

Maintenance Implementation Plan for the Plutonium Finishing Plant

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Assistant Secretary for Environmental Management



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WHC-SP-0841

Revision 3

**PLUTONIUM FINISHING PLANT
MAINTENANCE
IMPLEMENTATION PLAN**

March 15, 1996

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EXECUTIVE SUMMARY

This document outlines the Maintenance Implementation Plan (MIP) for the Plutonium Finishing Plant (PFP) located at the Hanford site at Richland, Washington. This MIP describes the PFP maintenance program relative to DOE Order 4330.4B. The MIP defines the key actions needed to meet the guidelines of the Order to produce a cost-effective and efficient maintenance program.

The PFP MIP addresses those actions identified to be worked in the Fiscal Year (FY) 96/97 time frame. PFP management intends this plan to be dynamic in nature. Scheduled actions are determined by a graded approach and a peer startup readiness review.

PFP is working toward the cleanout and stabilization operation that began in November 1994. The thermal stabilization of sludge process uses one glovebox of the facility. This process uses two programmed muffled furnaces, each handling one hastelloy boat. This process is presently being modified for expansion to eight furnaces and additional gloveboxes.

The PFP Maintenance strategy is to equip the facility with systems and equipment able to sustain scheduled PFP operations. The current operating run is scheduled to last seven years. Activities following the stabilization operation will involve an Environmental Impact Statement (EIS) to determine future plant activities. This strategy includes long-term maintenance of the facility for safe occupancy and material storage.

The PFP maintenance staff used the graded approach to dictate the priorities of the improvement and upgrade actions identified in Chapter 2 of this document. The maintenance staff assessed the Order using several inputs, including a DOE Order 4330.4B self-assessment of PFP.

The MIP documents PFP compliance to the DOE 4330.4B Order. Chapter 2 of the MIP follows the format of the Order in addressing the eighteen elements. As this revision is a total rewrite, no sidebars are included to highlight changes.

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1.0 INTRODUCTION

The PFP Maintenance Implementation Plan includes all maintenance activities concerned with facility structures, systems and components located within the area designated as the PFP and the Operations Control Facility (2705-Z Building). Safety classification and equipment use determines the level of required maintenance.

1.1 Facility Complex Description

The PFP is located in the west-central portion of the Hanford Site adjacent to the Columbia River within a property protected area of the 200 West Area approximately 25 miles from the city of Richland, Washington.

The PFP consists of four major structures identified as 234-5Z, 236-Z, 291-Z and 2736Z/2736-ZB Buildings. The 234-5Z building is constructed of structural steel with an outer sheathing of aluminum panels. The first floor is concrete slab, the duct level is sheet metal roof decking and the second floor is concrete slab. The 236-Z, 291-Z, 2736-Z and 2736-ZB are constructed of reinforced concrete.

1.2 Mission

The PFP was constructed during the 1946 through 1949 period. Operations began in 1949 to reclaim and purify plutonium from scrap materials and concentrated nitrate solutions for further processing into plutonium metal and fabricating into parts for the Atomic Energy Commission weapons program. The plant has received many modifications and upgrades in keeping the mission requirements and DOE orders.

The Plutonium Vulnerability Report and the Defense Nuclear Facility Safety Board Recommendation 94-1 identified that the presence of significant quantities of plutonium-bearing materials within PFP poses unacceptable risks to workers, the public and the environment. PFP's current mission is develop, install and operate processes which will mitigate these risks.

In November, 1994 PFP started the thermal sludge stabilization process using one glovebox. This process uses two programmed muffled furnaces, each handling one hastelloy steel boat. The plant is increasing the capability of this process to eight furnaces and additional gloveboxes.

During Fiscal Year 1996 the plant will continue to operate these two muffle furnaces; install and operate six additional furnaces; install and operate the solution stabilization process; and proceed with the glovebox and duct terminal cleanout work.

In Fiscal Year 1997 the plant will continue to operate the eight muffle furnaces; operate the solution stabilization process; and do glovebox and duct terminal cleanout.

1.3 History/Scheduled Life

Several mission changes have taken place at the PFP since the original startup in 1949. The production of plutonium metal and fabrication of the metal was terminated in 1965 and 1973 respectively. The metal production line was restarted and operated from 1985 through 1989 and was again shut down.

Purification of plutonium from scrap and nitrate solutions in the Plutonium Reclamation Facility (PRF) has continued since startup in 1963 (excluding periods of outages for process and facility upgrades and preventive maintenance).

Upon completion of the current cleanout mission, the facility future--beyond special nuclear material storage--will be determined following preparation of an EIS.

