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Accession #: D196093600

Document #: SD-WM-IP-007

Title/Desc:

B PLANT TREATMENT & STORAGE & DISPOSAL UNITS
INSPECTION PLAN

Pages: 28

**SOME PAGES ARE MISSING
IN THE ORIGINAL DOCUMENT**

COMPLETE

ENGINEERING CHANGE NOTICE

Page 1 of 3

1. ECN 630284
 Proj. ECN

2. ECM Category (mark one) Supplemental <input type="checkbox"/> Direct Revision <input checked="" type="checkbox"/> Change ECM <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedeure <input type="checkbox"/> Cancel/Void <input type="checkbox"/>	3. Originator's Name, Organization, MSIN, and Telephone No. T. G. Beam, 16F00, S4-66, 372-0019	3a. USQ Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4. Date April 25, 1996	
	5. Project Title/No./Work Order No. B Plant Treatment, Storage, and Disposal (TSD) Units Inspection Plan	6. Bldg./Sys./Fac. No. B Plant/221B	7. Approval Designator E	
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC--SD--WM--IP--007, Rev. 0	9. Related ECN No(s). None	10. Related PD No. None	
11a. Modification Work <input type="checkbox"/> Yes (fill out Blk. 11b) <input checked="" type="checkbox"/> No (NA Blks. 11b, 11c, 11d)	11b. Work Package No. N/A	11c. Modification Work Complete N/A _____ Cog. Engineer Signature & Date	11d. Restored to Original Condition (Temp. or Standby ECN only) N/A _____ Cog. Engineer Signature & Date	

12. Description of Change
 This revision is a complete rewrite of the inspection plan. It reflects current facility conditions, as well as the changing regulations. It removes significant detail from the plan which was committing B Plant to inspection efforts far in excess of that required by the regulations. Additional inspection checklists have been added to the document. No change bars are included in the revised document.

13a. Justification (mark one)

Criteria Change <input checked="" type="checkbox"/>	Design Improvement <input type="checkbox"/>	Environmental <input type="checkbox"/>	Facility Deactivation <input type="checkbox"/>
As-Found <input type="checkbox"/>	Facilitate Const <input type="checkbox"/>	Const. Error/Omission <input type="checkbox"/>	Design Error/Omission <input type="checkbox"/>

13b. Justification Details
 This change is necessary for the inspection plan to accurately reflect plan conditions and allow the facility to meet regulatory requirements.

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

T. G. Beam	S4-66 (1)	Regulatory File	S4-66 (2)
T. A. Brown	S6-60 (1)	Central Files	A3-88 (2)
S. E. Killoy	S4-66 (1)		
D. K. Smith	S6-60 (1)		
M. J. Stephenson	H6-20 (1)		
D. W. Wilson	S4-66 (1)		

RELEASE STAMP

DATE: APR 26 1996

STA: 2

HANFORD RELEASE

ID: 18

ENGINEERING CHANGE NOTICE

Page 2 of 3

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

630284

15. Design Verification Required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	16. Cost Impact <table border="0" style="width: 100%;"> <tr> <th style="text-align: left;">ENGINEERING</th> <th style="text-align: right;">CONSTRUCTION</th> </tr> <tr> <td>Additional <input type="checkbox"/> \$</td> <td>Additional <input type="checkbox"/> \$</td> </tr> <tr> <td>Savings <input type="checkbox"/> \$N/A</td> <td>Savings <input type="checkbox"/> \$N/A</td> </tr> </table>	ENGINEERING	CONSTRUCTION	Additional <input type="checkbox"/> \$	Additional <input type="checkbox"/> \$	Savings <input type="checkbox"/> \$N/A	Savings <input type="checkbox"/> \$N/A	17. Schedule Impact (days) Improvement <input type="checkbox"/> Delay <input type="checkbox"/> N/A
ENGINEERING	CONSTRUCTION							
Additional <input type="checkbox"/> \$	Additional <input type="checkbox"/> \$							
Savings <input type="checkbox"/> \$N/A	Savings <input type="checkbox"/> \$N/A							

