S

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 654890

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental ○	D. R. Speer, T5-50, 373-1110	○ Yes ◉ No	08/24/99
Direct Revision ◉	PFP Project Management		
Change ECN ○	6. Project Title/No./Work Order No.	7. Bldg./Sys./Fac. No.	8. Approval Designator
Temporary ○	PMP for Material Stabilization	PFP	N/A
Standby ○	9. Document Numbers Changed by this ECN (includes sheet no. and rev.)	10. Related ECN No(s).	11. Related PO No.
Supersedure ○	HNF-3605, Rev 0.	none	none
Cancel/Void ○			

12a. Modification Work	12b. Work Package No.	12c. Modification Work Completed	12d. Restored to Original Condition (Temp. or Standby ECNs only)
○ Yes (fill out Blk. 12b)	N/A	N/A	M/A
◉ No (NA Blks. 12b, 12c, 12d)		Design Authority/Cog. Engineer Signature & Date	Design Authority/Cog. Engineer Signature & Date

13a. Description of Change

13b. Design Baseline Document? ○ Yes ● No

Complete revision and reissuance.

14a. Justification (mark one)	14b. Justification Details
Criteria Change ○	Complete revision to reflect more recent data and planning.
Design Improvement ◉	
Environmental ○	
Facility Deactivation ○	
As-Found ○	
Facilitate Const. ○	
Const. Error/Omission ○	
Design Error/Omission ○	

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

See attached

RELEASE STAMP

SEP 01 1999

DATE:

STA: 5

HANFORD RELEASE

ID: 12

A-7900-013-2 (10/97)

A-7900-013-1

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): 654890

16. Design Verification Required	17. Cost Impact		18. Schedule Impact (days)
	ENGINEERING	CONSTRUCTION	
○ Yes	Additional ○ $ N/A	Additional ○ $ N/A	Improvement ○ N/A
◉ No	Savings ○ $ N/A	Savings ○ $ N/A	Delay ○ N/A

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	☐	_____	☐
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

21. Approvals

	Signature	Date		Signature	Date
Design Authority N/A			Design Agent N/A		
Cog. Eng. D. R. Speer	D. R. Speer	8/24/99	PE N/A		
Cog. Mgr. D. R. Speer	D. R. Speer	8/24/99	QA N/A		
QA see below			Safety N/A		
Safety see below			Design N/A		
Environ. see below			Environ. N/A		
Other J. C. Sinclair	J. C. Sinclair	8/25/99	Other		
F. R. Crawford	F. R. Crawford	8/25/99			
P. E. Roege	P. E. Roege	8/25/99			
L. L. Reed	L. L. Reed	8-24-99			
			DEPARTMENT OF ENERGY		
			Signature or a Control Number that tracks the Approval Signature		
			ADDITIONAL		

DISTRIBUTION SHEET

To	From	Page 1 of 1
Distribution	PFP Program Management	Date August 24, 1999
Project Title/Work Order		EDT No.
Material Stabilization -- Project Management Plan		ECN No. 654890

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
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PROJECT MANAGEMENT PLAN FOR MATERIAL STABILIZATION

D. R. SPEER

B&W Hanford Company
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U.S. Department of Energy Contract DE-AC06-96RL13200

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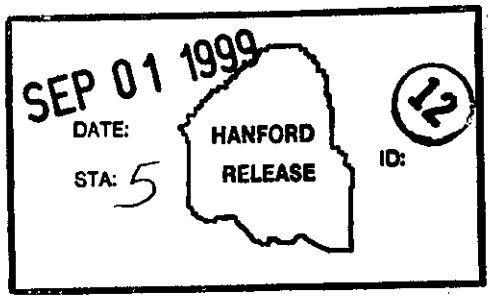
Key Words:
Project Management Plan, Stabilization, Plutonium, Uranium

Abstract:
Project Management Plan for the stabilization of plutonium metals, plutonium oxides and other materials with at least 30 weight percent plutonium or plutonium/uranium.



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Reviewing Official / ADC: WD Bartlett

Date: 8/31/99

9/1/99

Release Approval | Date | Release Stamp

Approved For Public Release

RECORD OF REVISION

(1) Document Number: HNF-3605

(2) Title: Material Stabilization Project Management Plan

Change Control Record

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release	
		(5) Cog. Engr.	(6) Cog. Mgr. Date
0	(7) Initial issuance via EDT 620663 December 18, 1998	DR Speer	DR Speer
RS 1	Complete revision via ECN 654890	DR Speer DR Speer	DR Speer DR Speer 8/30/99

TABLE OF CONTENTS

Project Management Plan
Materials Stabilization
Plutonium Finishing Plant

1. Introduction

1.1 Project Plan Purpose

This plan presents the overall objectives, description, justification and planning for the plutonium Finishing Plant (PFP) Materials Stabilization project. The intent of this plan is to describe how this project will be managed and integrated with other facility stabilization and deactivation activities. This plan supplements the overall integrated plan presented in the Plutonium Finishing Plant Integrated Project Management Plan (IPMP), HNF-3617, Rev. 0.

This is the top-level definitive project management document that specifies the technical (work scope), schedule, and cost baselines to manager the execution of this project. It describes the organizational approach and roles/responsibilities to be implemented to execute the project. This plan is under configuration management and any deviations must be authorized by appropriate change control action.

1.2 Project Description

Materials stabilization is designated the responsibility to open and stabilize containers of plutonium metal, oxides, alloys, compounds, and sources. Each of these items is at least 30 weight percent plutonium/uranium. The output of this project will be containers of materials in a safe and stable form suitable for storage pending final packaging and/or transportation offsite. The corrosion products along with oxides and compounds will be stabilized via muffle furnaces to reduce the materials to high fired oxides.

1.3 Project Mission

The mission of this project is to place unstable or potentially unstable materials in inventory at PFP into a stable form suitable for interim storage in PFP. Ultimately, all of the plutonium bearing materials at PFP will be shipped offsite allowing the deactivation and decommissioning of PFP.

1.4 Project Background

The material stabilization category includes the current PFP inventory of Pu metals, alloys, compounds, oxides and sources containing more than 30 wt % plutonium and uranium. Additional descriptive background material is given in the sections below.

1.4.1 Metal Stabilization (unalloyed plutonium metals)

PFP has stored unalloyed plutonium metal in its current configuration (storage cans) for approximately 15 to 20 years. It is assumed that most of this metal has some corrosion products on its surface. It is expected that the open USQ on metal handling will soon be resolved and will not require opening the metal in an inert environment. The positive USQ screen arose after a can opened at PFP several years ago that apparently had some hydride in it and gave off a flash upon opening. A workshop on Pu metal corrosion was held in Denver late last year and included several plutonium experts from across the complex. The resolution of the USQ will be based upon the results from this workshop.

1.4.2 Alloy Stabilization

PFP has plutonium-uranium alloys, plutonium-aluminum alloys as well as miscellaneous alloys in storage.

1.4.3 Compound Stabilization

There are several types of plutonium compounds in storage at PFP. These include Pu-F3 and F4 compounds, beryllium, zirconium, and thorium compounds as well as on PuF3-UF6 item.

1.4.4 Oxide Stabilization - Plutonium Oxides and Mixed Oxides (>30 wt % Pu + U)

The primary hazard associated with oxides is the potential container pressurization from off gassing, which could result in container breaching and the spread of contamination. Since these oxides have been stabilized in the past and are routinely monitored for signs of container pressurization, the risk of this accident occurring is low.

1.4.5 Source Stabilization

PFP manages many sources and standards, the hazard of which are similar to those of oxides and compounds described above.

1.5 Project Relationship to the Total Stabilization Program

This project is one of several identified to complete stabilization of Special Nuclear Material (SNM) at PFP, safely store it onsite, ship it offsite for storage or disposal, and transition the facility to a condition suitable for long term minimum cost surveillance and maintenance or Decontamination and Decommissioning (D&D). The Materials Stabilization Project Management Plan is one of several plans that make up the Stabilization portion of the PFP IPMP. The IPMP also includes cost, scope and schedule for "Min-Safe," Disposition, Transition and other PFP support activities. Changes to this Project Management Plan will roll up and be reflected in the PFP IPMP. The frequency of this roll up will be dependent upon the significance of the changes made to the PMPs.

2. Work Scope

2.1 Work Scope

Process Flow Description - Metals:
The inventory of unalloyed plutonium metal will be brushed to remove any corrosion products (oxide). The corrosion products will be thermally stabilized, placed in a convenience can and, either directly or after a short storage period, be placed into a welded container. The brushed metal will be placed into a convenience can and then into a welded container. Processing of metal will await completion of the installation of the Bagless Transfer Unit so it can immediately be packaged into a welded container which is the final packaging configuration. The Bagless Transfer Unit is being installed as part of the W-460 Project.