1.4 Graded Approach

The PFP facility uses a graded approach in applying the conduct of maintenance requirements of DOE 4330.4B in a manner associated with:

- (1) those risks which have the potential to impact public and worker safety and the protection of the environment;
- (2) the remaining life of existing systems, structures and components.

1.5 Content and Format

The PFP MIP follows the flow of DOE Order 4330.4B. Each Objective states PFP's goal/status for compliance. The implementation section of each element refers to current company policies and procedures. These referenced manuals are included in the comprehensive bibliography in Appendix A. References are the current revisions on the MIP issue date. The Discussion provides an overview of PFP's current status, and includes key examples of the current maintenance program's successes and opportunities.

2.0 DOE ORDER 4330.4B REQUIREMENTS

2.1 Maintenance Organization and Administration

Objective

The PFP maintenance organization's primary goal is to support the safe and reliable operation of the PFP facility. To do this, staff and crafts strictly follow established standards, policies and procedures. The PFP facility team approach effectively coordinates maintenance activities with Operations, Work Control, Engineering and other facility organizations. The work teams plan, schedule and allocate resources to get the job done on time and within budget.

Implementation

Working to the administrative procedures contained in current company manuals ensures effective maintenance support to the PFP Plant.

Discussion

The PFP facility has developed an integrated team approach to doing maintenance. Each team includes persons from the organizations that directly support the maintenance function. Team members assist the PFP Maintenance Manager in effectively managing preventive and predictive maintenance, calibration work and repairs to systems and components.

PFP management challenges the maintenance workforce to maintain excellence in their work. The PFP Maintenance Manager personally holds workers and first-line management accountable for their performance in conducting maintenance. First-line managers and Persons-In-Charge (PICs) stress work standards to the crafts in pre-job walkdowns, safety meetings and work reviews. By closely observing and assessing work performance, the team leaders assure adherence to these work standards. Employees with low work performance trends receive needed counseling, remedial training and disciplinary measures.

2.2 Training and Qualification of Maintenance Personnel

Objective

The PFP maintenance training and qualification program maintains the knowledge and skill levels of Maintenance personnel to perform safe and effective maintenance activities. The program allows maintenance personnel to acquire the knowledge and skills required to successfully do maintenance work in support of the PFP mission.

Implementation

The PFP facility supports the maintenance training and qualification program through guidelines outlined in current company policies and procedures.

Discussion

The PFP maintenance and qualification program meets the intent of established industrial guidelines that address specific company and facility needs. The program's main emphasis is to train craft personnel in specific job skills. The formal training program for exempt personnel includes the PFP Person-In-Charge (PIC) qualification program. All maintenance personnel receive instruction in specific areas to successfully complete their individual job assignments.

The PFP maintenance training program for craftpersons includes formal classroom, laboratory, and on-the-job training (OJT). Hanford Site Training Services provides maintenance training that meets the intent of established industrial guidelines, DOE Orders, S/RIDs, and specific company and facility needs.

The PFP maintenance staff works with the training group to ensure courses support the PFP mission. The maintenance group manager approves lesson plans and reviews class sessions.

The PFP maintenance staff actively support training schedules, accomplish on-the-job training (OJT), and provide feedback to adjust course content and emphasis. The existing OJT program for doing work on safety envelope equipment and systems helps the crafts achieve consistently high-quality performance.

Limited coordination between training programs exists at the organization level to integrate all training activities. The Maintenance Training Coordinator ensures training qualifications are current and retraining is scheduled when due.

Three site-developed computer-based systems assist the Training Coordinator to track current qualifications and to schedule training. The Training Matrix (TMX) permits managers to input each employee's required entry and job-specific qualifications. The Training Records, Administration, Control, and Scheduling system (TRACS) provides overall resources to track employee training requirements and status. PeopleSoft allows the training coordinator to electronically schedule employees into specific class sessions.

Subcontractor personnel must meet the same PFP access training requirements as do permanent employees. Only qualified personnel may work on equipment identified in the Plutonium Finishing Plant Final Safety Analysis Report. The organization requesting subcontractor services is responsible for verifying the subcontractor qualifications. The PFP Training organization audits PFP records every two years to confirm adherence to existing company and PFP policies and procedures.

2.3 Maintenance Facilities, Equipment, and Tools

Objective

The PFP facility continually works to provide maintenance facilities, equipment, and tools that enable qualified workers to efficiently and safely support the PFP mission.

Implementation

Administration of the PFP maintenance facilities, equipment and tools conforms to current company procedures.

Discussion

The PFP Maintenance facilities, equipment and tools program focuses on improving this arena. PFP Maintenance management actively works to improve housekeeping, space utilization and quality tool stock. Project C-025, "PFP Maintenance Facility", was to have solved numerous deficiencies, but was unable to obtain funding. However, the plant has been able to upgrade certain areas, notably a new multi-purpose room and the gas bottle storage dock. The new multi-purpose room is used as a meeting area and as a lunchroom. The gas bottle dock upgrade meets OSHA requirements and company policies.

