

BHI-01044
Rev. 2

ERC Maintenance Implementation Plan

*Prepared for the U.S. Department of Energy, Richland Operations Office
Office of Environmental Restoration*

Submitted by: Bechtel Hanford, Inc.

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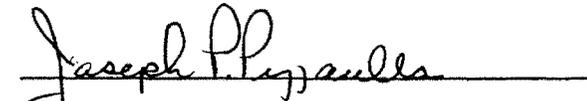
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EXECUTIVE SUMMARY

This document describes the maintenance program for inactive and surplus facilities that are the responsibility of the Environmental Restoration Contractor (ERC). This document is presented in two parts. Part I defines generic maintenance elements that are applied to all inactive and surplus facilities regardless of their final hazard classification. Changes to programs and procedures identified in Part I may be done under contractor authority (without U.S. Department of Energy [DOE] review and approval). Part II describes how additional maintenance requirements are identified for safety class and safety significant structures, systems, and components of an inactive or surplus facility that has a final hazard of Nuclear Hazard Category 2 or 3, as identified in a DOE-approved Safety Analysis Report.

The ERC Maintenance Implementation Plan (MIP) is implemented by the Bechtel Hanford, Inc. Field Support organization on behalf of Projects. The MIP described in this document meets the intent of DOE Order 4330.4B, *Maintenance Management Program*, Chapter II, “Guidelines for Conduct of Maintenance at DOE Nuclear Facilities,” and addresses the 17 maintenance elements of DOE/EM-0246, *Decommissioning Resource Manual*, Section 4.0, “Surveillance and Maintenance” (DOE 1995).

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1.0 INTRODUCTION

The inactive and surplus facilities assigned to the Environmental Restoration Contractor (ERC) are shut down and have no operating production processes or production materials except for residual contamination. There is a minimal number of operating systems to support surveillance and maintenance (S&M) or decontamination and decommissioning activities (D&D). These systems may include heating and ventilation, air conditioning, lighting, and other electrical systems. Inactive and surplus facilities will be subject to periodic long-term surveillance to ensure the integrity of structures until D&D. D&D projects are of relatively short duration and end with all systems deactivated. Therefore, a rigorous in-depth maintenance program (i.e., that required for producing nuclear facilities) is not required or cost effective. This Maintenance Implementation Plan (MIP) has been graded to be consistent with low risk and simplicity associated with inactive and surplus facilities.

PART I: GENERIC MAINTENANCE ELEMENTS

1.1 ELEMENT 1: MAINTENANCE ORGANIZATION AND ADMINISTRATION

Goals, responsibilities, working relationships, and requirements governing the conduct of maintenance or surveillance are identified in BHI-FS-01, *Field Support Administration*, Procedures 3.1, "Facility Surveillance," and 3.2, "Preventive Maintenance," and the individual *Project Managers Implementing Instructions* (PMII). Requirements for obtaining personnel resources are described in BHI-HR-01, *Human Resources Policies and Procedures*, and the Bechtel Hanford, Inc., TMA Hanford, and Hanford Atomic Metal Trades Council (HAMTC) agreement. The ERC Employee Recognition Program considers all employees in the recognition of work performance. The ERC Employee Recognition Program is administered by ERC Human Resources.

ERC subcontract activities for performing maintenance (e.g., roof repair, electrical modifications, etc.) are procured in accordance with BHI-PR-01, *ERC Procurement Procedures*. Day-to-day administration of subcontractor performance is managed in accordance with BHI-FS-01, Procedure 6.1, "Subcontractor Technical Representative (STR) and Work Order Point of Contact for Field Work."

Field Support self-assessments are performed in accordance with BHI-MA-02, *ERC Project Procedures*, Procedure 2.14, "ERC Assessment Program," to monitor and evaluate the effectiveness and efficiency of the surveillance and maintenance program.

1.2 ELEMENT 2: TRAINING AND QUALIFICATION OF MAINTENANCE PERSONNEL

Training requirements and qualifications of maintenance personnel are defined in BHI-FS-01, Procedure 7.1, "Field Support Training," and the HAMTC agreement.

1.3 ELEMENT 3: MAINTENANCE FACILITIES, EQUIPMENT, AND TOOLS

Necessary facilities, equipment, and tools are provided to support required and specific maintenance activities for inactive and surplus facilities S&M. Appropriate equipment, tools warehousing, shop areas, and support/offices for S&M activities are located within the 100 and 200 Areas. Storage of procured items is controlled in accordance with BHI-PR-03, *ERC Warehouse Manual*.

