dilution Rqmts for AW-104 Process Test		12	60											
120.W15	Confirm Plans and Requirements for AW-104			24											
120.W20	Update BBI & TCR For Tank AW-104			26											
130.010	Phase I Tank Waste Transfer Control	518	515	504	504	500	501	501	501	501	501	501	501	501	501
130.B05	ID Reqd Spares WFD 1st Batches LAW & LAW	13	19												
130.B45	Prepare for Sampling During LAW Feed Staging	216	784	705	37										
130.B75	Compare RAM/O&M Concept w/ OTP Results		6												
130.B80	Assess Sec. Waste Util & Samp Anly Agnst Plans				6										
130.N10	Prep for Sampling During HLW Feed Staging AZ-101	85													
150.B04	Perform Feed Rate Trade Study	186													
150.B06	Establish Feed Rates (RL Decision)	4													
150.B08	Maintain WFD Char Matrices, Prob Spec DQOs	119	118	115	115	114	115	115	115	115	115	115	115	115	115
150.B22	Maintain Operations Utilization Plan	1396	880	748	663	636	616	540	540	465	465	492	447	352	315
150.B24	Maintain ICDs	683	500	482	495	490	492								
150.B82	Perform Feed Tank Fill Status Trade Study	157													
150.B84	Establish Feed Tank Fill Status (RL Decision)	4													
160.A12	Estab Tech (Process) Reqmnts-Phase I Sldg Pret	38													
160.A15	Assess Sec Waste, Util Samp Anly Agst Plan (HLW)	6													
160.A16	Prep DQO for Privatization Char of Pot HLW Feed	40													
160.A17	Compare RAM/O&M Concept w/ OTP Results (HLW)		6												
160.A19	Retr. Revise Pretreat Rqmts (AZ-101/2 & AY-102)		33												
160.A20	Finalize HLW Pretreat Rqmts (AZ-101/2 & AY-102)		58	32											
160.A22	Determine Appropriate Alternative Tanks	47													
160.A43	Optimize PH1 Feed Sludge Wash by Proc Simulatio	77													
160.A44	Deter if Existing Data Meets DQO Needs - AZ-101	27													
160.A46	Take Additional Grab Samples from AZ-101	286													
160.A48	Perf/Doc Smpl Analysis/Sldg Wash Test-AZ-101	211	307												

Table 4 Cost Loading Report

REPORT DATE 29DEC97
16:45
RTP COST ($K) by WBS Level 6 by Level 7

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT
TOTAL USAGE FOR YEAR

RTP 17DEC97
DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
160.F00	Deter if Existing Data Meets DQO Needs - AZ-102	27													
160.F05	Obtain Core Smpls/Prep Subsmpls/Comp for AZ-102	1889													
160.F10	Perf/Doc Smpl Analysis/SldgWash Testing - AZ-102	211	307												
160.F12	Update BBI and TCR for AZ-102		27												
160.F15	Confirm that AZ-102 is Acceptable for Feed to PC		25												
160.H00	Deter if Existing Data Meets DQO Needs - AY-102	27													
160.H05	Obtn Core Smpls/Prep Subsmpls/Comp for AY-102	26	774	1059											
160.H20	Perf/Doc Smpl Analysis/Sldg Wash Testing-AY-102			505											
160.H22	Update BBI and TCR for AY-102				26										
160.J00	Deter if Existing Data Meets DQO Needs - C-104	27													
160.J05	Obtain Core Smpls/Prep Subsmpls/Comp for C-104	288	1585												
160.J10	Perf/Doc Smpl Analysis/SldgWash Testing C-104	28	487												
160.J12	Update BBI and TCR for C-104			26											
160.J15	Confirm that C-104 is Acceptable for Feed to PC			24											
620.015	Develop Waste Feed Delivery Safety Basis DQO	16													
620.020	Maintain Waste Feed Delivery System Summary	1321	873	256	256	254	255	255	255	255	255	255	255	255	255
620.055	Develop Waste Feed Delivery Permitting DQO	16													
620.060	Eval Envmmntl Baseline HLW/LLW Feed Delivery	75													
620.070	Update Environmental Baseline	132													
620.090	Maintain Environmtl Baseline for Phase I Ext Ops		134	131	131	130									
TOTAL	11310102	11726	13854	5698	2295	2636	1978	1410	1410	1335	1335	1362	1317	1223	1185
11310103	RETRIEVAL SYSTEMS DEF.														
120.C25	Evaluate Equipment Rqmts in AY-101					103									
120.E40	Revise W-211 FDC for AN-104	55													
120.G38	Decn Board/Acqn Strategy PHI Ret After AN-104	40													
120.G39	Adjust Acquistion Strategy WFD System	47	46	45	45	45	45	45	45						
120.G40	Revise W-211 FDC for AW-101	55													
120.J40	Revise W-211 FDC for AN-103	55													
120.K40	Revise W-211 FDC for AN-107		54												
120.L37	Provide Documentation for W-TBD Validation		465	398											
120.L40	Prep W-TBD Prj Definition/Tech Basis/FDC	154	596												
120.L41	241-AN-102 Upgrades: Prep Tech Rqmnts & CDR						380								
120.M40	241-AN-106 Upgrades: Prep Tech Rqmnts & CDR							380							
120.P32	Validate SY-102 Design to DST Specification		2	47											
120.R40	Revise W-TBD Design Specifications for SY-101				53										

Table 4 Cost Loading Report

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

REPORT DATE 29DEC97
16:45
RTP COST ($K) by WBS Level 6 by Level 7

TOTAL USAGE FOR YEAR

RTP 17DEC97

DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
120.V25	Evaluate Equipment Rqmts in AP-101			104											
120.W25	Evaluate Equipment Rqmts in AW-104			104											
160.A26	Devel Tech Rqmts & CDR For Addl Eqpt in AZ-101	412													
160.F30	Revise W-211 FDC for AZ-102	55													
160.H17	Revise W-211 FDC for AY-102	54	1												
270.J99	ISSTRS Prj 1st Tank C-104 & Retrieve to AN-105	1395	1395												
TOTAL	11310103	2321	2561	699	99	148	478	425	45						
11310106	W-320 C-106 SLUICING														
050.010	W-320 Project Management	1242	1242	401											
050.020	Design New Eqpmnt - W-320 Includes C-106/AY-102	852													
050.030	Construct New Eqpmnt - W-320 Includes C-106	6142													
050.040	Construct/ATP Original Equipment for W-320	662													
050.045	Design/Equipment Support for W-320	2217													
050.050	Perform OTP for W-320	777													
050.060	Prepare Safety Doc Basis for Interim Ops - W-320	181													
050.070	Prep/Conduct ORR/Receive RL Approval - W-320	800													
050.090	Sluic Sludge Into AY-102 - W-320		2458	40											
050.100	Design Additional Equipment W-320		185												
050.110	Construct Additional Equipment W-320		538	193											
050.120	Test Additional Equipment W-320			55											
050.130	Process Control Document - W-320	1074	1074												
TOTAL	11310106	13947	5498	688											
11310107	INITIAL SST RETRIEVAL SYSTEM														
270.J99	ISSTRS Prj 1st Tank C-104 & Retrieve to AN-105			5627	6758	6731	6758	5466							
TOTAL	11310107			5627	6758	6731	6758	5466							
11310109	RETRIEVAL OPS (SST)														
270.J99	ISSTRS Prj 1st Tank C-104 & Retrieve to AN-105							703	2900						
TOTAL	11310109							703	2900						

Table 4 Cost Loading Report

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

REPORT DATE 29DEC97 16:45 — RTP 17DEC97

RTP COST ($K) by WBS Level 6 by Level 7 — TOTAL USAGE FOR YEAR — DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
11310110	FUTURE DST RETRIEVAL PROJECTS														
120.A88	Prepare for ORR AZ-101		122	252											
120.B10	Dsn/Install Central Control Room/Shift Ofc Facl	393	1591	708											
120.C30	Upgrade Waste Tank AY-101 as Required							179	209						
120.L39	Define Project Management for W-TBD			119	168										
120.L50	241-AN-102 Upgrades: Design & Enviro. Permits	166	97				420								
120.L55	241-AN-102 Upgrades: Const/ATP/Turnover/H14 Dwgs						764	852	5						
120.L60	241-AN-102 Upgrades: Startup/OTP/Ops Documents							46	184						
120.L68	Prep for ORR for 241-AN-102								155						
120.L70	Contractor Independent ORR for 241-AN-102								115						
120.M50	241-AN-106 Upgrades: Design & Enviro. Permits	166	97					420							
120.M55	241-AN-106 Upgrades: Const/ATP/Turnover/H14 Dwgs							767	851	3					
120.M60	241-AN-106 Upgrades: Startup/OTP/Ops Documents								46	183					
120.M68	Prep for ORR on Tank 241-AN-106									155					
120.M70	Contractor Independent ORR for 241-AN-106									115					
120.R50	Design Upgrade W-TBD for SY-101				117	3644	1749								
120.R52	Equipment Procurement for SY-101					3069	2805								
120.R55	Construct/Test/Project Turnover of SY-101						3678	5624	523						
120.R60	Startup for SY-101 (W-TBD) Mixing & Retr Sys								1816						
120.R68	Prep for ORR on 241-SY-101							155							
120.R70	Contract Independent ORR on 241-SY-101								105	10					
120.T50	Design Upgrade W-TBD for SY-103						2260	3252							
120.T52	Equipment Procurement W-TBD for SY-103						1254	4449	177						
120.T55	Construct/Test/Project Turnover of SY-103							937	6966	1922					
120.T60	Startup for SY-103 (W-TBD) Mixing & Retr Sys									1816					
120.T68	Prep for ORR on SY-103								15	140					
120.T70	Contract Independent ORR on SY-103									111	5				
120.V30	Upgrade Waste Tank AP-101 as Required							303							
120.W30	Upgrade Waste Tank AW-104 as Required							303							
130.B62	Upgrd Valve Pits AW-A&B - W-454-Replace Jumpers		690	685											
160.A32	Redesign Addl Eqpt Req'd for Sludge Wash-AZ-101	331	412												
160.A36	Construct Equip Req'd for Sludge Washing-AZ-101		1314	344											
160.A38	Upgrade AZ-101 W-xxx		55	232											
160.A40	Contractor Independent ORR for AZ-101		27	90											
160.A41	Develop Draft Sludge Wash Temp Control Rqmts	51													
160.A42	DOE ORR for AZ-101			61	12										
TOTAL	11310110	1107	4404	2490	296	6713	12929	17286	11166	4454	5				

Table 4 Cost Loading Report

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RTP COST ($K) by WBS Level 6 by Level 7

TOTAL USAGE FOR YEAR

RTP 17DEC97
DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
11310112	PH 1 RETRIEVAL OPS (DST)														
050.080	Interface (xfr Part of AY-102 Supernatant Out)	29													
120.B40	Prepare AP-102/AP-104 for Turnover to Project	172													
130.015	Manage Waste Transfer System During Xfer Sys Up	35	42	31											
130.B10	Procure WFD Spare Equip (Operations)		469	1635											
130.B15	Prep to Maintain the WFD Sys Operable	46	582	164											
130.B16	Maintain WFD Sys Operable			1233	2089	2190	2317	2260	2648	2973	2973	2973	2973	2973	
130.B25	Degas AN-105				54										
130.B30	Mob/Retr Wst in AN-105/Rec Feed in AP-102/AP-104				311										
130.B40	Perform Bootstrap Transfers			9	291	17									
130.B55	Prepare Batch 1 Process Control Plan AN-105			24		11									
130.C10	Retrieve Waste in AY-101/Receive Feed in AP-102								40						
130.C20	Retrieve Waste in AY-101/Receive Feed in AP-104								40						
130.C25	Prepare AY-101 Process Control Plan								24	11					
130.E10	Degas AN-104				16	37									
130.E25	Prepar AN-104 Process Control Plan				24		11								
130.E30	Mob/Retr Wst in AN-104/Rec Feed in AP-102/104				16	293									
130.F10	B.S. Xfer AZ-102 Supernate into AY-101/AN-104				9	40									
130.F20	Prepare AZ-102 PRocess Control Plan					24		11							
130.G10	Degas AW-101					11	43								
130.G25	Prepare AW-101 Procoess Control Plan					24		11							
130.G30	Mob/Retr Wst in AW-101/Rec Feed in AP-102						249								
130.G40	Transfer 2nd Vendor Waste From AW-101 to AP-104						40								
130.H10	Bootstrap Trans AY-102 Supernate into AN-105						32								
130.H20	Prepare Tank 241-AY-102 Process Control Plan						24		11						
130.J10	Degas AN-103						53								
130.J20	Prepare C-104/AZ-101 Process Control Plan								24			11			
130.J25	Prepare AN-103 Process Control Plan						24	11							
130.J30	Transfer Wst in AN-103/Rec Feed in AP-102						12	236							
130.J40	Transfer Wst in AN-103/Rec Feed in AP-104						9	31							
130.K20	Prepare AN-107 Process Control Plan								24	11					
130.K30	Transfer Wst in AN-107/Rec Feed in AP-102									40					
130.K40	Transfer Wst in AN-107/Rec Feed in AP-104									40					
130.L20	Prepare AN-102 Process Control Plan									24	11				
130.L30	Transfer Wst in AN-102/Rec Feed in AP-102									40					
130.L40	Transfer Wst in AN-102/Rec Feed in AP-104									40					
130.M20	Prepare AN-106 Process Control Plan									24	11				

Table 4 Cost Loading Report

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

REPORT DATE 29DEC97
16:45
RTP COST ($K) by WBS Level 6 by Level 7

TOTAL USAGE FOR YEAR

RTP 17DEC97

DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
130.M40	Transfer Wst in AN-106/Rec Feed in AP-104										40				
130.N20	Prepare Process Ctrl Plan AZ-101			24		11									
130.N30	Btstrap Trans AZ-101 to AY-101			44											
130.P50	Mob/Retr Wst in SY-102/Rec Feed in AW-105									400					
130.R10	Degas SY-101									53					
130.R25	Prepare SY-101 Process Control Plan									24		11			
130.R30	Mob/Retr 1st Wst in SY-101/Rec Feed in SY-102									271					
130.R35	X-Site Transf 1st SY-101 from SY-102 to AN-102									169					
130.R40	Mob/Retr 2nd Wst in SY-101/Rec Feed in SY-102									24					
130.R45	Transfer 1st SY-101 from AN-102 to AP-102										40				
130.R50	X-Site Transf 2nd SY-101 from SY-102 to AN-107									169					
130.R55	Transf 2nd SY-101 from AN-107 to AP-104										40				
130.T10	Degas SY-103									16	37				
130.T25	Prepare SY-103 Process Control Plan									24			11		
130.T30	Mob/Retr Wst in SY-103/Rec Feed in SY-102									12	259				
130.T35	X-Site Trfr Btch 1 SY-103/Feed SY-102 to AN-102										169				
130.T40	Mob/Retr Wst in SY-103/Rec Feed in SY-102										24				
130.T45	Trfr Btch 1 SY-103 Feed from AN-102 to AP-102											40			
130.T50	X-Site Trfr Btch 2 SY-103/Feed SY-102 to AN-107										169				
130.T55	Trfr Btch 2 SY-103 Feed from AN-107 to AP-104											40			
130.V10	Retrieve Waste in AP-101/Receive Feed in AP-102							40							
130.V20	Retrieve Waste in AP-101/Receive Feed in AP-104							40							
130.V25	Prep AP-101/AW-104 Batch Process Control Plan							24	11						
130.W10	Retrieve Waste in AW-104/Receive Feed in AP-102							40							
130.W20	Retrieve Waste in AW-104/Receive Feed in AP-104							40							
150.B32	Mix AN-105 Feed in AP-102				4	26									
150.B42	Adjust AN-105 Feed in AP-102				161	9									
150.B44	Deliver AN-105 Feed to AP-106					35									
150.B48	Mix AN-105 Feed in AP-104				4	26									
150.B58	Adjust AN-105 Feed in AP-104				110	59									
150.B60	Deliver AN-105 Feed to AP-108					35									
150.C05	Mix AY-101 Feed in AP-102								30						
150.C30	Adjust AY-101 Feed in AP-102								169						
150.C35	Deliver AY-101 Feed from AP-102 to AP-106									35					
150.C40	Mix AY-101 Feed in AP-104								30						
150.C65	Adjust AY-101 Feed in AP-104								169						
150.C70	Deliver AY-101 Feed from AP-104 to AP-108									35					
150.E05	Mix AN-104 Feed in AP-102					30									

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PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

REPORT DATE 29DEC97
16:45
RTP COST ($K) by WBS Level 6 by Level 7

TOTAL USAGE FOR YEAR

RTP 17DEC97

DATA DATE 01OCT97

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150.E35	Deliver AN-104 Feed from AP-102 to AP-106						35								
150.E40	Mix AN-104 Feed in AP-104					30									
150.E64	Empty AP-107 Into AN-104 for Vendor Returns					44									
150.E65	Adjust AN-104 Feed in AP-104					169									
150.E70	Deliver AN-104 Feed from AP-104 to AP-108						35								
150.G05	Mix AW-101 Feed in AP-102						30								
150.G30	Adjust AW-101 Feed in AP-102						169								
150.G35	Deliver AW-101 Feed from AP-102 to AP-106						31	4							
150.G40	Mix AW-101 Feed in AP-104						30								
150.G65	Adjust AW-101 Feed in AP-104						169								
150.G70	Deliver AW-101 Feed from AP-104 to AP-108						12	24							
150.J05	Mix AN-103 Feed in AP-102							30							
150.J30	Adjust AN-103 Feed in AP-102						4	165							
150.J35	Deliver AN-103 Feed from AP-102 to AP-106							35							
150.J40	Mix AN-103 Feed in AP-104							30							
150.J65	Adjust AN-103 Feed in AP-104							169							
150.J70	Deliver AN-103 Feed from AP-104 to AP-108							35							
150.K05	Mix AN-107 Feed in AP-102								30						
150.K30	Adjust AN-107 Feed								169						
150.K35	Deliver AN-107 Feed from AP-102 to AP-106									35					
150.K37	Deliver AN-107 Feed from AP-102 to AP-106									35					
150.K70	Deliver AN-107 Feed from AP-104 to AP-108									35					
150.K72	Deliver AN-107 Feed from AP-104 to AP-108									35					
150.L05	Mix AN-102 Feed in AP-102									30					
150.L30	Adjust AN-102 Feed in AP-102									169					
150.L35	Deliver AN-102 Feed from AP-102 to AP-106									35					
150.L40	Mix AN-102 Feed in AP-104									30					
150.L65	Adjust AN-102 Feed in AP-104									169					
150.L70	Deliver AN-102 Feed from AP-104 to AP-108										35				
150.M05	Mix AN-106 Feed in AP-102									4	26				
150.M30	Adjust AN-106 Feed in AP-102									165	4				
150.M35	Deliver AN-106 Feed from AP-102 to AP-106										35				
150.M40	Mix AN-106 Feed in AP-104										30				
150.M65	Adjust AN-106 Feed in AP-104										169				
150.M70	Deliver AN-106 Feed from AP-104 to AP-108										35				
150.R05	Mix SY-101 Feed in AP-102										30				
150.R30	Adjust SY-101 Feed in AP-102										169				
150.R35	Deliver SY-101 Feed from AP-102 to AP-106											35			

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PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