The PFP Maintenance teams work out of three shop areas dedicated to instrument, electrical and mechanical jobs. The electrical and instrument shops are adequate but not ideal. The mechanical shop space does permit completion of large jobs. The maintenance toolcrib provides sufficient inventory for required equipment, tools, supplies and parts, and has environmental monitors for temperature and humidity. Office space is adequate and is located next to shop areas.

2.4 Types of Maintenance

Objective

The PFP Maintenance program supports a proper balance of preventive, predictive and corrective maintenance to ensure equipment life is optimized in a cost-efficient manner.

Implementation

Current company procedures guide the PFP Maintenance preventive, predictive and corrective maintenance program elements.

Discussion

The maintenance program utilizes preventive (PM), predictive (PdM), and corrective maintenance (CM) elements to minimize equipment downtime. PFP craftpersons perform routine calibrations and scheduled preventive maintenance, collect vibration data on major rotating machinery, and repair failed equipment. Subcontractor services are available for in-depth vibration and oil analysis, troubleshooting, machine balancing, and infrared thermography.

The Job Control System (JCS) schedules periodic maintenance for those components which are listed as Operational Safety Requirements in the Facility Safety Analysis Report (FSAR). The JCS tracks work status through all phases of the maintenance process.

2.5 Maintenance Procedures

Objective

The PFP facility provides working level procedures that effectively support the Operational Safety Requirements (OSR), essential systems (ESS) and balance-of-plant (BOP) equipment maintenance activities. These maintenance procedures give qualified workers step-by-step guidance that enables them to successfully and safely complete assigned tasks.

Implementation

Current company procedures provide guidance for maintaining the PFP procedure program in compliance to DOE Order DOE4330.4B.

Discussion

The quality maintenance procedures at PFP are the result of a structured process that ensures technical accuracy, best workmanship practices, and worker and equipment safety. Each maintenance procedure must pass a validation process before being formally issued for field use. The Procedures Validation Checklist is key to ensuring the procedure can actually be worked as written. Once the procedure is approved, it is entered into the site-developed Procedure Information (PROCINFO) system. Electronic access enables anyone to verify at any time that the procedure in hand is the current revision.

The plant requires craftpersons to qualify on new or revised OSR maintenance procedures through on-the-job training (OJT). Only qualified craftpersons may work to the OSR procedures.

2.6 Planning, Scheduling, and Coordination of Maintenance

Objective

The PFP facility plans, schedules, and coordinates maintenance to ensure work is done safely, cost effectively, and in a timely manner consistent with its assigned priority. Work is prioritized to ensure safe and reliable facility operations and to minimize adverse impacts.

Implementation

Current company policies and procedures govern the planning, scheduling and coordination of maintenance at PFP.

Discussion

The Job Control System (JCS) controls the planning, scheduling and coordination of maintenance. The Planner/Scheduler prepares work packages using input from Engineering, Maintenance, Operations, and other organizations. The work plan addresses personnel and equipment safety, ALARA, facility configuration control, approved work procedures, and work site housekeeping. Walkdown of the work site identifies needed labor, tool and material resources.

Once the completed work package passes review and is approved, it is scheduled to work. Separate jobs requiring work on the same component, equipment or system may be worked together. Management teams meet daily to commit the necessary crafts to work the integrated schedule. Qualified Persons-In-Charge (PICs) hold necessary pre-job meetings with the work crews to highlight special safety and work instructions.

The job PICs coordinate work resources, oversee work progress, review work packages to assure the work is done as planned, insure data is recorded correctly, housekeeping meets standards, and the work packages are closed out properly.

2.7 Control of Maintenance Activities

Objective

The PFP facility management team rigorously monitors maintenance activities to ensure the work control system and assigned resources are effective in supporting safe and reliable facility operations.

Implementation

Current company policies and procedures guide the PFP management team in the control of maintenance activities.

Discussion

Management participation in pre-job briefings, routine monitoring of work in progress, and Senior Supervisory Watch (SSW) assignments help to assess the work process. First-line managers and plant engineers serve as Persons-in-Charge (PICs) for each job. They assure work proceeds as planned to successful completion.

The PFP facility uses the site-developed Job Control System (JCS) to manage and control all maintenance work at the plant. This computer-based work management tool provides a formal, disciplined approach to all aspects of maintenance. Work teams follow the formal plant-specific work management process to ensure that work is done using appropriate instructions to protect personnel, equipment and facility configuration.