1.4 ELEMENT 4: TYPE OF MAINTENANCE

Maintenance for inactive and surplus facilities assigned to the ERC includes preventive and corrective activities. A predictive program to forecast component degradation and initiate maintenance prior to equipment failure is not provided, as the preventive maintenance activities are adequate to optimize equipment life in a cost-effective manner.

1.5 ELEMENT 5: MAINTENANCE PROCEDURES

The BHI work control program contains requirements for extensive reviews of work control documents. Pre-approved maintenance procedures are typically not used; specific instructions are identified in the work package. Maintenance work packages are prepared, reviewed, approved, implemented, and closed as directed in BHI-FS-01, Procedures 2.1, 3.1, and 3.2. These documents contain requirements for performing the work, recording of data, and verification of performance of work activities. For S&M activities with frequencies of less than one year, working copies of the work package are assembled that are identical to the original work package and forwarded to the field for work. Sufficient number of data sheets are included within the working copy to record data for each S&M work activity. Completed original data sheets are maintained with the original work package. For S&M activities with frequencies of less than 1 year, working copies of this work package are assembled that are identical to the original work package and forwarded to the field for work. Sufficient number of data sheets are included within the working copy to record data for each S&M work activity. Completed original data sheets are maintained with the original work package. For S&M activities with frequencies of 1 year, the original work package is forwarded to the field for work. Surveillance activities with frequencies less than 7 days or one that is required prior to an operation, such as zeroing an instrument, is not considered a surveillance but as a required action in the appropriate operating procedure and recorded in the appropriate operations data sheet. Completed maintenance work packages are maintained by ERC Documentation and Information Services as a permanent record of work performed.

1.6 ELEMENT 6: PLANNING, SCHEDULING, AND COORDINATION OF MAINTENANCE

Project schedules are prepared and approved by Planning and Controls in accordance with ERC-PC-01, *Baseline and Funds Management System*. Maintenance activities are integrated into the project schedules when applicable. Specific planning, scheduling, and coordination of maintenance activities is described in BHI-FS-01, Procedures 2.1, 3.1, and 3.2.

1.7 CONTROL OF MAINTENANCE ACTIVITIES

Control of maintenance activities is conducted in accordance with BHI-FS-01, Procedures 2.1, 3.1, and 3.2. Radiological, hygiene, and other safety controls for maintenance activities are identified in BHI-SH-02, *Safety and Health Procedures*, BHI-RC-01, *Radiation Protection Program Manual*, and BHI-SH-05, *Industrial Hygiene Work Instructions*.

Feedback of relevant information from maintenance activities is reviewed and dispositioned in accordance with BHI-FS-01, Procedures 3.1 and 3.2. Identification, evaluation, and correction of relevant problems are documented and dispositioned in accordance with BHI-FS-01, Procedure 5.3, "Control of Nonconforming Items and Processes."

1.8 ELEMENT 8: POST-MAINTENANCE TESTING

Required post-maintenance testing will be performed in accordance with engineering approved documents. Work packages are prepared in accordance with BHI-FS-01, Procedure 2.1, to perform any required post-maintenance testing activities and verify that components will adequately fulfill their design function when returned to service after maintenance.

1.9 PROCUREMENT OF PARTS, MATERIALS, AND SERVICES

Parts, materials, and services required for maintenance activities will be of standard industrial practice and commercial grade unless otherwise specified by engineering documents, and are procured per BHI-PR-01, *ERC Procurement Procedures*.

1.10 ELEMENT 10: MATERIAL RECEIPT, INSPECTION, HANDLING, STORAGE, RETRIEVAL, AND ISSUANCE

Procedures and policies for receipt, inspection, warehousing, retrieval, and issuance of maintenance equipment, parts, and materials are governed by BHI-PR-01, *ERC Warehouse Manual*.

1.11 ELEMENT 11: CONTROL AND CALIBRATION OF MEASURING AND TEST EQUIPMENT

Control and calibration of measuring and test equipment is performed in accordance with BHI-FS-01, Procedure 3.15, "Control of Measuring and Test Equipment."