REPORT DATE 29DEC97
16:45
RTP COST ($K) by WBS Level 6 by Level 7

TOTAL USAGE FOR YEAR

RTP 17DEC97

DATA DATE 01OCT97

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150.R65	Adjust SY-101 Feed in AP-104										169				
150.R70	Deliver SY-101 Feed from AP-104 to AP-108											35			
150.T05	Mix SY-103 Feed in AP-102											30			
150.T30	Adjust SY-103 Feed in AP-102											169			
150.T35	Deliver SY-103 Feed from AP-102 to AP-106											35			
150.T40	Mix SY-103 Feed in AP-104											30			
150.T65	Adjust SY-103 Feed in AP-104											169			
150.T70	Deliver SY-103 Feed from AP-104 to AP-108												35		
150.V05	Mix AP-101 Feed in AP-102							30							
150.V30	Adjust AP-101 Feed in AP-102							169							
150.V35	Deliver AP-101 Feed from AP-102 to AP-106								35						
150.V40	Mix AP-101 Feed in AP-104							30							
150.V65	Adjust AP-101 Feed in AP-104							169							
150.V70	Deliver AP-101 Feed from AP-104 to AP-108								35						
160.A52	Pretreat AZ-101 (In-Tank Sludge Washing)				1452										
160.A62	Perf Final Decant/Add Transfer Solution - AZ-101				23										
160.A64	Mix Waste to Resuspend Solids for AZ-101				159										
160.A72	Deliver Second Batch of Feed from AZ-101						10								
160.A78	Deliver First Batch of Feed from AZ-101					18									
160.F65	Pretreat AZ-102 (In-Tank Sludge Washing)					1366	76								
160.F70	Perf Final Decant/Add Transfer Solution - AZ-102						23								
160.F75	Mix Waste to Resuspend Solids for AZ-102						158								
160.F95	Deliver First Batch of Feed from AZ-102						9	10							
160.F99	Deliver Second Batch of Feed from AZ-102							10							
160.H27	Pretreat AY-102 (In-Tank Sludge Washing)						625	820							
160.H45	Perf Final Decant/Add Transfer Solution-AY-102							23							
160.H47	Mix Waste to Resuspend Solids for AY-102							158							
160.H75	Deliver First Batch of Feed from AY-102								18						
160.H80	Deliver Second Batch of Feed from AY-102									10					
160.H85	Deliver Third Batch of Feed from AY-102									10					
160.H90	Deliver Fourth Batch of Feed from AY-102										10				
160.H95	Deliver Fifth Batch of Feed from AY-102										10				
160.J65	Pretreat C-104/AZ-101 (In-Tank Sludge Washing)								485	959					
160.J70	Perf Decant/Add Transfer Solution - C-104/AZ-101									23					
160.J75	Mix Waste to Resuspend Solids for C-104/AZ-101									158					
160.J95	Deliver 1st Batch of Feed from C-104/AZ-101											18			
160.J97	Deliver 2nd Batch of Feed from C-104/AZ-101												10		
160.J99	Deliver 3rd Batch of Feed from C-104/AZ-101													10	
350.X05	Transfer PC#1 & PC#2 Solids to AP-107						40	34	34	46	23	34	34		
TOTAL	11310112	282	1092	3163	4723	4673	4270	4689	4027	6426	4548	3632	3063	2983	

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PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

REPORT DATE 29DEC97
16:45
RTP COST ($K) by WBS Level 6 by Level 7

TOTAL USAGE FOR YEAR

RTP 17DEC97
DATA DATE 01OCT97

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11310113	PH 1 RETRIEVAL SAFETY BASIS														
130.B17	Devel Tech Basis: Rem Waste F/Watchlist Tanks			243											
130.B20	Obtain Permission to Add Diluent to FGWL DSTs				5										
150.B10	Safety Analysis and Evaluation	439													
150.B14	Develop/Establish TSRs	126													
150.B16	Update/Amend Auth Basis for WFD Activities	11	805	21											
620.030	Perform Feed Delivery USQ Process for HLW/LLW	40													
620.050	Develop Waste Feed Delivery Licensing Strategy	166	30												
TOTAL	11310113	783	835	264	5										
11310114	PH 1 RETR OPS (CHARACTERIZATION)														
150.B34	Obtain AN-105 Feed Qual Samples from AP-102				73	169									
150.B36	Provide AN-105 Samples from AP-102 to PC 1					6									
150.B38	Analy AN-105 Smpls/Interpret Results from AP-102					215									
150.B40	Prov AN-105 Feed Batch Info from AP-102 to PC 1					1									
150.B50	Obtain AN-105 Feed Qual Samples from AP-104				73	169									
150.B52	Provide AN-105 Samples from AP-104 to PC 2					6									
150.B54	Analy AN-105 Smpls/Interpret Results from AP-104					215									
150.B56	Provide AN-105 Feed Batch Info to PC 2					1									
150.C10	Obtain AY-101 Feed Qual Samples from AP-102								242						
150.C15	Provide AY-101 Samples from AP-102 to PC 1								6						
150.C20	Analy AY-101 Smpls/Interpret Results from AP-102								216						
150.C25	Provide AY-101 Feed Batch Info to PC 1								1						
150.C45	Obtain AY-101 Feed Qual Samples from AP-104								242						
150.C50	Provide AY-101 Samples from AP-104 to PC 2								6						
150.C55	Analy AY-101 Smpls/Interpret Results from AP-104								216						
150.C60	Prov AY-101 Feed Batch Info from AP-104 to PC 2								1						
150.E10	Obtain AN-104 Feed Qual Samples from AP-102					242									
150.E15	Provide AN-104 Samples from AP-102 to PC 1					6									
150.E20	Analy AN-104 Smpls/Interpret Results from AP-102					215									
150.E25	Provide AN-104 Feed Batch Info to PC 1					1									
150.E45	Obtain AN-104 Feed Qual Samples from AP-104					242									
150.E50	Provide AN-104 Samples from AP-104 to PC 2					6									
150.E55	Analy AN-104 Smpls/Interpret Results from AP-104					215									
150.E60	Prov AN-104 Feed Batch Info from AP-104 to PC 2					1									

Table 4 Cost Loading Report

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

REPORT DATE 29DEC97 16:45 | RTP 17DEC97

RTP COST ($K) by WBS Level 6 by Level 7 | TOTAL USAGE FOR YEAR | DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
150.G15	Provide AW-101 Samples from AP-102 to PC 1						6								
150.G20	Analy AW-101 Smpls/Interpret Results from AP-102						216								
150.G25	Prov AW-101 Feed Batch Info from AP-102 to PC 1						1								
150.G45	Obtain AW-101 Feed Qual Samples from AP-104						242								
150.G50	Provide AW-101 Samples from AP-104 to PC 2						6								
150.G55	Analy AW-101 Smpls/Interpret Results from AP-104						216								
150.G60	Prov AW-101 Feed Batch Info from AP-104 to PC 2						1								
150.J10	Obtain AN-103 Feed Qual Samples from AP-102						6	236							
150.J15	Provide AN-103 Samples from AP-102 to PC 1							6							
150.J20	Analy AN-103 Smpls/Interpret Results from AP-102							216							
150.J25	Provide AN-103 Feed Batch Info to PC 1							1							
150.J45	Obtain AN-103 Feed Qual Samples from AP-104							242							
150.J50	Provide AN-103 Samples from AP-104 to PC 2							6							
150.J55	Analy AN-103 Smpls/Interpret Results from AP-104							216							
150.J60	Prov AN-103 Feed Batch Info from AP-104 to PC 2							1							
150.K10	Obtain AN-107 Feed Qual Samples from AP-102								242						
150.K15	Provide AN-107 Samples from AP-102 to PC 1								6						
150.K20	Analy AN-107 Smpls/Interpret Results from AP-102								216						
150.K25	Prov AN-107 Feed Batch Info from AP-102 to PC 1								1						
150.L10	Obtain AN-102 Feed Qual Samples from AP-102									242					
150.L15	Provide AN-102 Samples from AP-102 to PC 1									6					
150.L20	Analy AN-102 Smpls/Interpret Results from AP-102									216					
150.L25	Prov AN-102 Feed Batch Info from AP-102 to PC 1									1					
150.L45	Obtain AN-102 Feed Qual Samples from AP-104									242					
150.L50	Provide AN-102 Samples from AP-104 to PC 2									6					
150.L55	Analy AN-102 Smpls/Interpret Results from AP-104									216					
150.L60	Provi AN-102 Feed Batch Info from AP-104 to PC 2									1	0				
150.M10	Obtain AN-106 Feed Qual Samples from AP-102									51	191				
150.M15	Provide AN-106 Samples from AP-102 to PC 1										6				
150.M20	Analy AN-106 Smpls/Interpret Results from AP-102										216				
150.M25	Prov AN-106 Feed Batch Info from AP-102 to PC 1										1				
150.M45	Obtain AN-106 Feed Qual Samples from AP-104										242				
150.M50	Provide AN-106 Samples from AP-104 to PC 2										6				
150.M55	Analy AN-106 Smpls/Interpret Results from AP-104										216				
150.M60	Prov AN-106 Feed Batch Info from AP-104 to PC 2										1				
150.R10	Obtain SY-101 Feed Qual Samples from AP-102										242				
150.R15	Provide SY-101 Samples from AP-102 to PC 1										6				
150.R20	Analy SY-101 Smpls/Interpret Results from AP-102										216				

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REPORT DATE 29DEC97
16:45
RTP COST ($K) by WBS Level 6 by Level 7

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

TOTAL USAGE FOR YEAR

RTP 17DEC97

DATA DATE 01OCT97

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150.R45	Obtain SY-101 Feed Qual Samples from AP-104										242				
150.R50	Provide SY-101 Samples from AP-104 to PC 2										6				
150.R55	Analy SY-101 Smpls/Interpret Results from AP-104										207	9			
150.R60	Prov SY-101 Feed Batch Info from AP-104 to PC 2											1			
150.T10	Obtain SY-103 Feed Qual Samples from AP-102											242			
150.T15	Provide SY-103 Samples from AP-102 to PC 1											6			
150.T20	Analy SY-103 Smpls/Interpret Results from AP-102											216			
150.T25	Prov SY-103 Feed Batch Info from AP-102 to PC 1											1			
150.T45	Obtain SY-103 Feed Qual Samples from AP-104											242			
150.T50	Provide SY-103 Samples from AP-104 to PC 2											6			
150.T55	Analy SY-103 Smpls/Interpret Results from AP-104											216			
150.T60	Prov SY-103 Feed Batch Info from AP-104 to PC 2											1			
150.V10	Obtain AP-101 Feed Qual Samples from AP-102							242							
150.V15	Provide AP-101 Samples from AP-102 to PC 1							6							
150.V20	Analy AP-101 Smpls/Interpret Results from AP-102							205	11						
150.V25	Provide AP-101 Feed Batch Info to PC 1								1						
150.V45	Obtain AP-101 Feed Qual Samples from AP-104							242							
150.V50	Provide AP-101 Samples from Ap-104 to PC 2							6							
150.V55	Analy AP-101 Smpls/Interpret Results from AP-104							198	18						
150.V60	Prov AP-101 Feed Batch Info From Ap-104 to PC 2								1						
160.A25	Update BBI & TCR to Reflect Process Test AZ-101		27												
160.A66	Obtain HLW Feed Qual Grab Samples AZ-101 Solids				255										
160.A68	Eval Samples/Establish MT for AZ-101				394										
160.A74	Provide Separate Samples to the PC - AZ-101				4										
160.A76	Prov MT Non-Volatile Oxides Exclude Na/Si-AZ-101				1										
160.F50	Obtain HLW Feed Qual Grab Samples AZ-102 Solids					35	218								
160.F55	Eval Smpls/Estab MTof Non-Volatile for AZ-102						392								
160.F85	Provide Separate Samples to Private Contractor						3								
160.F90	Provide MT Non-Volatile Oxides Excluding Na/Si						1								
160.H25	Confirm that AY-102 is Acceptable for Feed to PC				24										
160.H50	Obtain HLW Feed Qual Grab Samples AY-102 Solids							254							
160.H55	Eval Smpls/Estab MT of Non-Volatile for AY-102							392							
160.H65	Provide MT Non-Volatile Oxides Excluding Na/Si							1							
160.H70	Provide Separate Samples to PC - AY-102							3							
160.J50	Obtain HLW Feed Qual Grab Samp C-104/AZ-101									254					
160.J55	Eval Smpls/Estab MT of Non-Volatile for C-104									392					
160.J85	Provide Separate Samples to Private Contractor									3					
160.J90	Provide MT Non-Volatile Oxides Excluding Na/Si									1					
TOTAL	11310114		27		824	1750	1552	2476	1429	1633	1802	941			

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REPORT DATE 29DEC97
16:45
RTP COST ($K) by WBS Level 6 by Level 7

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT
TOTAL USAGE FOR YEAR

RTP 17DEC97
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11310126	W-314 PH 1 REST/SAFE OPS (L)														
250.110	Project W-314 (Phase I) Management	7135	5450	1394											
250.120	Project W-314 (Phase I) Permits/Safety Analysis	225	136	74											
250.4A0	W-314 Master Pump Shut Down Upgrades	3340	4293	1576											
250.4C0	W-314 Upgrades to AN Farm	4179													
250.4D0	W-314 AZ Farm Upgrades	1286	3621												
250.4E0	W-314 200 E/W Piping Upgrades	4416	5546	857											
250.4E5	Prepare AW Farm for Construction Actitivies	179													
250.4F0	W-314 AW Farm Upgrades	698	1707												
250.4G0	W-314 Upgrades to AY Farm	1747	1372												
250.C01	Prepare AN Tank Farm for W-314 Construction	208													
TOTAL	11310126	23412	22126	3900											
11310140	W-314 PH 1 REST/SAFE OPS (E)														
250.130	Project W-314 (Phase I) Implementation	2312	3191	6048											
TOTAL	11310140	2312	3191	6048											
1131014E	PROJECT-W-151 101-AZ RETRIEVAL (L)														
110.010	W-151 Project Management	113													
110.050	Conduct LMHC Readiness Assessment	187													
110.070	Perform Mixer Pump Test (W-151)	1													
TOTAL	1131014E	301													
1131014P	PROJECT W-151 101-AZ PROCESS TEST														
110.010	W-151 Project Management	51	31												
110.045	Revise/Iss Mixer Pump Test Plans/Procedures	31													
110.070	Perform Mixer Pump Test (W-151)	207													
110.090	Prepare Test Report (W-151)	98													
TOTAL	1131014P	388	31												

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16:45
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1131015E	W-211 INITIAL TANK RET SYSTEMS (EXPENSE)														
120.A00	W-211 Project Management	1260	1218	1324	1572	1632	1639	1440	1139	191					
120.B50	W-211 Startup AP-102/AP-104 Retrieval Systems				1338										
120.B58	Prep for ORR on AP-102 & 104			371											
120.B60	Contract Independent ORR on AP-102 & 104			51	65										
120.D80	W-211 Startup AN-105 Retrieval System				99										
120.D88	Prep ORR AN-105			371											
120.D90	Contract Independent ORR AN-105			51	65										
120.E60	W-211 Startup AN-104 Mixing & Retrieval System				544	7									
120.E68	Prep for Readiness Rvw on 241-AN-104				283										
120.E70	Contractor Independent ORR for 241-AN-104				116										
120.F60	W-211 Startup AZ-102 Retrieval System				1	405									
120.F68	Prepare for ORR AZ-102				283										
120.F80	Contractor Independent ORR for AZ-102				51	64									
120.G60	W-211 Startup AW-101 Retrieval System					113	250								
120.G68	Prep for ORR on AW-101					262									
120.G70	Contract Independent ORR on AW-101					68	47								
120.H30	W-211 Startup AY-102 Retrieval System						611								
120.H50	Contractor Independent ORR AY-102					26	89								
120.H68	Prepare for ORR AY-102					150	86								
120.J60	W-211 Startup AN-103 Retrieval System						492								
120.J68	Prep for ORR on 241-AN-103					222	1								
120.J70	Contractor Independent ORR for 241-AN-103					26	89								
120.K60	Upgrd W-211 OTP/Ops Docmntn for AN-107 (Ops)						233	101							
120.K68	Prep for ORR for 241-AN-107						155								
120.K70	Contractor Independent ORR for 241-AN-107						115								
120.P22	Contractor Independent ORR for SY-102								66						
120.P70	W-211 Startup SY-102 Retrieval System								312	380					
120.P90	Prep for ORR on 241-SY-102 Project W-211							2	403						
TOTAL	1131015E	1260	1218	2168	4417	2976	3806	1542	1920	571					
1131015L	W-211 INITIAL TANK RET SYS (LINE ITEM)														
120.A00	W-211 Project Management	2416	6894	7282	2732	5121	6305	4482	3552	1093					
120.B35	W-211 Design AP-102/AP-104 Retrieval Systems	3483	614												
120.B42	W-211 Equip Procure AP-102/AP-104 Retrieval Syst	3374	2715												

Table 4 Cost Loading Report

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

REPORT DATE 29DEC97
16:45
RTP COST ($K) by WBS Level 6 by Level 7

TOTAL USAGE FOR YEAR

RTP 17DEC97

DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
120.D65	W-211 Design AN-105 Retrieval System	2461	733												
120.D72	W-211 Equip Procurement AN-105 Retrieval System	801	991												
120.D75	W-211 Construction AN-105 Retrieval System		4634	5494											
120.E50	W-211 Design AN-104 Retrieval System	1016	1852												
120.E52	W-211 Equip Procurement AN-104 Retrieval System	263	1543	513											
120.E55	W-211 Construction AN-104 Retrieval System			8613	2517										
120.F40	W-211 Design AZ-102 Retrieval System	98	1614	478											
120.F50	W-211 Construction AZ-102 Retrieval System			3810	4710										
120.F52	W-211 Equip Procurement AZ-102 Retrieval System		586	1088											
120.G50	W-211 Design AW-101 Retrieval System		385	1566	190										
120.G52	W-211 Equip Procurement AW-101 Retrieval System			900	679										
120.G55	W-211 Construction AW-101 Retrieval System				5832	2986									
120.H10	W-211 Design AY-102 Retrieval System			1235	869										
120.H15	W-211 Equip Procurement AY-102 Retrieval System			52	161										
120.H20	W-211 Construction AY-102 Retrieval System				1071	4598	1195								
120.J50	W-211 Design AN-103 Retrieval System			2048	1116										
120.J52	W-211 Equip Procurement AN-103 Retrieval System			1014	2680										
120.J55	W-211 Construction AN-103 Retrieval System				3875	8146	950								
120.K50	W-211 Design AN-107 Retrieval System			563	1409										
120.K52	W-211 Equip Procurement AN-107 Retrieval System			114	906	409									
120.K55	W-211 Construction AN-107 Retrieval System					6129	2185								
120.P60	W-211 Construction SY-102 Retrieval System							8091	2297						
TOTAL	1131015L	13912	31020	41765	29348	27388	10636	12572	5849	1093					
11340101	ILAW PROJECT ADMINISTRATION														
460.005	ILAW Disposal Administration/Management	851	775	749	693	689	856	860	856	853	856	856	856	856	856
TOTAL	11340101	851	775	749	693	689	856	860	856	853	856	856	856	856	856
11340102	ILAW SYSTEMS DEFINITION														
460.005	ILAW Disposal Administration/Management	56													
460.015	Maintain ICDs	208				97							297	297	
460.030	Maintain Technical Requirements (DRD)	172	92												
460.035	Project Management Plan	15													
460.075	Prepare NEPA Documentation (W-465)	20													
460.095	Prepare/Maintain DRD - Disposal Facilities	281	117	38											
TOTAL	11340102	752	209	38		97							297	297	

Table 4 Cost Loading Report

REPORT DATE 29DEC97
16:45
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PRIMAVERA PROJECT PLANNER
COST LOADING REPORT
TOTAL USAGE FOR YEAR

