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Revision 3

Surveillance and Maintenance Plan for the 221-B Facility (B Plant)

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Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management



**United States
Department of Energy**
P.O. Box 550
Richland, Washington 99352

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Release Approval

01-10-2008
Date

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ACRONYMS

ALARA	as low as reasonably achievable
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
CFR	<i>Code of Federal Regulations</i>
CRD	Contractor Requirements Document
Cs	cesium
DOE	U.S. Department of Energy
EMS	Environmental Management System
HEPA	high efficiency particulate air
HVAC	heating, ventilating, and air conditioning
ISMS	Integrated Environmental, Safety, and Health Management System
LLW	low-level waste
NCAW	Neutralized Current Acid Waste Treatment and Storage System
PCB	Polychlorinated Biphenyls
PLC	programmable logic controller
QA	quality assurance
QAPD	Quality Assurance Program Description
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
RL	Richland Operations Office
ROD	record of decision
S&M	surveillance and maintenance
SRCD	Supplemental Contractor Requirements Document
Sr	strontium
Tri-Party Agreement	<i>Hanford Federal Facility Agreement and Consent Order</i>
TSD	treatment, storage, and/or disposal
WAC	<i>Washington Administration Code</i>
WDOH	State of Washington Department of Health

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SURVEILLANCE AND MAINTENANCE PLAN FOR THE 221-B FACILITY (B PLANT)

1.0 INTRODUCTION

The *Hanford Federal Facility Agreement and Consent Order*, referred to as the Tri-Party Agreement ensures compliance with the *Resource Conservation and Recovery Act of 1976 (RCRA)* and the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)*, as amended. The Tri-Party Agreement sets forth certain requirements and milestones for cleanup activities at the Hanford Site.

This document provides the plan for the surveillance and maintenance (S&M) phase of the B Plant Facility (B Plant). This plan has been prepared in accordance with the Tri-Party Agreement, Attachment 2 (Tri-Party Agreement Action Plan), Section 8.6, "Surveillance and Maintenance Phase" and will remain in effect until the Remedial Design/Remedial Action Work Plan has been approved. The objectives of the S&M phase are to ensure adequate containment of any contaminants left in place and to provide physical safety and security controls and to maintain the facility in a manner that will minimize risk to human health or the environment. S&M plans are prepared by U.S. Department of Energy (DOE), Richland Operations Office (RL) and detail facility aspects and associated requirements including the following: (1) surveillance, (2) maintenance, (3) quality assurance, (4) radiological controls, (5) hazardous substance inventory, management and protection, (6) health and safety/emergency preparedness, (7) safeguards and security, (8) cost and schedule, and (9) environmental compliance. A list of the buildings managed as part of the B Plant facility S&M Plan or a list of implementing procedures can be obtained by contacting the manager of the project responsible for managing B Plant.

The enforceable requirements in this document are found in Table 6-1; other dialogue and descriptions are for informational purposes only.

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2.0 FACILITY ACTIVITIES

Surveillance and maintenance activities conducted during the S&M phase are established to monitor containment of contaminants left in place, to provide physical safety and security controls, and to maintain the facility in a manner that will minimize risk to human health or the environment. Waste generated while performing S&M activities will be dispositioned according to waste handling regulations.

2.1 HISTORICAL BACKGROUND

This section of the B Plant S&M plan discusses the facility's operational history, includes prior usage of the facility, previous processes that resulted in hazardous and radioactive contamination, and completed disposition activities.

The B Plant was constructed between 1943 and 1945 in support of the Manhattan Project. After its original mission was completed, the plant was modified between 1961 and 1967 for the recovery, separation, and purification of strontium (Sr) and cesium (Cs) generated during fuel reprocessing operations. These Sr and Cs separation campaigns were conducted at B Plant from 1968 to 1985.

In May 1991, the B Plant was removed from any future processing missions, and between 1991 and 1995, B Plant was maintained to ensure safe storage and management of radioactive contamination and residual inventory from past operations. In September 1995, the B Plant was placed in transition status and in September 1996, transition activities were initiated to isolate the facility, mitigate contamination migration, and achieve facility stability through the removal, stabilization, disposal, or excess of major radioactive sources, hazardous materials and dangerous waste.

End point criteria developed to define the transition (deactivation) activities for B Plant were defined in HNF-SD-WM-TPP-054, *B Plant End Point Document*. Completion of these activities established a safe and environmentally secure configuration suitable for a long-term S&M program.

Not all the hazardous materials were removed during the transition phase. Those hazardous materials remaining in the facility are listed in Appendix A, "*Hazardous Material Remaining at the B Plant Facility*".

2.2 FACILITY DESCRIPTION

This section of the S&M Plan describes the major structures and operations of active systems and includes status of systems such as ventilation, fire protection, radiation detection, remote monitoring, utility distribution, compressed air, water, and auxiliary.

B Plant Facility S&M includes 221-B Building, ancillary buildings, and their associated equipment within the B Plant perimeter fence and encompasses approximately 44 buildings listed in Table 2-1 "B Plant Facility Structures and Components" (see Plot Plan in Figure 2-1).

2.2.1 Inactive Waste Sites

The scope of the S&M program is limited to the facilities described in Section 8 of the Tri-Party Agreement Action Plan (Ecology et al. 2003); therefore, waste sites are not addressed in this document.

2.2.2 Operational Systems Description

The Canyon Ventilation System, Canyon Liquid Level (TK 10-1) Monitoring, Surveillance Lighting System, and Instrumentation, and Monitoring and Control System are the only systems operating during the B Plant S&M phase.

2.2.2.1 Electrical

The original electrical distribution system to B Plant is isolated and disconnected. Power for the canyon ventilation exhaust fans, supporting control system, and the Cell 10 liquid level surveillance monitoring systems is supplied from an Electric Utility 480 volt overhead power pole. The only equipment, systems, or areas within the B Plant complex that require electrical power are the Canyon Ventilation System, the liquid level monitoring, and the surveillance lighting systems that are energized prior to entry when performing surveillance activities.

2.2.2.2 Canyon Ventilation System

The 221-B Canyon S&M ventilation system provides a negative pressure in the facility with respect to atmosphere when in operation. Two parallel exhaust fans operate in a run-standby configuration to provide continuous discharge through a stack attached to the south wall of the canyon. Each fan is designed for 100 percent airflow. Infiltration air enters the canyon through the galleries, air locks, 212-B, and 224-B. The S&M filtration system is made up of two parallel air trains each rated at approximately 50 percent capacity of the normal canyon airflow rate.

2.2.2.3 Instrumentation, Monitoring, and Control System

A programmable logic controller (PLC) located in the 221-BK Building provides data acquisition for monitoring data and controls for the ventilation system exhaust fans, stack flow, and sampling system.

2.2.2.4 Retired Filters Ventilation and Monitoring System

This system was deactivated in 2004.

2.2.2.5 Canyon Liquid Level (TK 10-1) Monitoring and Removal

Liquid in-leakage to the B Plant canyon is collected in Cell 10 by tank TK 10-1 and is monitored by the PLC.

2.3 SURVEILLANCE ACTIVITIES

This section describes the surveillance activities to be conducted on a routine and non-routine basis by the S&M contractor. Routine activities ensure that structural and passive confinement integrity is maintained. Non-routine activities include major responses to undesirable observations (e.g., action to be taken if damaged friable asbestos is present).

In addition, surveillance activities must satisfy the inspection requirements as identified in Section 6.0, Environmental Compliance/Protection, Table 6.1, "B Plant Regulatory Compliance During Surveillance and Maintenance."

2.3.1 Environmental Monitoring of the Canyon Ventilation System Stack

The 296-B-1 Canyon Ventilation System Stack remains designated as a major stack in accordance with the National Emissions Standards in Hazards Air Pollutants (NESHAP) criteria, Title 40 *Code of Federal Regulations* (CFR) Part 61, Subpart H. This designation is due to the stack's potential to emit radionuclides into the air that could cause an effective dose equivalent to any member of the public in an unrestricted area in excess of 0.1 millirem per year. Since operations supplying airborne radionuclides to the S&M ventilation system are not expected during S&M, monitoring activities have been reduced to a minimum, yet still meet the U.S. Environmental Protection Agency's requirements and the state requirements of Washington Administrative Code (WAC) 246-247, *Radiation Protection – Air Emissions*. Environmental sampling of the 296-B-1 main ventilation stack emissions during the B Plant S&M phase consists of stack effluent particulate sampling (as licensed with the State of Washington Department of Health), designed to allow an accurate radionuclide release record for the stack.

2.3.2 Annual Surveillance

Walk-through surveillance of B Plant will be conducted and documented annually by the S&M contractor to include the Case 1 spaces (routine access) and Case 3 spaces (external areas), as described in HNF-SD-WM-TPP-054, and parts of the 221-B, 222-B, 271-B, 212-B, and outdoor areas.

The annual S&M contractor's walk-through surveillance includes checking for indications of:

- Internal and/or external structural defects,
- Roof deterioration,
- Posting deficiencies,
- Contamination migration,
- Suspect hazardous materials,
- Hazardous conditions,
- Electrical hazards,
- Unidentified friable asbestos,
- Failed lights,
- Doors locked,
- Water leaks,
- Excess combustible materials,
- Excess equipment or material,
- Ground subsidence,
- Housekeeping,
- Occupational hazards,
- Previously unidentified hazards,
- Unidentified or unlabeled containers,
- And animal or insect intrusion.

In addition, routine general housekeeping such as tumbleweed and miscellaneous debris removal is performed throughout the B Plant.

Indoor surveillance will consists of a walk through of the 221-B electrical and piping galleries; 271-B basement, first, second, and third floors; 212-B cask station; and the 222-B Office Building.

In addition to the annual walk through surveillance, a qualified contractor 'structural engineer will conduct an inspection of the roof and structures of those facilities that provide a passive confinement function. The frequency, extent of future inspections, and recommendations resulting from these periodic inspections will be documented by the contractor structural engineer.