Previous plans had assumed that all of the metal would be oxidized in the muffle furnaces. As a result of the workshops with the plutonium experts in Denver last year and the resolution of the USQ, it was determined that brushing the metal would be satisfactory to provide stabilization of the material.

Process Flow Description - Alloys:

Alloys will be stabilized in the same manner as the unalloyed plutonium metal. Consideration will be given to discarding alloys that have less than 30 wt % Pu + U and/or that are not acceptable to the DOE Materials Stabilization (MD) Program or the Savannah River Site (SRS) process.

PFP currently stores items of 7% plutonium-aluminum alloys. These plutonium-aluminum alloys are considered stable. Since these alloys are

not acceptable to the MD Program, they will be shipped directly to SRS for processing (see the Shipping Project Management Plan).

Process Flow Description - Compounds:

The compounds will be evaluated to determine their acceptability to the Material Stabilization Program, suitability for processing at Savannah River, and compatibility with thermal stabilization. Based on that evaluation, the materials will either be packaged for shipment to the Savannah River Site, managed under the Residues Project Plan or stabilized and packaged into a welded container at PFP.

Process Flow Description - Oxides:

The oxide will be thermally stabilized in muffle furnaces, put into a convenience can and then into a welded container. It is anticipated that as much as five percent of the oxides will not be acceptable to the Materials Stabilization Program and therefore will require development of separate disposition strategies. The number of mixed oxide (MOX) items that are less than 30 wt % Pu + U is not defined at this time. Items less than 30 wt % Pu + U will be managed under the Residues Project Management Plan.

Stabilization of oxides is currently underway in PFP using two furnaces. Three additional furnaces will be started up in FY 2000. The W-460 Project will install two additional furnaces with the capacity to handle three boats each.

Process Flow Description - Sources:

Pu-Be sources will be shipped to the Los Alamos National Laboratory for dispositioning (see the Project Plan for Shipping). All other sources and standards will be stabilized similarly to oxides and compounds.

2.2 Requirements Baseline

2.2.1 Driving Requirements:

Driving requirements are those requirements that define the project mission. The source of the requirements are from the implementation plan for the *Remediation of Nuclear Materials in the Defense Nuclear Facilities Complex* (Revision 1), dated December 22, 1998. The commitments for material stabilization are to have the metal stabilized by May 2002 and to complete stabilization of oxides by December 2004.

Assumptions:

- The Material Stabilization Project will stabilize metals, sources, and alloys with a plutonium and uranium content greater than or equal to 30 wt % by brushing.
- Oxidation has been started in the two existing muffle furnaces in glovebox HC-21A. Three additional furnaces will be installed in FY 2000 in PFP. Two new furnaces, with the capability to handle three boats at a time, will be installed in 2736-Z. The resultant oxides will be packaged to comply with the Interim Storage Criteria and stored in the PFP vaults until repackaged into a welded can.
- Approximately ten percent of metal and alloy items will be sufficiently corroded to require thermal stabilization. Remaining items will be brushed to remove corrosion prior to packaging.
- Thermal Gravimetric Analysis (TGA) is sufficient for proof of stability for interim storage of mixed oxides.
- Material characterization for the purpose of determining the proper and safe handling for passivation and stabilization can be done without major equipment or process development.
- Canning for interim storage will be done in either food pack cans or Hanford Convenience Cans. Canning will start in food pack cans and move to convenience cans as the equipment and procedures to support that packaging are developed. Canning will be performed in ambient air.

- No co-mingling of items under IAEA safeguards with other items in storage at PFP will take place without prior IAEA approval.
- No additional material will be offered for IAEA safeguards at PFP until the material has been stabilized and repackaged to 3013 criteria.

2.2.2 Key Interfaces:

This project interfaces with material transfer, vault storage and shipping activities. Due to the possibility of several related processes going on at the same time, the Material Stabilization Project will have interfaces with the other PFP projects. These interfaces include material flow (input/output from the process), laboratory analyses, 234-5Z vault transfers, and availability of the muffle furnaces. During periods of high demand for muffle furnace capacity (during solution precipitation activities), oxide processing will be used as filler work to fully utilize the unused capacity. Evaluation, prioritization and integration of these interactions will be done through the PFP IPMP management efforts.

Two key interfaces that have been identified are the relationships between solutions processing and the availability of the welded can packaging system. Plant resources will continue to be assigned to the thermal stabilization of oxides and mixed oxides until the hardware and systems are available to process solutions. At that time, processing of solutions will begin and the processing of oxides and MOX will be performed only as resources are available. Solutions stabilization will continue until completed by the availability of funding. At this time, that isn't planned to resume until January 2002.

Processing of metals will not begin until the welded seam can packaging system is available for use in November 2000. This will allow direct placement of brushed metal items into a welded can in an inert atmosphere therefore completely eliminating the possibility of further corrosion of the metals.

2.2.3 Key Milestones:

NUMBER	DESCRIPTION	DUE DATE
	DNFSB MILESTONES	
IP - 110	Complete brushing and repackaging of metal inventory	05/2002
IP - 111	Complete stabilizing and packaging of oxides >50 wt %	12/2004
IP - 114	Ship aluminum and other selected alloys to SRS	06/2001
	DOE MILESTONES	
TRP-99-402	Start restabilizing high-assay oxides at PFP	07/31/99
TRP-99-417	Restart thermal stabilization and complete stabilization of higher risk plutonium-bearing materials	09/30/99

2.3 Programmatic Risks:

Several programmatic risks have been identified and must be managed. Those risks and the proposed method for resolving the uncertainties are as follows:

- Risk A: The methods for initial characterization prior to processing and characterization following characterization aren't established. A potential exists for the characterization to require significant effort including methods development.
  How will this risk be resolved? A characterization plan will be developed and issued.
- Risk B: There is a risk that material will be found during characterization that would be considered incompatible with either the processing or packaging planned.
  How will this risk be resolved? The continued management of that material will be evaluated and if needed alternative processes or packages established. In that event, proper change management will be used to document the revisions to the plan.

3. Work Breakdown Structure

The project Work Breakdown Structure (WBS) is shown in Appendix B. The WBS is a product-oriented hierarchy based upon the process flow sheet and includes necessary support activities. These WBS elements directly correlate to PFP IPMP WBS elements.

4. Project Strategy

This project requires the processing of several thousand separate packages of plutonium metal oxides, alloys, compounds, and sources. Many of these materials are approximately 30 years old and haven't been characterized. The strategy is to evaluate the material using existing data and determine the need for additional characterization data. Based on the results of that effort, and any required additional characterization, the material will be managed per the process logic diagrams in Appendix A. Processed materials will be packaged in accordance with the criteria for interim storage of plutonium-bearing materials (DOE-October 1995) awaiting final processing into a 3013 container and shipment to Savannah River.

5. Management Team Roles and Responsibilities

This materials stabilization project is under the direction of PFP Senior Director. Support for the project activities is provided by various support groups within the PFP organization.

5.1 Program Manager

The Program Manager is responsible for:

- Maintenance of the IPMP, PMPs, and the Multi-Year Work Plan to establish the technical schedule and cost baseline for all projects within the PFP.
- Selecting, directing, and monitoring performance of project managers.
- Establishing overall objectives, scope, and direction for each project and the working interfaces between the projects.
- Providing monthly project status reports for technical, schedule, and cost performance.
- Approves changes to the PMPs involving schedule delays and funding shifts.
- Ensure that the project meets applicable safety, health, and environmental requirements.

5.2 Project Manager

The Project Manager is responsible for completing the project as planned. Specific responsibilities include:

- Selecting and directing Cost Account Managers responsible for delivering discrete products and services defined by assigned WBS elements.
- Providing monthly project status of performance to the Program Manager.
- Planning, managing, and maintaining the technical, schedule, and cost baselines for the project.
- Approve changes to the PMP which do not involve schedule delays or funding shifts.
- Control the configuration of the PMP.

5.3 Cost Account Managers

Cost Account Managers identified for each WBS element are responsible for the following:

- Planning and completing the applicable cost account work scope in accordance with the technical, schedule, and cost baselines established in this plan.
- Performing work in a manner that meets the project's data quality objectives.
- Evaluating and reporting monthly cost account status to the project manager.
- Directing and working with work package managers to complete the work packages as planned.

5.4 Operations and Support Group Managers

Operations and Support Group Managers are responsible for:

- Achieving operational safety and compliance with permit requirements.
- Maintaining required operational efficiencies to achieve project objectives.
- Performing work in a manner that meets the project's cost, schedule, and quality objectives.