RTP 17DEC97
DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
11340104	PROJECT W-465														
440.110	Prepare NEPA Documentation (W-464)				232										
440.120	Authorization Basis Development & Appr (W-464)		98	244	203	327									
460.015	Maintain ICDs	33	218	193	139	136									
460.040	ILAW Storage Conceptual Design (W-465)	276													
460.045	ILAW Storage Adv Conceptual Design (W-465)	520	730												
460.060	Project Validation (W-465)	104													
460.065	ILAW Storage Detailed Design (W-465)			3542	3414										
460.070	Modify Vaults (W-465)			1639	13116	12044									
460.075	Prepare NEPA Documentation (W-465)	62	49	215	12										
460.080	Prepare RCRA Permits (W-465)	68	366	278	177	15									
460.085	Authorization Basis Development & Appr (W-465)	76	191	370	393	709									
470.010	Procedures/Training/OTP/ORR (Initial Phase I)					693									
TOTAL	11340104	1139	1652	6482	17686	13925									
11340105	ILAW OPERATIONS														
460.160	Data Collection for Performance Assessment		1109	2559	2430	454	279	20							
460.170	Maintain ILAW Phase I Performance Assessment					731	458	405	400	398	341	300	300	300	300
470.010	Procedures/Training/OTP/ORR (Initial Phase I)			729	1725	1141									
470.040	Interim Store ILAW Operations (Initial Phase I)					486	1935	1943	1935	1927	1935	1295			
470.060	Procedures/Training/OTP/ORR (Balance Phase I)						775	1538	1270						
470.075	Dispose ILAW Operations (Balance Phase I)								636	3700	3715	3715	3715	3715	3715
TOTAL	11340105		1109	3287	4155	2812	3447	3906	4241	6025	5991	5310	4015	4015	4015
11340106	PROJECT W-520 FUTURE FACILITIES														
460.105	Conceptual Design - Disposal Facilities (W-520)	1895	302												
460.110	Advanced Conceptual Dsn - Disposal Fac (W-520)		853	1435											
460.112	Validate Project (W-520)		129												
460.115	Design Disposal Facilities (W-520)				5104	8840									
460.120	Construct Disposal Facilities (W-520)						55147	73782							
460.125	Regulatory Requirements for Disposal Facilities		7	148	378	575	181								229
460.130	Authorization Basis Development and Approval	299	78	59	178	270	437	680							
TOTAL	11340106	2194	1369	1642	5660	9686	55765	74461							229

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PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

REPORT DATE 29DEC97
16:45
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TOTAL USAGE FOR YEAR

RTP 17DEC97

DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
11340107	ILAW FACILITY CLOSURE AND D&D														
470.080	Close ILAW Disposal Facilities											602	1513	902	902
TOTAL	11340107											602	1513	902	902
1134013B	Obtain Borehole #1 Samples (C)														
460.145	Data Collection for 2001 Performance Assessment	132													
TOTAL	1134013B	132													
1134013E	ILAW PERFORMANCE ASSESSMENT (E)														
460.140	1998 Performance Assessment	443	11												
460.145	Data Collection for 2001 Performance Assessment	3087	3465	944	291										
460.155	2001 Performance Assessment			326	114	5									
TOTAL	1134013E	3531	3476	1270	405	5									
1134013M	X-Ray Microtomography Equip (C)														
460.145	Data Collection for 2001 Performance Assessment	120													
TOTAL	1134013M	120													
11340201	IHLW PROJECT ADMINISTRATION														
440.010	IHLW Interim Storage Administration/Management	170	107	104	138	138	138	139	138	138	138	138	138	138	138
TOTAL	11340201	170	107	104	138	138	138	139	138	138	138	138	138	138	138
11340202	IHLW SYSTEMS DEFINITION														
440.010	IHLW Interim Storage Administration/Management	50													
440.020	Prepare/Maintain ICDs (ID 13,14,17)	334	132	69	69	68	61	61	61	60	61	61	61	61	59
440.030	Project Management Plans	27													
440.040	Maintain Technical Requirements (DRD)	158	18	18											
490.090	Negotiate RW Requirements	74													
TOTAL	11340202	644	149	86	69	68	61	61	61	60	61	61	61	61	59

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16:45
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RTP 17DEC97
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ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
11340203	PROJECT W-464														
440.050	IHLW Storage Conceptual Design (W-464)	401													
440.060	Advanced Conceptual Design (W-464)	175	628												
440.070	Project Validation (W-464)	43	100												
440.090	Procure Equipment (W-464)		49	16271											
440.100	Design IHLW Storage Facility (W-464)			1559											
440.110	Prepare NEPA Documentation (W-464)	138													
440.115	Prepare RCRA Permits (W-464)	523	155	477											
440.120	Authorization Basis Development & Appr (W-464)	190	129	101	109										
440.140	Modify/Construct System (W-464)				23039										
450.010	Prep OTPs/Conduct Readiness Assessmnt (Phase I)					1902									
TOTAL	11340203	1469	1061	18407	23148	1902									
11340204	IHLW OPERATIONS														
450.030	Transport/Receive/Interim Store IHLW (Phase I)					948	2866	2877	2866	2855	2866	2866	2866	2866	2866
TOTAL	11340204					948	2866	2877	2866	2855	2866	2866	2866	2866	2866
11380101	PH-1 INFR. PROJ. MGT / ADM.														
330.010	Project Administration/Management/Engineering	358	464	378	419	212	213	214	213	212	213	213	213	213	141
TOTAL	11380101	358	464	378	419	212	213	214	213	212	213	213	213	213	141
11380102	PH-1 INFR. SYSTEM DEFINITION														
150.B66	Ready PHMC Oper/Maint Doc-AP-108 Turnover	27	747												
150.B76	Ready PHMC Oper/Maint Doc-AP-106 Turnover	27	747												
150.B88	Prep AP-106 for Turnover to Private Contractor	35													
150.B94	Establish Interface Reqmnts for Tank Turnover	208													
150.B98	Prep AP-108 for Turnover to Private Contractor	35													
330.020	Systems Definition	645	34	11											
TOTAL	11380102	978	1529	11											

Table 4 Cost Loading Report

PRIMAVERA PROJECT PLANNER
COST LOADING REPORT

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16:45
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RTP 17DEC97

DATA DATE 01OCT97

ACCOUNT	ACCOUNT TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
11380103	PH-1 INFR. PROJECT W-519 INFRAS PRJ														
330.010	Project Administration/Management/Engineering	1092	349	432	65										
330.020	Systems Definition	843													
330.030	IC Document Revisions/IC Drawings	237													
330.040	Compl Infrastructure Electrical Sys Contract Pkg	142													
330.050	Design/Construction/Startup Electrical System		10416	9856											
330.060	Dsn/Construction Site Sys for PC Construction		1716												
330.070	Dsn/Construct/S/up Water, Site, Liq Eff Systems		2903	6165	375										
TOTAL	11380103	2315	15383	16453	440										
11380104	PH-1 INFR. M&I OPERATIONS														
330.010	Project Administration/Management/Engineering			15	15	15									
330.080	Maint/Op/Provide Vendor Utils for Constr PC Phl			61	80	20									
330.090	Maint/Op/Prov Vendor Utils/Wst Disp S/up PC Phl					119									
330.100	Maint/Op/Prov Vendor/Wst Disp Prodctn PC Phl					95	287	288	287	286	287	287	287	287	190
330.120	Provide Vendor Staff Training				8669	17235									
TOTAL	11380104			75	8764	17483	287	288	287	286	287	287	287	287	190
11380105	PH-1 INFR. PC OPERATIONS														
330.080	Maint/Op/Provide Vendor Utils for Constr PC Phl			3072	4080	992									
330.090	Maint/Op/Prov Vendor Utils/Wst Disp S/up PC Phl					12537									
330.100	Maint/Op/Prov Vendor/Wst Disp Prodctn PC Phl					13455	40689	40851	40689	40526	40689	40689	40689	40689	26910
TOTAL	11380105			3072	4080	26984	40689	40851	40689	40526	40689	40689	40689	40689	26910
	REPORT TOTAL	86777	113628	124741	114965	128071	146838	170334	78204	66575	58898	57065	55423	54637	37599

5.0 SIGNIFICANT PROGRAM-LEVEL CHANGES (SCOPE, SCHEDULE, COST)

This section is a program summary-level discussion of the scope, schedule, and cost changes between the TWRS FY 1998 MYWP (Lenseigne 1997) and the revised RTP planning included in the Initial Updated Baseline. This discussion addresses the RTP scope and costs shown in Table 3, Summary Cost Spreadsheet, for "Phase 1B Logics." Additional TWRS Project costs related to Phase 1 (for scope not in the Logics) have been included in this Initial Updated Baseline. For a detailed discussion of these other costs, refer to the Financial Analysis (Wells 1998).

The Initial Updated Baseline represents a more thorough analysis of the Phase 1B scope, schedule, and cost than is contained in the FY 1998 MYWP. The RTP planning has benefitted from the systematic and controlled RTP planning process previously described in Section 1.0. This process has ensured that the higher level mission direction and requirements defined for the TWRS Project have been properly allocated through the technical logics and WBS to the detailed planning level (executable tasks) for each of the program elements. The RTP planning reflects development of mature Level 1 Logics where previously only preliminary Mid-Level Logics existed for the MYWP. The RTP planning also reflects improved scope and interface definition resulting from the use of the multi-functional, integrated planning teams and preparation of TBR packages. The basis of estimates are well documented in the TBR packages.

This section is provided to highlight the major changes related to scope, schedule, and costs. Detailed comparisons to the MYWP are of limited value due to the significant RTP advances in the logic and detailed planning basis. The Initial Updated Baseline will serve as the basis for a change request to revise the MYWP Baseline.

5.1 RETRIEVAL PROJECT

The Retrieval Project has been significantly replanned during RTP for Waste Feed Delivery activities shown on the Level 1 Logics and documented in the TBR packages. Activities for Feed Process System Definition and Retrieval Operations have received enhanced scope definition and planning detail from that shown in the TWRS FY 1998 MYWP (Lenseigne 1997). Extensive changes in these areas resulted in the revised Project Master Baseline Schedule shown on Figure 8 in Section 3.3. Major changes are as follows:

- Addition of two (2) feed batches to provide adequate LAW Envelope "A" and HLW Envelope "D" feed to the private contractors. The Envelope "A" feed batch will be provided from tanks AP-101 and AW-104 and the Envelope "D" batch will be provided from SST C-104 (first tank from the Initial Single-Shell Tank Retrieval System)

- Planning definition and detail related to sampling and characterization for feed definition, process control, and feed qualification

- Planning definition and detail related to DST Operations to deliver Phase 1 LAW and HLW feed batches and receive a solid slurry return waste stream back from the private contractors

- Rescoping of Project W-TBD to add two (2) mixer pump retrieval systems in tanks SY-101 and SY-103. The AN tanks previously planned will be retrieved with transfer pumps only

- Validation of the planning for the feed delivery Safety Authorization Basis amendment and addition of resources for RL Tier II and III reviews

- Completion of Project W-454 upgrades

- Numerous activities related to systems definition, design development, and testing for SSTs, DSTs, mixer pumps and sludge washing.

Schedule changes reflect significant replanning to address the added and deleted work scope as well as the revised logic to support the private contractors' feed delivery schedule. In general, schedule changes reflect:

- The addition of the new feed batches within the Phase 1 time constraints

- Acceleration of critical activities, as required, to reduce schedule risk and provide slack

  - Data Quality Objectives work
  - Project W-211 tank specific Functional Design Criteria
  - Project definition and upgrades work for DST retrieval systems beyond Project W-211
  - Design and construction work associated with the delivery of feed from AW-101 (LAW) and AZ-101 (HLW).

The RTP estimates for Phase 1 reflect an $84 Million increase from the MYWP. This increase is attributable to many factors in the revised planning (additions, deletions, and revised schedule). However, the following are the primary contributors:

- Increased scope and costs in the Phase 1 DST Retrieval Operations. A majority of these replanned operations were not costed in the MYWP.

- Increased scope and costs for the additional LAW feed batches including tank upgrades and operations.

- Increased scope and costs associated with sampling and analysis for feed definition, process control, and feed qualification.

5.2 IMMOBILIZED WASTE

Based on preparation of Level 1 Logics and associated baseline review and updates the following changes are noted:

- Replanned or added activities to address:
  - Safety Authorization Bases and Environmental Impact Statement Supplemental Analysis (C-2 Analysis)
  - Project Management Plans
  - Internal interface control documents
  - Compliance with proposed DOE Order 435.1
  - Preparation of Level 1 specifications for projects

- Updated planning (engineering studies) for Advanced Conceptual Design

- Revisions to correct cost entry errors in the MYWP

- Revision to reflect the Project W-520, Module 1 Facility Decontamination and Decommissioning/Closure as a Phase 2 cost.

The schedule changes reflect work added, deleted, or moved consistent with the Level 1 Logics and TBR packages. Significant changes are:

- Acceleration of existing grout vaults closure from FY 2011 to FY 2009

- Waste delisting petition and rulemaking petiton to U.S. Environmental Protection Agency shifted out 1 year (previous change requests)

- Additional activities to reflect the ILAW critical path strategy through completion of Operational Readiness Review and Critical Decision 4 by RL.

Overall, the RTP costs for Immobilized Waste is $14.7 Million lower than the MYWP. However, $11.9 Million is due to the movement of the W-520 Module 1 Decontamination and Decommissioning /Closure activities to Phase 2. The balance of the cost delta is due to correction of MYWP entry errors and Safety Authorization Basis replanning.

5.3 PRIVATIZATION INFRASTRUCTURE (Phase 1)

Based on preparation of Level 1 Logics and associated baseline review and updates, the following changes are noted.

- Extended Program/Project Management and Administration from FY 2001 through FY 2011 (not in MYWP).
- Added and deleted numerous Systems Definition activities (net cost decrease).
- Moved Phase 1 Management and Integration Operations support to the deactivation of the private contractors' facilities from Phase 1 to Phase 2 (beyond June 2011).
- Added costs for training of the private contractors' operators (FY 2001 and FY 2002) and utilities to support operation of the private contractors' facilities (FY 2003 and FY 2004); these were not funded in the FY 1998 MYWP (below the line in the MYWP).

Schedule changes reflect work added, deleted, or moved consistent with the Level 1 Logics and TBR packages. Significant changes are:

- Extension of Program/Project Management and Administration from FY 2001 through FY 2011
- Acceleration of waste management definition and feed tank turnover supporting activities to FY 1998
- Completed operations support (utilities) to the private contractors in June 2011 consistent with their plant operations. Utilities to support private contractors' deactivation are a Phase 2 cost.

Overall, the RTP costs for Privatization Infrastructure are $105.7 Million higher than the FY 1998 MYWP over a 4-year period. This delta is attributable to scope not funded (below the line) in the MYWP for the training of private contractors' operators in FY 2001 and FY 2002 and utility costs to support operation of the private contractors' facilities in FY 2003 and FY 2004.

Please note that the RTP estimate for Phase 1 private contractors' operations includes $155.3 Million for liquid effluent processing. Based on a determination that this scope of work is fully funded as part of the Waste Management Program, these costs are not required. A line item adjustment in Table 3 under "Retrieval Scope Transfer Shortfalls" is shown to delete the costs.

6.0 REFERENCES

Good Practice Guide

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APPENDIX A

LEVEL 1 LOGICS

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CONTENTS

LOW-ACTIVITY WASTE FEED LEVEL 1 LOGICS	VOLUME
Figure A-1 LAW 1st Feed Batches, Tank 241-AN-105	2
Figure A-2 LAW 2nd Feed Batches, Tank 241-AN-104	2
Figure A-3 LAW 3rd Feed Batches, Tank 241-AW-101	2
Figure A-4 LAW 4th Feed Batches, Tank 241-AN-103	2
Figure A-5 LAW 5th Feed Batches, Tanks 241-AP-101 & 241-AW-104	2
Figure A-6 LAW 6th Feed Batches, Tank 241-AY-101	2
Figure A-7 LAW 7th & 8th Feed Batches, Tank 241-AN-107	2
Figure A-8 LAW 9th Feed Batches, Tank 241-AN-102	2
Figure A-9 LAW 10th Feed Batches, Tank 241-AN-106	2
Figure A-10 LAW 11th Feed Batches, Tank 241-SY-101	2
Figure A-11 LAW 12th Feed Batches, Tank 241-SY-103	2
HIGH-LEVEL WASTE FEED LEVEL 1 LOGICS	
Figure A-12 HLW 1st & 2nd Feed Batches, First Tank 241-AZ-101	3
Figure A-13 HLW 3rd & 4th Feed Batches, First Tank 241-AZ-102	3
Figure A-14 HLW 5th - 9th Feed Batches, 241-AY-102	3
Figure A-15 HLW 10th - 12th Feed Batches, Tank 241-C-104	3
IMOBILIZED LOW-ACTIVITY WASTE LEVEL 1 LOGICS	
Figure A-16 Immobilized Waste (ILAW)	3
IMMOBILIZED HIGH-LEVEL WASTE LEVEL 1 LOGICS	
Figure A-17 Immobilized Waste (IHLW)	3
INFRASTRUCTURE PHASE 1 LEVEL 1 LOGICS	
Figure A-18 Infrastructure Phase 1 Privatization Support	3

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APPENDIX B

GUIDANCE AND REQUIREMENTS TO DELIVERABLES CROSSWALK

Tank Waste Remediation System Retrieval and Disposal
Initial Updated Baseline Summary

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Table B-1. Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary.

Guidance or Requirement	Status	Implementing Location
A.1 DOE Letter to H. J. Hatch, FDH, from W. J. Taylor, DOE, dated August 8, 1997, #9757162A (36 ITEM CHECKLIST)		
3. Requirements are allocated to functions.	I	HNF 1946, Sections 2.1 and 2.4
4. Each activity is tied to and necessary to support a contractual requirement.	I	Complete Document
7. Technical logic are complete at all levels; the program makes sense logically; and lower level-logic rolls up properly to higher-level logic.	I	Sections 1.2, 2.1, 2.2, 2.4, 2.5, and 3.3
10. Interface control documents have been prepared, DOE comments have been resolved, issues have been addressed, and approved interfaces are managed.	I	Sections 1.2, 2.4, 2.5, and 3.3
11. Waste feed plans and implementing actions and procedures are on track.	I	Sections 1.2, 2.4, 2.5, and 3.3
12. Infrastructure support plan and implementing actions and procedures are on track.	I	Sections 1.2, 2.4, 2.5, and 3.3
13. Immobilized waste product project plans and implementing actions and procedures are on track.	I	Sections 1.2, 2.4, 2.5, and 3.3
18. System reliability, availability, and maintainability have been assessed and are sufficient to support processing rate requirements.	I	Sections 1.2, 2.4, 2.5, 3.3
19. The physical integrity of existing systems, structures, and components has been verified.	I	Sections 1.2, 2.4, 2.5, 3.3
20. Waste has been characterized as necessary to satisfy all data quality objectives.	I	Sections 1.2, 2.4, 2.5, 3.3
22. Resource-loaded estimates have been completed for all activities.	I	Sections 1.2, 3.3, 4.1, 4.2, 4.3
23. The critical path is identified and float has been calculated.	I	Section 1.2, 3.2 and 3.3
24. Activities have been properly funded.	I	Section 4.1
26. There is agreement among scope, budget, and schedule. The scope of work can be performed within budget and on schedule.	I	Sections 1.1, 1.2, 2.4, 3.3 and 4.3
32. Environmental permits and safety authorization bases are in place as required for authorization-to-proceed decision.	I	Sections 1.2, 2.4, 2.5, 3.3

Table B-1. Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary.

Guidance or Requirement	Status	Implementing Location
A.2 DOE Letter to H. J. Hatch, FDH, from W. J. Taylor, DOE, dated August 8, 1997, #9757162A (BODY OF TEXT)		
General PHMC Responsibilities from RL's 8/8/97 letter, Section 2.1	.	
2. Develop a resource-loaded, logic driven schedule, including critical path	I	Sections 1.2, 2.4, and 3.3
5. Costs and schedules in the programmatic baseline can be met	I	Sections 1.1, 1.2, 2.4, 3.3, 4.3
6. Critical path analysis is done to determine the impacts of budget shortfalls on the programmatic baseline	I	Sections 3.2 and 3.3
A.3 DOE Letter H. J. Hatch, FDH, from William J. Taylor, DOE, dated December 2, 1997, #9761291		
6. RTP deliverables and their support must address the readiness of supporting facilities outside of TWRS, and understand FDH's readiness to receive secondary wastes.	I	Section 2.6
7. Establishment of sound technical baseline and update M&I TWRS Retrieval Baseline. Submit Level 1 logic diagrams and documentation, an identified critical path, and a listing of documents that form the basis for the technical baseline for January RTP.	I	Sections 1.1, 1.2, 2.4 and 3.3
11. Make a QA plan available for DOE review in January.	.	
b. Address corresponding resources (for the QA implementing procedures)	I	Sections 1.2 and 3.0
B.1 DOE Order 430.1, "Good Practice Guide," GPG-FM-002		
2.2.4 Baseline: Cost Criteria	.	
1. Total Estimated Cost (TEC)	I	Sections 1.2, 4.1, 4.2, and 4.3
2. Life Cycle Cost (LCC)	I	Sections 1.2 and 4.0
2.2.5 Baseline: Schedule Criteria	.	
1. Milestones	I	Sections 3.2, 3.3 and 3.4
2.3.2 Funding Profile	I	Section 4.0

Table B-1. Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary.