2.3.3 Routine Surveillance

Routine surveillance governed by S&M contractor operations, maintenance, and radiological work packages, and procedures are performed in addition to annual walk-through surveillance to ensure adequate facility S&M phase operation. These S&M contractor documents establish the frequency and activities necessary to monitor, control, and thereby preclude potential health and safety impacts and equipment failure.

S&M contractor documents also describe the preventive maintenance and instrument calibrations to maintain the remaining active equipment. The radiation protection procedures, radiation work permit, and radiological condition assessments describe the radiological control activities such as posting, access control, work place air monitoring, and radiological surveys.

Table 2-1. B Plant Facility Structures and Components.

Identification #	Building Description/Components
207-BA	CBC Sampling Building
211-B	Chemical Tank Farm Area
211-BB	MCC Building for 211-A Area
212-B	Cask Transfer Station
217-B	Demineralized Water Building
221-B	B Plant Canyon Building <ul style="list-style-type: none"> • Canyon and Process Cells • Electrical Gallery • Pipe Gallery • Operating Gallery • SWP Change Room • Railroad Tunnel
221-BA	15-in. Cooling Water Monitor Building
221-BB	Condensate Building for Low Level Waste (LLW) Concentrator
221-BC	SWP Change Building
221-BD	Laundry Storage Building
221-BF	BCP Diversion Pit Building
221-BG	24-in. Cooling Water Monitor Building
221-BK	Canyon Exhaust System Instrumentation Building and Canyon Exhaust System <ul style="list-style-type: none"> • Duct • Filters • Fans
222-B	Office Building

Table 2-1. B Plant Facility Structures and Components.

Identification #	Building Description/Components
271-B	B Plant Support Building <ul style="list-style-type: none"> • Basement • First Floor • Second Floor • Third Floor
271-BA	Laundry Storage Building
2711-B	Breathing Air Compressor Building
2715-B	Paint and Oil Storage Building
2716-B	Storage Building – Railroad Cut
276-B	Paint Shop
276-BA	ISO Tank Area
291-B	Exhaust Fans Control / Turbine Building
291-BA	Exhaust Air Sample Building
291-BB	Instrument Building – A and B Filters
291-BC	C Filter Building
291-BD	C Filter Instrument Building
291-BF	D Filter Instrument Building
291-BG	E Filter Instrument Building
291-BJ	F Filter Instrument Building
291-BK	E Filter Monitoring Building
292-B	Stack Monitoring Station
291-B-1	Retired Canyon Ventilation Stack
296-B-1	Canyon Ventilation Stack
296-B-2	Filter Vault Passive Vent Stack
296-B-5	Retired 221-BB Stack
296-B-13	Retired 221-BF Stack
296-B-21	Retired Pipe Gallery Exhauster
296-B-22	Retired Pipe Gallery Exhauster
296-B-23	Retired Pipe Gallery Exhauster
296-B-24	Retired Pipe Gallery Exhauster
296-B-25	Retired Pipe Gallery Exhauster
296-B-26	Retired Pipe Gallery Exhauster
296-B-27	Retired Pipe Gallery Exhauster
C8-S49	Main B Plant Substation (221-B / 271-B)
C8-S77	B Plant 291-B Area Substation
A-F Filters	A-F Filter Vaults
Yard	Total Area inside the Fence

3.0 FACILITY MAINTENANCE

This section describes the methodology applied by DOE to ensure that the S&M contractor establishes preventive and corrective maintenance activities to be performed. Preventive maintenance is conducted on a prescheduled basis to ensure proper functioning of operational equipment. Corrective maintenance is performed after equipment has malfunctioned, has required structural repair due to degradation, or to upgrade facilities and/or equipment.

3.1 MAINTENANCE ORGANIZATION AND ADMINISTRATION

The DOE requires the S&M contractor to develop and implement plans, programs, and procedures that specify maintenance program requirements for nuclear and non-nuclear facilities required by Contractor Requirements Document (CRD) O 433.1, *Maintenance Management Program for DOE Nuclear Facilities*, and CRD O 430.1B, *Real Property Asset Management*. The DOE conducts oversight of the S&M contractor's maintenance program implementation.

CRD O 433.1 specifically mandates that the S&M contractor implement a maintenance management program using a graded approach and that the maintenance management program shall address the following elements, as appropriate:

- Maintenance Organization and Administration
- Training and Qualification of Maintenance Personnel
- Maintenance Facilities, Equipment, and Tools
- Types of Maintenance
- Maintenance Procedures
- Planning, Scheduling, and coordination of Maintenance
- Control of Maintenance Activities
- Post-maintenance Testing
- Procurement of Parts, Materials, and Services
- Receipt, Inspection, Handling, Storage, Retrieval, Issuance, and Disposal Turn In of Personal Property
- Control and Calibration of Measuring and Test Equipment
- Maintenance Tools and Equipment Control
- Facility Condition Inspection
- Management Involvement
- Maintenance History
- Analysis of Maintenance Problems
- Modification Work
- Seasonal Facility Preservation.

3.2 TYPES OF MAINTENANCE

A proper balance of routine and preventative maintenance is employed to provide a high degree of confidence that facility equipment degradation is identified and corrected. Preventive and routine maintenance is conducted as described S&M contractor work control procedures.

3.3 TYPES OF MAINTENANCE AND FREQUENCY

The following maintenance and frequencies are recommended to satisfy code and specification, manufacturer's recommendations, and to ensure optimum equipment operating life during the S&M program.

- Inspect and lube canyon exhaust fans and bearings EF-1 and -2 As recommended in procedures
- Calibration of equipment controlled by canyon ventilation instrumentation and control system As recommended in procedures
- High-efficiency particulate air (HEPA) pre-filter change out As determined from surveillances
- HEPA aerosol test Determined from regulatory requirements
- Vent and balance on canyon ventilation HEPA filters As determined from surveillances
- Replace canyon ventilation HEPA filters As determined from surveillances
- Canyon ventilation stack monitoring system inspections Determined from regulatory requirements
- Cell 10 TK 10-1 liquid level instrumentation calibrations As recommended in procedures
- Potential cold weather protection As defined in the cold weather protection program

4.0 QUALITY ASSURANCE

The DOE requires the S&M contractor to comply with the requirements of Title 10, Code of Federal Regulations, Part 830, Subpart A, *Quality Assurance Requirements* (10 CFR 830), DOE O 414.1C, Contractor Requirements Document (CRD), *Quality Assurance*, and State and Federal Environmental Regulations, for the establishment and implementation of its quality assurance (QA) program. The S&M contractor's Quality Assurance Program Description (QAPD), which is approved by DOE, describes the S&M contractor's implementation of these requirements. The QAPD is also the management system used for the conduct of environmental programs that acquire, generate, compile, report and use environmental data and technology. The S&M contractor QA program, as described by its QAPD, is to be applied on a graded basis to S&M contractor activities.

The QAPD requires the S&M Contractor to establish and implement QA program/project plans for specific quality-affecting activities. These plans identify the applicable QA requirements, how the requirements are implemented, and the responsibilities, interfaces, and authority for their implementation. These plans also incorporate other local, state, and federal government QA requirements as established in applicable permits, agreements, orders, regulations, laws, codes, and standards.

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5.0 TRAINING AND QUALIFICATION

The DOE requires that the S&M contractor training and qualification programs be established and implemented to satisfy the requirements of 10 CFR 830.122(b), "Criterion 2 – Management/Personnel Training and Qualification," and DOE O 414.1C CRD, Section 3.b, "Management/Criterion 2 – Personnel Training and Qualification." (See Section 4.0, *Quality Assurance*.)

In addition, training requirements for S&M personnel performing dangerous/mixed waste duties must also meet the standards of WAC 173-303-330 and the requirements as identified in Section 6.0 and Table 6.1.

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6.0 ENVIRONMENTAL COMPLIANCE/PROTECTION

This section identifies environmental compliance/protection requirements that are applicable to the S&M scope of work and has been prepared in accordance with the Tri-Party Agreement Action Plan, Section 8.6, "Surveillance and Maintenance Phase."

The S&M contractor is required to comply with all environmental laws, regulations, and procedures applicable to the work being performed under the Contract. This includes, but is not limited to, compliance with applicable federal, state and local laws and regulations, interagency agreements such as the Tri-Party Agreement, consent orders, consent decrees, and settlement agreements between DOE and federal and state regulatory agencies.

The DOE requires that the S&M contractor must establish, implement, and maintain an environmental protection program in accordance with the provisions of CRD DOE O 450.1, *Environmental Protection Program*. This CRD requires contractors to integrate numerous environmentally related requirements already placed on it by existing statutes, regulations, and policies through the use of an Environmental Management System (EMS) incorporated into an Integrated Environmental, Safety, and Health Management System (ISMS). EMS requirements must be addressed in the contractor's ISMS, which must be submitted for DOE review and approval under DEAR 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution*.

During the B Plant deactivation, major radioactive sources and/or dangerous chemicals and wastes were removed, stabilized, excessed, or disposed to meet the criteria identified in HNF-SD-WM-TPP-054. This included removal of dangerous waste constituents to a minimum pumpable heel from accessible tanks and vessels identified as treatment, storage, and/or disposal (TSD) units in the B Plant Complex RCRA Part A Permit Application.

The Hazardous Material Remaining at the B Plant Facility (Appendix A) identifies and describes the material, location, and quantity of mixed waste and hazardous materials covered by the scope of this plan. Hazards associated with these materials are minimal due to their remote locations and existing form.

Dangerous waste generation and disposal are not expected during S&M. However, waste generated will be handled in compliance with the applicable regulatory, environmental, and waste management requirements. Compliance with the RCRA requirements found in WAC 173-303 and with the B Plant Complex Part A Permit Application during the S&M phase are addressed in Table 6-1.

6.1 B PLANT FACILITY AIR PERMITTING

Under the US Department of Energy Hanford Site Radioactive Air Emissions License #FF-01, the DOE Hanford Site, and B Plant specifically, are licensed for airborne radioactive emissions. The FF-01 license is issued by the State of Washington, Department of Health.