2.8 Post-Maintenance Testing

Objective

The PFP post-maintenance tests verify plant configuration integrity when the repaired component, equipment or system is ready for normal service.

Implementation

Current company policies and procedures provide PFP with the guidance to effectively implement post-maintenance testing.

Discussion

An integral step in the JCS process is to verify that the repairs actually fixed the problem, and did not introduce new problems. Requirements for post-maintenance tests are identified in the work package and are controlled by plant administrative procedures. The cognizant engineer sets the actual test requirements based on manufacturer recommendations, good industrial practices, and plant design criteria. The test is reviewed by facility organizations according to approval designators.

Retests are fully documented in the work package. The closeout process requires Operations acceptance and post-reviews by Work Planners and other appropriate facility organizations, such as Quality Assurance and Safety.

2.9 Procurement of Parts, Materials, and Services

Objective

The PFP facility procures parts, materials, and services as needed for maintenance activities. Parts and materials are kept in good condition to meet design requirements during normal facility operations; and to support both planned and unplanned outages.

Implementation

Current company policies and procedures guide the PFP facility in the procurement of parts, materials, and services.

Discussion

The sitewide procurement program screens purchase requisitions as required, and provides input to the project data system. This system is used to track and evaluate vendor performance for selection to the approved supplier list. Use of a purchase card (P-Card) for non-safety class items permits expedited procurement and cost savings.

PFP cognizant engineers designate which spare parts, equipment, and special tools are in inventory. Established inventory levels ensure continuity of facility operations and reduce downtime. A sitewide database aids spare parts cross-utilization when necessary.

Quality Assurance conducts material receipt inspections to assure items meet specified purchase order requirements. Vendor surveillances are performed as necessary to assure vendors comply to industry standards and good management practices.

The procurement services procedures define the warranted and unwarranted conditions for use of service contracts. Provisions are also provided for speedy procurement of services in cases of emergency.

2.10 Material Receipt, Inspection, Handling, Storage, Retrieval, and Issuance

Objective

The PFP facility adheres to company policies and procedures for material receipt, inspection, handling, storage, retrieval, and issuance of equipment, parts, and materials for maintenance activities.

Implementation

Current company policies and procedures provide direction to PFP for material acquisition and control.

Discussion

Quality Control conducts receipt inspections at the site receiving facility prior to shipment to PFP. At the PFP facility, the Material Control organization verifies items received are the items ordered. Items are tagged or physically separated to designate material status. Items ordered to support work packages are segregated and staged for that purpose.

Personnel follow good handling and storage practices to ensure material and equipment are protected from damage and unwarranted access. Material with controlled shelf life is monitored and reordered as necessary.

The maintenance Stock & Tool Attendant issues general tools, equipment and material used to support maintenance work. The stock and tool attendant keeps hardcopy and computer logs of tool use and inventory.

2.11 Control and Calibration of Measuring and Test Equipment

Objective

The PFP facility controls calibrated Measuring and Test Equipment (M&TE) to ensure that M&TE is properly stored and segregated. PFP limits M&TE use to those items having current calibration status.

Implementation

The PFP facility applies current company policies and procedures to the control and calibration of Measuring and Test Equipment (M&TE).

Discussion

The PFP facility assigns a unique identification number to each piece of M&TE and maintains a master listing of facility M&TE. Only certified standards laboratories employing qualified personnel and approved procedures calibrate PFP M&TE. M&TE standards are fully traceable to the National Institute of Science and Technology (NIST), or other nationally recognized standards.

Formal functional checks of M&TE prior to each use are not routinely done. The PFP Stock and Tool Attendant maintains an M&TE usage log to trace calibration jobs in case an item of M&TE does fail the As-Found test during recalibration. Evaluations are done for equipment previously calibrated with the item of M&TE which failed the As-Found test.

M&TE is stored to guard against physical and environmental damage. Calibrated equipment is segregated from damaged and uncalibrated equipment. Temperature and humidity instruments monitor the toolcrib as a first alert to safeguard sensitive M&TE.

2.12 Maintenance Tools and Equipment Control

Objective

The PFP facility maintains a tool and equipment control program that provides adequate supplies and controls storage and use of hand tools, common power tools and equipment.

Implementation

Current company procedures provide guidance to PFP for the storage, issuance and control of common power tools, hand tools and equipment.

Discussion

Common tool storage is available in shop areas and the PFP maintenance toolcrib. The Stock & Tool Attendant controls tool inventory and maintains a hardcopy log of tools issued. Hand tools are not usually returned to the toolcrib area, but are stored in shop areas for easy access.

Tool users verify tool condition prior to use and return defective tools to the Stock & Tool Attendant for disposition. The electrical craft does quarterly electrical safety inspections of power tools.