Guidance or Requirement	Status	Implementing Location
2.3.4 Baseline: Cost Criteria	.	
1. Total Estimated Cost (TEC)	I	Section 1.2, 4.1, 4.2, 4.3
2. Total Project Cost (TPC)	I	Sections 1.2, 4.1, 4.2, and 4.3
3. Life Cycle Cost (LCC)	I	Sections 1.2 and 4.0
2.3.5 Baseline: Schedule Criteria	.	
1. Milestones	I	Sections 3.2, 3.3, and 3.4
2.4.2 Funding Profile	I	Sections 4.0
2.4.4 Baseline: Cost Criteria	.	
1. Total Estimated Cost (TEC)	I	Sections 1.2, 4.1, 4.2 and 4.3
2. Total Project Cost (TPC)	I	Sections 1.2, 4.1, 4.2, and 4.3
3. Life Cycle Cost (LCC)	I	Sections 1.2 and 4.0
2.4.5 Baseline: Schedule Criteria	.	
1. Milestones	I	Sections 3.2, 3.3, and 3.4
2. Master Schedule	I	Section 1.2 and 3.3
3. Thresholds	I	Refer to HNF-1900 (CM) and WHC-IP-0842, Vol. VIII, Section 1.1, Rev. 0 (Change Control).
2.5.4 Baseline: Cost Criteria	.	
1. Life Cycle Cost (LCC)	I	Sections 1.2 and 4.0
D.1 Detailed Instructions for Assessment of RTP - Appendix C, November 14, 1997		
2. Provide correct level-1 and mid-level logics and schedules that support the waste feed delivery.	I	Sections 2.4, 3.2 and 3.3
3. Provide validatable task duration estimates	I	Sections 1.2, 4.1, 4.2, and 4.3
4. Provide confirmable critical path and float activities not on the path	I	Sections 3.2 and 3.3
5. Show the ability to meet the June, 2002 hot start	I	Sections 1.1, 3.2, 3.3, and 4.1
6. Identify those activities most at risk for meeting the June, 2002 hot start	I	Sections 3.2 and 3.3
10. Show the ability of the PHMC to meet all dates required by the private contractors for the infrastructure.	I	Sections 2.4 and 3.3
11. Identify activities most at risk in schedules and logic diagrams (for infrastructure).	I	Sections 3.2 and 3.3

Table B-1. Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary.

Guidance or Requirement	Status	Implementing Location
12. Identify projects that directly support infrastructure, based on project plans.	I	Sections 2.4 and 3.3
15. Show the PHMC Team's ability to receive, store and dispose of immobilized LAW and HLW and separated cesium from private contractor operations and to take the responsibilities described in the following ICDs:		
a. ICD-3 Radioactive Solid Waste	I	Sections 2.4 and 3.3
b. ICD-13 Non-Routine High Level Solid Waste	I	Sections 2.4 and 3.3
c. ICD-14 IHLW Product	I	Sections 2.4 and 3.3
d. ICD-15 ILAW Product	I	Sections 2.4 and 3.3
e. ICD-17 Cs-137 Intermediate Product	I	Sections 2.4 and 3.3
16. Show an ability to meet all schedules needed by the private contractors for receiving immobilized LAW and HLW and separated cesium.	I	Sections 2.4 and 3.3
17. Identify activities most at risk in schedules and logic diagrams (for ILAW, IHLW, and Cesium).	I	Sections 3.2 and 3.3
D.2 Plan for Determining PHMC Team's RTP for Waste Feed Delivery (Table 2):		
PHMC provide deliverables necessary to support RTP, as follows:		
7. Schedule Baseline	I	Sections 1.2, 2.4 and 3.3
8. Cost Baseline	I	Section 4.0
33. PHMC Team Work Packages	I	Section 1.2. 3.3 and 4.3
D.3 Plan for Determining PHMC Team's RTP for Waste Feed Delivery - Document Checklist (Table 3)		
16. Plans support post-closure monitoring from 2034 to 2064.	I	Not applicable to Phase 1 RTP.
23. Plans are to store separated Tc, entrained HLW solids, and Sr/TRU products and collect costs of this transport and storage.	I	Section 2.4, 3.3, 4.1 and 4.3
31. Plans are for upgrades to the evaporator needed to extend ops. to 2011 to occur by 2005.	I	Sections 2.6 and 4.1 (NOTE: Evaporator Funded by Waste Management

Table B-1. Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary.

Guidance or Requirement	Status	Implementing Location
58. Plans describe reassessing the timing and needs for procurement of additional mixer pumps for DSTs, considering the need dates and availability of advanced mixer-pump designs.	I	Section 3.3
D.5 Draft Plan for Determining RTP for Infrastructure & Byproducts Delivery		
3. Provide validatable task duration estimates.	I	Sections 1.2, 4.1, 4.2, and 4.3
4. Provide confirmable critical path and float activities not on the path.	I	Sections 3.2 and 3.3
5. Show the ability to meet the June, 2002 hot start.	I	Sections 1.1, 3.2, 3.3, and 4.1
D.7 Draft Plan for Determining RTP for Infrastructure & Byproducts Delivery, Appendix B, Programmatic Baseline Checklist.		
30. Indicate that the Infrastructure Level-1 Logic is consistent with the CDR schedules, the feed delivery schedules, the Privatization Contractor's schedules, and other appropriate interface schedules. (2.1.1-2.1.3)	I	Section 1.2, 2.4, 3.2, and 3.3
32. Indicate that the WBS is accurate and consistent with the MYWP. (2.3.1-2.3.2)	I	Sections 2.2 and 2.5
34. Show that the critical path contains schedule contingency. (2.4.3)	I	Section 2.4, 3.2, and 3.3 (For Projects)
38. Provide the Critical Path Diagram Schedule (CPDS). (4.1.4)	I	Section 2.4, 3.2, and 3.3
D.8 Draft Plan for Determining RTP for Infrastructure & Byproducts Delivery, Appendix C, Infrastructure (Management Baseline) Checklist.		
40. Identify the manager assigned to each cost account. (1.1.9)	I	Sections 1.2 and 2.4 (Reference to TBRs)
42. Confirm the Project and SEMP execution plans are to be developed (1.2.4; 1.2.7)	I	The execution plans will be developed as needed
47. Indicate that support is planned/budgeted for RL preparation of NEPA docs. (1.3.5)	I	Sections 1.2, 3.3, and 4.3
D.9 Draft Plan for Determining RTP for Infrastructure & Byproducts Delivery, Appendix D, Feed Tank/Air Emissions (Technical Baseline Checklist).		

Table B-1. Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary.

Guidance or Requirement	Status	Implementing Location
59. Show requirements are allocated to functions in the HSTB and Multi Year Work Plan (MYWP).	I	Sections 2.1 and 2.4
D.10 Draft Plan for Determining RTP for Infrastructure & Byproducts Delivery, Appendix E, Infrastructure Feed Tank Transfer (Programmatic Baseline) Checklist.		
74. Indicate that the Infrastructure Level-1 Logic is consistent with the CDR schedules, the feed delivery schedules, the Privatization Contractor's schedules, and other appropriate interface schedules. (2.1.1-2.1.3)	I	Sections 1.2, 2.4, 3.2, and 3.3
76. Indicate that the WBS is accurate and consistent with the MYWP. (2.3.1-2.3.2)	I	Sections 2.2 and 2.5
78. Show that the critical path contains schedule contingency. (2.4.3)	I	Sections 2.4, 3.2, and 3.3 (For Projects)
82. Provide the Critical Path Diagram Schedule (CPDS). (4.1.4)	I	Sections 2.4, 3.2 and 3.3
D.11 Draft Plan for Determining RTP for Infrastructure & Byproducts Delivery, Appendix E, Infrastructure Feed Tank Transfer (Management Baseline) Checklist.		
84. Identify the manager assigned to each cost account. (1.1.9)	I	Sections 1.2 and 2.4 (Reference to TBRs)
86. Confirm the Project and SEMP execution plans are to be developed. (1.2.4; 1.2.7)	I	The execution plans will be developed as needed
91. Indicate that support is planned/budgeted for RL preparation of NEPA docs. (1.3.5)	I	Sections 1.2, 3.3, and 4.3; also see HNF-1733, Appendix A
E.1 TWRS Waste Disposal Division Planning Guidance dated July 7, 1997 (Updated December 12, 1997)		
Develop a logic-based, resource loaded schedule.	I	Sections 1.2, 3.2, and 3.3
Mandatory completion of approved TPA milestones.	I	Sections 3.2, 3.3, and 3.4
Baseline schedule for Retrieval will be a subset of the TWRS Project Master Baseline Schedule.	I	Sections 1.2 and 3.3
Interfaces between elements and external interfaces must be represented in the PBMS (of which WDD baseline schedule is a subset).	I	Sections 1.2 and 3.3

Table B-1. Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary.

Guidance or Requirement	Status	Implementing Location
Use the Phase 1 and 2 schedules to establish the WDD schedule.	I	Sections 3.2 for Phase 1; Phase 2 not covered in RTP schedules
Establish all detailed schedule. consistent with TWRS Level 1 logic.	I	Sections 1.2, 2.4 and 3.3
Use a code field to facilitate roll-up of detailed schedules to TWRS Level 1 and to Level 0.	I	Sections 1.2, 3.2, and 3.3
Changes to Levels 1 and 0 resulting from roll-up must be put into MYWP.	I	Section 1.1 (A CR to the MYWP-Baseline must be processed)
Plan WDD at greatest detail in CY, less in next two (but sufficient. for logic-driven cost), less in next 7, and sufficient detail beyond ten to define baseline for entire project.	I	Section 3.3
Add sufficient detail in schedules to define critical path and logical sequences.	I	Section 3.2 and 3.3
Prepared detailed planning describing work scope, schedule, milestones and budget to complete work scope.	I	Sections 1.0, 2.0, 3.0, and 4.0
Financial staff must define task package control numbers which allow for proper collection of costs by schedule activity.	I	Section 3.0
Waste Retrieval Project will plan for the 10 Phase 1 items in paragraph 3.2.1.	I	Sections 1.2, 2.0, 3.0, and 4.0
Waste Retrieval Project will assume the 11 items in paragraph 3.2.2.	I	Sections 1.2, 2.0, 3.0, and 4.0; However, not all items are met, nor are they Phase 1
Waste Feed Delivery will define feed process and retrieval systems, integrate the waste feed delivery technical baseline and define Retrieval Project requirements to interface with HTI and other EM-50 funded projects.	I	Sections 2.2, 2.4, 3.3, 4.2, and 4.3; also see HNF 1901 and HNF-1881
Complete LAW feed definition, staging plans, process flowsheets.	I	Sections 2.2, 2.4, 3.3, 4.2, and 4.3; also see HNF 1901 and HNF-1881

Table B-1. Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary.

Guidance or Requirement	Status	Implementing Location
Include M&I and Vendor Interface funding and work scope for Phases 1 and 2 in Process Waste Support PBS.	I	Section 2.2
Show scope and schedule for WIT and PHMC in the WDD plans.	I	Sections 2.1, 3.2, and 3.3 (Full WIT Schedule is not shown in PHMC Team Schedule)

APPENDIX C

GUIDANCE AND REQUIREMENTS TO DELIVERABLES CROSSWALK

Level 0 and Level 1 Logics

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Table C-1. Guidance and Requirements to Deliverables Crosswalk - Level 0 and Level 1 Logics.

Guidance or Requirement	Status	Implementing Location
A.1 DOE Letter to H. J. Hatch, FDH, from W. J. Taylor, DOE, dated August 8, 1997, #9757162A (36 ITEM CHECKLIST)		
7. Technical logic are complete at all levels; the program makes sense logically; and lower level-logic rolls up properly to higher-level logic.	I	All plus Level 0 Logic and subactivity logics in TBR Packages
A.2 DOE Letter to H. J. Hatch, FDH, from W. J. Taylor, DOE, dated August 8, 1997, #9757162A (BODY OF TEXT)		
General PHMC Responsibilities from RL's 8/8/97 letter, Section 2.1		
2. Develop a resource-loaded, logic driven schedule, including critical path	I	All plus detailed schedule and TBR Packages
A.3 DOE Letter H. J. Hatch, FDH, from William J. Taylor, DOE, dated December 2, 1997, #9761291		
1. Describe how the PHMC Team will assess their readiness.	I	All
2. Describe how the PHMC Team will demonstrate their readiness.	I	All
7. Establishment of sound technical baseline and update M&I TWRS Retrieval Baseline. Submit level 1 logic diagrams and documentation, an identified critical path, and a listing of documents that form the basis for the technical baseline for January RTP.	I	All
D.1 Detailed Instructions for Assessment of RTP - Appendix C, November 14, 1997		
2. Provide correct level-1 and mid-level logics and schedules that support the waste feed delivery.	I	All H-2-829151 through H-2-829165 (L-1), H-2-829166 (L-0)
5. Show the ability to meet the June, 2002 hot start	I	H-2-829151 (AN-105), H-2-829152 (AN-104), H-2-829162 (AZ-101), H-2-829148 (ILAW), H-2-829149 (IHLW), and H-2-829150 (Infrastructure)
11. Identify activities most at risk in schedules and logic diagrams (for infrastructure).	I	H-2-829150 (Infrastructure)
17. Identify activities most at risk in schedules and logic diagrams (for ILAW, IHLW, and Cesium).	I	H-2-829148 (ILAW) and H-2-829149 (IHLW)

Table C-1. Guidance and Requirements to Deliverables Crosswalk - Level 0 and Level 1 Logics.

Guidance or Requirement	Status	Implementing Location
D.2 Plan for Determining PHMC-Team's RTP for Waste Feed Delivery (Table 2).		
PHMC provide deliverables necessary to support RTP, as follows:		
4. Level 0/1 Logic	I	All
13. Multi-level Logic for RTP Package	I	All
D.5 Draft Plan for Determining RTP for Infrastructure & Byproducts Delivery		
2. Provide correct level-1 and Level 0 logics and schedules that support the infrastructure support.	I	H-2-829150 (L-1) and H-2-829166 (L-0)
D.7 Draft Plan for Determining RTP for Infrastructure & Byproducts Delivery, Appendix B, Programmatic Baseline Checklist.		
28. Indicate that all activities on logic diagrams are tiered from contractual or MAR requirements. (1.1.1)	I	H-2-829150
29. Indicate that activities needed to support privatization are defined in Level-1 Logic. (1.1.2)	I	All
30. Indicate that the Infrastructure Level-1 Logic is consistent with the CDR schedules, the feed delivery schedules, the Privatization Contractor's schedules, and other appropriate interface schedules. (2.1.1-2.1.3)	I	H-2-829150
D.10 Draft Plan for Determining RTP for Infrastructure & Byproducts Delivery, Appendix E, Infrastructure Feed Tank Transfer (Programmatic Baseline) Checklist.		
72. Indicate that all activities on logic diagrams are tiered from contractual or MAR requirements. (1.1.1)	I	H-2-829151
73. Indicate that activities needed to support privatization are defined in Level-1 Logic. (1.1.2)	I	H-2-829151
74. Indicate that the Infrastructure Level-1 Logic is consistent with the CDR schedules, the feed delivery schedules, the Privatization Contractor's schedules, and other appropriate interface schedules. (2.1.1-2.1.3)	I	H-2-829151

Table C-1. Guidance and Requirements to Deliverables Crosswalk - Level 0 and Level 1 Logics.

Guidance or Requirement	Status	Implementing Location
E.1 TWRS Waste Disposal Division Planning Guidance dated July 7, 1997 (Updated December 12, 1997)		
Establish logic between retrieval, waste proc, infrastructure, and immobilized tank waste storage and disposal projects.	I	H-2-829166 (Level-0 Logic)
Ensure logic between privatized and non-priv. activities through added detail.	I	All
Prepared detailed planning describing work scope, schedule, milestones and budget to complete work scope.	I	All

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HNF-1946
Revision 1
Volume 2
UC-510

Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary

Level 1 Logics

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VOLUME 2 LEVEL 1 LOGICS

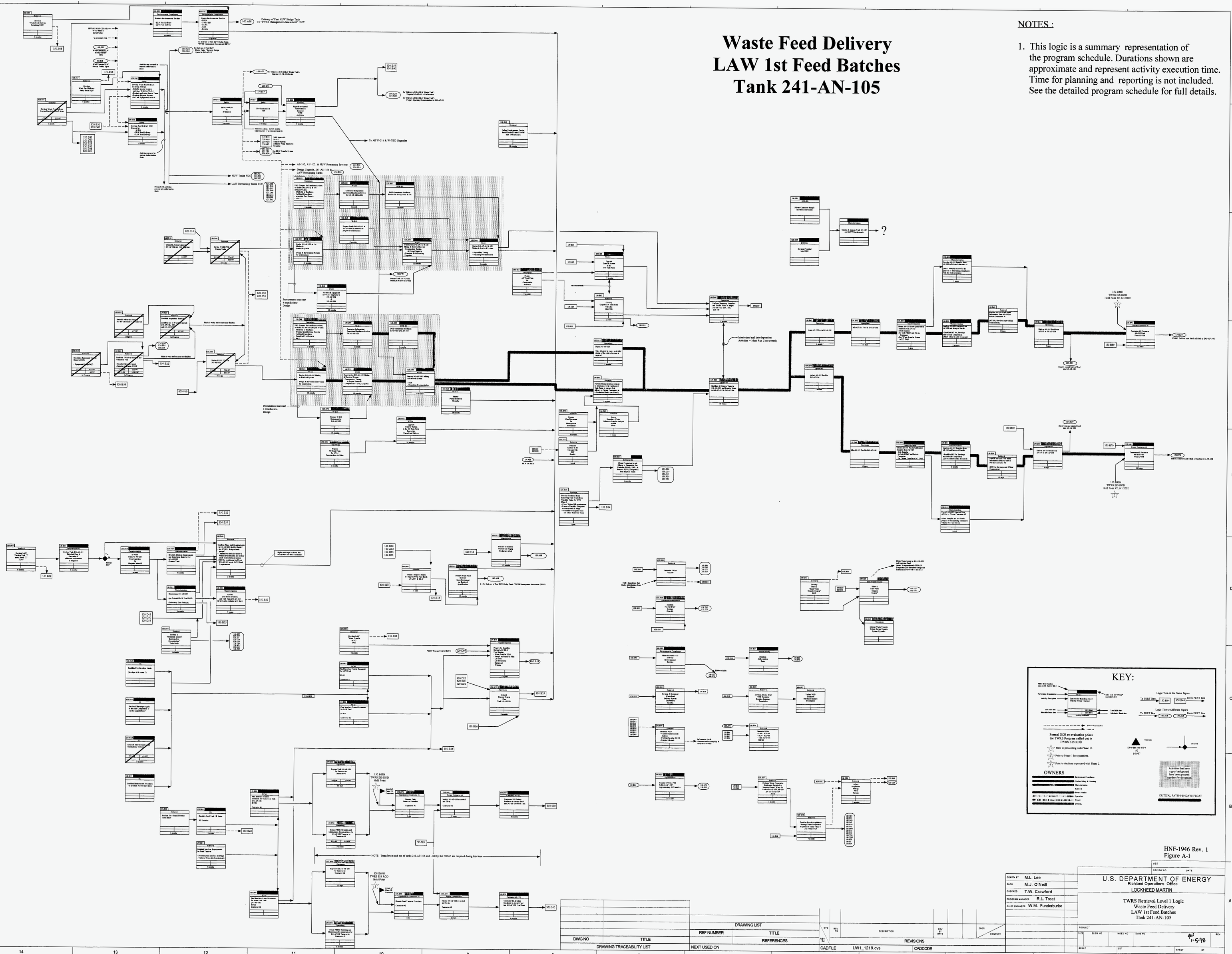
LOW-ACTIVITY WASTE FEED LEVEL 1 LOGICS

Figure A-1 LAW 1st Feed Batches, Tank 241-AN-105
Figure A-2 LAW 2nd Feed Batches, Tank 241-AN-104
Figure A-3 LAW 3rd Feed Batches, Tank 241-AW-101
Figure A-4 LAW 4th Feed Batches, Tank 241-AN-103
Figure A-5 LAW 5th Feed Batches, Tanks 241-AP-101 & 241-AW-104
Figure A-6 LAW 6th Feed Batches, Tank 241-AY-101
Figure A-7 LAW 7th & 8th Feed Batches, Tank 241-AN-107
Figure A-8 LAW 9th Feed Batches, Tank 241-AN-102
Figure A-9 LAW 10th Feed Batches, Tank 241-AN-106