6.2 RECORD KEEPING/DOCUMENTATION

Records and documents are retained at the S&M records area.

Documentation assembled as a means of documenting completion of endpoints are located in the endpoint files at the S&M records area. These records include the following:

- Canyon cell arrangement drawings.

- Certified vendor information of operating and mothballed systems.
- B Plant Complex Hazardous Substances and Dangerous Wastes Inventory.
- Pre-Closure Work Plan.
- Description of conditions or limitations applicable to criticality prevention.
- Deactivation work plans.
- Descriptions/photos of Case 2 spaces, internal/no access expected.
- Electrical distribution drawings of new operational systems.
- Index identifying drawings and corresponding titles of essential and downgraded facility drawings.
- Final radiological surveys and maps.
- Fire Hazard Analysis.
- Radiological control surveillances and data of current postings.
- Confined space program.
- Resolution of remaining outstanding Tri-Party Agreement (Ecology, et al, 2003) and regulatory commitments.
- S&M safety evaluations documentation.
- S&M phase updated Facility Environmental Monitoring Plan.
- S&M phase updated Building Emergency Plan.
- S&M phase updated Safety Equipment List.
- S&M phase updated Final Safety Analysis/Safety Authorization Basis documentation.
- Special nuclear material inventory.
- Structural and roof evaluations.
- S&M procedures.
- Unusual occurrence reports considered relevant and informative for S&M.
- B Plant Complex Part A Permit Application.
- WDOH Radioactive Air Emissions Permit, FF-01.
- Waste characterization data for egress waste, historical radiation survey data, and other radiological records.
- An administrative record was established for the B Plant Complex as described on Table 9-3 of the Tri-Party Agreement Action Plan (Ecology et al. 2003). The administrative record for B Plant contains the following documents:
 - B Plant RCRA Analytical Data for B Plant's TSDs.
 - Pre-Closure Work Plan.

6.3 HAZARDOUS MATERIAL PROTECTION

During the S&M program, the B Plant Facility complies with the applicable requirements and as low as reasonably achievable (ALARA) considerations for control of potential personnel exposures to hazardous materials. Hazardous material protection requirements are accomplished by complying with the S&M contractor's safety and health procedures.

6.4 INSTITUTIONAL CONTROLS

Institutional controls do not apply to activities addressed by the B Plant S&M plan because a CERCLA decision document has not been issued. Once a CERCLA decision document is issued for the B Plant facility, the identified institutional controls will be implemented as required. Site security and access control are implemented as part of S&M activities.

Table 6-1. B Plant Regulatory Compliance during Surveillance and Maintenance.

DANGEROUS WASTE REGULATIONS	S&M COMPLIANCE APPLICABILITY
Introductory Regulations WAC 173-303-010 to WAC 173-303-060	Dangerous waste generation and disposal are not expected during the B Plant S&M phase. However, waste generated will be designated in compliance with the S&M contractor's waste management procedures.
Dangerous Waste Designation WAC 173-303-070 to WAC 173-303-110	Dangerous waste generation and disposal are not expected during the B Plant S&M phase. However, waste generated will be designated in compliance with the S&M contractor's waste management procedures.
General Recycling Requirements WAC 173-303-120	N/A: No recycling, reclaimed, or recovered dangerous waste exists during the B Plant S&M phase.
Prohibitions and Restrictions WAC 173-303-140 to WAC 173-303-41/40 CFR 268	N/A: No land disposal will occur during the B Plant S&M phase. However, the Annual Report on Hanford Site Land Disposal Restrictions for Mixed Waste is updated annually as necessary.
Spills & Discharge Into the Environment WAC 173-303-145 and 40 CFR 302	Notifications and responses for spills and discharges of dangerous waste or hazardous substances into the environment during the B Plant S&M phase are addressed in the S&M contractor's spill and response procedures.
Division, Dilution, & Accumulation WAC 173-303-150	Dangerous waste generation and disposal are not expected during the B Plant S&M phase. However, waste generated will be handled in compliance with the S&M contractor's waste management procedures.
Containers WAC 173-303-160 to WAC 173-303-161	Dangerous waste generation and disposal are not expected during the B Plant S&M phase. However, containers used as a result of waste generated will be managed in compliance with the S&M contractor's waste management procedures.
Generator Requirements WAC 173-303-170 to WAC 173-303-230	Dangerous waste generation and disposal are not expected during the B Plant S&M phase. However, waste generated will be managed in compliance with the S&M contractor's waste management procedures.
Transporter Requirements WAC 173-303-240 to WAC 173-303-270	Dangerous waste generation and disposal are not expected during the B Plant S&M phase. However, waste generated will be transported in compliance with the S&M contractor's waste management procedures.
Notice of Intent WAC 173-303-280 Siting Criteria WAC 173-303-282	Not applicable during the B Plant S&M phase.

Table 6-1. B Plant Regulatory Compliance during Surveillance and Maintenance.

DANGEROUS WASTE REGULATIONS	S&M COMPLIANCE APPLICABILITY
Performance Standards WAC 173-303-283	This section requires identification of performance standards for maintaining dangerous waste facilities to the maximum extent practical given the limits of technology to prevent endangerment to people and the environment, as specified. Compliance will be met through adherence to this S&M plan.
Required Notices WAC 173-303-290	N/A: No waste sources outside the Hanford site are received by the B Plant facility.
General Waste Analysis WAC 173-303-300	The purpose of this section is to confirm knowledge about dangerous waste before treatment, storage, and/or disposal. Appendix A lists the mixed waste remaining in the B Plant Complex TSD units. Dangerous waste generation and disposal are not expected during the B Plant S&M phase. However, waste generated will be designated in compliance with the S&M contractor's waste management procedures. A Waste Analysis Plan for the TSD units will not be maintained as long as no waste is accepted into the B Plant Complex TSD units, and as long as no samples of the mixed waste are acquired from the mixed waste managed in the B Plant Complex TSD units.
Security WAC 173-303-310	Addressed in Safeguards and Security section of this S&M plan.
General Inspection WAC 173-303-320	Routine Surveillances are performed as identified in this S&M plan. No TSD unit inspections or surveillances are performed since all of the TSD units are in un-accessible portions of the B Plant Complex.
Personnel Training WAC 173-303-330	Training is provided to meet the dangerous waste management duties identified in this table relating to WAC 173-303-330 compliance. A training plan will be maintained in accordance with WAC 173-303-330(2).
Construction Quality Assurance Program WAC 173-303-335	Not applicable during S&M.
Preparedness and Prevention WAC 173-303-340	Addressed in Section 8.0, Emergency Management, of this S&M plan.
Contingency Plan/Emergency Procedures WAC 173-303-350	A contingency plan will be maintained in accordance with WAC 173-303-350(3) as described in Section 8.0, Emergency Management, of this S&M plan.
Manifest System WAC 173-303-370	Dangerous waste will not be received from offsite sources during S&M.

Table 6-1. B Plant Regulatory Compliance during Surveillance and Maintenance.

DANGEROUS WASTE REGULATIONS	S&M COMPLIANCE APPLICABILITY
<p>Facility Record Keeping WAC 173-303-380</p>	<p>Dangerous waste generation is not expected during S&M. However, operating records for mixed waste generated or managed at the facility are compliant with the S&M contractor's waste management procedures And Section 6.0 of this S&M Plan.</p>
<p>Other General Requirements WAC 173-303-395</p>	<p>Generation and disposal of ignitable, reactive, or incompatible waste during S&M are not expected. However, waste generated will be managed in compliance with the S&M contractor's waste management procedures.</p>
<p>Facility Reporting WAC 173-303-390</p>	<p>Dangerous waste from an offsite source is not expected during S&M. Therefore, un-manifested waste reports will not be applicable. Supporting information for the Hanford Site Annual Dangerous Waste, Hanford Site Land Disposal Restrictions for Mixed Waste Report, and any applicable reports will be prepared and submitted as required by the department.</p>
<p>Interim Status Treatment, Storage, and Disposal Facility Standards WAC 173-303-400/ 40 CFR 265.1101(c)(4)/ 40 CFR 255 Subpart J B Plant Complex RCRA Part A Permit Application.</p>	<p>Tank Systems During the B Plant deactivation, TSD tanks and vessels identified in the B Plant Complex Part A Permit Application were emptied to the practical and reasonable extent possible with existing plant systems. These tank systems are identified as the:</p> <ul style="list-style-type: none"> • Neutralized Current Acid Waste Treatment and Storage System (NCAW), • Low-Level Waste (LLW) Treatment and Storage System, • LLW Concentrator, • Organic Mixed Waste Storage, and • Miscellaneous Tanks Storage System. <p>The solutions in the 221-B canyon tanks and vessels were characterized in accordance with the Sample and Analysis Plan for B Plant Solutions, and transferred to the tank farms Double-Shell Tanks for long-term storage. Solutions in the Organic Solvent Waste storage tanks located outside of the 221-B Building were sent off site as part of the B Plant deactivation. Removal of the dangerous waste solutions ensured that the vessels will be left in a state of minimum surveillance and maintenance until subsequent closure. Therefore, during the B Plant S&M phase, no surveillance of the dangerous waste units or ancillary equipment will be performed.</p> <p>Cell 4 Container Storage The B Plant 221-B canyon Cell 4 will continue to store</p>

Table 6-1. B Plant Regulatory Compliance during Surveillance and Maintenance.