Rigging equipment and other special tools are controlled and maintained in compliance with tool inspection and certification requirements specified in company procedures.

2.13 Facility Condition Inspection

Objective

PFP management inspects facility conditions to maintain a clean, safe working environment; and to ensure equipment condition is safe and will operate reliably when needed.

Implementation

The PFP facility condition inspection program follows current company policies and procedures.

Discussion

The Job Control System (JCS) controls component level inspections through the Preventive Maintenance & Surveillance (PM/S) recall module. Work packages define inspection criteria and store data records showing equipment status. Deficiencies identified during PM work are entered into the JCS for corrective action.

PFP facility level inspections are the responsibility of all management and workforce. The Senior Supervisory Watch (SSW) is an effective management tool to assure PFP maintains excellence in general housekeeping and equipment condition.

Managers submit items requiring corrective maintenance to the Work Control organization to plan and schedule according to the priority assigned by Operations. Housekeeping deficiencies go directly to the responsible organization for corrective action.

Items identified during inspections are tracked and worked according to priority. Ongoing evaluations of inspection reports are made to determine program effectiveness.

2.14 Management Involvement

Objective

The PFP facility management ensures that maintenance is done safely and efficiently. Managers keep current on plant activities and operations within their areas of responsibility.

Implementation

The PFP management involvement in maintenance reflects the guidance in current company policies and procedures.

Discussion

The PFP plant expects managers to be aware of all activities within their control and to be actively involved in daily maintenance jobs. Additional activities requiring management involvement include the Senior Supervisory Watch (SSW), the monthly plant performance meeting and daily work planning meetings. Managers and Persons-In-Charge (PICs) review work packages with their crews prior to starting the job, assess work in progress, and hold post-job lessons learned meetings as appropriate.

The PFP-developed self-assessment program effectively measures both plant administrative procedures and actual workforce compliance to the DOE 4330.4B Order. This program reviews the Order by sections, providing a complete self-assessment every two years. The primary contributor is the Maintenance organization, with input from the other PFP groups.

2.15 Maintenance History

Objective

PFP facility management recognizes the value of a maintenance history and trending program. The program provides useful historical data for performance measurements of systems and components, and for planning of new work.

Implementation

Current company policies and procedures provide guidance to PFP for maintenance history record retention.

Discussion

The PFP facility's graded approach to maintenance history is based on the age of the plant systems and components, PFP's changing mission, cost effectiveness, and expected equipment/system life. While work packages contain most data required to construct a maintenance history database, the possible benefit does not justify the required data analysis resource cost.

The Preventive Maintenance/Surveillance (PM/S) module of the Job Control System (JCS) does provide a basic comparison of the previous status of a component to the current job results. A growing database of major rotating machinery vibration signatures also permits a more informed predictive maintenance approach to maintaining this type of equipment. However, general trending of components and systems is not cost effective at this time.

2.16 Analysis of Maintenance Problems

Objective

The PFP facility applies a systematic and graded approach to determine and correct maintenance problem root causes.

Implementation

Current company policies and procedures provide guidance to PFP in determining maintenance problem root causes.

Discussion

The PFP facility manages system and component maintenance through the Job Control System (JCS). Management also uses the Corrective Action Management process to analyze adverse conditions identified by external and internal organizations. This disciplined method for handling corrective actions applies the graded approach and the Priority Planning Grid (PPG) to determine risk value. Through root cause analysis the causes are identified, and the plant does a lessons learned evaluation.

The Hanford Action Tracking System (HATS) tracks corrective action status. Actions requiring maintenance work are also integrated into the JCS work control process.

2.17 Modification Work

Objective

The PFP facility uses the same administrative methods to control modification work as those applied to routine maintenance activities.

Implementation

Current company policies and procedures provide guidance on all modification work performed in PFP.

Discussion

The Job Control System (JCS) controls modification work in the same way as routine maintenance work. The process ensures there are no increases in risk to the facility, systems, personnel, or environment because of modification work. Team members from Engineering, Safety, Operations, Maintenance and other knowledgeable and affected organizations are actively involved from the conceptual stage to final work completion.

PFP Engineering Administration revises procedures impacted by changes due to modification work. Procedure control ensures only the currently approved revision with any applicable changes is available for use by craft personnel.

2.18 Additional Maintenance Management Requirements

Objective

The PFP facility maintenance cold weather program ensures the prevention of equipment and building damage due to cold weather.

Implementation

Current company procedures provide guidance for the cold weather protection program.

Discussion

The PFP facility has established and implemented a comprehensive cold weather protection program based on a detailed review of PFP facilities and systems. The formal winterization plan includes activities to implement and curtail measures as necessary to protect facilities and systems from seasonal damage.