1.12 ELEMENT 12: MAINTENANCE TOOLS AND EQUIPMENT

Tools typically used in the performance of maintenance (e.g., hammers, screwdrivers, etc.) are issued to craft personnel who are responsible for their storage.

1.13 ELEMENT 13: FACILITY CONDITION INSPECTION

Facility Administrators are responsible for performing periodic inspections to ensure required facility condition and housekeeping. In addition, periodic surveillance tours document facility condition and housekeeping. Observations are reviewed and corrected as required by BHI-FS-01, Procedures 3.1 and 3.2. Nonconforming items are documented and corrective actions are initiated in accordance with BHI-FS-01, Procedure 5.3.

1.14 ELEMENT 14: MANAGEMENT INVOLVEMENT

BHI-MA-01, *ERC Policies Organization and Responsibilities*, defines ERC management roles in maintenance of inactive and surplus facilities, while BHI-MA-02, *ERC Project Procedures*; PMIs; and BHI-FS-01, Procedures 3.1, 3.2, and 11.1, "Field Support Operations," identify responsibilities for the implementation of S&M.

1.15 ELEMENT 15: MAINTENANCE HISTORY

Completed work packages are forwarded for retention to Document and Information Services. Periodic scheduled maintenance activities are tracked and statused within the work control system. As noted in Section 1.4, ERC does not have a predictive maintenance/trending program.

1.16 ELEMENT 16: ANALYSIS OF MAINTENANCE PROBLEMS

Analysis to determine and correct causes of discrepant equipment conditions is governed by BHI-FS-01, Procedure 5.3.

1.17 ELEMENT 17: MODIFICATION WORK

Approved facility modifications (including temporary modifications) will be accomplished in accordance with the same administration controls as are applied to maintenance activities. Facility modifications are governed by BHI-FS-01, Procedure 2.1, and BHI-DE-01, *Design Engineering Procedures Manual*.

1.18 ADDITIONAL MAINTENANCE MANAGEMENT REQUIREMENTS

Activities to prevent equipment and building damage due to cold weather are implemented in accordance with BHI-FS-01, Procedures 2.1 and 3.5, "Cold Weather Protection." This program directs all appropriate measures that are to be taken to prevent damage or degradation to systems as a result of extreme weather conditions.

PART II: ADDITIONAL REQUIREMENTS FOR NUCLEAR FACILITIES

Additional maintenance requirements for safety class and safety significant structures, systems, and components (SSC) may be identified in a DOE-approved Basis for Interim Operations (BIO) or Safety Analysis Report (SAR). These additional facility-specific requirements will be performed as stated in the BIO/SAR. Changes to BIO/SAR maintenance requirements or modifications of SC or SS SSC require unanswered safety question (USQ) evaluation to the DOE-approved SAR for the facility.

2.0 REFERENCES

BHI-DE-01, *Design Engineering Procedures Manual*, Bechtel Hanford, Inc., Richland, Washington.

BHI-FS-01, *Field Support Administration*, Bechtel Hanford, Inc., Richland, Washington.

BHI-HR-01, *Human Resources Policies and Procedures*, Bechtel Hanford, Inc., Richland, Washington.

BHI-MA-01, *ERC Policies, Organization, and Responsibilities*, Bechtel Hanford, Inc., Richland, Washington.

BHI-MA-02, *ERC Project Procedures*, Bechtel Hanford, Inc., Richland, Washington.

BHI-PR-01, *ERC Procurement Procedures*, Bechtel Hanford, Inc., Richland, Washington.

BHI-PR-03, *ERC Warehouse Manual*, Bechtel Hanford, Inc., Richland, Washington.

BHI-RC-01, *Radiation Protection Program Manual*, Bechtel Hanford, Inc., Richland, Washington.

BHI-SH-02, *Safety and Health Procedures*, Bechtel Hanford, Inc., Richland, Washington.

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

DOE, 1995, *Decommissioning Resource Manual*, DOE/EM-0246, U.S. Department of Energy, Office of Environmental Management, Washington, D.C.

ERC-PC-01, *Baseline and Funds Management System*, Bechtel Hanford, Inc., Richland, Washington.

Holten, R. A., 1997, *Approval of ERC Maintenance Implementation Plan*, BHI-01044, Rev. 1, Decisional Draft, (CCN 053296 to S. D. Leidle, November 13), Bechtel Hanford, Inc., Richland, Washington.

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