DANGEROUS WASTE REGULATIONS	S&M COMPLIANCE APPLICABILITY
	<p>dangerous waste in containers per the B Plant Part A Permit Application during the S&M phase. Because the waste does not contain any free liquids, and because the access to the containers is remote, and the canyon crane will be unavailable, no surveillance of the Cell 4 containers will be performed. During the S&M phase, no additional containers will be placed in storage in Cell 4.</p> <p>Containment Building The B Plant Containment Building - 221-B canyon and process cells will continue to store dangerous waste per the B Plant Complex Part A Permit Application during the S&M phase. Monitoring the differential pressure of the canyon during S&M will satisfy the 40 CFR 265.1101(c)(4) requirement to maintain the containment building's integrity. No additional surveillance of the dangerous waste or ancillary equipment will be performed to satisfy this requirement.</p>
<p>Permits WAC 173-303-800 to WAC 173-303-840</p>	<p>The only permitting obligation will be to maintain the Part A Permit Application.</p>
<p>Toxic Substance Control Act and Clean Air Act Requirements</p>	
<p>Polychlorinated Biphenyls (PCB) 40 CFR 761 Subparts D and G</p>	<p>PCBs may exist in transformers, ballast, and lubricants/oils once used in the plant. PCB waste generation is not expected during the B Plant S&M phase. However, waste generated will be managed in compliance with the applicable requirements.</p>
<p>Asbestos 40 CFR 61.150</p>	<p>Undetermined quantities of asbestos exist throughout the plant as a solid component. Asbestos waste generation is not expected during the B Plant S&M phase. However, waste generated will be managed in compliance with the applicable requirements.</p>

7.0 OCCUPATIONAL RADIOLOGICAL CONTROLS

This section provides a reference to the DOE ALARA policy and program which includes but not limited to the following;

- External radiation exposure control;
- External dosimetry;
- Internal radiation exposure control;
- Internal dosimetry;
- Radiological protection instrumentation programs (both calibration and use);
- Respiratory protection program;
- Air monitoring;
- Radiological monitoring and contamination control;
- Radiological protection record keeping;
- Radiological area boundaries, posting, and controls;
- Radiological protection training;
- And entry and exit control program.

The DOE requires the S&M contractor to establish, implement, and maintain a radiation protection program that satisfies the minimum requirements established by 10 CFR 835, *Occupational Radiation Protection Final Rule*.

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8.0 EMERGENCY MANAGEMENT

This section describes the DOE philosophy, objectives, and organization of the emergency preparedness functions for a spectrum of emergencies covering a range from local area emergencies to those that could affect persons off-site. This section addresses the activation of emergency organizations, assessment actions, notification processes, emergency facilities and equipment, training and exercises, and recovery actions.

The DOE requires the S&M contractor to comply with DOE Order 151.1A, *Comprehensive Emergency Management System*, CRD, DOE/Richland Operations Office (RL) (DOE/RL-94-02). If an emergency or abnormal incident occurs, the situation will be responded to in accordance with the *Hanford Emergency Management Plan*, current revision, and DOE-0223, *Emergency Plan Implementing Procedures*, which establishes the emergency preparedness requirements for the Hanford Site. The S&M Contractor B Plant specific emergency plan is written to meet a variety of requirements, including the RCRA contingency plan requirements for the B Plant Facility TSD units. Personnel are trained ahead of time to deal with emergencies or abnormal incidents through formal classroom instruction and drills.

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9.0 HEALTH AND SAFETY

This section discusses the DOE activities to ensure the health and safety of the workforce. Other topical areas such as radiological controls and facility maintenance may be driven by health and safety requirements; therefore, health and safety are discussed throughout the plan.

9.1 FIRE HAZARD ANALYSIS

The DOE requires the S&M contractor to establish requirements for the preparation, maintenance and approval of a fire hazards analysis that comprehensively assesses the risk from fire within a DOE facility to determine whether the fire protection objectives of CRD O 420.1A, *Facility Safety*, Supplemental Contractor Requirements Document (SRCD) DOE O 420.1A, (Rev. 2) *Facility Safety*, and CRD O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, are met.

9.2 OCCUPATIONAL SAFETY AND HEALTH

The DOE requires the S&M contractor to comply with applicable Occupational Safety and Health Administration (OSHA) standards. DOE directive DOE O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, Attachment 2, *Contractor Requirements Document (CRD)* requires compliance (when applicable) to 29 CFR 1910, *Occupational Safety and Health Standards*, and 29 CFR 1926, *Safety and Health Regulations for Construction*, and several consensus standards. Applicability of the 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response Regulations (HAZWOPER) standards and the need for HAZWOPER training will be determined based on RL guidance.

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10.0 SAFEGUARDS AND SECURITY

The DOE requires the S&M contractor as the facility manager/asset owner to ensure protection is provided for all property, facilities and materials according to the provisions of CRD M 473.1-1 (Supplemented Rev. 0), *Physical Protection Program Manual*. This DOE procedure for controlling access to the facility, provides for an evaluation of the adequacy of existing physical controls (e.g., fencing, signs, entrance points into exclusion areas, door locks, and other barriers), provides a plan for the placement and monitoring of intrusion alarms, and describes the duties and scheduling of security patrols.

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11.0 COST AND SCHEDULE

This section identifies the DOE cost and schedule of S&M activities. This section includes a summary table of S&M costs applicable to the facility. One surveillance as a minimum will be made each year. The frequency of routine surveillance and maintenance as identified in Section 3.0 of this plan are identified in the contractor's work packages and maintenance procedures.

The S&M contractor shall plan, acquire, utilize, maintain and dispose of DOE assets in a cost-effective manner. The contractor shall use industry standards, and apply a graded approach, in complying with CRD O 430.1B, *Real Property Asset Management*. The DOE defines graded approach, as it applies to this CRD, as providing the depth of detail required and the magnitude of resources expended for a particular management element to be tailored to be commensurate with the element's relative importance to safety, environmental compliance, safeguards and security, programmatic importance, magnitude of hazard, financial impact, and/or other facility-specific requirements.

Table 11-1. Surveillance and Maintenance Cost Estimate.

Description	Total
FY 2008	\$ 387,000
FY 2009	\$ 415,000
TOTAL	\$ 802,000

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12.0 REFERENCES

- 10 CFR 830, Subpart A, *Quality Assurance Requirements*, "Code of Federal Regulations," as amended.
- 10 CFR 835, *Occupational Radiation Protection*, "Code of Federal Regulations," as amended.
- 29 CFR 1910, *Occupational Safety and Health Standards*, "Code of Federal Regulations," as amended.
- 29 CFR 1926, *Occupational Safety and Health Standards for the Construction Industry*, "Code of Federal Regulations," as amended.
- 40 CFR 61, *National Emissions Standards for Hazardous Air Pollutants*, Subpart H, "National Emissions Standards for Emissions of Radionuclide Other Than Radon from Department of Energy Facilities," *Code of Federal Regulations*, as amended.
- CRD M 473.1-1 (Supplemented Rev. 0), *Physical Protection Program Manual*
- CRD O 420.1A, *Facility Safety*, "Supplemental Contractor Requirements Document (SRCD)"
- CRD O 430.1B, *Real Property Asset Management*.
- CRD O 433.1, *Maintenance Management Program for DOE Nuclear Facilities*
- CRD O 450.1, *Environmental Protection Program*
- CRD M 473.1-1 (Supplemented Rev. 0), *Physical Protection Program Manual*
- DEAR 970.5223.1, *Integration of Environment, Safety, and Health into Work Planning and Execution*
- DOE O 414.1C, *Contractor Requirements Document*, "Quality Assurance"
- DOE O 420.1A, (Rev. 2) *Facility Safety*, DOE 151.1A
- DOE Order 440.1, *Worker Protection Management for DOE Federal and Contractor Employees*, as amended, U.S. Department of Energy, Washington, D.C.
- DOE-0223, *Emergency Plan Implementing Procedures*.
- DOE/RL-94-02, 1996, *Hanford Emergency Response Plan*, as amended, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Ecology, EPA, and DOE-RL, 2003, *Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, U.S. Department of Energy, Richland Operations Office, Olympia, Washington, amended periodically.
- HNF-SD-WM-TPP-054, *B Plant End Points Document*, as amended, Fluor Hanford, Richland, Washington.

HNF-3208, 1999, *Documentation of Remaining Hazardous Substances/Dangerous Waste in B Plant*,
Rev. 0A, Fluor Hanford, Richland, Washington, August 4, 1999.

Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901, et seq., as amended.

WAC 173-303, *Dangerous Waste Regulations*, "Washington Administrative Code," as amended.

WAC 246-247, *Radiation Protection – Air Emissions*, "Washington Administrative Code," as amended.

APPENDIX A

**HAZARDOUS MATERIAL REMAINING
AT THE B PLANT FACILITY**

The information for this appendix was taken directly from the submittal to document closure of End Point 00.00.26, "Remaining Hazardous Substances/Dangerous Waste Documentation," per the B Plant End Points Document, HNF-SD-WM-TPP-054. It summarizes the results in HNF-3208, *Documentation of Remaining Hazardous Substances/Dangerous Waste in B Plant*.

HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
GENERAL		<p>This General section addresses hazardous substances/dangerous wastes that may not have been specifically addressed in the deactivation process. Traces of the following materials, which are expected to remain stable during surveillance and maintenance (S&M), may exist in unknown quantities throughout the facility, as noted below:</p> <ul style="list-style-type: none"> • Asbestos abandoned throughout the plant as a solid component such as transite siding, utility line insulation, floor tiles, and gasket material. Refer to individual Space/Systems in this document for additional descriptions of asbestos remaining at the facility. • Lead as a solid component, such as paint, light bulb contacts, washers affixing transite, solder in electrical and plumbing system, sanitary water line joints packed with lead mesh; steam, air and water safety relief valve seals; components of control panels-all abandoned in-place and stable during S&M. • Mercury in thermostats and in electronic switches (i.e., electronic switches) throughout the facility. Mercury vapor lights were also used for exterior lighting. • Remaining smoke detectors may contain radioactive sources. • Polychlorinated biphenyls (PCB) may exist in ballasts and lubricants/gear oil once used throughout the plant. • Organic in liquid films, greases, and solid residues in bearings and gearboxes throughout the plant. • Silver and lead contacts are used in the electrical system. Lead and zinc were used as soldering in the electrical systems. 	

HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
211-B Chemical Tank Farm System	01.02.09	<ul style="list-style-type: none"> • *Nitric Acid (Material Safety Data Sheet [MSDS] #39255) • *Hydroxy Acetic Acid (MSDS #37906) • *Ammonium Carbonate (MSDS #44107) • *Sodium Hydroxide (MSDS #44107) • *Demineralizer regeneration effluent consisting of salt cake from sodium hydroxide and sulfuric acid (MSDS #44214 and #40658) • Lead (MSDS #055668) 	<ul style="list-style-type: none"> • In tanks TK-SA-101, -102, and -103 (found dry) • In tank TK-SF-120 (found dry) • 127.5 lb in tank TK-MNB-173 • 112.5 lb in tank TK-SQ-141 • 675 lb in tank TK-SQ-142 • 2025 lb in tank TK-SQ-143 • 2250 lb in TK-SK-161 NOTE: Asterisked items may be present in solid or liquid form as residual heels or attached to internal surfaces in the abandoned in-place tanks, associated valves and piping and pumps. • Trace amounts may be found in paint on stairs and catwalk • 68 lb total contained in the drip pans for Tanks 141, 142, 143, and 161 • Counterweights may contain solid metal lead billet. (Ref: Letter 16F00-96-099-RAW and 16F00-98-RAW-35)
211-B Chemical Tank Farm	01.01.14	<ul style="list-style-type: none"> • Lead 	<ul style="list-style-type: none"> • Possible lead paint (Ref: Letter 16F00-96-100-RAW)
217-B Demineralizer Building and System	01.10.03 01.10.11 01.12.07	<ul style="list-style-type: none"> • Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) • Sodium Hydroxide (MSDS #34249) • NSP 122 Epoxy-Phenolic Floor Coating, Resin and Hardener (MSDS #48614A and #48642) 	<ul style="list-style-type: none"> • 4 pints total (one pint each) to seal 2 floor drains • Not more than 17.5 lb in TK-DW-112 • 7 gal total used to seal and coat cement floor (Ref: Letter 16F00-98-RAW-025 and 96-071)
276-B Organic Makeup/Paint Storage Building system	01.16.05	<ul style="list-style-type: none"> • Di (2-ethyhexyl) phosphoric acid (MSDS #42193) • Tributyl Phosphate (MSDS #47042) • Diluent - Kerosene (MSDS #36275) • Chevron NL Gear Compound 320 (MSDS #14518) • NSP 700 Block / Concrete Filler, Part A (MSDS #700002) and Part B (MSDS #700003) 	<ul style="list-style-type: none"> • Trace amounts in TK-154 • Trace amounts in TK-154 • Trace amounts in TK-154 • Trace amounts in tank agitator for TK-154 • 4 pints total used to seal drains (Ref: Letter 16F00-98-RAW-025 and 96-071)

HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
276-B Organic Makeup/Paint Storage Building	01.14.11 01.14.02	<ul style="list-style-type: none"> • Di (2-ethylhexyl) phosphoric acid (MSDS #42193) • Tributyl Phosphate (MSDS #47042) • Diluent – Kerosene (MSDS #36275) • Chevron NL Gear Compound 320 (MSDS #14518) • NSP 700 Block / Concrete Filler, Part A (MSDS #700002) and Part B (MSDS #700003) 	<ul style="list-style-type: none"> • Trace amounts in TK-154 • Trace amounts in TK-154 • Trace amounts in TK-154 • Trace amounts in tank agitator for TK-154 • 4 pints total used to seal drains (Ref: Letter 16F00-98-RAW-025 and 96-071)
276-B Organic Makeup/Paint Storage Building Exterior	01.15.10	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • 700 ft² contained in roof felt (Ref: Letters 16F00-96-RAW-072 and 98-024)
217-B Demineralizer Building Exterior	01.11.15 01.11.03	<ul style="list-style-type: none"> • Asbestos (MSDS #11068) • Lead (MSDS #55778) 	<ul style="list-style-type: none"> • 530 ft² corrugated asbestos transite siding • Used to cap the bolts on exterior of the building that attaches the transite siding to the building. Lead-based paint found on the doors and window encasements. (Ref: Letter 16F00-97-RAW-223)
212-B Hot Cell system	02.05.05	<ul style="list-style-type: none"> • Lead (MSDS #055668) • Devcon 2-ton Clear Epoxy Resin (MSDS #175830) and Hardener (MSDS #17565) • Dow Corning 732, Multi-Purpose Sealant, Aluminum (MSDS #25158) 	<ul style="list-style-type: none"> • Approximately 180 lb left in place in the 226 Strontium Loadout line used for shielding purposes. (Ref: Letter 16F00-97-RAW-157) • Approximately 5 to 10 lb used for shielding around associated piping inside hot cell (Ref: Letters 16F00-98-RAW-016 and 97-140) • Approximately 18 gal total used for fixing contamination in metal catch tray located on east side of cell • 21 oz used for sealing around outside entrance of hot cell (Ref: Letters 16F00-98-RAW-016 and 97-140)
212-B Crane	02.03.09	<ul style="list-style-type: none"> • Shell Alvania EP Grease 2 (MSDS #25047B) • Texaco Regal R&O (MSDS #13818) 	<ul style="list-style-type: none"> • 140 oz total found in the following: <ul style="list-style-type: none"> + Bridge drive shaft bearings (14 oz) + Bridge wheel bearings (56 oz) + Hoist Drum bearings (14 oz) + Trolley wheel bearings (56 oz) • 10 gal hoist drum gears 1 gal hoist drum brake gears 3 gal trolley primary reduction gears (Ref: Letters 16F00-97-RAW-139 and 98-015)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
212-B Change Room	02.02.11 02.02.02	<ul style="list-style-type: none"> • Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) • Asbestos 	<ul style="list-style-type: none"> • Approximately 2 pints total used to seal the floor drain • All pipe insulation inside and outside contains asbestos material. Floor tiles and linoleum contains asbestos. Roofing materials have possible asbestos-containing material (PACM). Building walls have sprayed-on asbestos-containing materials z(ACM). (Ref: Letters 16F00-97-RAW-081 and 98-023)
212-B Canyon	02.01.14 02.01.03	<ul style="list-style-type: none"> • Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) • Nitric Acid (MSDS #39255) • Sodium Hydroxide (MSDS #42214) • Lead (MSDS #55778) • Shell Alvania EP Grease 2 (MSDS #25047B) • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • 2 pints total used to plug the floor drain • Possible trace amounts in tanks TK-CS-1 and TK-CS-2 and associated piping and valves • Possible trace amounts in associated piping and valves • Approximately 7 lb lead flashing around sewer vents • 1015 lb lead cover block port covers • Approximately 2 qts: 1 in tank agitator motor and 1 in motor used in power door opener on south end of canyon • 150 linear ft insulation in canyon and 162 linear ft insulation on steam piping (Ref: Letter 16F00-97-RAW-149)
212-B Heating, Ventilation, and Air Conditioning (HVAC) System	02.07.08	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • Approximately 472 ft² around the heating and cooling unit and attached to ventilation duct work (Ref: Letter 16F00-97-RAW-148)
212-B Facility Exterior	02.04.03	<ul style="list-style-type: none"> • Lead • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • Found in paint on building exterior (Ref: Letter 16F00-97-RAW-157) • 5673 ft² of ACM is present on the exterior walls (asbestos material over the metal sheeting) • 3544 ft² of ACM on roof (Ref: Letters 16F00-97-RAW-147 and 98-RAW-018)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
212-B Operating Gallery	02.08.11 02.08.02	<ul style="list-style-type: none"> Asbestos (MSDS #042831) RTV Silicone Sealant (MSDS #12133) Lead Wool (MSDS #40244) Lead Glass 	<ul style="list-style-type: none"> 1325 ft² in floor tiles 10 oz used to seal around the two sheet metal plates directly above hot cell window Approximately 20 lb used as in-place shielding around hot cell window and operating gallery window Approximately 9,000 lb used in hot cell window for in-place shielding (Ref: Letters 16F00-98-RAW-012, 97-121)
212-B Truck Port	02.09.10	<ul style="list-style-type: none"> Downing Corning 732 Multi-Purpose Sealant – Aluminum (MSDS #25158) Hilti CF 128 Filler Foam (MSDS #54336) 	<ul style="list-style-type: none"> 5 lb used for sealing wall penetrations 10 lb used to seal building penetrations (Ref: Letters 16F00-98-RAW-011 and 16F00-97-RAW-120)
212-B HVAC Building	02.06.15 02.06.03	<ul style="list-style-type: none"> Asbestos (MSDS #042831) Hilti Foam (MSDS #33924) Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) 	<ul style="list-style-type: none"> 300 ft², east wall / coating over metal Approximately 5 lb used for sealing penetrations 2 pints total used for sealing drain (Ref: Letter 16F00-98-NLs)
221-B Electrical Gallery System	03.02.06	<ul style="list-style-type: none"> Lead (MSDS #055668) 	<ul style="list-style-type: none"> Approximately 154 lb shielding for gamma detector at tank 900, east end of gallery (Ref: Letter 16F00-98-NLS-051)
212-B Electrical Gallery	03.01.03 03.01.16	<ul style="list-style-type: none"> Asbestos (MSDS #011068) Lead (MSDS #055778) Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) 	<ul style="list-style-type: none"> 850 linear ft on 225 lb steam line Unknown quantity on steam valves/flanges Lead paint throughout, quantity unknown. Approximately 2450 lb lead shielding in seven wall penetrations (radiation monitors) cells 18, 27, 28, 30, and 38 (2). Approximately 250 lb shielding, tank 900 gamma detector 6 qts total on 3-in. pipe across from cells 12, 29, 31, 33, 35, and 37 (Ref: Letters 16F00-98-NLS-081 and 075)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
221-B Canyon Crane	04.03.12 04.01.12	<ul style="list-style-type: none"> • Asbestos • Lead • Refrigerant oil (MSDS #027947) • Freon-12 	<ul style="list-style-type: none"> • Unknown quantity brake shoes, PACM • Unknown quantity lead paint throughout. Approximately 22,000 lb lead shielding, cab walls and top, 110 lb lead shielding, beta cam • 1.5 quart, air conditioner (Ref: Letter 16F00-98-NLS-086) • Estimated 64 oz. left in crane air conditioning unit (Ref: Letter 16D00-98-SEK-052)
221-B Canyon (tank system TSD units)	04.01.02 04.01.20	<p>The B Plant Complex Part A Permit application identifies the complete list of tanks that constitute each tank system. The following vessels were reported as containing heavy metals (Simmons 1998):</p> <ul style="list-style-type: none"> • NCAW tanks: None. • LLW treatment tanks: TK-9-1, TK-10-1, TK-24-1. • LLW concentrator: TK-23-1, E-23-3. • Organic waste storage: TK-26-1, TK-27-2, TK-27-4, TK-30-3. • MISC tank storage: E-5-2, E-20-2, TK-22-1, T-28-1, TK-29-2, T-30-1, TK-32-1, TK-34-2, TK-35-2. • Other Tanks: TK-28-2, TK-34-1, (Simmons 1998). 	<ul style="list-style-type: none"> • Barium 35.05 kg • Cadmium 0.42 kg • Chromium 18.64 kg • Lead 210.2 kg • Silver 145 g
221-B Canyon (containment building TSD unit)		<p>The B Plant Complex Part A Permit application identifies the scope of the 221-B Canyon defined as a containment building TSD unit. Lead in the form on shielding, counterweights, covers, blankets, bricks, paint and cask was reported (Simmons 1998).</p>	<ul style="list-style-type: none"> • Lead: <ul style="list-style-type: none"> + Shielding 74,342 lb + Counterweights 8,920 lb + Blankets 16,506 lb + Cask 17,500 lb
221-B Canyon (container TSD unit)		<p>The B Plant Complex Part A Permit application identifies Cell 4 as a container management TSD unit in the 221-B Canyon.</p> <ul style="list-style-type: none"> • Cell 4: 32 55-gallon drums and one crucible. 	<ul style="list-style-type: none"> • Solid mixed waste with no free liquids. • Light bulbs with lead solder.
221-B SMP-R/Inactive Utility Pit	04.41.02	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • Approximately 25 linear ft insulation on the pipe that runs north/south in pit. Also asbestos insulation mixed in dirt on floor of pit.
	04.41.13	<ul style="list-style-type: none"> • Dow Corning 732, Multi-Purpose Sealant, Aluminum (MSDS #25158) 	<ul style="list-style-type: none"> • 41 oz used to seal diamond plate pit covers (Ref: Letter 16F00-97-RAW-205)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
221-B Cell 40	04.47.03	<ul style="list-style-type: none"> • Chlorine 36 (used as a detector source) • Lead Sheets (MSDS #055778) • Lead Bricks (MSDS #055778) • Lead Shielding (MSDS #055778) • Lead Counterweights (MSDS #055778) • Lead Glass Window (MSDS #055778) 	<ul style="list-style-type: none"> • Less than 2 micro curies in the Victorian 856 system • 3,776 lb (16 at 236 lb each) in pipe chase • 936 lb (36 at 26 lb each) in pipe chase • 110 lb (2 at 65 lb each) manipulator cover • 240 lb, manipulator arm • Approximately 9,000 lb (59% lead) cell window (Ref: Letter 16F00-98-NLS-066)
Vessel Vent System in 221-B-FP-F-22-9A and -B	04.45.05	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • 31 linear ft pipe insulation on 221B-9B filter pit and associated systems • There is a possibility of ACM in wall penetrations of 221B-9A filter pit. However, no positive identification of asbestos material was made. (Ref: Letters 16F00-98-RAW-005 and 006)
221-B SWWP Change Room Lobby	04.39.13 04.39.02	<ul style="list-style-type: none"> • Asbestos 	<ul style="list-style-type: none"> • Unknown quantity asbestos on steam valves and flanges (Ref: Letter 16F00-98-NLS-082)
221-B Railroad Tunnel	04.38.15 04.38.02	<ul style="list-style-type: none"> • Lead • Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) 	<ul style="list-style-type: none"> • Lead-based paint throughout, unknown quantity (no flaking) • 2 qts total (2 floor drains) south end of tunnel (Ref: Letter 16F00-98-NLS-080)
221-B-FP-F-22-9/A Vessel Vent Filter Pit	04.40.13 04.40.02	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • PACM in wall penetrations (Ref: Letter 16F00-98-RAW-005)
221-B Facility Exterior	04.37.19	<ul style="list-style-type: none"> • Asbestos (MSDS #011068) • Lead (MSDS #055778) 	<ul style="list-style-type: none"> • 36 ft² transite on door #1 • Unknown quantity Insulkote covering on fiberglass insulation and duct work located on SF-1 and SF-2. Unknown quantity in roofing materials. • Approximately 225 lb lead shielding □-in. sheets near door 3, covers two pipe protrusions (Ref: Letter 16F00-98-NLS-077)
221-BB-VP-01/Never Used Steam Condensate Pit	04.42.14 04.42.03	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • ACM possible in the steam condensate piping valve gaskets and packing (Ref: Letters 16F00-98-RAW-014 and 97-134)
221-BC-VP-01/Inactive Utility Pit	04.43.14 04.43.03	<ul style="list-style-type: none"> • Asbestos (#042831) • Dow Corning 732, Multi-Purpose Sealant, Aluminum (MSDS #25158) 	<ul style="list-style-type: none"> • PACMs in wall penetrations • 4.5 lb used to seal the diamond plate covers to the pit (Ref: Letter 16F090-97-RAW-206)