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

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

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

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

20. Approvals

Signature	Date	Signature	Date
<u>OPERATIONS AND ENGINEERING</u>		<u>ARCHITECT-ENGINEER</u>	
Cog. Eng. T. G. Beam <i>Thomas G. Beam</i>	4/25/96	PE	_____
Cog. Mgr. D. W. Wilson <i>D.W. Wilson</i>	4/26/96	QA	_____
QA	_____	Safety	_____
Safety	_____	Design	_____
Environ. S. E. Killoy <i>S. E. Killoy</i>	4/26/96	Environ.	_____
Other	_____	Other	_____
	_____		_____
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DEPARTMENT OF ENERGY
Signature of a Control Number that tracks the Approval Signature

ADDITIONAL

**UNREVIEWED SAFETY QUESTION (USQ)
SCREENING AND EVALUATION**

1. Identification Number: BP-96-126 **USQ SCREENING** Page 1 of 1

2. Title: **B Plant Treatment, Storage, and Disposal (TSD) Units Inspection Plan**

INSTRUCTIONS: Respond to each question and provide justification for each response. A restatement of the question does not constitute a satisfactory justification or basis. An adequate justification provides sufficient explanation such that an independent reviewer could reach the same conclusion based on the information provided [DOE 5480.21, 10.e.1].

QUESTIONS

1. Does the proposed change or occurrence represent a change to the facility or procedures as described in the Authorization Basis?

N/A No Yes/Maybe

BASIS: This change is a revision to an administrative control document. The changes do not affect how the facility is operated. It may require some minor changes in recordkeeping. The description of the facility in the Authorization Basis does not address inspection recordkeeping.

2. Does the proposed change or occurrence represent conditions that have not been analyzed in the Authorization Basis?

N/A No Yes/Maybe

BASIS: This change is only an administrative change to an inspection plan.

3. Does the proposed change represent a test or experiment NOT described in the Authorization Basis that may affect the safe operation of the facility?

N/A No Yes/Maybe

BASIS: This document change is neither a test nor an experiment.

4. Does the proposed change or occurrence represent a change to the Technical Safety Requirements or a reduction in the margin of safety defined in the Technical Safety Requirements?

N/A No Yes/Maybe

BASIS: There are no TSRs related to administrative document changes or to inspection recordkeeping practices.

USQE #1 Thomas G. Beam

(Print Name)

USQE #2 M. M. Serkowski

(Print Name)

Thomas G. Beam
Signature

Date: 4/25/96

Monica M. Serkowski
Signature

Date: 4/25/96

If there is a YES/MAYBE response to questions 1, 2, 3, or 4, then a USQ Evaluation must be completed.

The following guidance should be considered when completing this screening. This guidance should not be considered all-inclusive; additional factors may need to be considered depending on the nature of the proposed change.

Does the proposed change:

- 1) Modify, add, or delete a safety class function of a structure, system or component stated in the authorization basis?
- 2) Alter the design of a structure, system or component as described in the authorization basis?
- 3) Modify, add, or delete the description of operation, operating environment, or analyses of any system or component described in the authorization basis?
- 4) Modify, add, delete or conflict with any of the design bases stated in the authorization basis?
- 5) Conflict with the principle or general design criteria stated in the authorization basis?
- 6) Modify, add, or delete any plant design features described in the authorization basis?
- 7) Modify, add, or delete a flow diagram or facility drawing provided in the authorization basis?
- 8) Create the potential for new system or component interactions (e.g., seismic, electrical breaker coordination)?