3.0 DEVIATIONS REQUESTED WITH SUPPORTING RATIONALE

The following deviation from the policy requirements identified by DOE Order 4330.4B is requested at this time:

Requested Deviation: Element 15, Maintenance History

Rationale

The age of the PFP plant systems and components, PFP's changing mission, and expected equipment/system life do not justify the data analysis resource cost required to construct a maintenance history database. Therefore, PFP management's view is that general trending of components and systems is not cost effective at this time.

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4.0 IMPLEMENTATION SCHEDULE

The PFP maintenance program currently complies to the eighteen elements specified in the DOE 4330.4B Order. PFP management has successfully implemented the intent of each element. No actions requiring implementation were found to be necessary. Therefore, PFP will continue to strengthen the current maintenance program compliance through the PFP maintenance self-assessment program.

The PFP-developed self-assessment program effectively measures both plant administrative procedures and actual workforce compliance to the DOE 4330.4B Order. This program reviews the Order by sections, providing a complete self-assessment every two years.

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BIBLIOGRAPHY

References in the bibliography are the current revisions on the date of issue of the Plutonium Finishing Plant Maintenance Implementation Plan.

General Applicability

DOE Order 4330.4B, Maintenance Management Program, U.S. Department of Energy, Washington, D.C.

DOE Order 5480.5, Safety of Nuclear Facilities, U.S. Department of Energy, Washington, D.C.

DOE Order 5480.6, Safety of Department of Energy-Owned Nuclear Reactors, U.S. Department of Energy, Washington, D.C.

DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities, U.S. Department of Energy, Washington, D.C.

DOE Order 5480.18A, Accreditation of Performance-Based Training for Category A Reactors and Nuclear Facilities, U.S. Department of Energy, Washington, D.C.

DOE Order 5480.20A, Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities, U.S. Department of Energy, Washington, D.C.

DOE Order 5700.6C, Quality Assurance (Errata Sheet), U.S. Department of Energy, Washington, D.C.

S/RID for the Plutonium Finishing Plant

WHC-IP-0826, PFP Maintenance Administration Manual, contains policies and procedures specific to the PFP maintenance organization.

WHC-SP-0866, "Westinghouse GOCO Conduct of Maintenance Manual"

2.1 Maintenance Organization and Administration

WHC-CM-1, Company Policies and Charters, covers Westinghouse Hanford Company's governing principles on matters of company-wide applicability.

WHC-CM-1-3, Management Requirements and Procedures, provides company administration requirements and procedures.

WHC-CM-5-8, Plutonium Finishing Plant Administration, establishes the standards and internal controls for PFP that comply with applicable DOE Orders and Westinghouse management requirements.

- Section B, "PFP Management/Team Leader Positions - Key Functions", lists key PFP Plant functional responsibilities.

2.2 Training and Qualification of Maintenance Personnel

WHC-CM-2-15, Training Administration Manual, defines requirements for technical training activities within WHC. It also provides guidance for complying to applicable DOE, Washington State, WHC and other regulatory training requirements.

WHC-IP-1121, Plutonium Finishing Plant Training Administration, covers the PFP's training policies and procedures.

- Section I, "PFP Administrative Responsibilities", establishes the policies and requirements for the PFP as required by DOE 5480.20A, Operational Safety Requirements (OSR), and WHC management direction to develop and implement a consistent and effective training program.
- Section II, "Performance Based Training and Evaluation", established the requirements for developing and processing the required training matrices (e.g., TMX or equivalent). The training matrices provide formal course requirements for each job classification at the PFP.
- Section 6.0, "Facility Management Training Program", describes the basic and technical training requirements for PFP managers.
- Section 10.0, "Maintenance Training Program", establishes the Maintenance Training Program at PFP.
- Section 11.0, "Person-In-Charge Training Program", establishes the training requirement guidelines for PFP PICs.

PFP Training Implementation Matrix, describes how PFP currently implements, or proposes to implement, the requirements of DOE Order 5480.20A.

2.3 Maintenance Facilities, Equipment, and Tools

WHC-CM-2-3, Property Management Manual, gives compliance direction for DOE and Federal Property Management Regulations.

WHC-CM-2-2, Materials Management Manual, describes responsibilities and work practices for persons who ship, receive, disburse material; or who manage inventory and warehouse operations.

WHC-SP-0866, Westinghouse Conduct of Maintenance Manual

- Section 4, "Maintenance Facilities, Equipment, and Tools", provides sitewide guidance for the Westinghouse Hanford Company on maintenance facilities, equipment and tools. Outlines the expectations for an efficient, safe maintenance program relating to maintenance facilities, equipment and tools.