8-V

HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
221-BC-VP-02/Inactive Utility Pit	04.44.14 04.44.03	<ul style="list-style-type: none"> Asbestos (MSDS #042831) Dow Corning 732, Multi-Purpose Sealant, Aluminum (MSDS #25158) 	<ul style="list-style-type: none"> 35 linear ft on 3-in. and 4-in. pipe 8 lb used to seal the metal lid (Ref: Letter 16F00-97-RAW-209)
221-B-FP-F-22-9/B Vessel Vent Filter Pit	04.49.13 04.49.02	<ul style="list-style-type: none"> Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> 31 linear ft used in pipe insulation (Ref: Letter 16F00-98-RAW-006)
221-B-FP-F-22-9/C Vessel Vent Filter Pit	04.51.23 04.51.02	<ul style="list-style-type: none"> Asbestos (MSDS #042831) Dow Corning 732, Multi-Purpose Sealant, Aluminum (MSDS #25158) 	<ul style="list-style-type: none"> Approximately 20 linear ft PACM in the tar insulation on piping 4.5 lb used to seal meal cover over the filter pit (Ref: Letters 16F00-97-RAW-208 and 98-007)
221-B Operating Gallery Systems	05.04.06	<ul style="list-style-type: none"> Asbestos 	<ul style="list-style-type: none"> Unknown quantity in valves and flange gaskets (Ref: Letter 16F00-98-NLS-0083)
221-B Operating Gallery	05.01.02 05.01.13	<ul style="list-style-type: none"> Asbestos Lead Devcon 2-ton Clear Epoxy Hardener (MSDS #017565) and Resin (MSDS #017583) 	<ul style="list-style-type: none"> PACM may be located in gaskets on steam valves, flanges, and tanks Unknown quantity lead paint throughout Approximately 50 quarts total, throughout 50 floor drains (Ref: Letters 16F00-98-NLS-076 and 0083)
221-B Pipe Gallery	06.01.02 06.01.13	<ul style="list-style-type: none"> Asbestos (MSDS #042831) Devcon 2-ton Clear Epoxy Hardener (MSDS #017565) and Resin (MSDS #017583) Lead 	<ul style="list-style-type: none"> Approximately 4 linear ft asbestos insulation on a 1□-in. diameter pipe in cell 39. Total 4.172 ft³ in gaskets on steam valves and flanges in pipe chases (Ref: Letter 16F00-98-NLS-077) 26 qts total, 25 floor drains throughout Unknown quantity lead paint throughout. Approximately 1353 lb lead shielding sheets, north wall/east end of gallery (most is painted) (Ref: Letter 16F00-98-NLS-084)
221-B Pipe Gallery System	06.02.18	<ul style="list-style-type: none"> Asbestos Lead 	<ul style="list-style-type: none"> Unknown quantity in piping system gaskets Lead-based paint throughout (Ref: Letter 16F00-98-NLS-084)
221-B Stairwells System	07.04.05	<ul style="list-style-type: none"> Lead 	<ul style="list-style-type: none"> Lead-based paint located throughout (Ref: Letter 16F00-98-NLS-063)