B Plant Treatment, Storage, and Disposal (TSD) Units Inspection Plan

Thomas G. Beam

Westinghouse Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: ECN 630284 UC: 630
Org Code: 16F00 Charge Code: KN43B
B&R Code: EW3135090 Total Pages: 25

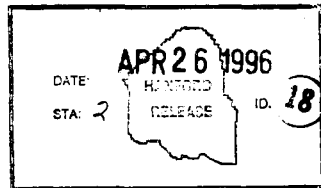
Key Words: B Plant, TSD, Inspection Plan, WAC 173-303, Tank Systems, Container Storage, Containment Building

Abstract: This inspection plan is written to meet the requirements of WAC 173-303 for operations of a TSD facility. Owners/operators of TSD facilities are required to inspect their facility and active waste management units to prevent and/or detect malfunctions, discharges and other conditions potentially hazardous to human health and the environment. A written plan detailing these inspection efforts must be maintained at the facility.

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Release Approval Date



Approved for Public Release

RECORD OF REVISION

(1) Document Number

WHC-SD-WM-IP-007

Page 1

(2) Title

B Plant Treatment, Storage, and Disposal (TSD) Units Inspection Plan

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release	
		(5) Cog. Engr.	(6) Cog. Mgr. Date
0	(7) Initial Release. Engineering Data Transmittal #606957. October 1994.	T. G. Beam	S. E. Killoy
1 RS	ECN 630284. Complete rewrite to reflect current facility conditions and changing regulations. Changed title to reflect only B Plant. Added inspection checklists and updated lists of applicable procedures and ticklers. April 1996.	T. G. Beam <i>Thomas G. Beam</i> 4/25/96	D. W. Wilson <i>D.W. Wilson</i> 4/26/96

WHC-SD-WM-IP-007, Revision 1

B Plant Treatment, Storage, and Disposal (TSD)
Units Inspection Plan

Fulfilling the requirements of WAC 173-303

B Plant/WESF Regulatory Compliance

April 1996

SIGNATURE APPROVAL PAGE

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B Plant/WESF Regulatory Compliance

APPROVED BY:

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B Plant/WESF Regulatory Compliance

S. E. Killoy 4/19/96
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T. A. Brown, Manager Date
B Plant Operations

D. K. Smith 4/23/96
D. K. Smith, Manager Date
B Plant Facility

R. E. Heineman, Jr. 4/24/96
R. E. Heineman, Jr., Director Date
B Plant/WESF Complex

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1.0 INTRODUCTION

In accordance with Washington Administrative Code (WAC), Chapter 173-303, "Dangerous Waste Regulations" (WAC 173-303), a written inspection plan is required for the operation of a treatment, storage and disposal (TSD) facility and individual TSD units. B Plant is a permitted TSD facility currently operating under interim status with an approved Part A Permit. Various operational systems and locations within or under the control of B Plant have been permitted for waste management activities. Included are the following TSD units:

- Cell 4 Container Storage Area
- B Plant Containment Building
- Low Level Waste Tank System
- Organic Waste Tank System
- Neutralized Current Acid Waste (NCAW) Tank System
- Low Level Waste Concentrator Tank System

This inspection plan complies with the requirements of WAC 173-303. It addresses both general TSD facility and TSD unit-specific inspection requirements. Sections on each of the TSD units provide a brief description of the system configuration and the permitted waste management activity, a summary of the inspection requirements, and details on the activities B Plant uses to maintain compliance with those requirements.

1.1 B PLANT FACILITY DESCRIPTION

Since construction in 1943, B Plant has had several missions. Recovery of plutonium using a bismuth phosphate chemical separation process took place from 1945-1952. Modification for a second mission, cesium and strontium recovery and purification, occurred in the early 1960's.

Currently, B Plant is a facility transitioning to shutdown. Its sole mission is to support the safe management and storage of its residual radionuclide inventory, as well as that of the Waste Encapsulation and Storage Facility (WESF). The primary operation of B Plant is waste management in its canyon and process cells.