6. Schedules (Baseline)

The currently approved baseline for the PFP Stabilization Project is contained in the PFP Stabilization and Deactivation Project IPMP. The schedule for Materials Stabilization is attached as Appendix C.

7. Cost Estimate

An Activity based cost (ABC) estimating technique was used to develop the costs provided in the Materials Stabilization Project Baseline Plan and Estimate. That ABC estimate was independently validated. The cost summary for stabilization of Materials Stabilization is attached as Appendix D.

8. Quality Assurance

PFP is subject to the requirements of Title 10, Code of Federal Regulations, Part 830-120, "Quality Assurance Requirements," and complies with the applicable requirements described in the Project Hanford QAPD, HNF-MP-599. Appendix A, "QAPD Requirements Applicability Matrix," of the PFP QAPP (FSP-PFP-5-8, Section 15.1) identifies QAPD requirements that apply to each PFP organization.

9. Systems Engineering Plan

Systems Engineering techniques that have been and will be utilized for this project include:

A) Logic diagrams will be developed for the project steps and material processes related to the material stabilization and disposition subprojects. The logic elements will be linked with information related to requirements, information needs, reporting, and other key attributes.
B) Simulations, performance measurement, and other analytical methods will provide optimization as the project proceeds. The targets of the optimization are: 1) decisions related to scheduling and management of resources for materials stabilization and disposition, and 2) tuning of the materials stabilization processes for improved performance.
C) A material database will be established and maintained to manage information related to material processing and disposition.

10. Security

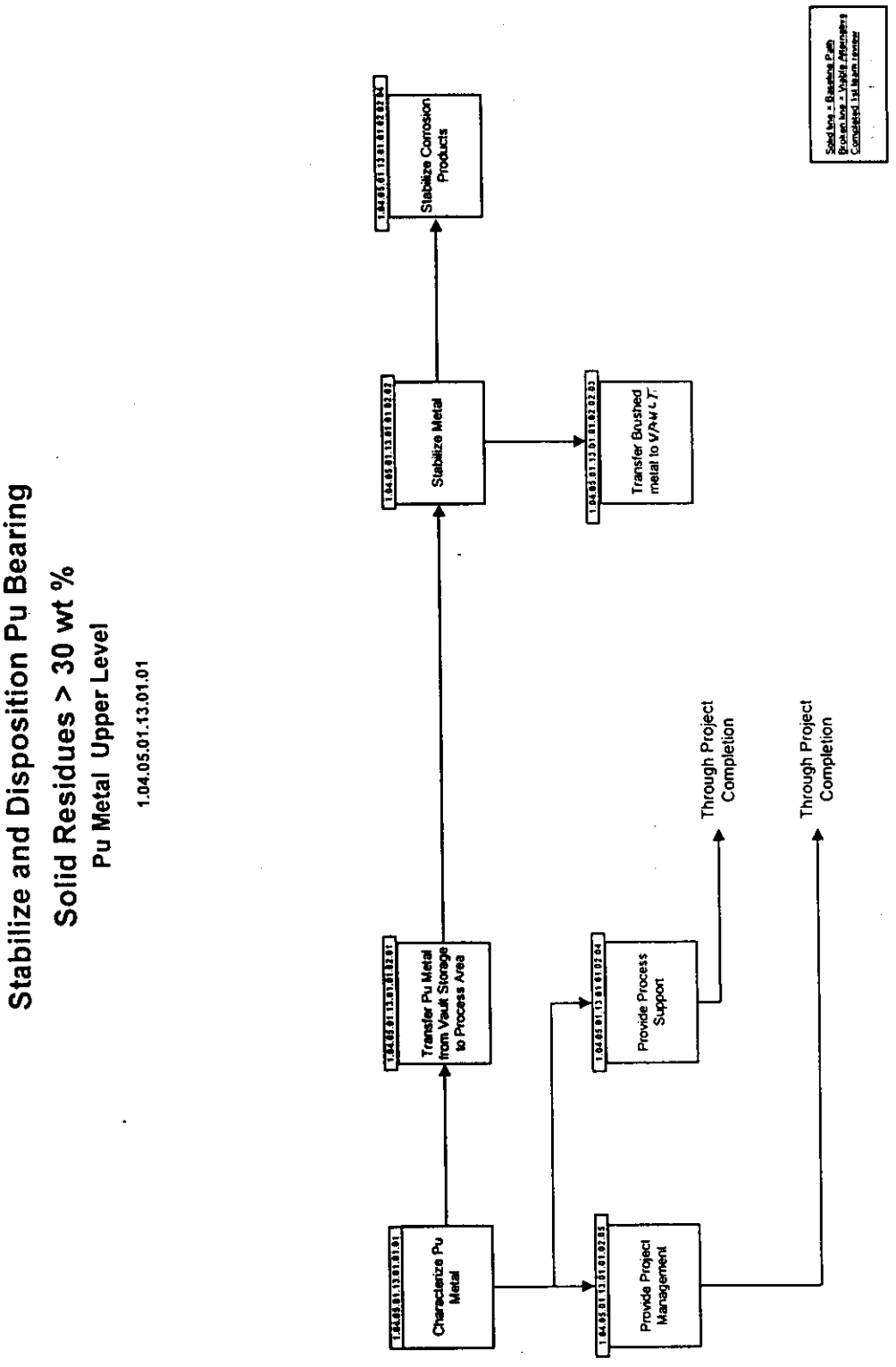
The PFP security program addresses the following security aspects: physical protection of special nuclear material (SNM), nuclear material accountability and control, access control requirements, human reliability program protection, shipments and movement of SNM and storage of SNM.

11. Project Management Plan Controls

The Materials Stabilization Project Manager will be responsible for insuring the Materials Stabilization Project Management Plan and its supporting schedules and estimates are kept current. A system to control changes will be implemented as part of the PFP IPMP controls. The Project Manager and the Program Manager will review and approve all changes to the Materials Stabilization PMP. For changes that do not involve moving funding or changing funding or changing schedule, the Project Manager will have authority to approve changes. Operations, Engineering, ESH&Q, and the Director will be asked to provide input on changes being considered. The electronic version of the PMP and IPMP will be maintained current. Hardcopy versions will be printed as required using a graded approach based upon the impact of the changes made. Issues will be tracked using the Issues Management List. Project reviews on the project commitments will be held monthly. Configuration Control of the Project Management Plan will comply with HNF-PRO-522, *Change Control.*