Waste Feed Delivery
LAW 1st Feed Batches
Tank 241-AN-105

NOTES :

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



HNF-1946 Rev. 1
Figure A-1

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U.S. DEPARTMENT OF ENERGY
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TWRS Retrieval Level 1 Logic
Waste Feed Delivery
LAW 1st Feed Batches
Tank 241-AN-105

DRAWING LIST

DWG NO	TITLE	REF NUMBER	TITLE
			REFERENCES

DRAWING TRACEABILITY LIST

NEXT USED ON

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		REVISIONS			

CADFILE LW1_1219.cvs CADCODE

PROJECT

SIZE | BLDG NO | INDEX NO | DWG NO | REV

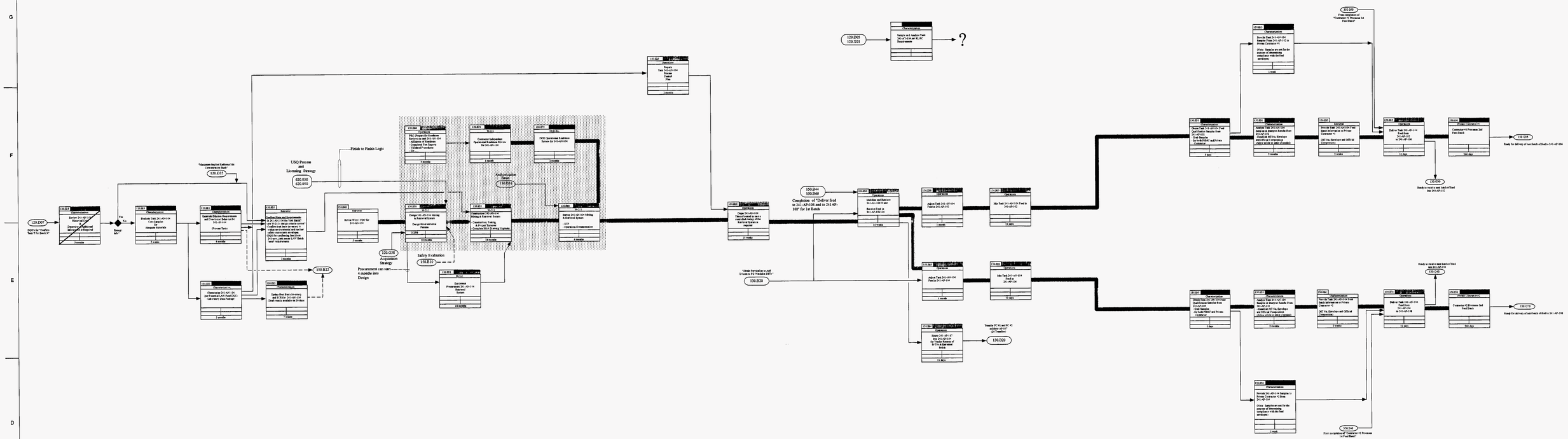
SCALE | SHEET | OF

4W 1-5-98

Waste Feed Delivery
LAW 2nd Feed Batches
Tank 241-AN-104

NOTES :

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



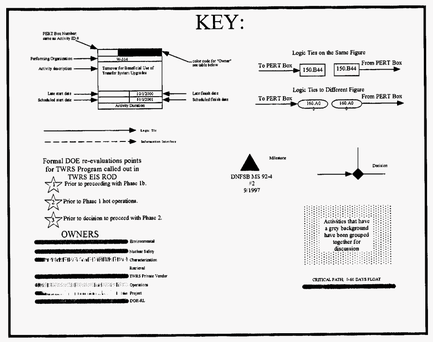


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Figure A-2

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TWRS Retrieval Level 1 Logic
Waste Feed Delivery
LAW 2nd Feed Batches
Tank 241-AN-104

DRAWING LIST	
REF NUMBER	TITLE

DRAWING TRACEABILITY LIST	
DWG NO	TITLE

REVISIONS			
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NEXT USED ON			
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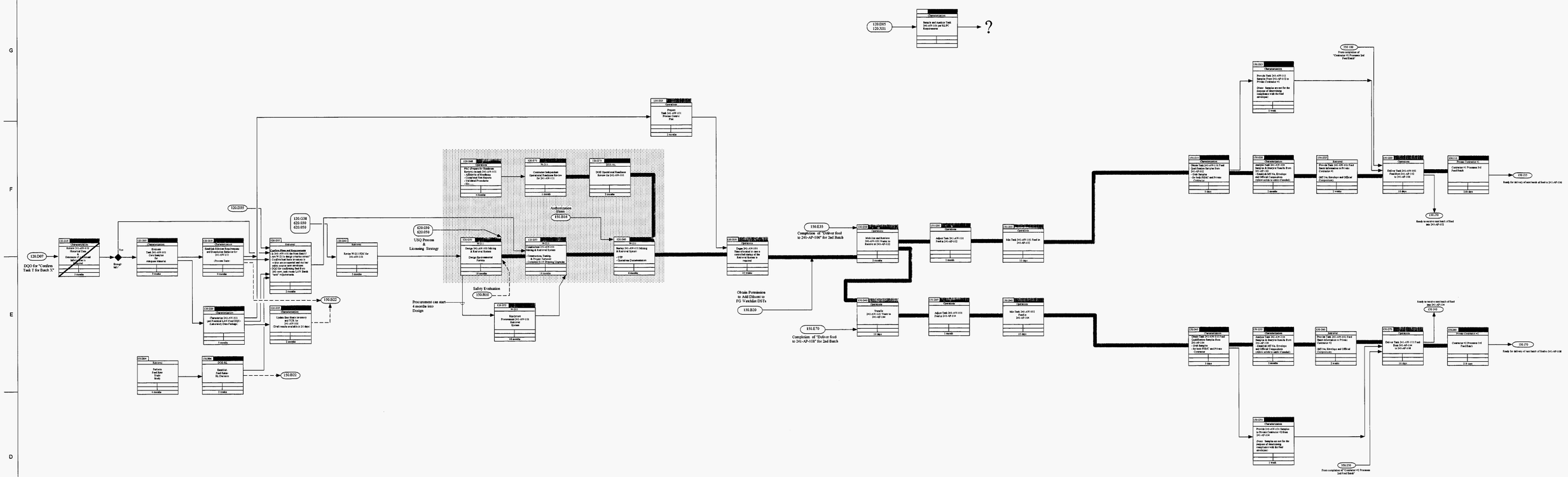
PROJECT					
SIZE	BLDG NO	INDEX NO	DWG NO		REV
SCALE		EOT		SHEET	OF

JW 1-5-98

Waste Feed Delivery
LAW 3rd Feed Batches
Tank 241-AW-101

NOTES :

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



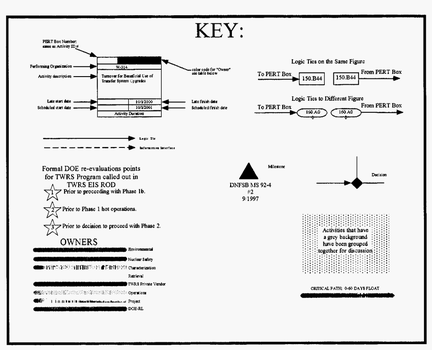


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Figure A-3

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U.S. DEPARTMENT OF ENERGY
Richland Operations Office
LOCKHEED MARTIN

TWRS Retrieval Level 1 Logic
Waste Feed Delivery
LAW 3rd Feed Batches
Tank 241-AW-101

DWG NO	TITLE
DRAWING TRACEABILITY LIST	

REF NUMBER	TITLE
DRAWING LIST	
NEXT USED ON	REFERENCES

REV NO	DESCRIPTION	REV DATE	ENGR	COMPANY
REVISIONS				

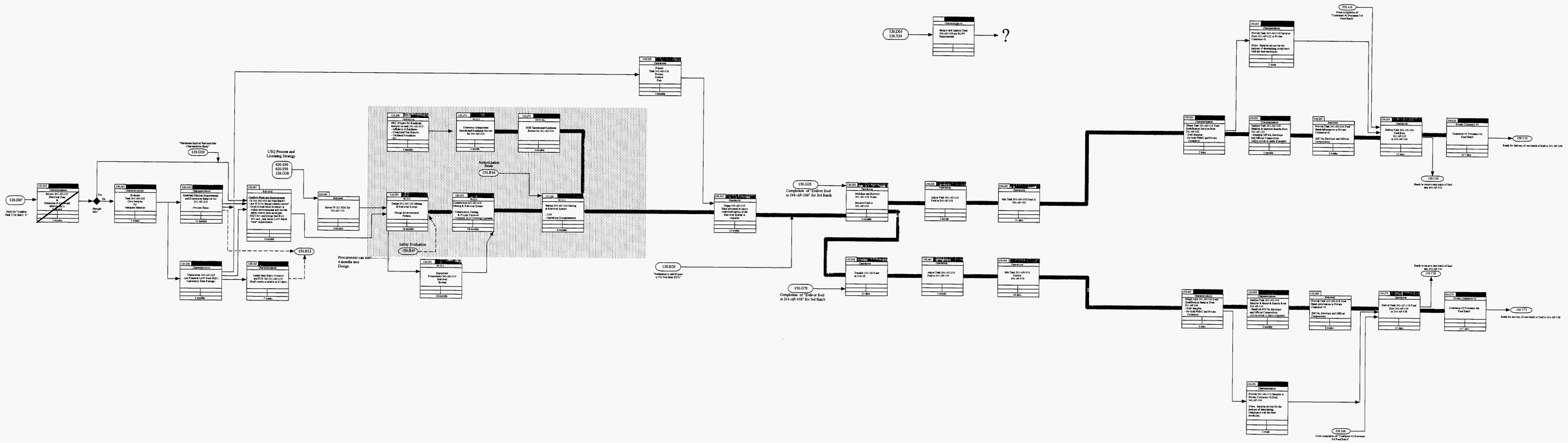
CADFILE LW3_1219.cvs CADCODE

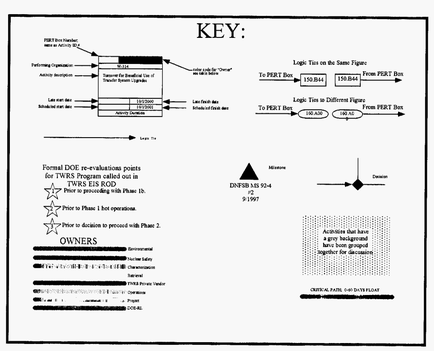
1-5-98

Waste Feed Delivery
LAW 4th Feed Batches
Tank 241-AN-103

NOTES :

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





HNF-1946 Rev. 1
Figure A-4

DWG NO	TITLE
DRAWING TRACEABILITY LIST	

REF NUMBER	TITLE
DRAWING LIST	
REFERENCES	
NEXT USED ON	

REV No	REV NO	DESCRIPTION	REV BY DATE	ENGR	COMPANY
REVISIONS					
CADFILE	LW4_1219.cvs	CADCODE			

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TWRS Retrieval Level 1 Logic
Waste Feed Delivery
LAW 4th Feed Batches
Tank 241-AN-103

PROJECT
SIZE | BLDG NO | INDEX NO | DWG NO | REV
SCALE | EDT | SHEET | OF

USE
REVIEW NO. | DATE

Waste Feed Delivery
LAW 5th Feed Batches
Tanks 241-AP-101 & 241-AW-104

NOTES :

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

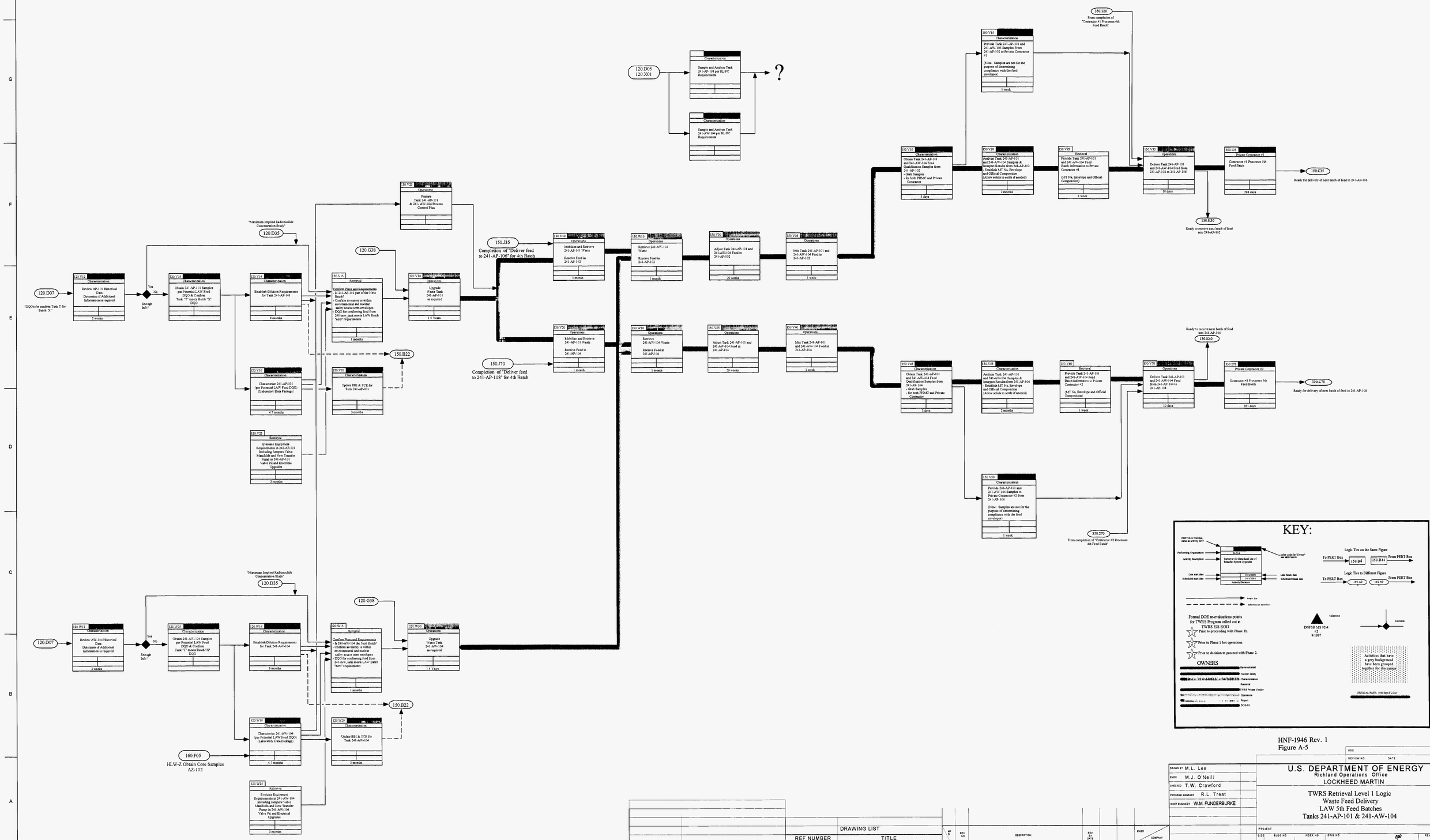

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Figure A-5

DRAWN BY	M.L. Lee
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TWRS Retrieval Level 1 Logic
Waste Feed Delivery
LAW 5th Feed Batches
Tanks 241-AP-101 & 241-AW-104

DRAWING LIST

DWG NO	TITLE	REF NUMBER	TITLE
			REFERENCES

DRAWING TRACEABILITY LIST | NEXT USED ON

REVISIONS

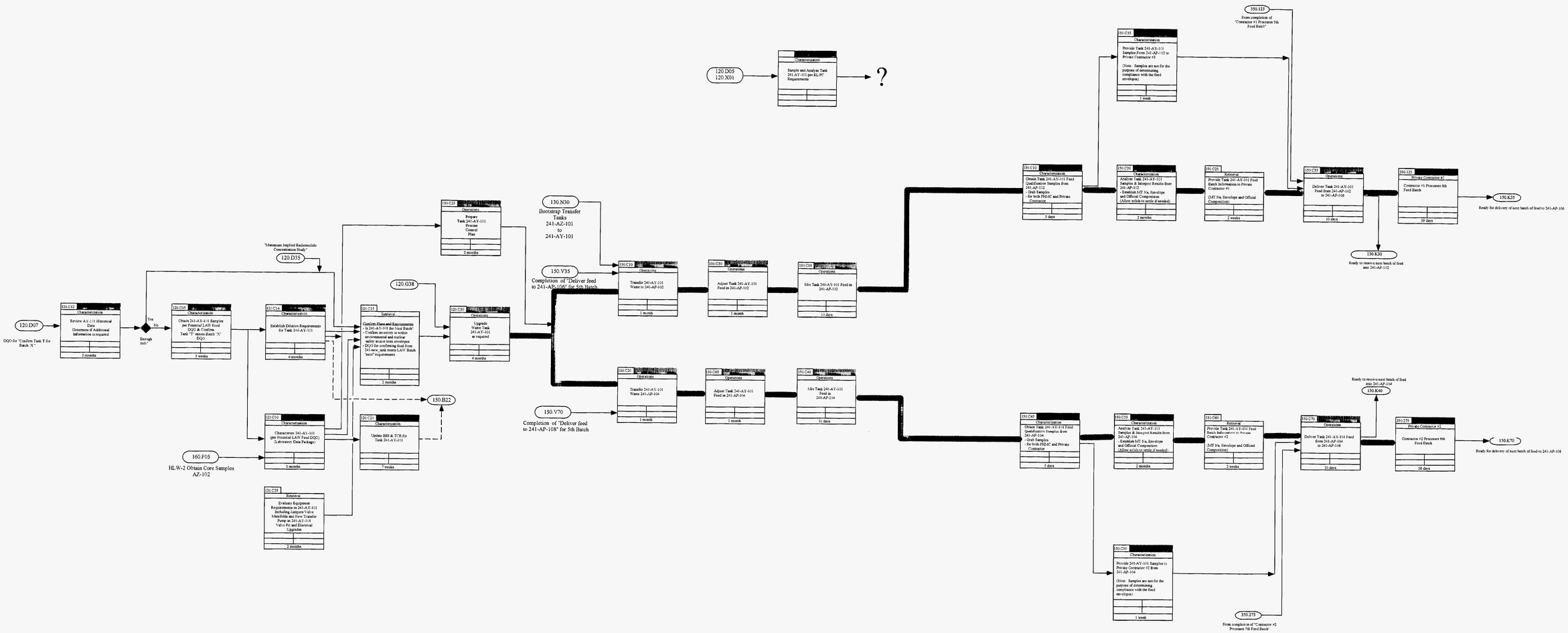
CADFILE LW5_1219.cvs | CADCODE

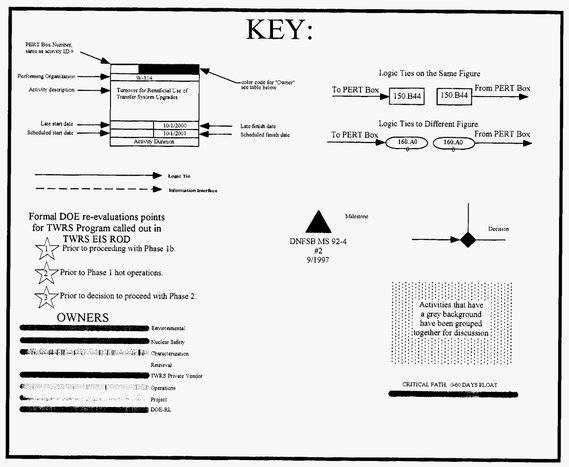
1-5-98

Waste Feed Delivery
LAW 6th Feed Batches
Tank 241-AY-101

NOTES :