1.2 PROGRAM RESPONSIBILITIES

The ultimate responsibility for ensuring that B Plant has a compliant TSD inspection program rests with the B Plant Director and B Plant management. Responsibilities for specific portions of the program are shared as follows.

B Plant/WESF Regulatory Compliance has the responsibility to:

- Maintain knowledge of TSD inspection requirements applicable to B Plant.
- Revise this inspection plan as necessary to reflect regulatory changes and current facility conditions.
- Assess the compliance status of the program on a periodic basis and ensure that any necessary corrective actions are performed.

B Plant Operations has the responsibility to:

- Perform the required surveillances and inspections as detailed in this plan.
- Maintain the appropriate surveillance/inspection documentation and records as required by this plan.

1.3 UPDATING THE INSPECTION PLAN

This plan will be revised as necessary to reflect changing regulations, facility conditions, and permitting documentation. The appendices will be reviewed/revised at least annually to maintain an up-to-date listing of the applicable facility operating procedures and inspection/surveillance activities.

2.2.1 Facility Surveillance

General surveillance of B Plant is performed in accordance with approved POPs. During each surveillance, B Plant personnel are instructed to look for any off-normal operating conditions. Unusual conditions and situations requiring maintenance attention are noted. Special fire watches and cold weather protection, if necessary, are handled as part of the general surveillance process.

During general surveillance, inspectors observe the Operator Interface Unit (OIU), which displays alarms and process conditions from the Facility Process Monitoring Control System (FPMCS). The FPMCS manages information relayed from monitoring equipment interfaced with facility process systems. All displays and readouts which are outside of established operating parameters are noted.

All observations and comments are recorded in the B Plant General Surveillance Log Book and on the appropriate procedure data sheets. Specific procedures and ticklers are listed in Appendix A. All surveillance records used to maintain compliance with TSD inspection requirements are maintained at B Plant for a minimum of five years from the date of the inspection.

2.2.2 Communications Equipment

B Plant is equipped with internal communication systems to relay emergency or other information to facility personnel and the public. These systems include telephones, PAX phones, and various emergency alarms. Hand-held, two-way radios are also available for use when necessary.

Telephone and radio repairs are made by the appropriate onsite maintenance organization as needed. The PAX phone system is a public address system used at B Plant. Repairs and maintenance of the system are handled as deficiencies are noted. Routine functional testing of the PAX phone system is performed in accordance with the appropriate Operations Tickler.

Emergency alarms in use at B Plant include evacuation and take cover sirens, fire gongs, and crash alarm phones. The evacuation and take cover sirens, as well as the crash alarm phone are inspected and tested per the appropriate Operations Tickler. Testing of the fire gongs is the responsibility of the Hanford Fire Department.

2.2.3 Safety/Emergency Equipment

Safety and emergency equipment at B Plant is maintained and inspected through the use of the Operations Tickler system and preventative maintenance procedures. Equipment which is maintained and inspected in this manner include emergency lanterns, emergency acid suit lockers, self-contained breathing apparatus, portable eye washes, fixed eye washes and safety showers. This ensures that the equipment is in good condition, functional and available for use when needed.

2.2.4 Fire Protection Systems

Smoke detectors and manual pull boxes are located throughout B Plant, as are sprinkler and/or deluge systems. These systems have a direct tie to the Hanford Fire Department (HFD) and provide automatic notification when an alarm is actuated. Portable fire extinguishers and fire hose stations are located throughout B Plant, as are numerous fire doors and windows. Several fire hydrants are located in the vicinity of B Plant.

Fire systems and equipment are inspected and tested on a regular schedule as required in WHC-CM-4-41, *Fire Protection Program Manual*. The majority of inspections are the responsibility of HFD and Fire System Maintenance (FSM), which track these efforts using the fire equipment automated recall system (FEARS). Systems and equipment which are the responsibility of HFD and FSM include smoke detectors, manual pull boxes, the deluge and sprinkler systems, and fire hydrants. Through its Operations Tickler and PM systems, B Plant provides maintenance and inspections for primary and secondary fire system valves, the emergency water supply system, and fire doors. B Plant shares responsibility for fire hoses and hose stations, and portable fire extinguishers with HFD and FSM.