A-9

HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
221-B Stairwells 1, 3, 11, 13, and 19	07.02.12	<ul style="list-style-type: none"> Asbestos (MSDS #042831) Lead (MSDS #055778) Devcon 2-ton Clear Epoxy Hardener (MSDS #017565) and Resin (MSDS #017583) 	<ul style="list-style-type: none"> 20 ft² in restroom 117 and 119 Lead-based paint throughout and Lead pipe packing, estimate 1.5 lb per joint in sewer drain lines 6 quarts total used to seal drains (Ref: Letter 16F00-98-NLS-063)
221-B Electric and Pipe Galleries off of Stairwell #1	07.01.14	<ul style="list-style-type: none"> Asbestos (MSDS #042831) Lead (MSDS #055778) 	<ul style="list-style-type: none"> 308 ft² wallboard Lead-based paint on ceiling and walls Lead pipe packing on sewer drain lines – estimated 1.2 to 1.5 lb per joint (Ref: Letter 16F00-98-NLS-054)
221-BB Steam Condensate (BCS) Building Exterior	08.02.11	<ul style="list-style-type: none"> Asbestos (MSDS #042831) Dow Corning 732 Multi-Purpose Sealant – Aluminum (MSDS #25158) Hilti cr 128 Filler Foam (MSDS #54336) 	<ul style="list-style-type: none"> 20 linear ft insulation on piping of steam supply to 221-BB and lines into the pits. 5 linear ft on north side of 221-BB and on vessel vent #3 on south side of building (Ref: Letter 16F00-97-RAW-101) 4 lb used for sealing building wall penetrations 8 lb used to seal openings into the building (Ref: Letter 16F00-98-RAW-010)
221-BB Steam Condensate (BCS) Building System	08.03.11	<ul style="list-style-type: none"> Mobilux EP 1 (MSDS #21539) Mobilux EP 2 (MSDS #11582A) Potassium Permanganate (MSDS #44343) WEDAC (MSDS #13365) 	<ul style="list-style-type: none"> Trace amount in fan motor bearings Trace amount in fan motor bearings Trace amounts in liquid or solid form as residual heels or attached to internal surfaces in piping associated with the two tanks in north corner of the cold side of 221-BB Trace amounts in liquid or solid form as residual heels or attached to internal surfaces in piping associated with the two tanks in north corner of the cold side of 221-BB (Ref: Letter 16F00-97-RAW-103)
221-BB Steam Condensate (BCS) Building	08.01.14	<ul style="list-style-type: none"> Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> Found in piping gaskets (Ref: Letter 16F00-97-RAW-106)
221-BB-MVP-01/221-B North Condensate Pit	08.08.03 08.06.15	<ul style="list-style-type: none"> Asbestos (MSDS #042831) Dow Corning 732 Multi-Purpose Sealant – Aluminum (MSDS #25158) 	<ul style="list-style-type: none"> Approximately 20 linear ft insulation on steam supply system 22 oz. used for sealing penetrations (Ref: Letters 16F00-98-RAW-013 and 97-129)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
221-BC Change Room Building 221-BC Change Room Building Exterior 221-BC Change Room Building System	09.01.13 09.02.14 09.03.04	<ul style="list-style-type: none"> • Lead (MSDS #055778) • Asbestos (MSDS #042831) • Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) • Texaco Regal R & O (MSDS #13818) 	<ul style="list-style-type: none"> • Lead paint on all doors and outside building trim Approximately 10 lb lead pipe packing around penetration through the roof • PACM in the coating of ventilation ductwork and on the roofing material • 12 pints total used for sealing drains • Less than 1 oz remaining in the gear box for the dumbwaiter (Ref: Letter 16F00-98-RAW-009)
221-BF Process Condensate (BCP) Storage Building System	10.03.10	<ul style="list-style-type: none"> • Citric Acid (MSDS #40201) • Nitric Acid (MSDS #39255) • Sodium Hydroxide (MSDS #42214) 	<ul style="list-style-type: none"> • Tanks in 221-BF were flushed to minimum heels in December 1995. Resource Conservation and Recovery Act (RCRA) listed materials may be present in liquid or residual heels or attached to internal surfaces in the abandoned in-place tanks, associated valves, piping, and pumps. (Ref: Letter 16F00-97-029-RAW)
271-B Elevator	11.03.11	<ul style="list-style-type: none"> • Asbestos 	<ul style="list-style-type: none"> • Unknown quantity, brake shoes, PACM (Ref: Letter 16F00-98-NLS-090)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
271-B Basement Shops and System	11.01.14 11.01.03 11.02.05	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) • Lead • Mercury (MSDS #41394) • Devcon 2-ton Clear Epoxy Resins (MSDS #17583) and Hardener (MSDS #17565) 	<ul style="list-style-type: none"> • 108 ft² floor tiles in Instrument Supply Office • 240 ft² floor tiles in Instrument Lunchroom • 40 ft² floor tiles in Instrument Storage Office • Approximately 11,000 ft² transite duct in Instrument Shop and main basement area • Approximately 123 linear ft insulation on piping • All paint, especially on doors and door frames, is potentially lead-based paint. • A visual inspection of the 271-B basement reviewed no evidence of mercury metal contamination in the work area. Wipe sampling in areas likely to have some mercury contamination, revealed several areas of minimal surface contamination in the Instrument Tech Shop. The residual contamination, presumably a by-product of historical work practice, is equivalent to residual contamination found after mercury spill cleanup. There also exists a possibility of finding mercury in P-traps and drains. • 12 pints total, 1 pint per floor drain (Ref: Letter 16F00-98-RAW-030)
271-B First Floor	11.04.13	<ul style="list-style-type: none"> • Asbestos (MSDS #011068A) • Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) • Lead • Sodium Hydroxide 	<ul style="list-style-type: none"> • 2076 ft² transite throughout • Unknown quantity asbestos piping system gaskets throughout • 240 ft² asbestos wall board, office walls • 6570 ft² asbestos floor tile, entryways, offices and restrooms • 14 qts total, 14 floor drains throughout • Lead-based paint throughout piping system • Unknown quantity sewer line packing • Estimate 1.5 lb spilled white material in confined space #101 and #102 (Ref: Letter 16F00-98-NLS-085)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
271-B Second Floor	11.06.13	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) • Lead (MSDS #055778) • Acidic residue (pH is about "4") • Devcon 2-ton Clear Epoxy Resins (MSDS #17583) and Hardener (MSDS #17565) 	<ul style="list-style-type: none"> • 4114 ft² ventilation ductwork throughout • 7908 ft² asbestos floor tiles throughout • Less than 2 ft³ packing/insulation in pipe chase • 614 ft² asbestos wall panels in office walls • Lead-based paint throughout • Approximately 1.5 lb lead pipe packing per joint throughout • Residue throughout sewer lines (Ref: Letter 16F00-98-NLS-043) • 1.5 quart total used to seal drains (Ref: Letter 16F00-98-NLS-094)
271-B Third Floor AMU	11.09.16 11.09.04	<ul style="list-style-type: none"> • Lead (MSDS #055778) • NaOH (MSDS #034249) • Asbestos (MSDS #042831) • Devcon 2-ton Clear Epoxy Resins (MSDS #17583) and Hardener (MSDS #17565) 	<ul style="list-style-type: none"> • Approximately 1.5 lb per joint in drain pipe packing • 61.25 lb in TK-H-310 • 3412 ft² ductwork in ventilation system • 1080 ft² asbestos floor tiles • Less than 2 ft³ packing in pipe chases (Ref: Letter 16F00-98-NLS-044) • 6 quarts total used to seal drains (Ref: Letter 16F00-98-NLS-094)
291-B Stack/Steam Turbine Building System	12.03.06	<ul style="list-style-type: none"> • Asbestos Thermal System Insulation (MSDS #042831) • Glycerin (MSDS #42442) 	<ul style="list-style-type: none"> • Approximately 100 linear ft located on 1-in. and 2-in. steam system piping • Approximately □ pint in each gauge, used in 2 pressure gauges located on the steam turbine fan motors (Ref: Letter 16F00-97-RAW-216)
291-B Stack/Steam Turbine Building	12.01.12 12.01.02	<ul style="list-style-type: none"> • Lead • Asbestos (MSDS #042831) • Devcon 2-ton Clear Epoxy Resins (MSDS #17583) and Hardener (MSDS #17565) 	<ul style="list-style-type: none"> • Lead-based paint on the floor coating • 50 linear ft on 1-in. and 2-in. steam pipe • 4 pints total to seal floor drains (Ref: Letter 16F00-98-RAW-011)
291-BB A and B Filter Instrument Building and System	12.04.10 12.06.08	<ul style="list-style-type: none"> • Lead • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • Lead paint on interior of entrance door • 20 linear ft on vent line • 3 ft of □-in. rope in the wall-mounted heaters (Ref: Letter 16F00-98-RAW-012)
291-BD C Filter Instrument Building and System	12.09.09 12.11.07	<ul style="list-style-type: none"> • Lead • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • Lead paint on interior of entrance door • PACM in gaskets and packing (Ref: Letter 16F00-98-RAW-013)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
291-B Stack/Steam Turbine Building Exterior	12.02.18	<ul style="list-style-type: none"> Asbestos (MSDS #042831) Lead 	<ul style="list-style-type: none"> PACM on the roof felt and associated roofing material Lead paint on exterior of the entrance door (Ref: Letter 16F00-98-RAW-001)
291-BF D Filter Instrument Building System	12.12.08 12.14.06	<ul style="list-style-type: none"> Lead 	<ul style="list-style-type: none"> Lead-based paint on interior of entrance door (Ref: Letter 16F00-98-RAW-014)
291-BG E Filter Instrument Building and System	12.15.08 12.17.07	<ul style="list-style-type: none"> Lead 	<ul style="list-style-type: none"> Lead-based paint on interior of entrance door (Ref: Letter 16F00-98-RAW-015)
291-BD C Filter Instrument Building Exterior	12.10.15	<ul style="list-style-type: none"> Lead Zinc chromate 	<ul style="list-style-type: none"> Lead paint on door to the building Contained in building exterior paint (Ref: Letter 16F00-98-RAW-002)
291-BF D Filter Instrument Building Exterior	12.13.15	<ul style="list-style-type: none"> Lead 	<ul style="list-style-type: none"> Lead paint on door to the building (Ref: Letter 16F00-98-RAW-003)
291-BG E Filter Instrument Building Exterior	12.16.12	<ul style="list-style-type: none"> Lead 	<ul style="list-style-type: none"> Lead paint on door to the building (Ref: Letter 16F00-98-RAW-004)
291-B Exhaust Fans	12.24.06	<ul style="list-style-type: none"> Grease packing (MSDS #10622A) 	<ul style="list-style-type: none"> Residual packing for the bearings. Material has not been added and allowed to run dry. No reservoir or drain plug on the fans. (Ref: Letter 16F00-98-AW-016)
291-B Stack Monitoring Building and System	12.30.02 12.30.10 12.32.04	<ul style="list-style-type: none"> Lead Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) 	<ul style="list-style-type: none"> Lead-based paint on interior sides of doors. 8 pints total to seal drains (Ref: Letter 16F00-98-RAW-020)
291-A/B/C/D/E Sump/Seal Pits	12.23.16 12.23.03	<ul style="list-style-type: none"> Asbestos (MSDS #042831) Lead (MSDS #055778) 	<ul style="list-style-type: none"> Potential asbestos gaskets on steam valves and flanges. Approximately 7 linear ft on 2-in. steam line, pit A/B Approximately 24 linear ft on C filter pit steam line Approximately 470 lb lead blankets in 291B-VP-A, B, in-place for shielding. Approximately 41,890 lb lead shot in 291B-VP-A, B in-place for shielding Approximately 200 lb lead shot in C filter Approximately 1,695 lb lead blankets in C filter Approximately 25 lb lead seal across lid and valve steam for 291-VP-A, B (Ref: Letter 16F00-98-RAW-006)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
292-B Stack Monitoring Building Exterior	12.31.03 12.31.10	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) • Lead 	<ul style="list-style-type: none"> • 1-in. pipe is fully enclosed, underground 1-in pipes, length unknown • Lead paint on the wood entrance door and on the fascia boards, and on wooden bottle rack. (Ref: 16F00-98-RAW-005)
291-B Yard	12.27.21 12.27.03	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) • 552 linear ft insulation on steam lines 	<ul style="list-style-type: none"> • 552 linear ft insulation on steam lines • 2158 lb, various lead sheeting, blankets, and aprons used as in-place necessary shielding. (Ref: Letter 16F00-98-RAW-019)
Steam B22	14.06.07	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • 35 linear ft insulation material on a 3-in. steam pipe located on the line north of main valve HDR-700-46. Possible asbestos material on all piping elbows that enter the 291-B Steam Turbine Building from the main steam line. (Ref: Letter 16F00-98-RAW-028)
Process and Instrument Air System	14.03.11	<ul style="list-style-type: none"> • Asbestos • Compressor oil (MSDS #036809) 	<ul style="list-style-type: none"> • 75 linear ft piping insulation, west wall of compressor room • Residual inside air tanks and lines (Ref: Letter 16F00-98-NLS-088)
Fire Protection B26	14.02.22	<ul style="list-style-type: none"> • Asbestos • Lead 	<ul style="list-style-type: none"> • Unknown quantity in gaskets throughout building • Unknown quantity in paint throughout building. (Ref: Letter 16F00-98-NLS-089)
207-BA CBC Sampling Building	15.03.10	<ul style="list-style-type: none"> • Hilti CF 124 Filler Foam (MSDS #33924) • Devcon 2-ton Clear Epoxy Resin (MSDS #175830 and Hardener (MSDS #17565) • Glycerin (MSDS # 42442) • Dow Corning 732, Multi-Purpose Sealant, Aluminum (MSDS #25158) 	<ul style="list-style-type: none"> • 2 lb used on building exterior for vermin control • Approximately 2 quart total used to seal floor drains • Approximately 1 pint contained in pump pressure gauge P1-207BA-2 • Doors were sealed with 10.3 oz material (Ref: Letters 16F00-97-RAW-158, 165 and 98-019 and 98-021)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
221-BA Cooling Water Monitor Sample Building System	15.10.05	<ul style="list-style-type: none"> • Dow Corning 732, Multi-Purpose Sealant, Aluminum (MSDS #25158) • Hilti CF 124 Filler Foam (MSDS #33924) • Glycerin (MSDS #42442) • Lead (MSDS #55778) 	<ul style="list-style-type: none"> • Doors were sealed with 10.3 oz material (Ref: Letters 16F00-98-RAW-021, 97-165) • 5 lb used for vermin proofing building penetrations • Approximately 1 pint used in pressure gauge P1-221-BA-900-2 • 25 lb, lead plug used for shielding inside the small raw water riser, a lead seal, approximately 18 in. diameter, used for shielding of the large raw water riser. (Ref: Letters 16-F00-98-RAW-020, 97-159)
221-BA Cooling Water Monitor Sample Building	15.09.13	<ul style="list-style-type: none"> • Dow Corning 732, Multi-Purpose Sealant, Aluminum (MSDS #25158) • Hilti CF 124 Filler Foam (MSDS #33924) • Glycerin (MSDS #42442) • Lead (MSDS # 55778) 	<ul style="list-style-type: none"> • Doors were sealed with 10.3 oz material (Ref: Letters 16F00-98-RAW-021, 97-165) • 5 lb used for vermin proofing building penetrations • Approximately 1 pint used in pressure gauge P1-221BA-900-2 • 25 lb, lead plug used for shielding inside the small raw water riser, a lead seal, approximately 18 in. diameter, used for shielding of the large raw water riser (Ref: Letters 16F00-98-RAW-020, 97-159)
221-BG Cooling Water Monitor Sample Building, Exterior and System	15.11.12 15.12.08 15.13.08	<ul style="list-style-type: none"> • Dow Corning 732, Multi-Purpose Sealant, Aluminum (MSDS #25158) • Hilti CF 124 Filler Foam (MSDS 33924) • Lead (MSDS #55778) • Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) • Glycerin (MSDS #42442) • Alvina EPLF2 Gear Grease (MSDS #25047B) 	<ul style="list-style-type: none"> • Doors were sealed with 10.3 oz material (Ref: Letters 16F00-98-RAW-021, 97-165) • Used for sealing penetrations in building • Used for shielding in the 24-in. raw water header seal • Approximately 2 qt total used to seal floor drain • Approximately 1 pint in each pressure gauge • Approximately 1 qt found in pump motor on north wall of building (Ref: Letter 16F00-97-RAW-160)
222-B Office Building	17.02.11	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) • Lead (MSDS #055778) • Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) 	<ul style="list-style-type: none"> • 142 linear ft insulation on 4-in. line above ceiling • Approximately 24 linear ft insulation on 2-in. line • 1380 ft² asbestos ceiling tiles, west end • 441 ft² asbestos wall panels, throughout • 1.5 lb lead sewer drain pipe packing per joint (Ref: Letter 16F00-98-NLS-053) • 12 quarts total used to seal drains (Ref: Letter 16F00-98-NLS-094)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
2711-B Annex Building	17.05.10	<ul style="list-style-type: none"> • Devcon 2-ton Clear Epoxy Resin (MSDS #17583) and Hardener (MSDS #17565) • Hilti CF 124 Filler Foam • Asbestos (MSDS #042831) • Lead 	<ul style="list-style-type: none"> • 10 pints total to seal floor drains • 8 lb used to seal wall penetrations • 112 ft² used on roofing material • All structural steel in painted with one coat of red lead primer. Two coats of light gray enamel (nonlead-based) covers the primer. (Ref: Letter 16F00-98-RAW-026)
2715-B Paint Storage Building and Exterior	17.06.10 17.07.03 17.07.13	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) • Lead (MSDS #55778) 	<ul style="list-style-type: none"> • 288 ft² transite roofing material • 40 lead-headed bolts used to secure transite roofing material (Ref: Letter 16F00-98-RAW-029)
Organic Storage Tanks	18.05.11	<ul style="list-style-type: none"> • 70%NPH • 20% D2EHPA • 10%TBP 	<ul style="list-style-type: none"> • Estimate less than 2 gal material in the heel of tank #WHCU 0081753 (Ref: Letters 16F00-98-RAW-023 and 16D00-98-SEK-065)
276-B Organic Makeup/Paint Storage Building	01.14.11 01.14.02	<ul style="list-style-type: none"> • Di (2-ethyhexyl) phosphoric acid (MSDS #421930) • Tributyl Phosphate (MSDS #47042) • Diluent - Kerosene (MSDS #36275) • Chevron NL Gear Compound 320 (MSDS #14518) • NSP 700 Block/Concrete Filler, Part A (MSDS #700002) and Part B (MSDS #700003) 	<ul style="list-style-type: none"> • Trace amounts in TK-154 • Trace amounts in TK-154 • Trace amounts in TK-154 • Trace amounts in tank agitator for TK-154 • 4 pints total used to seal drains (Ref: Letters 16F00-98-RAW-025 and 96-071)
276-B Organic Makeup/Paint Storage Building Exterior	01.15.10	<ul style="list-style-type: none"> • Asbestos (MSDS #042831) 	<ul style="list-style-type: none"> • 700 ft² contained in roof felt (Ref: Letters 16F00-96-RAW-072 and 98-024)
217-B Demineralizer Building Exterior	01.11.15 01.11.03	<ul style="list-style-type: none"> • Asbestos (MSDS #11068) • Lead (MSDS #55778) 	<ul style="list-style-type: none"> • 530 ft² corrugated asbestos transite siding • Used to cap the bolts on exterior of the building that attaches the transite siding to the building. Lead-based paint found on the doors and window encasements. (Ref: Letter 16F00-97-RAW-223)