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





HNF-1946 Rev. 1
Figure A-6

DRAWING TRACEABILITY LIST		DRAWING LIST		REVISIONS				
DWG NO	TITLE	REF NUMBER	TITLE	REV BY	REV NO	DESCRIPTION	REV BY DATE	ENGR / COMPANY
			REFERENCES					
NEXT USED ON								

CADFILE LW6_1219.cvs CADCODE

USE / REVIEW NO. / DATE

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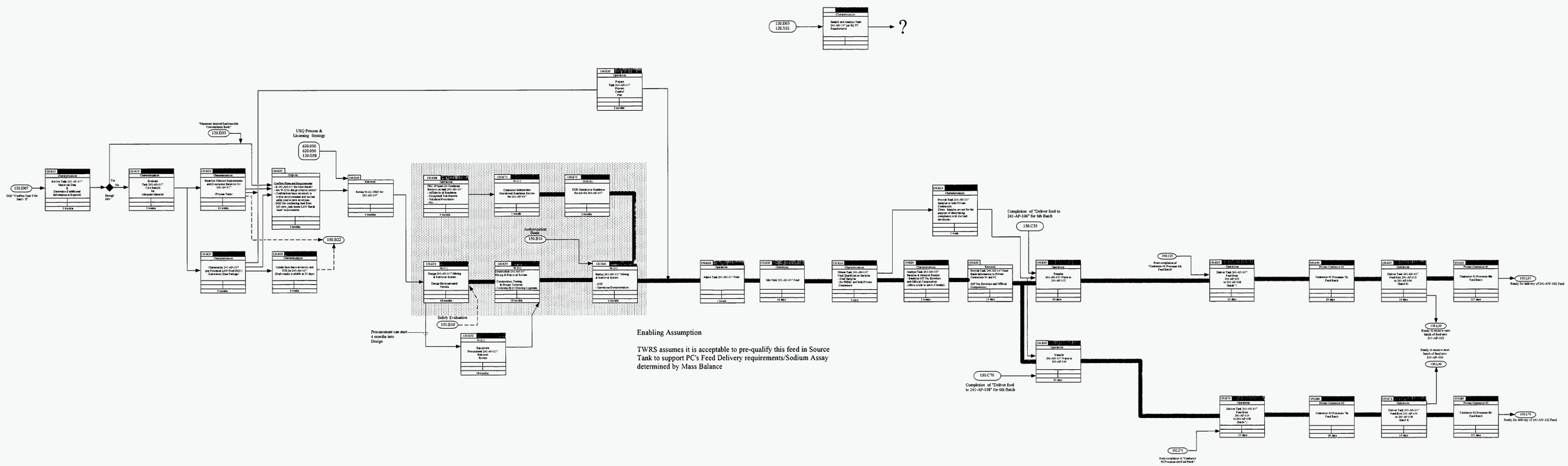
TWRS Retrieval Level 1 Logic
Waste Feed Delivery
LAW 6th Feed Batches
Tank 241-AY-101

PROJECT
SIZE / BLDG NO / INDEX NO / DWG NO / REV
1-5-98
SCALE / EDT / SHEET / OF

Waste Feed Delivery
LAW 7th & 8th Feed Batches
Tank 241-AN-107

NOTES :

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



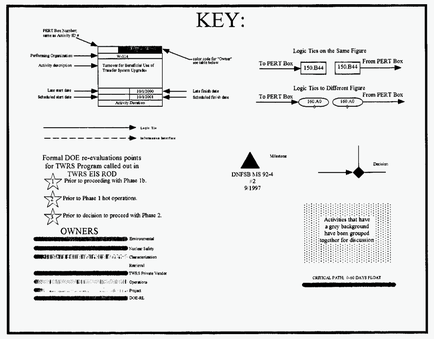


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Figure A-7

DRAWN BY	M.L. Lee
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TWRS Retrieval Level 1 Logic
Waste Feed Delivery
LAW 7th & 8th Feed Batches
Tank 241-AN-107

DRAWING TRACEABILITY LIST		DRAWING LIST	
DWG NO	TITLE	REF NUMBER	TITLE
NEXT USED ON		REFERENCES	

REVISIONS			
REV NO	DESCRIPTION	REV BY DATE	ENGR / COMPANY

CADFILE LW781219.cvs CADCODE

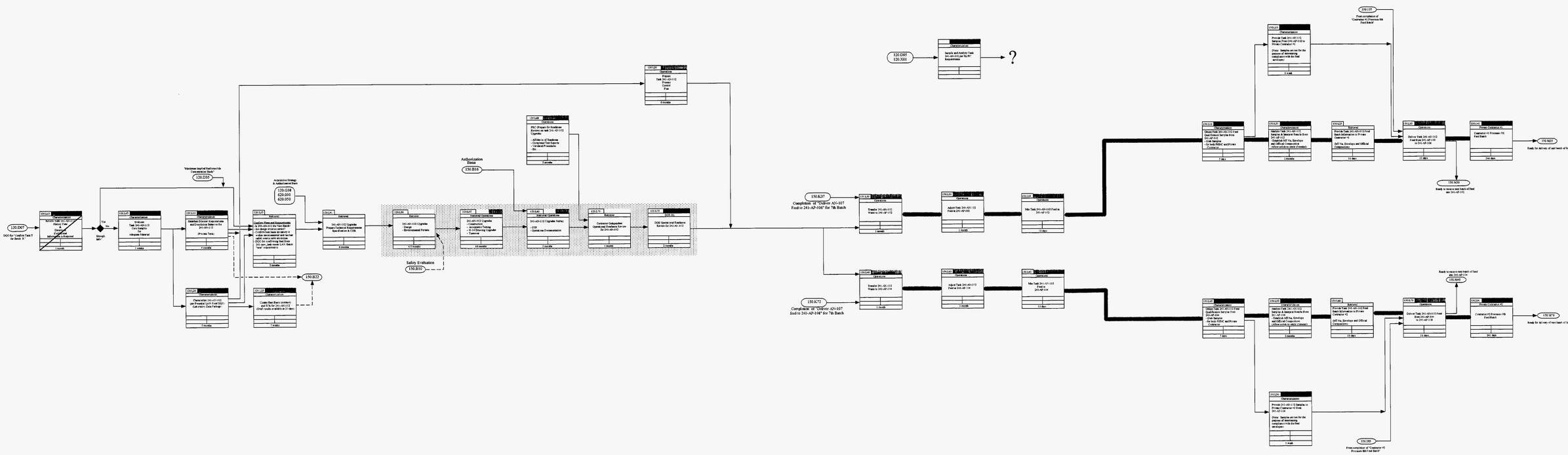
PROJECT | SIZE | BLDG NO | INDEX NO | DWG NO | REV | SCALE | EDT | SHEET | OF

4/1 1-5-98

Waste Feed Delivery
LAW 9th Feed Batches
Tank 241-AN-102

NOTES :

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



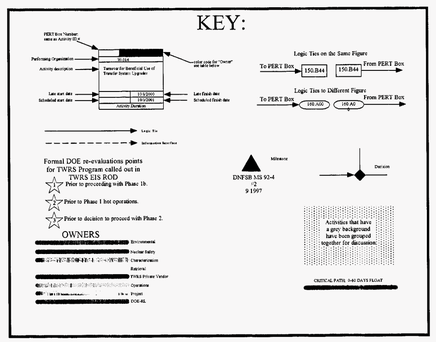


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Figure A-8

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TWRS Retrieval Level 1 Logic
Waste Feed Delivery
LAW 9th Feed Batches
Tank 241-AN-102

DRAWING LIST

REF NUMBER	TITLE
	REFERENCES

DWG NO	TITLE
DRAWING TRACEABILITY LIST	

NEXT USED ON

REV PH	MFG	REV NO	DESCRIPTION	REV BY DATE	ENGR	COMPANY
REVISIONS						

CADFILE LW9_1219.cvs CADCODE

PROJECT

SIZE	BLDG NO	INDEX NO	DWG NO	REV

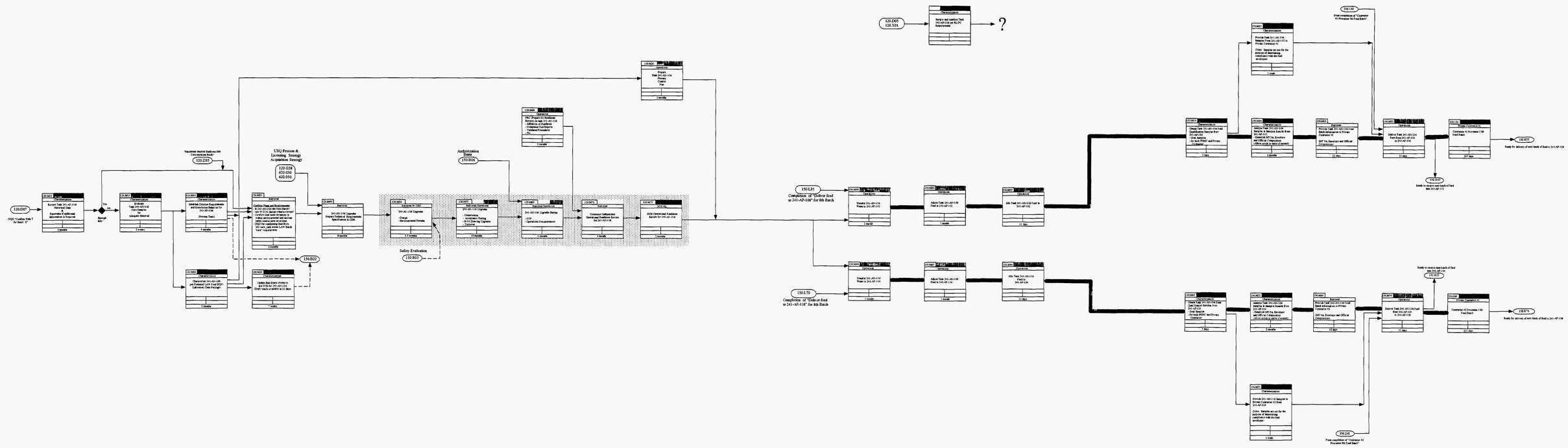
SCALE EDT SHEET OF

AW 1-5-98

Waste Feed Delivery
LAW 10th Feed Batches
Tank-241-AN-106

NOTES :

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



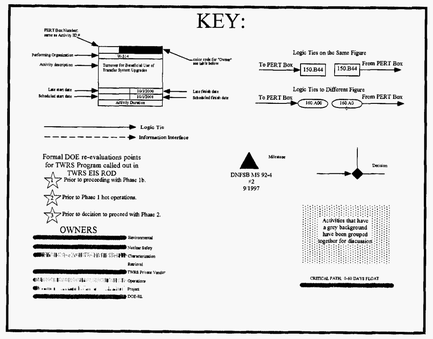


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Figure A-9

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TWRS Retrieval Level 1 Logic
Waste Feed Delivery
LAW 10th Feed Batches
Tank-241-AN-106

DWG NO	TITLE
DRAWING TRACEABILITY LIST	

REF NUMBER	TITLE
DRAWING LIST	REFERENCES

REV NO	DESCRIPTION	REV BY DATE	ENGR	COMPANY
REVISIONS				

CADFILE LW101219.cvs CADCODE

NEXT USED ON

SIZE | BLDG NO | INDEX NO | DWG NO | REV | SCALE | EDT | SHEET | OF

14 13 12 11 10 9 8 7 6 5 4 3 2 1

HNF-1946
Revision 1
Volume 3
UC-510

Tank Waste Remediation System Retrieval and Disposal Mission Initial Updated Baseline Summary

Level 1 Logics

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Lockheed Martin Hanford Corporation

M. J. O'Neill
MACTEC

Date Published
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Richland, Washington

Prepared for the U.S. Department of Energy

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Richland, Washington

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DISCLM-1.CHP (8-95)

VOLUME 3 LEVEL 1 LOGICS

LOW-ACTIVITY WASTE FEED LEVEL 1 LOGICS

Figure A-10 LAW 11th Feed Batches, Tank 241-SY-101
Figure A-11 LAW 12th Feed Batches, Tank 241-SY-103

HIGH-LEVEL WASTE FEED LEVEL 1 LOGICS

Figure A-12 HLW 1st & 2nd Feed Batches, First Tank 241-AZ-101
Figure A-13 HLW 3rd & 4th Feed Batches, First Tank 241-AZ-102
Figure A-14 HLW 5th - 9th Feed Batches, 241-AY-102
Figure A-15 HLW 10th - 12th Feed Batches, Tank 241-C-104

IMMOBILIZED LOW-ACTIVITY WASTE LEVEL 1 LOGICS

Figure A-16 Immobilized Waste (ILAW)

IMMOBILIZED HIGH-LEVEL WASTE LEVEL 1 LOGICS

Figure A-17 Immobilized Waste (IHLW)

INFRASTRUCTURE PHASE 1 LEVEL 1 LOGICS

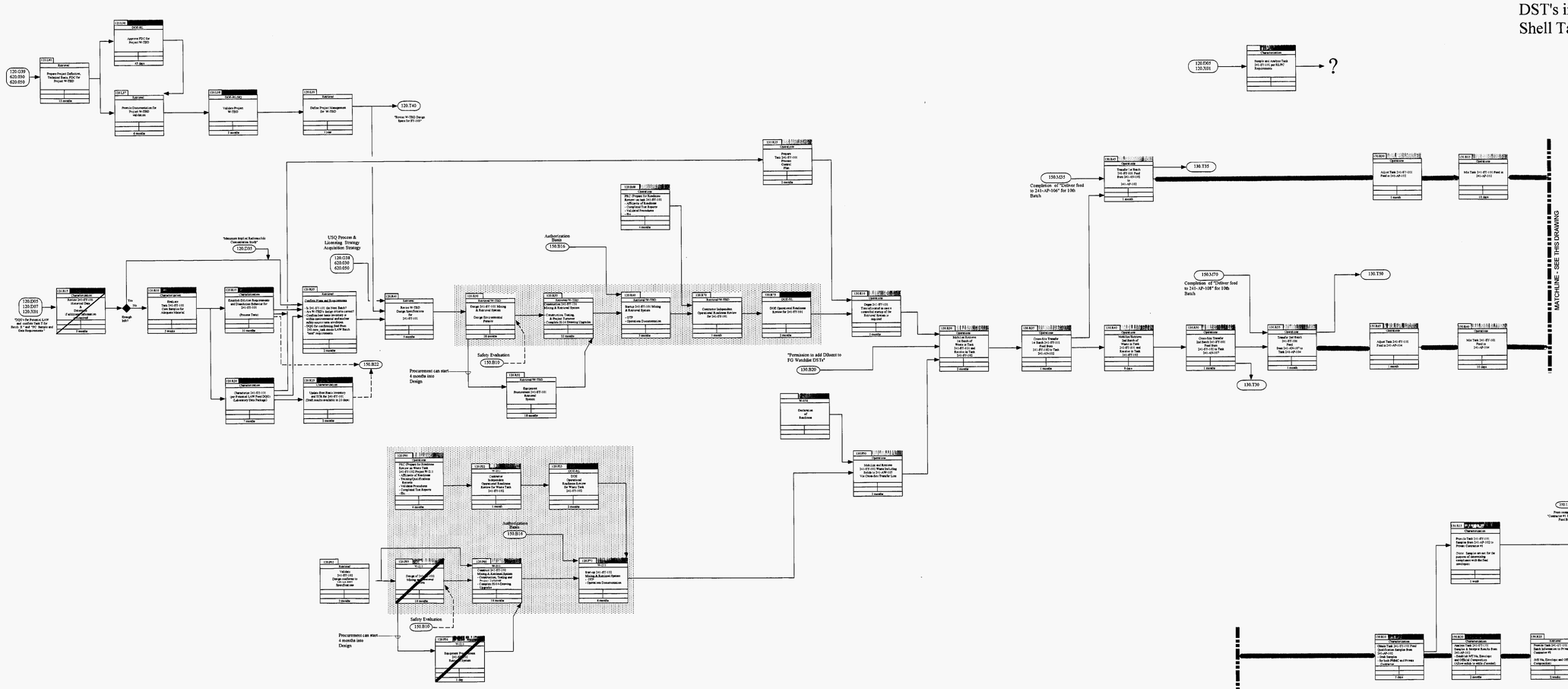
Figure A-18 Infrastructure Phase 1 Privatization Support

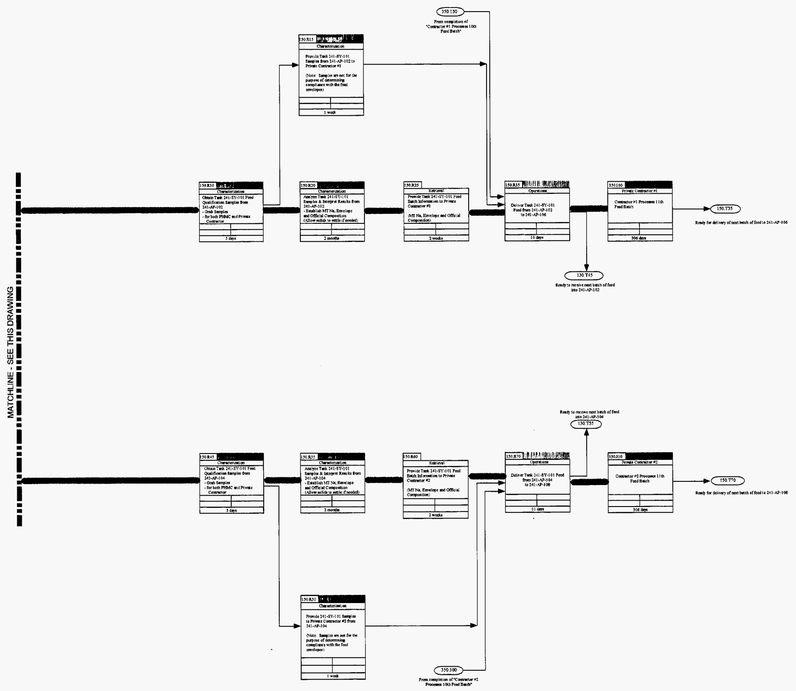
Waste Feed Delivery
LAW 11th Feed Batches
Tank 241-SY-101

NOTES :

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

2. Retrieval of Tanks 241-SY-101 and 241-SY-102 is schedule driven by the need to empty these DST's in West Area as Receiver Tanks for Single Shell Tank Retrieval





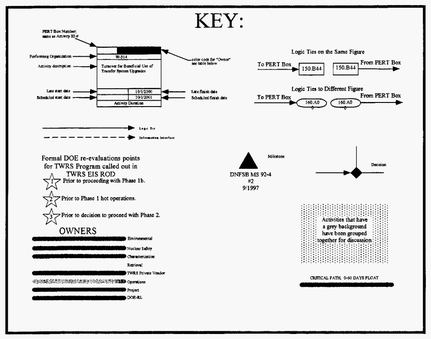


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Figure A-10

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Retrieval Level 1 Logic
Waste Feed Delivery
LAW 11th Feed Batches
Tank 241-SY-101