Details on the inspection of fire protection systems specific to the B Plant canyon process cells permitted as individual TSD units are provided in the appropriate section of this plan for each TSD unit.

2.2.5 Security

The Hanford Site is a controlled access area. Around-the-clock surveillance and security is provided by Hanford patrol. Manned barricades are maintained at checkpoints on access roads leading to the Hanford Site. Vehicle operators wishing to enter the Hanford Site must possess and display a DOE-issued security badge at the checkpoints. This provides the security necessary to prevent the general public from exposure to the hazards associated with the B Plant TSD facility.

B Plant is located in the 200 East Area of the Hanford Site. The perimeter of the 200 East Area is fenced. Openings in the fenced perimeter provide access for authorized vehicles and personnel. Signs are posted at B Plant which indicate the hazards present and state that only authorized personnel are allowed access. This provides the security necessary to prevent unauthorized Hanford personnel from exposure to the hazards associated with the B Plant TSD facility.

3.0 CONTAINER STORAGE INSPECTIONS

This section provides a summary of the container storage inspection requirements for TSD units, a brief description of the B Plant container storage TSD unit, and details the efforts employed by B Plant to maintain compliance with these requirements.

3.1 CONTAINER STORAGE INSPECTION REQUIREMENTS

Regulations outlining the requirements for inspections of container storage TSD units are located in WAC 173-303-630, "Use and Management of Containers". In summary, these regulations require the owner/operator to perform the following action:

- At least weekly, inspect areas where containers are stored, looking for leaking containers and for deterioration of containers and the containment system caused by corrosion, deterioration, or other factors.

In addition, the owner/operator must keep an inspection log including at least the date and time of the inspection, the printed name and the handwritten signature of the inspector, a notation of the observations made and the date and nature of any repairs or remedial actions taken. The log must be kept at the facility for at least five years from the date of the inspection.

3.2 B PLANT CELL 4 CONTAINER STORAGE AREA

The B Plant Cell 4 Container Storage Area is used to store mixed waste and radioactive low level waste. The waste is stored in 55-gallon drums, and is generated from routine operations in the Waste Encapsulation and Storage Facility (WESF) hot cells. Following packaging in the WESF A Cell, the drums are transported to B Plant for storage in Cell 4. The drums are stored in Cell 4 on racks which keep the drums elevated off of the concrete cell floor.

Cell 4 is a nonprocessing cell in the B Plant canyon facility that is 13 ft (3.96 m) wide, 27 ft 6 in. (8.38 m) long, and 28 ft (8.5 m) deep. Cell 4 is a completely enclosed cell when its 6-ft- (1.8-m-) thick concrete cover blocks are in place. These cover blocks protect the containers and greatly reduce the risk of container corrosion and deterioration, as well as shield the canyon from the higher levels of radiation present in the cells. The cover blocks must be removed remotely by crane to gain access to Cell 4. There are no means for a manned entry into the cell.

3.3 B PLANT CELL 4 INSPECTIONS

Because of access restrictions to Cell 4, visual inspections cannot be physically performed by personnel, but must be accomplished remotely using the canyon crane and a video camera. Operation of the crane exposes B Plant personnel to the elevated levels of radiation present in the canyon. Performing these video inspections of Cell 4 on a weekly basis, as required by

WAC 173-303, would expose personnel to levels of radiation inconsistent with the As Low As Reasonably Achievable (ALARA) principle practiced on the Hanford Site.