Appendix A

Materials Stabilization Process Logic Diagrams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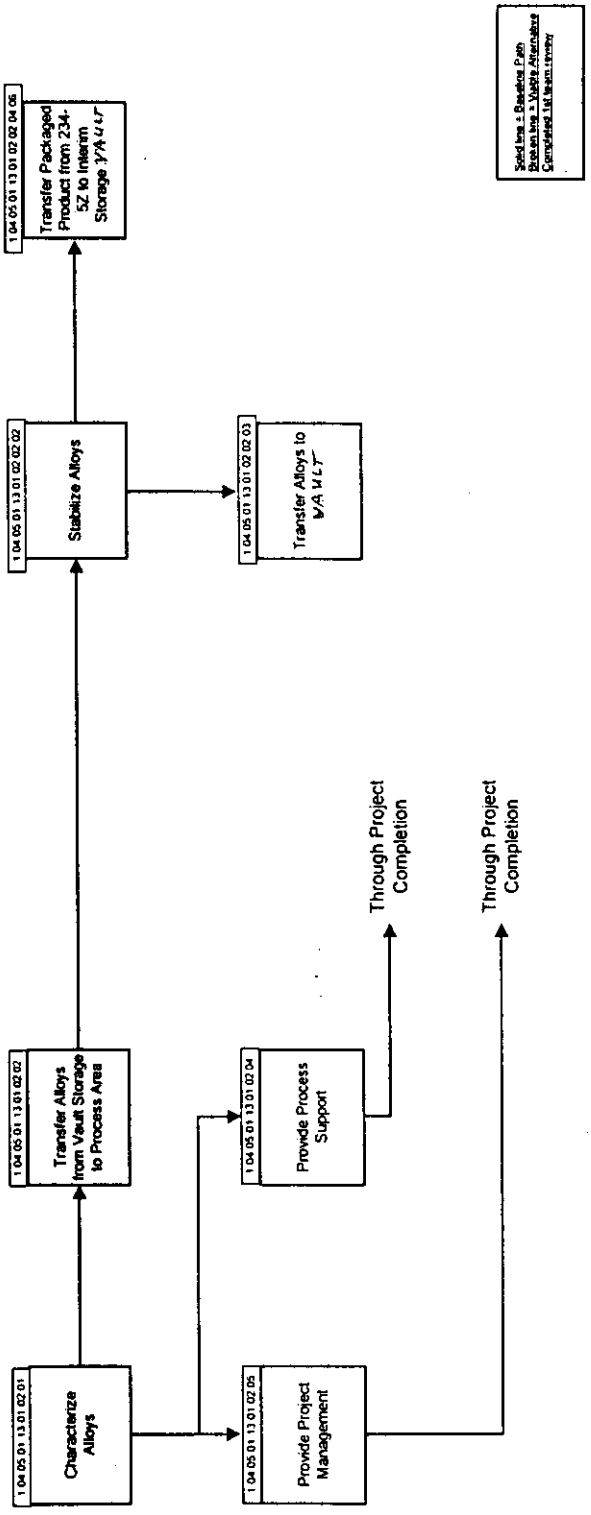
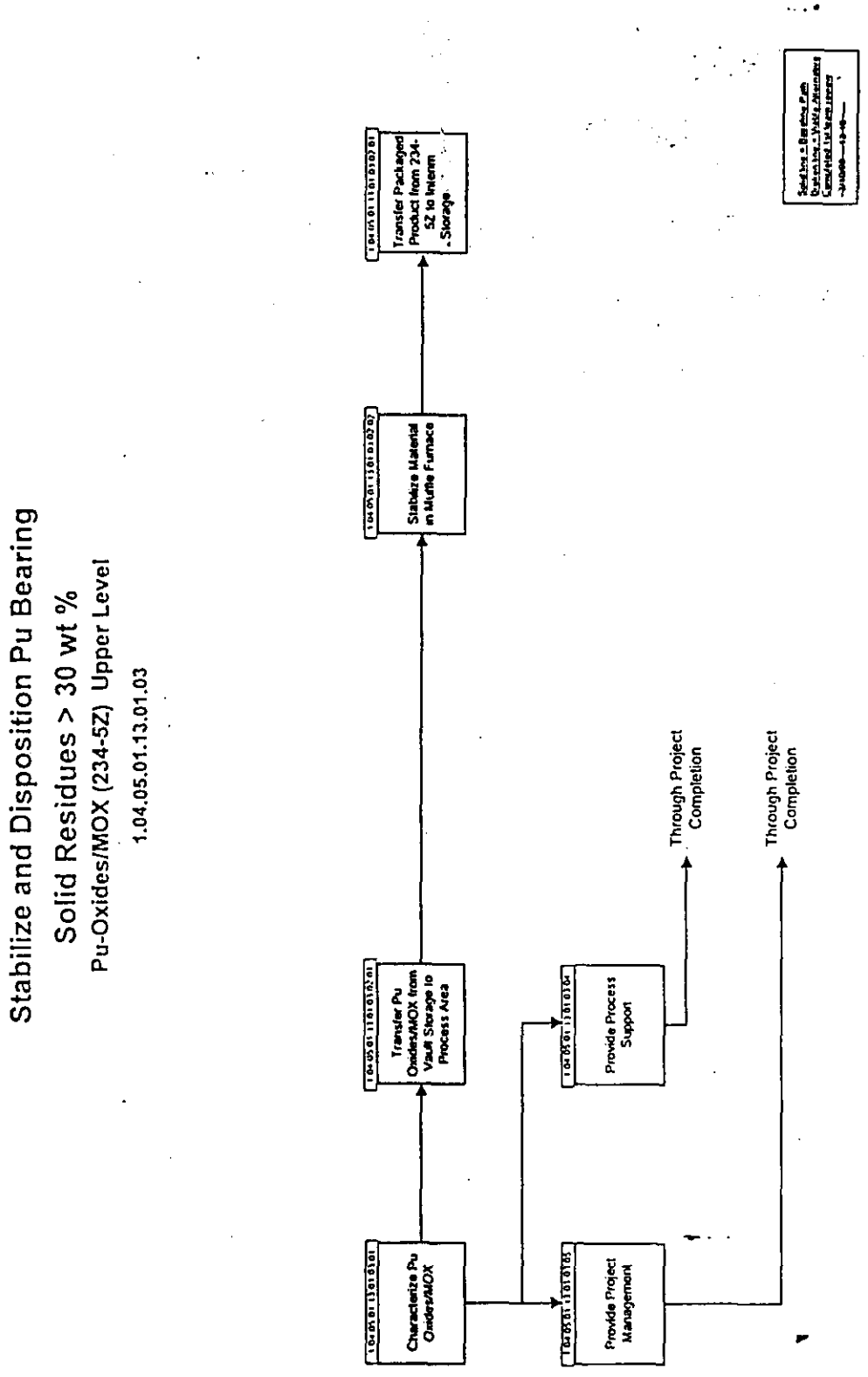
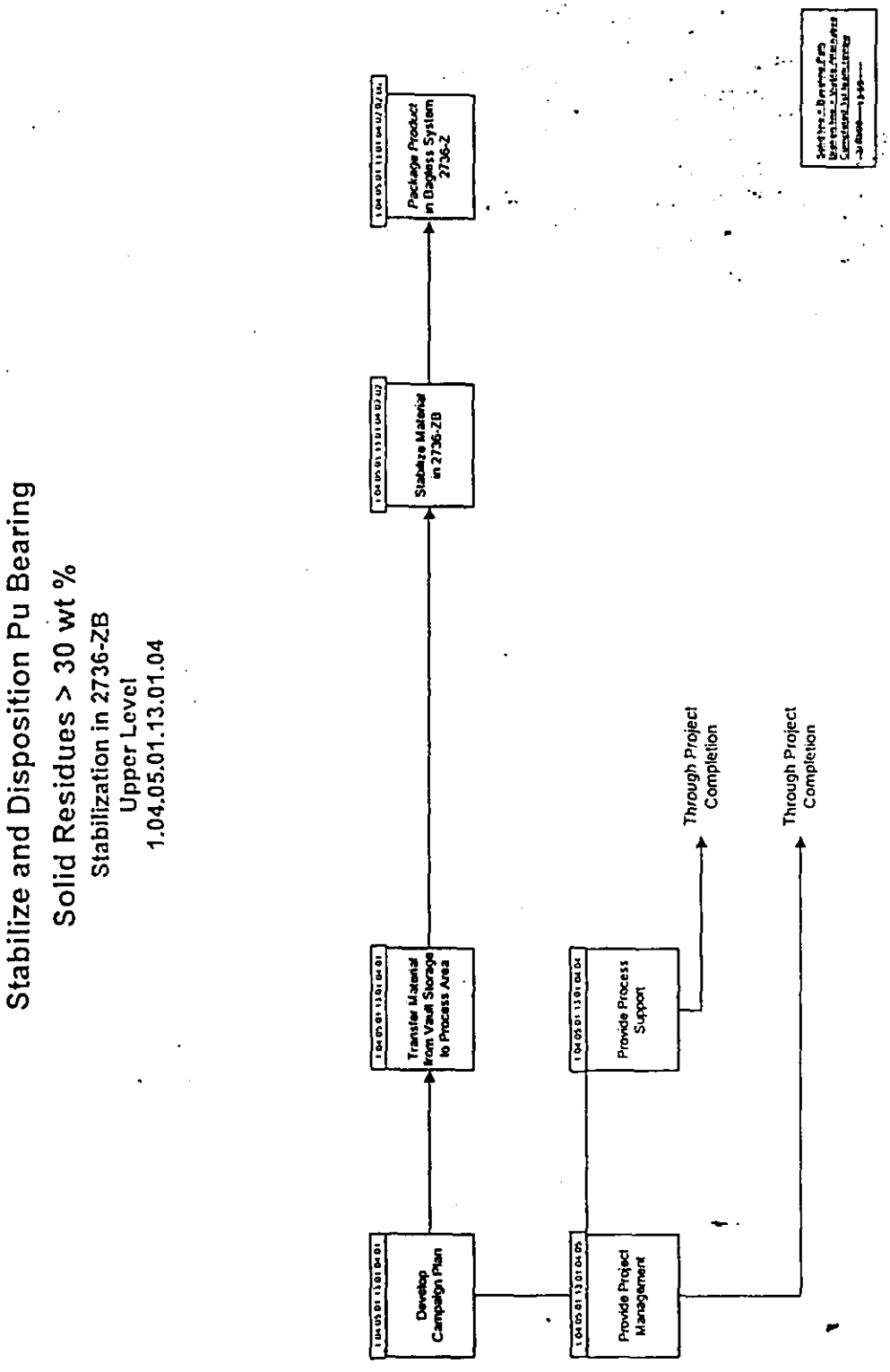
Solid Residues > 30 wt %
Pu Metal Upper Level
1.04.05.01.13.01.01
Characterize Pu Metal
Transfer Pu Metal from Vault Storage to Process Area
Stabilize Metal
Stabilize Corrosion Products
Transfer Stabilized metal to VAULT
Provide Project Management
Provide Process Support
Through Project Completion
Through Project Completion