DRAWING LIST	
REF NUMBER	TITLE
	REFERENCES

DWG NO	TITLE
DRAWING TRACEABILITY LIST	NEXT USED ON

REVISIONS

CADFILE LW111219.cvs CADCODE

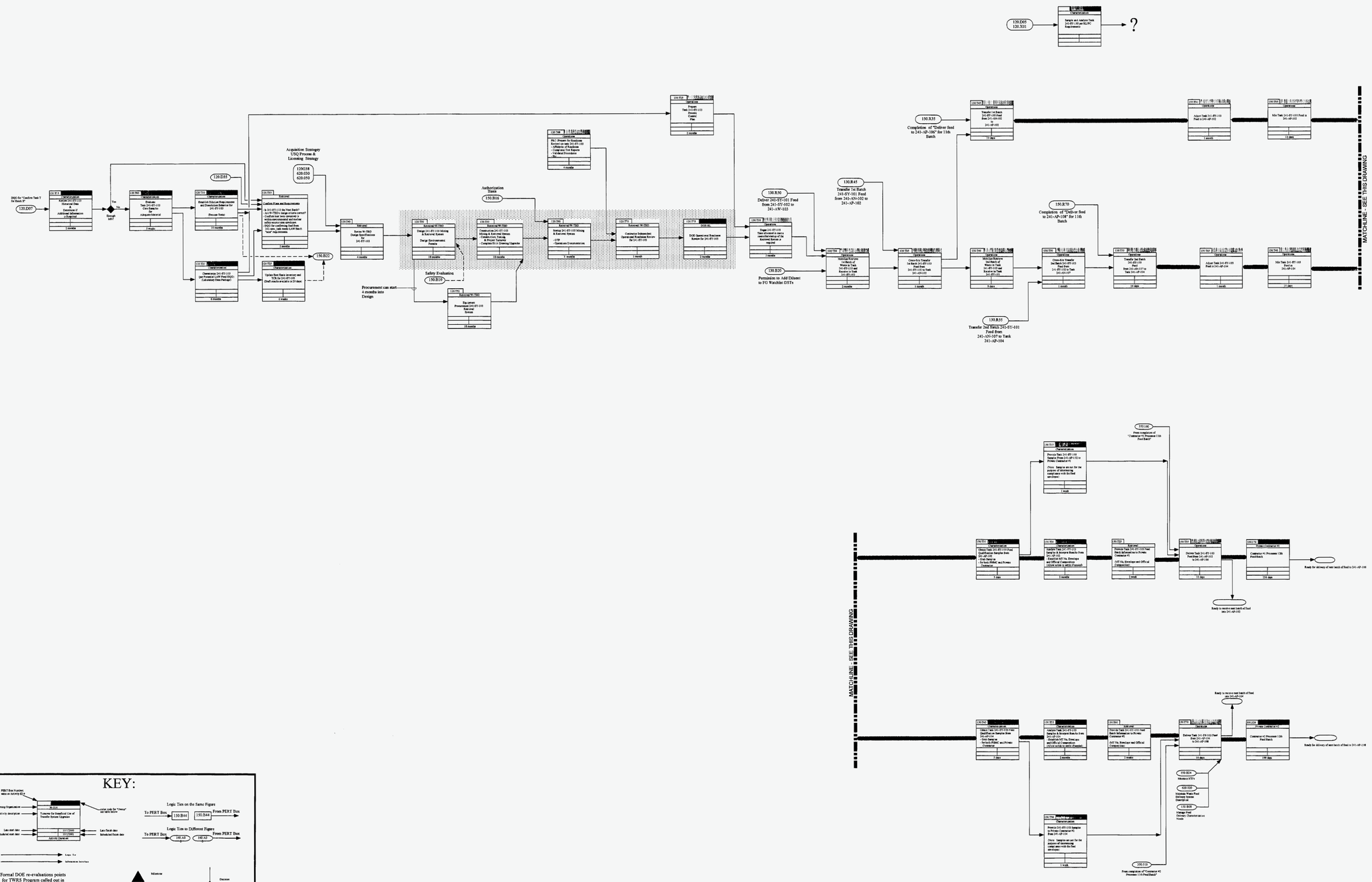
1-5-98

Waste Feed Delivery
LAW 12th Feed Batches
Tank 241-SY-103

NOTES :

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

2. Retrieval of Tank 241-SY-103 is schedule driven by the need to empty this DST in West Area as Receiver Tanks for Single Shell Tank Retrieval.



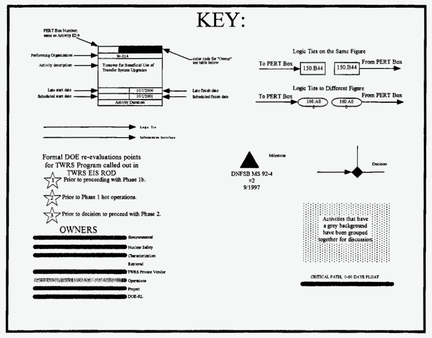


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Figure A-11

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TWRS Retrieval Level 1 Logic
Waste Feed Delivery
LAW 12th Feed Batches
Tank 241-SY-103

DWG NO	TITLE	REF NUMBER	TITLE
DRAWING TRACEABILITY LIST		NEXT USED ON	

DRAWING LIST — REFERENCES

REVISIONS: MFD | REV NO | DESCRIPTION | REV BY DATE | ENGR | COMPANY

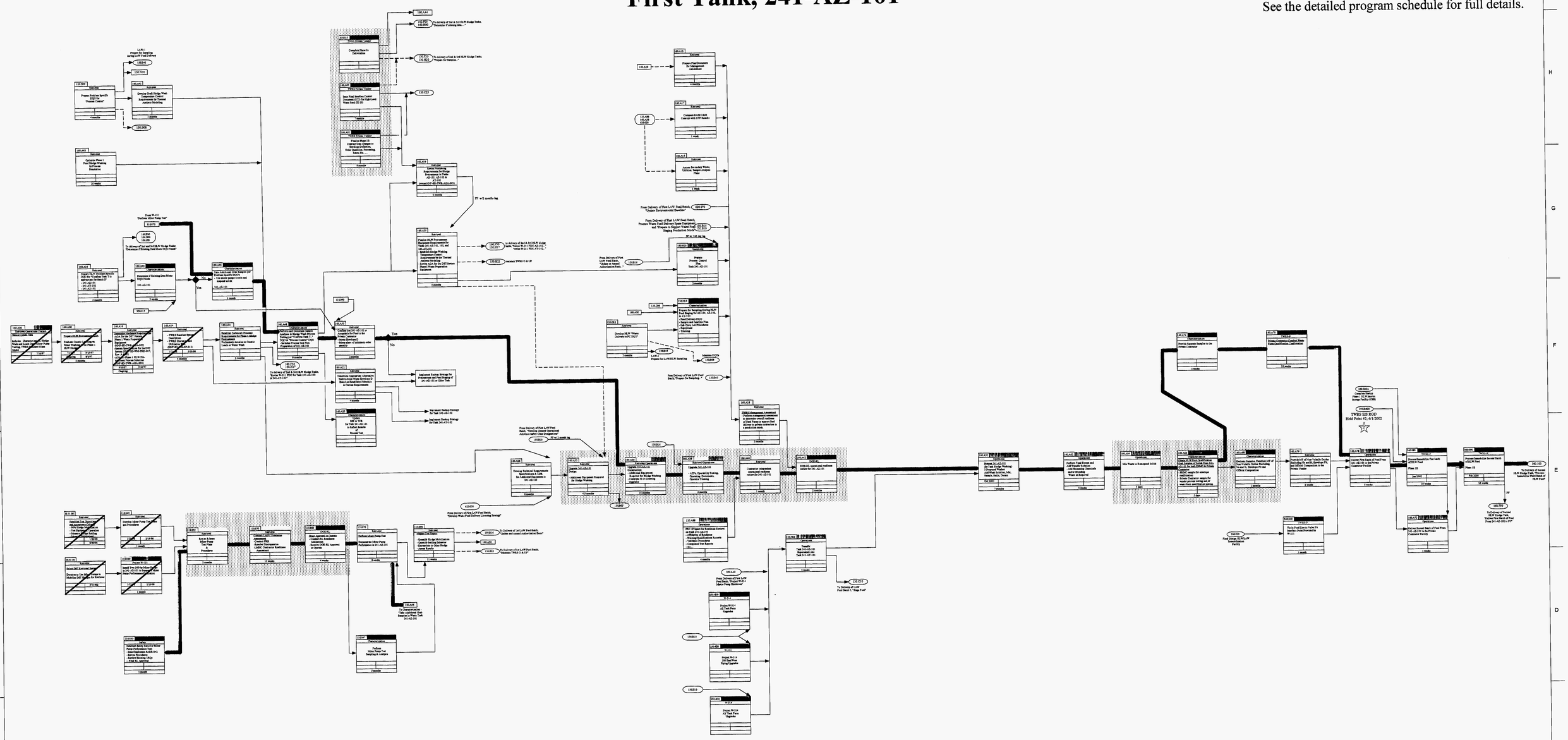
CADFILE LW121219.cvs CADCODE

PROJECT | SIZE | BLDG NO | INDEX NO | DWG NO | REV | SCALE | EDT | SHEET | OF

WASTE FEED DELIVERY
HLW 1st & 2nd Feed Batches
First Tank, 241-AZ-101

NOTES :

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



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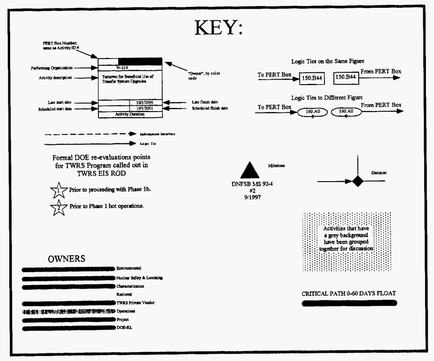

Activity # 160.A18 "TWRS MANAGEMENT ASSESSMENT" is an overall review of preparations to successfully supply waste feed on a continuing basis. It is anticipated this review will look at the tank farms infrastructure to assure transfer systems are complete and ready to perform reliably; qualified Operations, Engineering, Maintenance, and Laboratory Organizations are adequately staffed; and processes and procedures are in place. Also, construction projects required to support continuing delivery of waste feed (W-211 mixer pumps and transfer systems) are progressing adequately. An overall readiness assessment strategy for feed delivery is being developed. The scope of all readiness review type activities is being considered.

HNF-1946 Rev. 1
Figure A-12

DRAWING LIST		
DWG NO	TITLE	REFERENCES
DRAWING TRACEABILITY LIST	REF NUMBER	NEXT USED ON

REV NO	DESCRIPTION	REV DATE	ENGR	COMPANY
REVISIONS				

CADFILE HW1_1219.cvs CADCODE

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REVIEW NO. DATE

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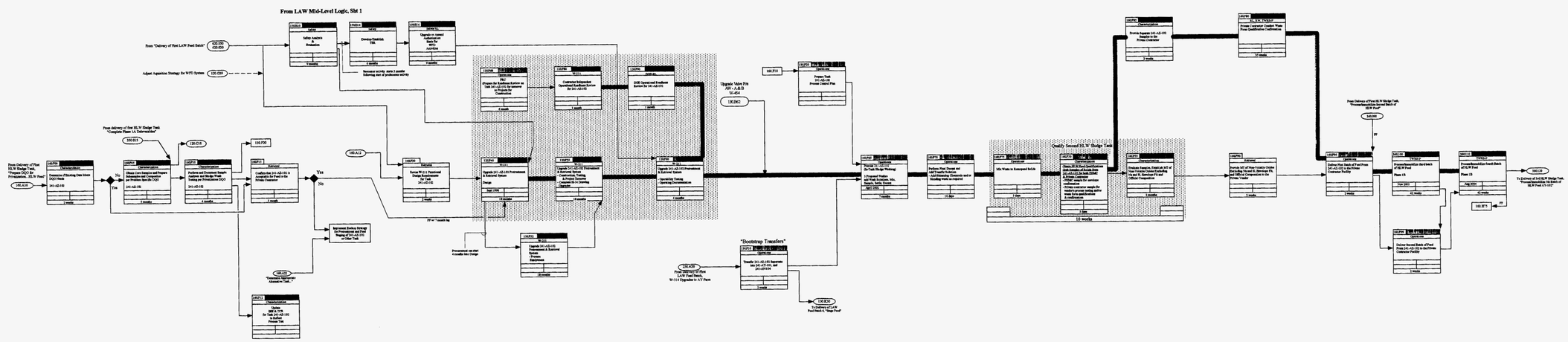
TWRS Retrieval Level 1 Logic
Waste Feed Delivery
HLW 1st & 2nd Feed Batches
First Tank, 241-AZ-101

PROJECT
SIZE BLDG NO INDEX NO DWG NO REV
SCALE EDT SHEET OF

Waste Feed Delivery
HLW 3rd-4th Feed Batches
Second Tank, 241-AZ-102

NOTES :

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



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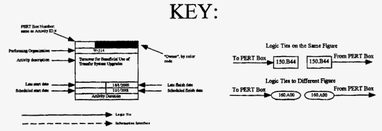

Formal DOE re-evaluations points for TWRS Program called out in TWRS EIS ROD

☆ Prior to proceeding with Phase 1b.

☆ Prior to Phase 1 hot operations.

Logic Ties on the Same Figure

To PERT Box 150.B44 150.B44 From PERT Box

Logic Ties to Different Figure

To PERT Box 180.A30 180.A30 From PERT Box

Milestone

DNFSB M5 92-4 #2 9/1997

Decision

Activities that have a grey background have been grouped together for discussion

OWNERS

[redacted] Environmental
[redacted] Nuclear Safety & Licensing
[redacted] Characterization
[redacted] Retrieval
[redacted] TWRS Private Vendor
[redacted] Operations
[redacted] Projects
[redacted] DOE-RL

CRITICAL PATH 0-60 DAYS FLOAT
[redacted]

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Figure A-13

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TWRS Retrieval Level 1 Logic
Waste Feed Delivery
HLW 3rd-4th Feed Batches
Second Tank, 241-AZ-102

DRAWING LIST

DWG NO	TITLE

DRAWING TRACEABILITY LIST

REF NUMBER	TITLE

REFERENCES

NEXT USED ON

REVISIONS

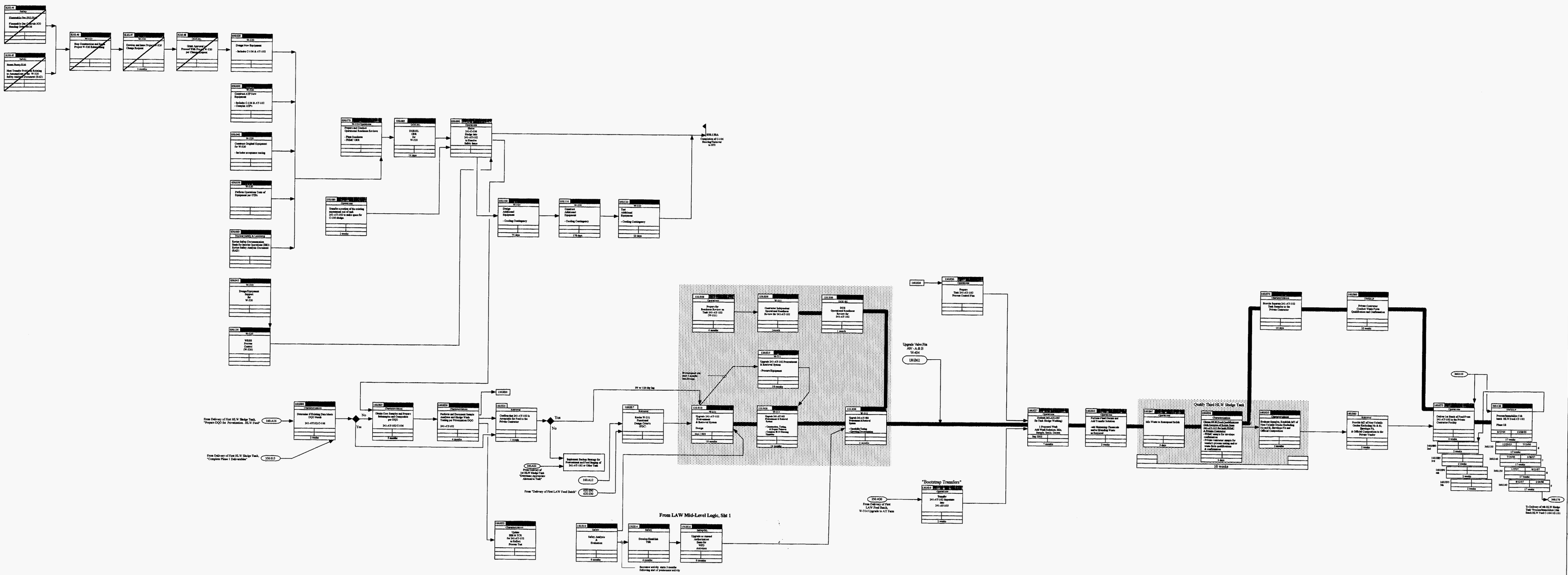
CADFILE HW2_1219.cvs CADCODE

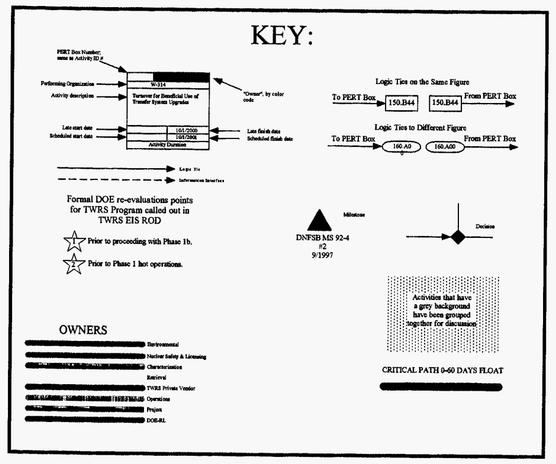
HLW2 (12-14-97)

Waste Feed Delivery
HLW 5th-9th Feed Batches
Third Tank, 241-AY-102

NOTES :

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





HNF-1946 Rev. 1
Figure A-14

DWG NO	TITLE
DRAWING TRACEABILITY LIST	

REF NUMBER	TITLE
DRAWING LIST	
REFERENCES	
NEXT USED ON	

REV NO	DESCRIPTION	REV BY DATE	ENGR	COMPANY
REVISIONS				

CADFILE HW3_1219.cvs CADCODE

USE
REVIEW NO. DATE

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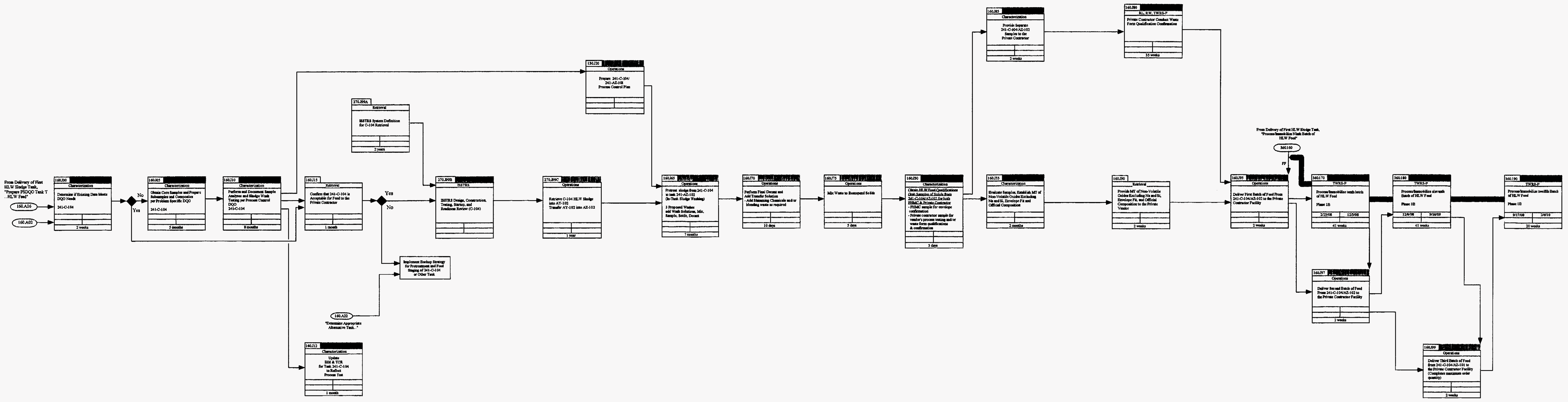
TWRS Retrieval Level 1 Logic
Waste Feed Delivery
HLW 5th-9th Feed Batches
Third Tank, 241-AY-102