WHC-IP-0826, PFP Maintenance Administration Manual

- Section 4.1, "Maintenance Facilities, Equipment, and Tools", assigns maintenance supervisors areas of housekeeping accountability; identifies laydown and staging areas, tool and equipment storage locations; and addresses the use of office equipment.

2.4 Types of Maintenance

WHC-SD-CP-SAR-021, Plutonium Finishing Plant Final Safety Analysis Report, details production operations, equipment, and processes, with analysis of safety issues during normal or abnormal situations.

WHC-CM-1-8, Work Management, provides guidance to personnel involved in planning, scheduling, and performing maintenance activities and post-maintenance testing and analysis.

WHC-CM-5-8, Plutonium Finishing Plant Administration

- Section 1.44, "Preventive and Predictive Maintenance", provides PFP compliance to the requirements to DOE Order 4330.4A for preventive and predictive maintenance.
- Section 1.46, "PFP Cold Weather Protection Plan", provides instructions for implementation of annual cold weather protection of facilities/equipment from October 1 to March 1.
- Section 13.1, "Preventive Maintenance and Surveillance Recall System", describes administrative requirements, responsibilities, and procedures as applied to recall of Operational Surveillance Requirements (OSR) and non-OSR requirements.

2.5 Maintenance Procedures

WHC-SP-0866, Section 6, "Maintenance Procedures", provides sitewide guidance for the Westinghouse Hanford Company on Maintenance Procedures relating to responsibilities, procedure development and writing, validation, use, control, periodic review, and revision.

WHC-SD-CP-OSR-010, Plutonium Finishing Plant Operational Safety Requirements, defines required conditions, safe boundaries, bases, design features, and administrative controls to ensure safe operation of the PFP.

WHC-CM-5-8, Plutonium Finishing Plant Administration

- Section 13.7, "PFP Technical Procedure Use Policy", establishes PFP's expectations for technical procedures. It outlines the criteria differentiating Routine, Step by Step, and General procedures.
- Section 13.5, "Processing PFP Technical Documents", provides instructions for processing technical procedures.

2.6 Planning, Scheduling, and Coordination of Maintenance

WHC-SP-0866, Westinghouse Conduct of Maintenance Manual

- Chapter II, Section 7, "Planning, Scheduling, and Coordinating Maintenance". A system model for effective planning, scheduling and coordinating routine maintenance activities, as well as forced and planned outages.

WHC-CM-5-8, Plutonium Finishing Plant Administration

- Section 2.11, "ALARA Program", provides guidance for work package preparers and planners for including ALARA into planning work.
- Section 13.1, "Preventive Maintenance and Surveillance Recall System", describes PFP Preventive Maintenance & Surveillance (PM/S) administrative requirements, responsibilities, and procedures as applied to recall of OSR and non-OSR requirements.
- Section 13.2, "Control of Job Control System Component Index", provides requirements for the control of the JCS CI for PFP equipment.
- Section 13.4, "Job Control System Process Description", provides a formal, disciplined approach to the control of work to ensure work is performed safely, equipment is protected, and configuration control is maintained.

2.9 Procurement of Parts, Materials, and Services

WHC-CM-2-1, Procurement Manual & Procedures

WHC-CM-5-8, Section 6.12, "Controlling Materials for Maintenance Activities"

2.10 Material Receipt, Inspection, Handling, Storage, Retrieval, and Issuance

WHC-IP-0826, Section 11.0, "Material, Receipt, Inspection, Handling, Storage, Retrieval, and Issuance"

WHC-CM-2-1, Procurement Manual and Procedure

WHC-CM-5-8, Plutonium Finishing Plant Administration

- Section 1.44, "Preventive and Predictive Maintenance"
- Section 6.12, "Controlling Materials for Maintenance Activities"

2.11 Control and Calibration of Measuring and Test Equipment

WHC-IP-826, Plutonium Finishing Plant Maintenance Administration Manual

- Section 12.1, "Control and Calibration of Measuring and Test Equipment", provides additional guidance for control, issue, and calibration of M&TE.
- Section 13.2, "Maintenance Tools and Equipment, Equipment Tool Crib Control", provides primary guidance for the methods to be used for tool crib control of M&TE.

WHC-CM-4-2, Quality Assurance Manual, QR 12.0

WHC-CM-5-8, Vol.1, Plutonium Finishing Plant Administration

- Section 1.44, "Preventive and Predictive Maintenance"
- Section 6.12, "Controlling Materials for Maintenance Activities"

2.12 Maintenance Tools and Equipment Control

WHC-CM-4-2, Section QI 15.1, "Identification and Control of Items"

WHC-IP-0826, Plutonium Finishing Plant Maintenance Administration Manual

- Section 13.1, "Maintenance Tools and Equipment Control", provides guidance for storage, issuance and maintenance of tools and equipment.
- Section 13.2, "Maintenance Tools and Equipment, Equipment Tool Crib Control", provides guidance for tool and equipment control in the PFP Maintenance tool crib.
- Section 13.4, "Maintenance Tools and Equipment Control, Tool Control and Usage and Tool Room Transactions During Off Hours", provides guidance for control of the tool crib during the off-hours.