Stabilize and Disposition Pu Bearing Solid Residues > 30 wt %

Alloys Upper Level
1.04.05.01.13.01.02

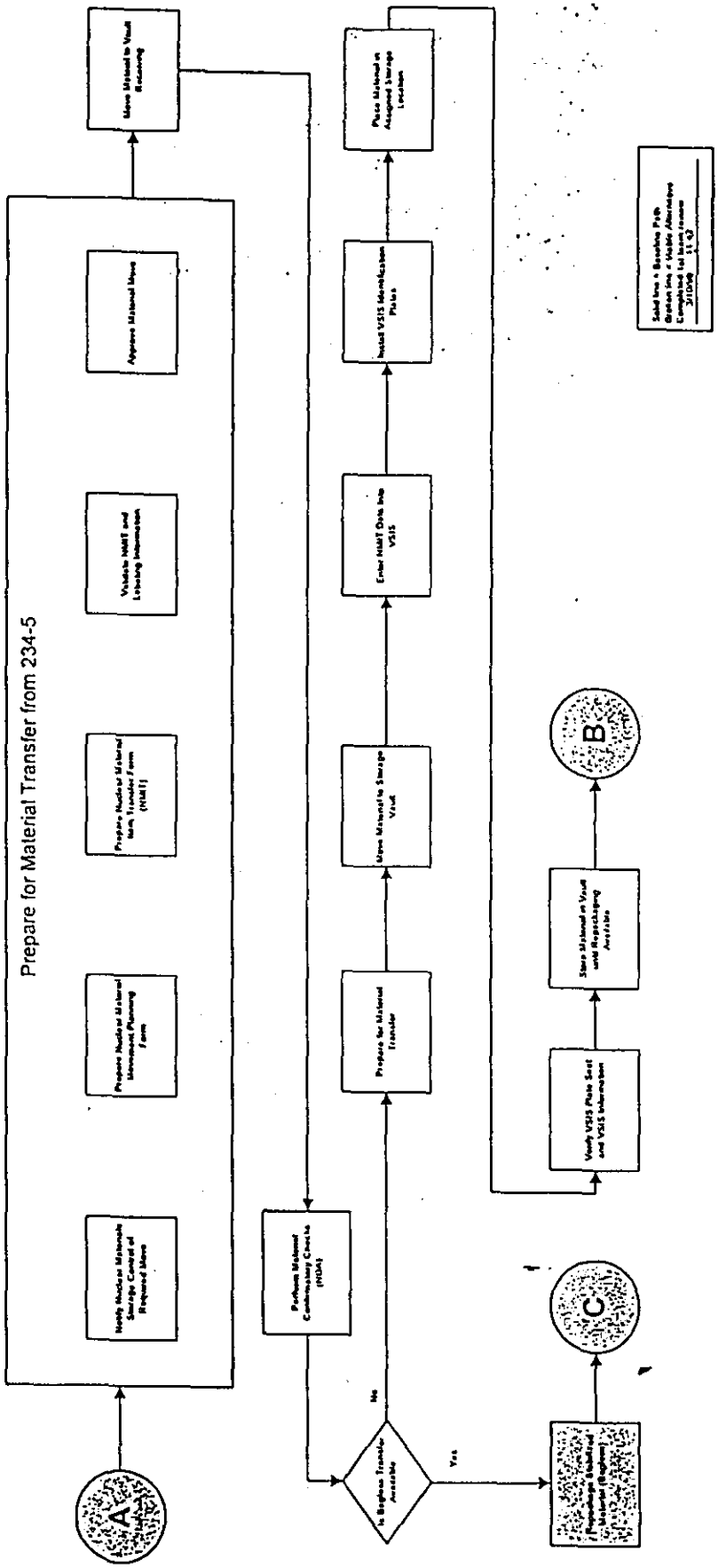



Stabilize and Disposition Pu Bearing
Solid Residues > 30 wt %
Pu-Oxides/MOX (234-5Z) Upper Level
1.04.05.01.13.01.03
Characterize Pu Oxides/MOX
Transfer Pu Oxides/MOX from Vault Storage to Process Area
Stabilize Material in Muffle Furnace
Transfer Packaged Product from 234-5Z to Interim Storage
Provide Project Management
Provide Process Support
Through Project Completion
Through Project Completion


Stabilize and Disposition Pu Bearing
Solid Residues > 30 wt %
Stabilization in 2736-ZB
Upper Level
1.04.05.01.13.01.04
Develop Campaign Plan
Transfer Material from Vault Storage to Process Area
Stabilize Material in 2736-ZB
Package Product in Bagless System 2736-Z
Provide Project Management
Provide Process Support
Through Project Completion
Through Project Completion