B Plant performs inspections of the Cell 4 Container Storage Area whenever additional waste containers are added to the TSD unit. At a minimum, inspections will be completed once a year. The containers are inspected for breaches of containment, excess corrosion, and structural defects, and to ensure the lids are sealed. None of the drums stored in Cell contain liquids, so leaks are not a concern. The video will be viewed as the inspection is performed and may be recorded for future examination. The inspection results are documented using the Cell 4 Container Storage Inspection Checklist (Figure 1). Inspection records are maintained at B Plant for at least five years from the date of inspection.

B Plant functionally tests the in-cell fire protection system per the appropriate Operations Tickler and POP (Appendix A). All other components of the fire protection system are inspected and maintained by the HFD and FSM (Appendix B) as outlined in section 2.2.4 of this plan.

B PLANT CELL 4 CONTAINER STORAGE INSPECTION CHECKLIST

Video taped on: _____

- | | |
|--|----------|
| 1. Are any containers leaking? (If yes, explain below.) | YES / NO |
| 2. Do any containers have excessive corrosion?
(If yes, explain below.) | YES / NO |
| 3. Do any containers have structural defects?
(If yes, explain below.) | YES / NO |
| 4. Do all containers have sealed lids?
(If yes, explain below.) | YES / NO |

COMMENTS/CORRECTIVE ACTIONS: _____

Inspector: _____
(print name)

(signature)

Date: _____
Time: _____

**THIS CHECKLIST AND ASSOCIATED DOCUMENTATION
MUST BE KEPT AT B PLANT FOR 5 YEARS IN
ACCORDANCE WITH WAC 173-303-630(6).**

Figure 1. Cell 4 Storage Container Inspection Checklist

4.0 TANK SYSTEM INSPECTIONS

This section provides a summary of the tank system inspection requirements for TSD units, a brief description of the B Plant tank system TSD units, and details the efforts employed by B Plant to maintain compliance with these requirements.

4.1 TANK SYSTEM INSPECTION REQUIREMENTS

Regulations outlining the requirements for inspections of tank system TSD units are located in WAC 173-303-640 "Tank Systems". In summary, these regulations require the owner/operator to perform the following actions:

- Develop and follow a schedule and procedure for inspecting overfill controls;
- Inspect, at least once every operating day, the aboveground portions of each tank system to detect corrosion or leaks, the data gathered from monitoring any leak detection equipment to ensure that the tank system is being operated according to its design, and the construction materials and the area immediately surrounding the externally accessible portion of the tank system (including the secondary containment system) to detect erosion or signs of releases of dangerous waste; and
- Inspect cathodic protection systems, if present, to ensure that they are functioning properly.

The inspections must be documented in the operating record of the facility. The inspection log must include the time and date of the inspection, the printed name and handwritten signature of the inspector, a notation of the observations made and the date and nature of any repairs or remedial actions taken. The log must be kept at the facility for at least five years from the date of the inspection.

4.2 B PLANT TANK SYSTEM TSD UNITS

B Plant has permitted four different tank systems within its canyon process cells for storage and/or treatment of dangerous waste. Each of these systems consists of a number of process vessels (tanks, etc.) and associated ancillary piping and equipment. The four permitted TSD tank systems in B Plant are the low level waste system, the organic waste system, the neutralized current acid waste (NCAW) system and the low level waste concentrator (LLWC) system.

Each of the tank systems and their associated piping are located in various canyon process cells, which are completely enclosed when their concrete cover blocks are in place. These cover blocks protect the tanks and greatly reduce the risk of corrosion and deterioration, as well as shield the canyon from the higher levels of radiation present in the cells. The cover blocks must be

removed remotely by crane to gain access to the tank systems. There are no means for a manned entry into any of the cells.

4.2.1 Low Level Waste Tank System

The low level waste tank system is used to collect and hold low level liquid waste generated during operation of B Plant and WESF, prior to its transfer to the Double Shell Tank Farms. Chemical addition to meet Tank Farms waste acceptance criteria occurs in this tank system. The low level waste tank system consists of Tank 9-1 (Cell 9, Tank #1), Tank 10-1, Tank 24-1, Tank 25-1 and Tank 25-2, along with associated ancillary piping. These tanks are permitted for both storage and treatment of dangerous waste.