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HAZARDOUS MATERIAL REMAINING AT THE B PLANT FACILITY

LOCATION	EP#(s)	MATERIAL DESCRIPTION	QUANTITY/STATE
212-B Hot Cell System	02.05.05	<ul style="list-style-type: none"> • Lead (MSDS # 055668) • Devcon 2-ton Clear Epoxy Resin (MSDS #175830) and Hardener (MSDS #17565) • Dow Corning 732, Multi-Purpose Sealant, Aluminum (MSDS #25158) 	<ul style="list-style-type: none"> • Approximately 180 lb left in place in the 226 Strontium Loadout line used for shielding purposes. (Ref: Letter 16F00-98-RAW-016 and 97-140) • Approximately 5 to 10 lb used for shielding around associated piping inside hot cell (Ref: Letters 16F00-98-RAW-016 and 97-140) • Approximately 18 gal total used for fixing contamination in metal catch tray located on east side of cell • 21 oz used for sealing around outside entrance of hot cell (Ref: Letters 16F00-98-RAW-016 and 97-140)
212-B Crane	02.03.09	<ul style="list-style-type: none"> • Shell Alvania EP Grease 2 (MSDS #25047B) • Texaco Regal R&O (MSDS #13818) 	<ul style="list-style-type: none"> • 140 oz total found in the following: <ul style="list-style-type: none"> + Bridge drive shaft bearings (14 oz) + Bridge wheel bearings (56 oz) + Hoist drum bearings (14 oz) + Trolley wheel bearings (56 oz) • 10 gal hoist drum gears • 1 gal hoist drum brake gears • 3 gal trolley primary reduction gears (Ref: Letters 16F00-97-RAW-139 and 98-015)

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