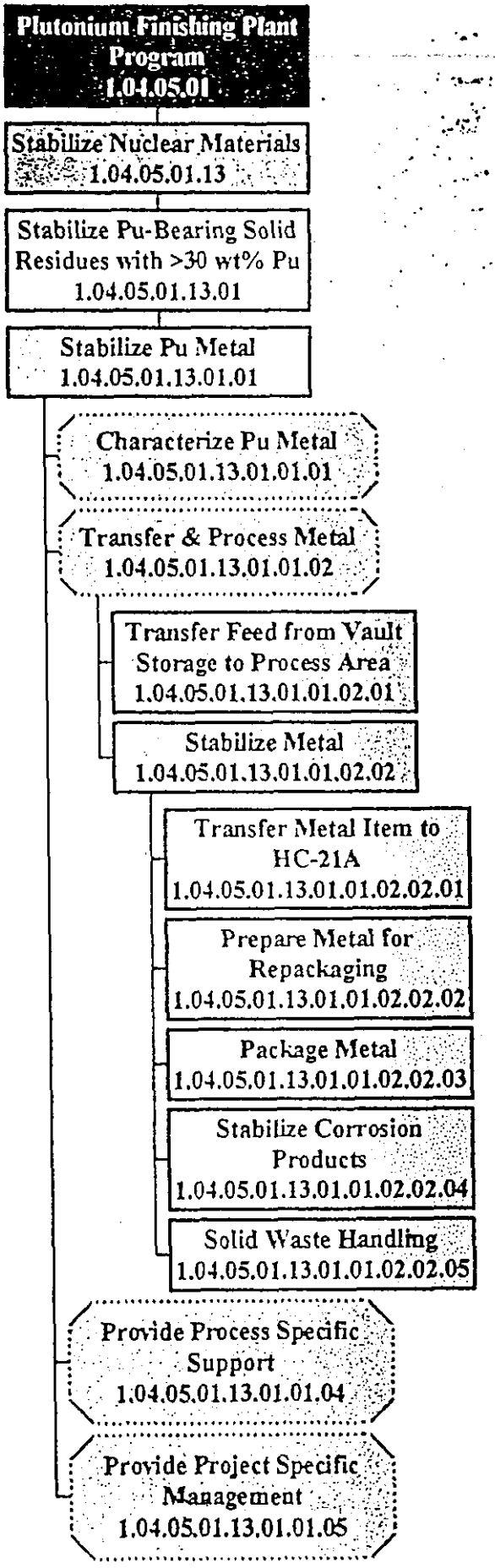
Store/Repackage Material

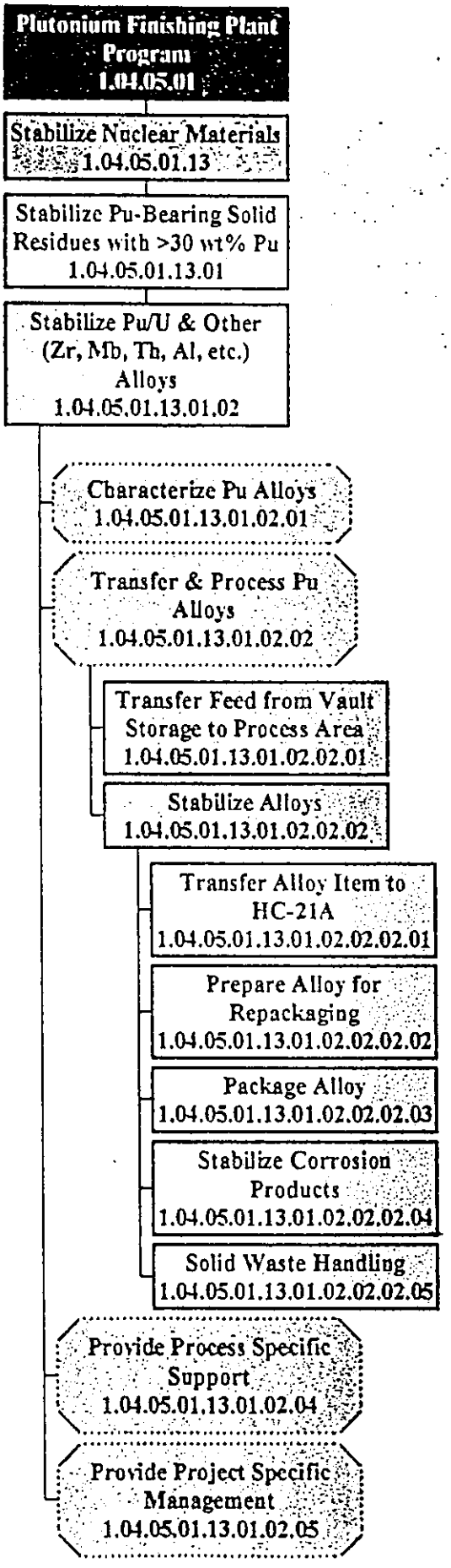
1.04.05.01.14.01.01.01

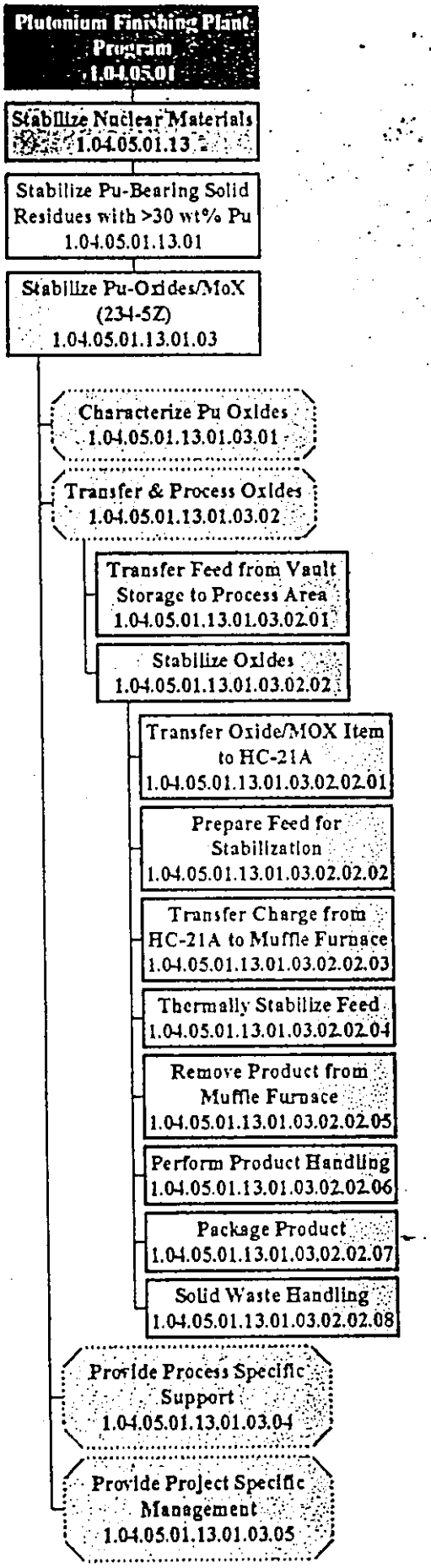


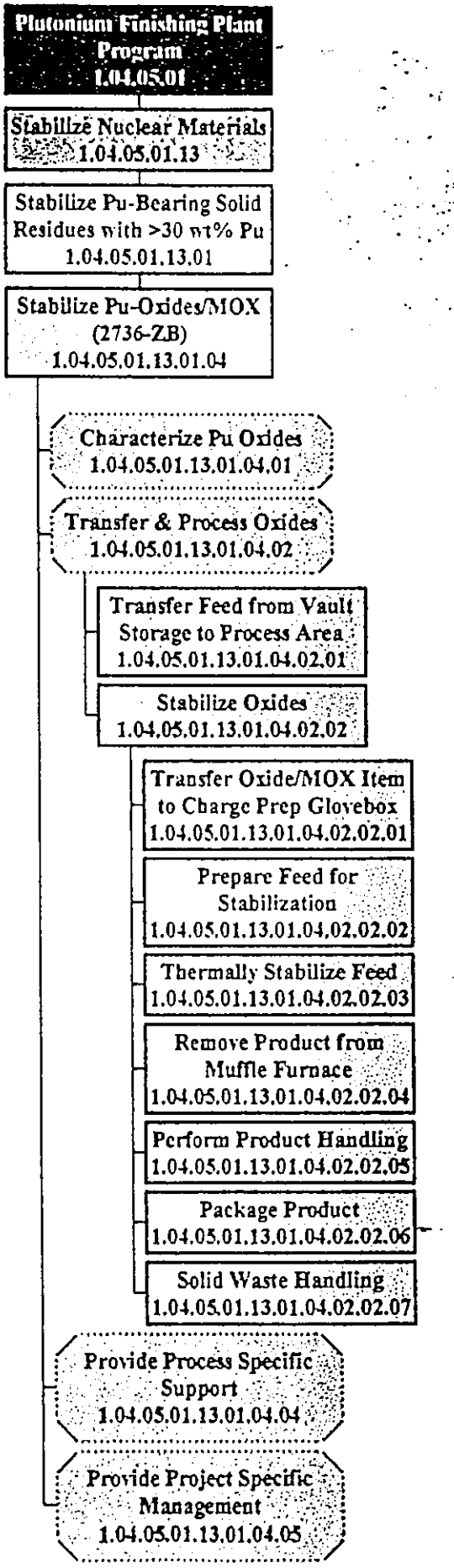
Appendix B

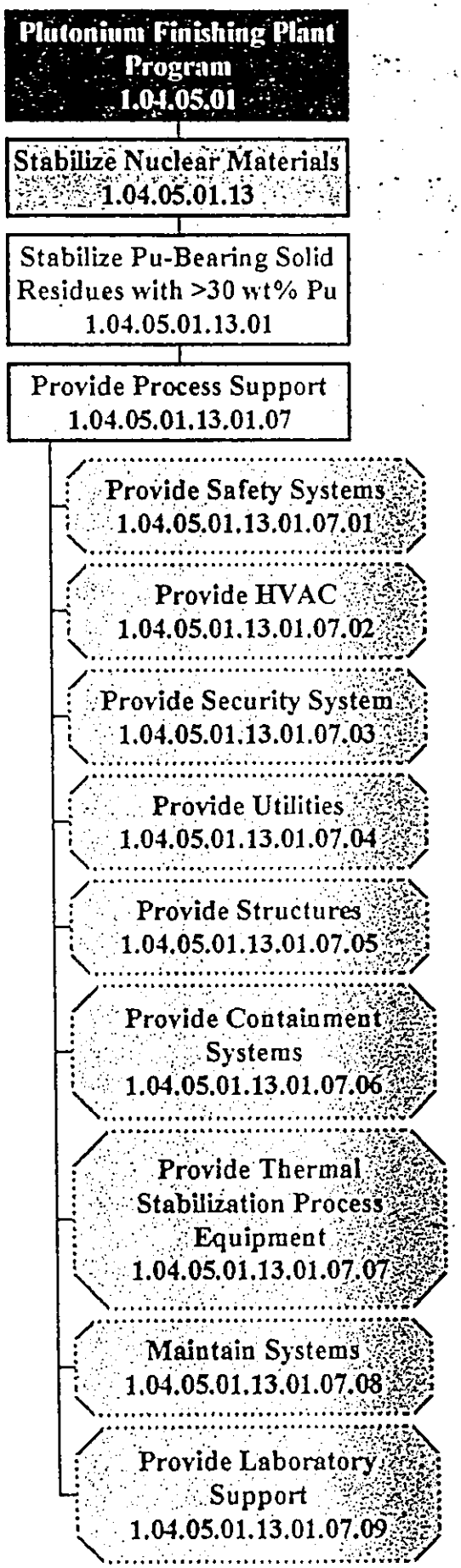
Materials Stabilization Work Breakdown Structure (WBS)


Plutonium Finishing Plant Program 1.04.05.01
Stabilize Nuclear Materials 1.04.05.01.13
Stabilize Pu-Bearing Solid Residues with >30 wt% Pu 1.04.05.01.13.01
Stabilize Pu Metal 1.04.05.01.13.01.01
Characterize Pu Metal 1.04.05.01.13.01.01.01
Transfer & Process Metal 1.04.05.01.13.01.01.02
Transfer Feed from Vault Storage to Process Area 1.04.05.01.13.01.01.02.01
Stabilize Metal 1.04.05.01.13.01.01.02.02
Transfer Metal Item to HC-21A 1.04.05.01.13.01.01.02.02.01
Prepare Metal for Repackaging 1.04.05.01.13.01.01.02.02.02
Package Metal 1.04.05.01.13.01.01.02.02.03
Stabilize Corrosion Products 1.04.05.01.13.01.01.02.02.04
Solid Waste Handling 1.04.05.01.13.01.01.02.02.05
Provide Process Specific Support 1.04.05.01.13.01.01.04
Provide Project Specific Management 1.04.05.01.13.01.01.05