2.13 Facility Condition Inspection

WHC-IP-0826, Plutonium Finishing Plant Maintenance Administration Manual

- Section 14.0, "Facility Condition Inspection", describes the requirement for periodic inspections to be conducted to assess the condition, cleanliness, housekeeping of maintenance areas.
- Section 14.1, "Facility Condition Inspection and Routine Housekeeping Weekly Inspection", outlines the requirements for facility inspections and routine weekly inspection of PFP.

WHC-CM-5-8, Plutonium Finishing Plant Administration

- Section 2.27, "Senior Supervisory Watch Program", provides guidance for the Management Overview Program (MOP) tours and Senior Supervisory Watch (SSW).
- Section 2.36, "PFP Self-Assessment Program", describes the different activities established at PFP, which make-up the PFP self-assessment program, which have been established to ensure the plant operates in a safe and efficient manner.

2.14 Management Involvement

WHC-CM-5-8, Plutonium Finishing Plant Administration

- Section 1.44, "Preventive and Predictive Maintenance"
- Section 2.27, "Senior Supervisory Watch Program", provides a program to monitor operating performance, in order to improve PFP operations by identifying and resolving operational problems. MOP tours are included with this procedure.
- Section 2.36, "PFP Self-Assessment Program"

WHC-IP-0826, Plutonium Finishing Plant Maintenance Administration Manual

- Section 15.3, "Management Involvement, Performance Indicators", defines the performance indicators that are required for the PFP Maintenance group.
- Section 15.4, "Management Involvement, Internal Audit Program", details the requirements for the PFP Maintenance group Internal Audit.

2.15 Maintenance History

WHC-IP-0826, Section 16.0, "Maintenance History"

2.16 Analysis of Maintenance Problems

WHC-CM-1-4, Corrective Action Management Manual, defines a rigorous disciplined method for handling corrective actions.

WHC-IP-0826, Plutonium Finishing Plant Maintenance Administration Manual

- Section 17.0, "Analysis of Maintenance Problems", discusses the requirement for maintenance group to be prepared to assist in the investigation and analysis of unplanned maintenance-related occurrences.
- Section 17.2, "Analysis of Maintenance Problems, Manager's Immediate Response Checklist for Accidents and Near Misses", defines the responsibilities of the managers handling and reporting "near misses".
- Section 17.3, "Analysis of Maintenance Problems, PFP Maintenance Commitment Tracking System", delineates the requirement for a commitment tracking system within maintenance.

WHC-CM-1-3, MRP 5.14, "Occurrence Reporting and Processing of Operations Information"

WHC-CM-5-8, Plutonium Finishing Plant Administration

- Section 1.44, "Preventive and Predictive Maintenance"
- Section 2.20, "Corrective Action Management"
- Section 2.23, "Identification and Resolution of Unreviewed Safety Questions"

2.17 Modification Work

HSRCM-1, Hanford Site Radiological Control Manual

WHC-4-29, Nuclear Criticality Safety Manual, sets requirements for the criticality safety program for all WHC facilities that contain more than three percent of a minimum critical mass of fissionable materials outside a reactor core.

WHC-4-46, Safety Analysis Manual, provides direction to help ensure that the health and safety of employees, the environment, and members of the general public are not subject to undue risk from the operation of DOE nonreactor facilities.

- Chapter 9.0, "Safety Structures, Systems and Components", provides the process and establishes the criteria for the identification of safety (safety class and safety significant) structures, systems, and components (SSCs).

WHC-4-41, Fire Protection Program Manual, provides the necessary information to ensure that WHC's commitment to uncompromising integrity and adherence to the highest safety standards is met in fire protection.

WHC-CM-6-1, Standard Engineering Practices, defines engineering practices to support the principles of configuration management and design control to ensure that the engineering tasks and deliverable engineered products produced from these tasks are identified, authorized, verified, changed, and documented by a controlled methodology.

WHC-CM-1-8, Work Management

WHC-IP-0826, Plutonium Finishing Plant Maintenance Administration Manual, "Modification Work", provides the direction for the performance of modifications which have been assigned to the PFP maintenance group.

2.18 Additional Maintenance Management Requirements

WHC-CM-5-8, Section 1.46, "PFP Cold Weather Protection Plan", provides instructions for implementation of annual cold weather protection of facilities/equipment.

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