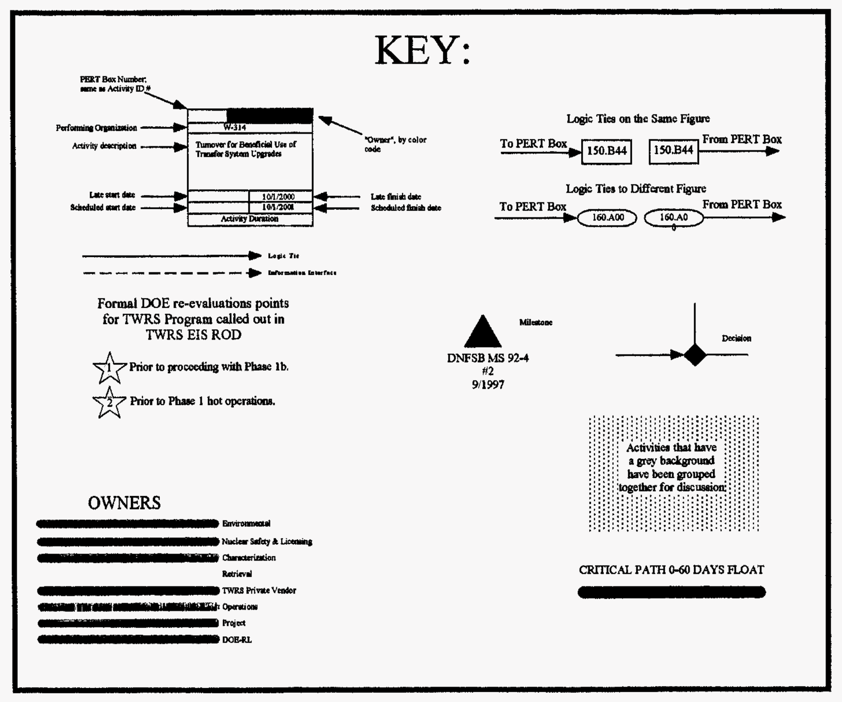
PROJECT
SIZE BLDG NO INDEX NO DWG NO REV
SCALE EDT SHEET OF

Waste Feed Delivery
HLW 10th-12th Feed Batches
Fourth Tank, 241-C-104

NOTES :

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





DWG NO	TITLE	REF NUMBER	TITLE

DRAWING TRACEABILITY LIST | NEXT USED ON | DRAWING LIST | REFERENCES

MFD | REV NO | DESCRIPTION | REV BY DATE | ENGR | COMPANY | REV Rel | REVISIONS

CADFILE HW4_1219.cvs CADCODE

HNF-1946 Rev. 1
Figure A-15

USE
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CHECKED M.J. O'Neill
PROGRAM MANAGER R.L. Treat
CHIEF ENGINEER W.M. Funderburke

U.S. DEPARTMENT OF ENERGY
Richland Operations Office
LOCKHEED MARTIN

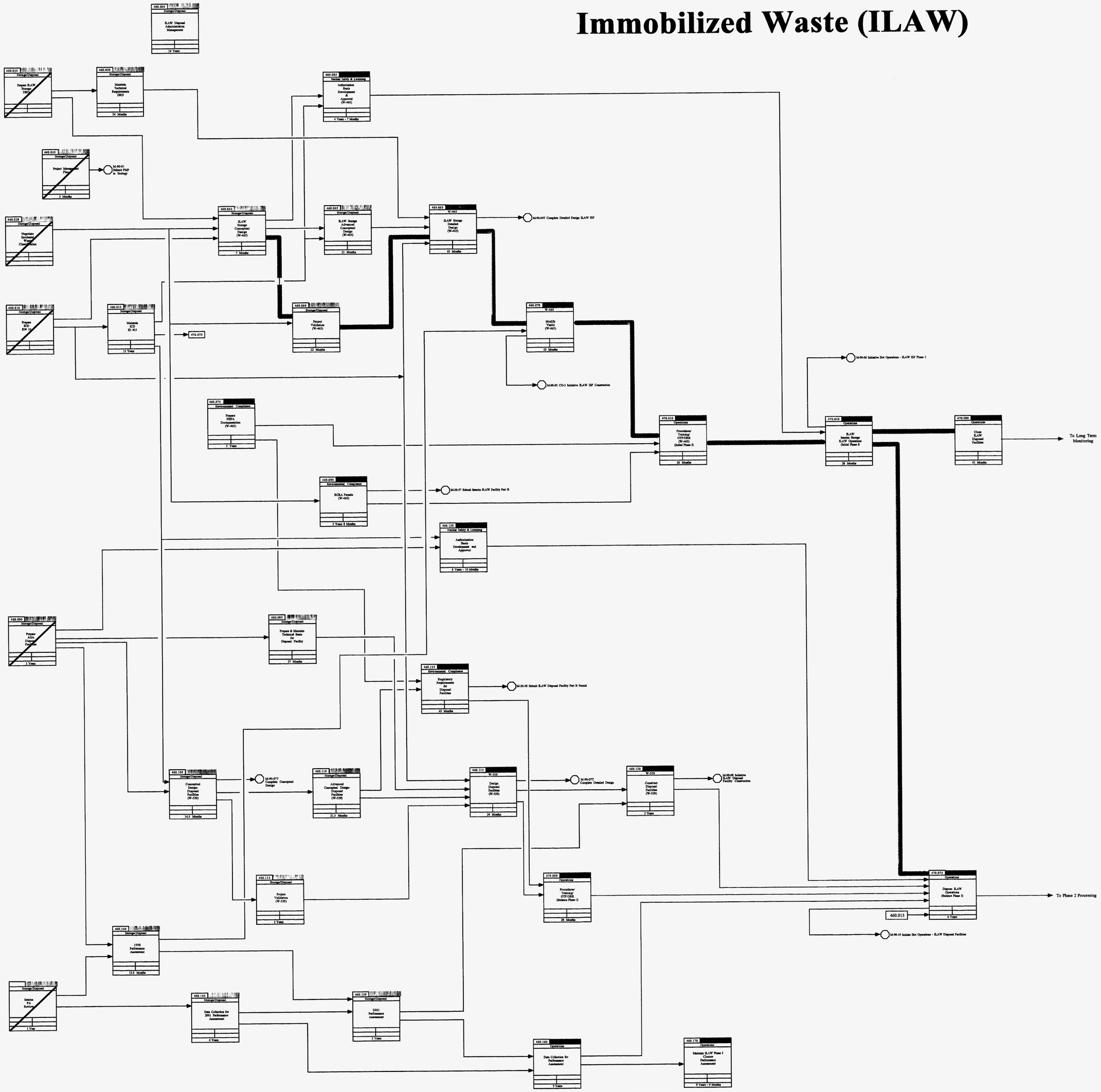
TWRS Retrieval Level 1 Logic
Waste Feed Delivery
HLW 10th-12th Feed Batches
Fourth Tank, 241-C-104

PROJECT
SIZE | BLDG NO | INDEX NO | DWG NO | REV
gw 1-5-98
SCALE | EDT | SHEET | OF

Immobilized Waste (ILAW)

NOTES :

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



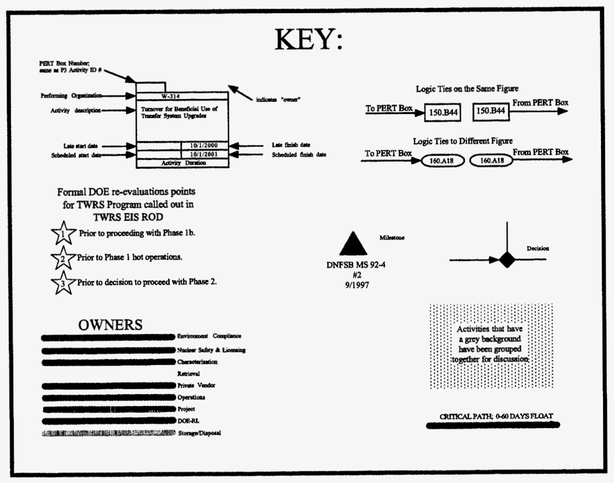


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Figure A-16

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TWRS Retrieval Level 1 Logic
Immobilized Waste (ILAW)

DWG NO	TITLE
DRAWING TRACEABILITY LIST	

REF NUMBER	DRAWING LIST TITLE REFERENCES
NEXT USED ON	

REV NO	DESCRIPTION	REV BY DATE	ENGR / COMPANY
REVISIONS			

CADFILE SDLW1219.cvs CADCODE

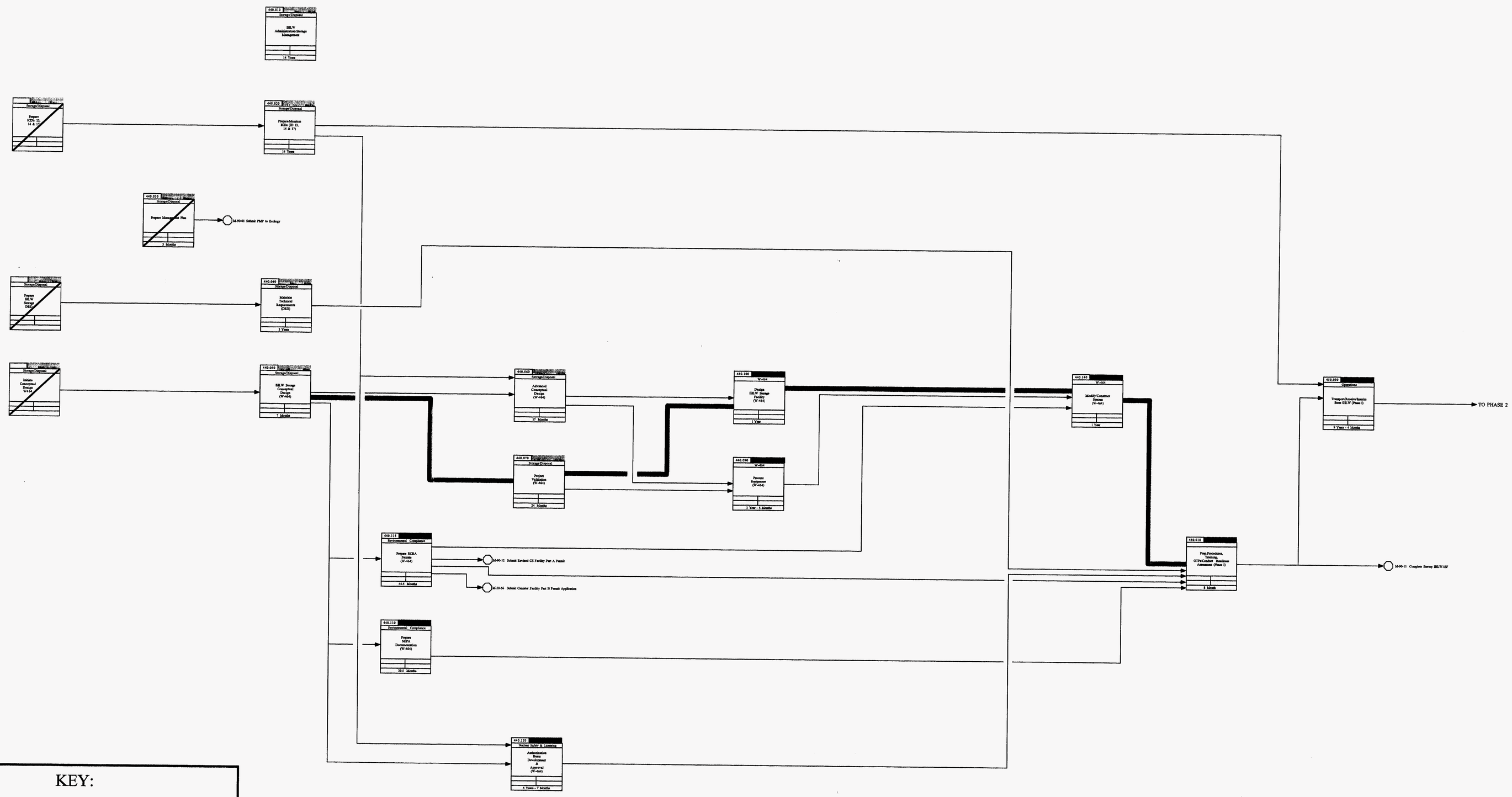
PROJECT | SIZE | BLDG NO | INDEX NO | DWG NO | REV | SCALE | EDT | SHEET | OF

AJP 1-5-98

Immobilized Waste (IHLW)

NOTES :

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



KEY:

PERT Box Number; same as PS Activity ID #

Performing Organization — Activity description — Late start date — Scheduled start date — Activity Duration

W-314 — Tomorrow for Beneficial Use of Transfer System Upgrades — 10/1/2000 — 10/1/2001

Indicates "overuse"

Late finish date — Scheduled finish date

Logic Ties on the Same Figure: To PERT Box 150.B44 150.B44 From PERT Box

Logic Ties to Different Figure: To PERT Box 160.A18 160.A18 From PERT Box

Formal DOE re-evaluations points for TWRS Program called out in TWRS EIS ROD

- Prior to proceeding with Phase 1b.
- Prior to Phase 1 hot operations.
- Prior to decision to proceed with Phase 2.

Milestone: DNFSB MS 92-4 #2 9/1997

Decision

OWNERS

- Environment Compliance
- Nuclear Safety & Licensing
- Characterization
- Retrieval
- Private Vendor
- Operations
- Project
- DOE-RL
- Storage/Disposal

Activities that have a grey background have been grouped together for discussion

CRITICAL PATH, 0-60 DAYS FLOAT

HNF-1946 Rev. 1
Figure A-17

DWG NO	TITLE
DRAWING TRACEABILITY LIST	

REF NUMBER	TITLE
NEXT USED ON	REFERENCES

DRAWING LIST

REV	DESCRIPTION	REV BY DATE	ENGR	COMPANY
REVISIONS				

CADFILE SDHW1219.cvs CADCODE

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USE
REVIEW NO. DATE

U.S. DEPARTMENT OF ENERGY
Richland Operations Office
LOCKHEED MARTIN

TWRS Retrieval Level 1 Logic
Immobilized Waste (IHLW)

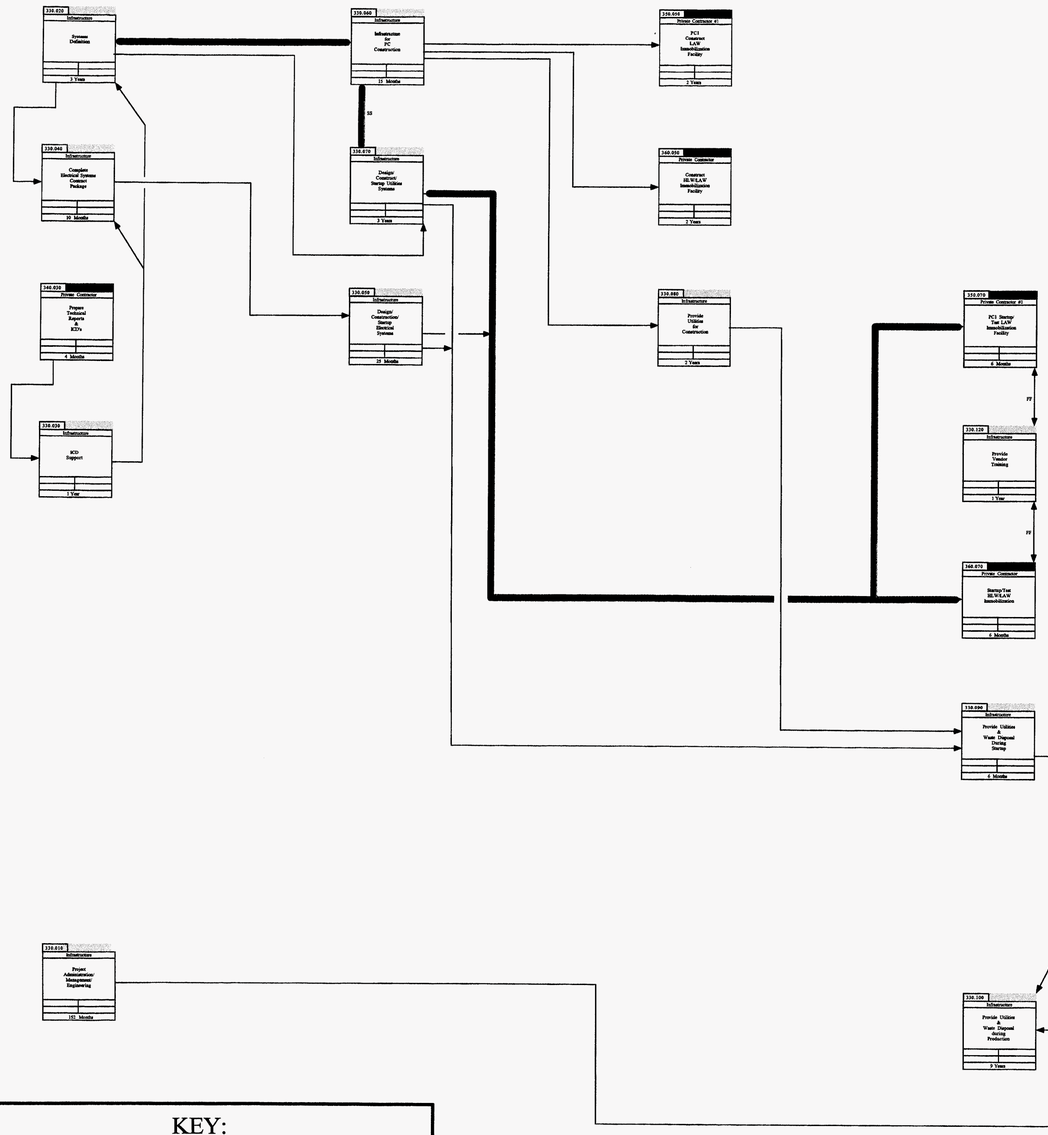
PROJECT
SIZE BLDG NO INDEX NO DWG NO REV
SCALE EDT SHEET OF

1-5-98

Infrastructure Phase 1
Privatization Support

NOTES :

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



KEY:

PERT Box Number same as P3 Activity ID #

W123

Performing Organization

Activity description — "nickname" "owner"

Unsecure for Beneficial Use of Transfer System Upgrades

Late start date — 10/3/2000 — Late finish date

Scheduled start date — 15/1/2001 — Scheduled finish date

Activity Duration

Logic Ties on the Same Figure

To PERT Box — 150.B44 — 150.B44 — From PERT Box

Logic Ties to Different Figure

To PERT Box — 160.A18 — 160.A18 — From PERT Box

Formal DOE re-evaluations points for TWRS Program called out in TWRS EIS ROD

- Prior to proceeding with Phase 1b.
- Prior to Phase 1 hot operations.
- Prior to decision to proceed with Phase 2.

Milestone

DNFSB MS 92-4 #2 9/1/97

Decision

OWNERS

- Environment Compliance
- Nuclear Safety & Licensing
- Characterization
- External
- TWRS-P (private vendor)
- Operations
- Project
- DOE-RL
- Storage/Disposal
- Infrastructure

Activities that have a grey background have been grouped together for discussion

CRITICAL PATH; 0-60 DAYS FLOAT

DWG NO	TITLE
DRAWING TRACEABILITY LIST	

REF NUMBER	DRAWING LIST TITLE
NEXT USED ON	REFERENCES

MFD REV Ref	REV NO	DESCRIPTION	REV BY DATE	ENGR COMPANY
REVISIONS				

CADFILE Inf_1219.cvs CADCODE

HNF-1946 Rev. 1
Figure A-18

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U.S. DEPARTMENT OF ENERGY
Richland Operations Office
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TWRS RETRIEVAL Level 1 Logic
Infrastructure Phase 1
Privatization Support

PROJECT

SIZE	BLDG NO	INDEX NO	DWG NO	REV
	200 G		CWD 1/12/98	0

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