Plutonium Finishing Plant Program 1.04.05.01
Stabilize Nuclear Materials 1.04.05.01.13
Stabilize Pu-Bearing Solid Residues with >30 wt% Pu 1.04.05.01.13.01
Stabilize Pu/U & Other (Zr, Mb, Th, Al, etc.) Alloys 1.04.05.01.13.01.02
Characterize Pu Alloys 1.04.05.01.13.01.02.01
Transfer & Process Pu Alloys 1.04.05.01.13.01.02.02
Transfer Feed from Vault Storage to Process Area 1.04.05.01.13.01.02.02.01
Stabilize Alloys 1.04.05.01.13.01.02.02.02
Transfer Alloy Item to HC-21A 1.04.05.01.13.01.02.02.02.01
Prepare Alloy for Repackaging 1.04.05.01.13.01.02.02.02.02
Package Alloy 1.04.05.01.13.01.02.02.02.03
Stabilize Corrosion Products 1.04.05.01.13.01.02.02.02.04
Solid Waste Handling 1.04.05.01.13.01.02.02.02.05
Provide Process Specific Support 1.04.05.01.13.01.02.04
Provide Project Specific Management 1.04.05.01.13.01.02.05


Plutonium Finishing Plant Program 1.04.05.01
Stabilize Nuclear Materials 1.04.05.01.13
Stabilize Pu-Bearing Solid Residues with >30 wt% Pu 1.04.05.01.13.01
Stabilize Pu-Oxides/MoX (234-5Z) 1.04.05.01.13.01.03
Characterize Pu Oxides 1.04.05.01.13.01.03.01
Transfer & Process Oxides 1.04.05.01.13.01.03.02
Transfer Feed from Vault Storage to Process Area 1.04.05.01.13.01.03.02.01
Stabilize Oxides 1.04.05.01.13.01.03.02.02
Transfer Oxide/MOX Item to HC-21A 1.04.05.01.13.01.03.02.02.01
Prepare Feed for Stabilization 1.04.05.01.13.01.03.02.02.02
Transfer Charge from HC-21A to Muffle Furnace 1.04.05.01.13.01.03.02.02.03
Thermally Stabilize Feed 1.04.05.01.13.01.03.02.02.04
Remove Product from Muffle Furnace 1.04.05.01.13.01.03.02.02.05
Perform Product Handling 1.04.05.01.13.01.03.02.02.06
Package Product 1.04.05.01.13.01.03.02.02.07
Solid Waste Handling 1.04.05.01.13.01.03.02.02.08
Provide Process Specific Support 1.04.05.01.13.01.03.04
Provide Project Specific Management 1.04.05.01.13.01.03.05


Plutonium Finishing Plant Program 1.04.05.01
Stabilize Nuclear Materials 1.04.05.01.13
Stabilize Pu-Bearing Solid Residues with >30 wt% Pu 1.04.05.01.13.01
Stabilize Pu-Oxides/MOX (2736-ZB) 1.04.05.01.13.01.04
Characterize Pu Oxides 1.04.05.01.13.01.04.01
Transfer & Process Oxides 1.04.05.01.13.01.04.02
Transfer Feed from Vault Storage to Process Area 1.04.05.01.13.01.04.02.01
Stabilize Oxides 1.04.05.01.13.01.04.02.02
Transfer Oxide/MOX Item to Charge Prep Glovebox 1.04.05.01.13.01.04.02.02.01
Prepare Feed for Stabilization 1.04.05.01.13.01.04.02.02.02
Thermally Stabilize Feed 1.04.05.01.13.01.04.02.02.03
Remove Product from Muffle Furnace 1.04.05.01.13.01.04.02.02.04
Perform Product Handling 1.04.05.01.13.01.04.02.02.05
Package Product 1.04.05.01.13.01.04.02.02.06
Solid Waste Handling 1.04.05.01.13.01.04.02.02.07
Provide Process Specific Support 1.04.05.01.13.01.04.04
Provide Project Specific Management 1.04.05.01.13.01.04.05

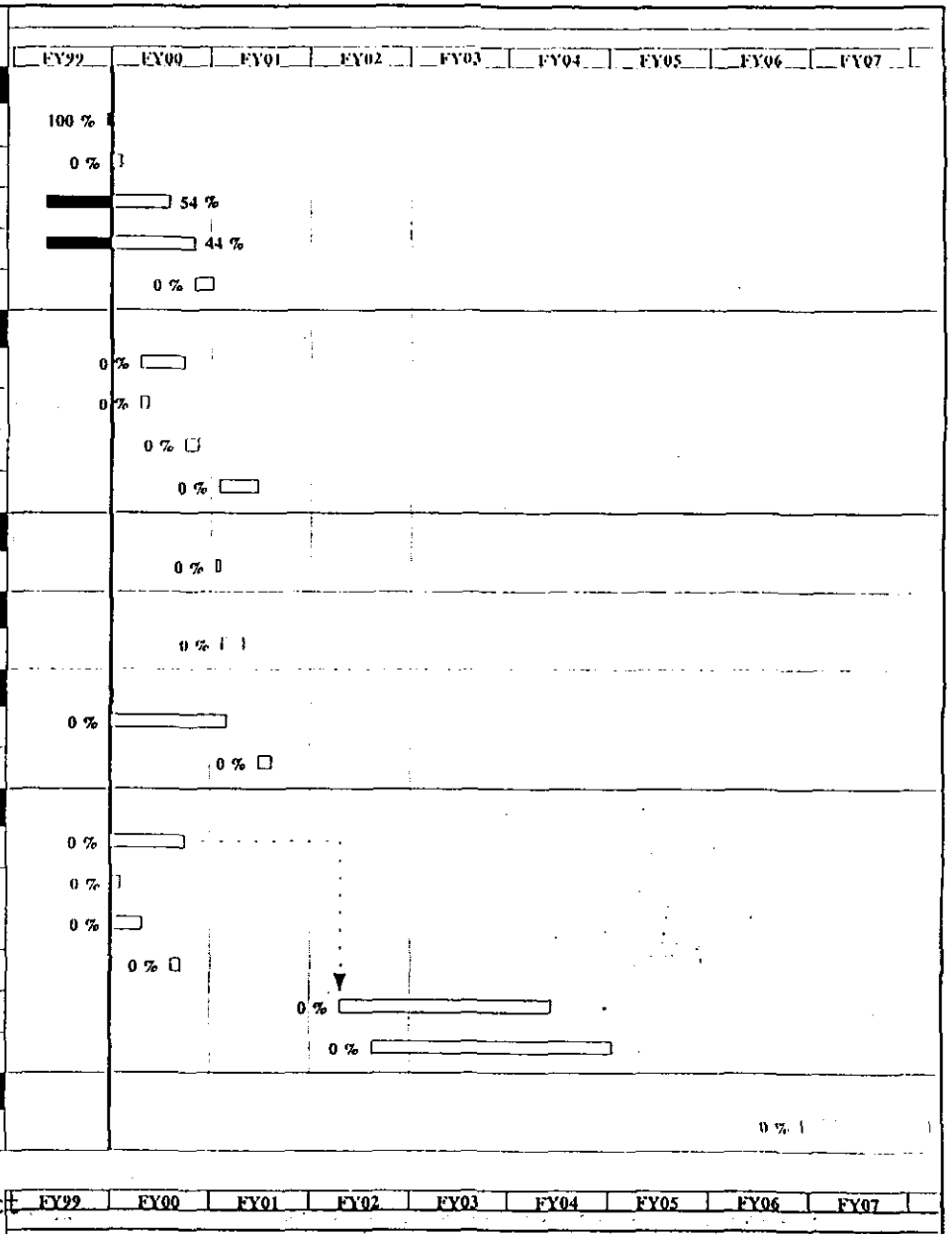

Plutonium Finishing Plant Program 1.04.05.01
Stabilize Nuclear Materials 1.04.05.01.13
Stabilize Pu-Bearing Solid Residues with >30 wt% Pu 1.04.05.01.13.01
Provide Process Support 1.04.05.01.13.01.07
Provide Safety Systems 1.04.05.01.13.01.07.01
Provide HVAC 1.04.05.01.13.01.07.02
Provide Security System 1.04.05.01.13.01.07.03
Provide Utilities 1.04.05.01.13.01.07.04
Provide Structures 1.04.05.01.13.01.07.05
Provide Containment Systems 1.04.05.01.13.01.07.06
Provide Thermal Stabilization Process Equipment 1.04.05.01.13.01.07.07
Maintain Systems 1.04.05.01.13.01.07.08
Provide Laboratory Support 1.04.05.01.13.01.07.09


Plutonium Finishing Plant Program 1.04.05.01
Dispose Nuclear Materials 1.04.05.01.14
Repackage and Store Materials 1.04.05.01.14.01
Repackage and Store Stabilized Product 1.04.05.01.14.01.01
Store Packaged Materials 1.04.05.01.14.01.01.01
Repackage Stabilized Materials 1.04.05.01.14.01.01.02
Provide Project Management 1.04.05.01.14.01.01.03
Store Stabilized Plutonium Oxides from Metal Stabilization 1.04.05.01.14.01.01.01.01
Store Stabilized Plutonium Oxides from Alloy Stabilization 1.04.05.01.14.01.01.01.02
Store Stabilized Plutonium Oxides from Oxide/MOX Stabilization 1.04.05.01.14.01.01.01.03
Store Stabilized Plutonium Oxide from Pure Nitrate Solution Stabilization 1.04.05.01.14.01.01.01.04
Store Stabilized Plutonium Oxide from Impure Nitrate Solution Stabilization 1.04.05.01.14.01.01.01.05
Store Stabilized Plutonium Oxide from Chloride Solution Stabilization 1.04.05.01.14.01.01.01.06
Store Stabilized Plutonium Oxide from Caustic Solution Stabilization 1.04.05.01.14.01.01.01.07
Store Stabilized Plutonium Oxides from Polycube Stabilization 1.04.05.01.14.01.01.01.08
Repackage Stabilized Plutonium Metal 1.04.05.01.14.01.01.02.01
Repackage Stabilized Plutonium Oxides from Metal Stabilization 1.04.05.01.14.01.01.02.02
Repackage Stabilized Plutonium Alloys 1.04.05.01.14.01.01.02.03
Repackage Stabilized Plutonium Oxides from Alloy Stabilization 1.04.05.01.14.01.01.02.04
Repackage Stabilized Plutonium Oxides from 234-5Z Oxide/MOX Stabilization 1.04.05.01.14.01.01.02.05
Repackage Stabilized Plutonium Oxides from 2736-Z Oxide/MOX Stabilization 1.04.05.01.14.01.01.02.06
Repackage Stabilized Plutonium Oxide from Pure Nitrate Solution Stabilization 1.04.05.01.14.01.01.02.07
Repackage Stabilized Plutonium Oxide from Impure Nitrate Solution Stabilization 1.04.05.01.14.01.01.02.08
Repackage Stabilized Plutonium Oxide from Chloride Solution Stabilization 1.04.05.01.14.01.01.02.09
Repackage Stabilized Plutonium Oxide from Caustic Solution Stabilization 1.04.05.01.14.01.01.02.10
Repackage Stabilized Plutonium Oxides from Polycube Stabilization 1.04.05.01.14.01.01.02.11
Environmental/ Regulatory Permitting Activities 1.04.05.01.14.01.01.03.01
Perform Safety Activities 1.04.05.01.14.01.01.03.02
Perform Engineering Activities 1.04.05.01.14.01.01.03.03
Provide Maintenance & Work Control 1.04.05.01.14.01.01.03.04
Provide Laboratory & Analytical Procedures 1.04.05.01.14.01.01.03.05
Provide Management Support Functions 1.04.05.01.14.01.01.03.06
Provide Training Support 1.04.05.01.14.01.01.03.07
Perform Readiness Assessments 1.04.05.01.14.01.01.03.08

Appendix C

Materials Stabilization Process Schedule

Activity ID	Activity Description	Current Start	Current Finish
Install Bagless Transfer System			
FABGD10	NEPA Evaluation ★	10SEP99A	30SEP99A
FABGE46	Perform ALARA/Dose Assessment ★	01OCT99	28OCT99
FABG..5	Install Bagless Transfer System ★	02FEB99A	28APR00
FABG	Provide Packaging System ★	02FEB99A	02AUG00
FAACE10	Perform BTS Start Up Review ★	03AUG00	05OCT00
Stabilize Pu Metal			
EAAE.2	Perform Task Specific Criticality Analysis Metal	11JAN00	23JUN00
EAAEE60	Prepare Activity-Specific Procedures Mtls	11JAN00	07FEB00
EAAEE24	Metal Brushing Startup Review	26JUN00	15AUG00
EAABF14	Prepare Metal for Repackaging	31OCT00	23MAR01
Disposition Flouride Compounds			
FBBEF14	Repackage Pu Floride Compounds for Shipping ★	19OCT00	02NOV00
Disposition Aluminum Alloys			
FBBFF10	Repackage & Ship Al Alloy to SRS ★	06NOV00	25JAN01
Stabilize Pu Alloys			
EABE..3	Air Permitting Regulatory Activities	01OCT99	27NOV00
EABB..2	Stabilize Alloys	26MAR01	11MAY01
Stabilize Pu Oxides/MOx			
EACBE30	Furnace Prep. Checks/Stabilize Mat'L/& Monitor	01OCT99	30JUN00
EACEE72	Conduct USQ Evaluation 3 new Furnaces	05OCT99	01NOV99
EACEE20	Perform Task Specific Criticality Analysis	08OCT99	20JAN00
EACEE12	Start Up Review 3 New Furnaces	08MAY00	05JUN00
EACBG30	Furnace Prep. Checks/Stabilize Mat'L/& Monitor	21JAN02	02MAR04
EADB	Transfer & Process Pu Oxides/MOX	14MAY02	11OCT04
Disposition Stabilized Product			
FBBAL14	Transport 3013 Containers to SRS*	06SEP06	19DEC07



* Included for clarity. Not within the scope of this project management plan

Project Start 01SEP98
Project Finish 12SEP16
Data Date 01OCT99
Run Date 24MAY99

Early Bar
Progress Bar
Critical Activity

TOPM

Sheet 1 of 1

B & W HANFORD COMPANY
Plutonium Finishing Project - PFP
Key 94-1 Activities PM Scenario

Appendix D

Materials Stabilization Process Cost Summary

Materials Stabilization

WBS6	1.04.05.01.13.01

			Data						
WBS7 TITLE	WBS8	WBS8 TITLE	Sum of 00COST	Sum of 01COST	Sum of 02COST	Sum of 03COST	Sum of 04COST	Sum of 05COST	Total
Provide Process Support	1.04.05.01.13.01.07 07	Provide Thermal Stabilization Process Equipment	$519,714						$519,714
Stabilize Plutonium Metal	1.04.05.01.13.01.01.02	Transfer & Process Pu Metal		$1,321,197					$1,321,197
	1.04.05.01.13.01.01.04	Provide Process Specific Support		$132,908					$132,908
	1.04.05.01.13.01.01.05	Perform Project Specific Management	$2,216,835	$117,709					$2,334,544
Stabilize Plutonium/Uranium and Other (Zr, Mb, T) Alloys	1.04.05.01.13.01.02.01	Characterize Pu Alloys	$8,036	$17,999					$26,035
	1.04.05.01.13.01.02.02	Transfer & Process Pu Alloys		$496,881					$496,881
	1.04.05.01.13.01.02.05	Provide Project Specific Management	$595,032	$555,695					$1,150,727
Stabilize Pu-Oxides/MOX (234-5Z)	1.04.05.01.13.01.03.01	Characterize Pu Oxides	$100,769		$111,540	$148,402	$38,722		$399,493
	1.04.05.01.13.01.03.02	Transfer & Process Pu Oxides/MOX	$3,479,410		$2,964,511	$4,286,286	$1,817,002		$12,547,209
	1.04.05.01.13.01.03.04	Transfer & Process Pu Oxides/MOX	$234,454		$212,119	$311,353	$135,209		$893,135
	1.04.05.01.13.01.03.05	Provide Project Specific Management	$596,812		$39,032	$50,211	$35,288		$721,343
Stabilize Pu-Oxides/MOX (273G-ZB)	1.04.05.01.13.01.04.01	Characterize Pu Oxides		$8,036	$62,956	$166,388	$167,027	$5,589	$409,996
	1.04.05.01.13.01.04.02	Transfer & Process Pu Oxides/MOX			$865,770	$2,443,871	$2,451,727	$51,347	$5,812,715
	1.04.05.01.13.01.04.04	Provide Process Specific Support			$192,710	$503,856	$501,848		$1,198,414
	1.04.05.01.13.01.04.05	Provide Project Specific Management		$787,810	$875,335	$905,572	$908,817	$31,216	$3,508,750
Grand Total			$7,751,062	$3,438,235	$5,323,973	$8,815,999	$6,055,640	$88,152	$31,473,061