4.2.2 Organic Waste Tank System

The organic waste tank system is used to store organic mixed waste generated during past processing of Tank Farms waste at B Plant. The organic waste tank system consists of Tank 26-1, Tank 27-2, Tank 27-3, Tank 27-4, Tank 28-3, Tank 28-4, Tank 29-4 and Tank 30-3, along with associated ancillary piping. These tanks are permitted for storage of dangerous waste.

4.2.3 Neutralized Current Acid Waste Tank System

The neutralized current acid waste (NCAW) tank system was intended for use in processing of the NCAW as part of the Tank Waste Remediation pretreatment project. When this was cancelled, the NCAW inventory was transferred back to the Double Shell Tank Farms. This system is inactive and not being used to store or treat dangerous waste. There are no plans to utilize this system for waste management purposes in the future. The NCAW tank system consists of Tank 6-2, Tank 7-1, Tank 7-2, Tank 8-1, Tank 8-2, Tank 13-1, Tank 14-2, Tank 29-3, Tank 39-2 and Tank 39-5, along with associated ancillary piping. These tanks are permitted for storage and treatment of dangerous waste to reflect past operations.

4.2.4 Low Level Waste Concentrator Tank System

The low level waste concentrator (LLWC) tank system was operated to concentrate the low level waste from the low level waste tank system. The LLWC is a thermal siphon and shell and tube heat exchanger located in Cell 23. This system is inactive and not being used to treat dangerous waste. The LLWC tank system consists of Waste Concentrator E-23-3, Deentrainer D-23-2, Tube Bundles E-23-3-2 and E-23-3-2, Condenser E-23-4 and Tank 23-1. This system is permitted for treatment of dangerous waste to reflect past operations.

4.3 B PLANT TANK SYSTEM INSPECTIONS

Because of access restrictions to the process cells and the tank systems contained within, visual inspections cannot be physically performed by personnel, but must be accomplished remotely using the canyon crane and a video camera. Operation of the crane exposes B Plant personnel to the

elevated levels of radiation present in the canyon. Performing video inspections of the aboveground portions of the tank systems (including the associated ancillary piping) and the area immediately surrounding the external portion of the tanks on a daily basis, as required by WAC 173-303, would expose personnel to levels of radiation inconsistent with the As Low As Reasonably Achievable (ALARA) principle practiced on the Hanford Site.

B Plant inspects its dangerous waste tank systems on a daily basis by monitoring the liquid waste levels in the tanks through the use of remote instrumentation readings. This monitoring data is obtained during routine surveillance activities in accordance with approved plant operating procedures. B Plant only inspects those tanks which are currently operated or which contain liquid waste. Inactive or empty tanks are not inspected as part of the routine surveillance procedure. Tank monitoring instrumentation is maintained and calibrated on a routine basis using the CBRS system. Inspection records are maintained at B Plant for at least five years from the date of inspection.

Monitoring the liquid levels in the active dangerous waste tanks on a daily basis allows B Plant to identify trends in tank levels which might indicate the presence of a leak or spill. Remote video equipment is used to inspect the process cells and tank systems when a leak or spill is suspected.

None of the B Plant dangerous waste tank systems are equipped with cathodic protection systems. All vessels are stainless steel.

B Plant functionally tests the in-cell fire protection system per the appropriate Operations Tickler and POP (Appendix A). All other components of the fire protection system are inspected and maintained by the HFD and FSM (Appendix B) as outlined in section 2.2.4 of this plan.

5.0 CONTAINMENT BUILDING INSPECTIONS

This section provides a summary of the containment building inspection requirements for TSD units, a brief description of the B Plant containment building TSD unit, and details the efforts employed by B Plant to maintain compliance with these requirements.

5.1 CONTAINMENT BUILDING INSPECTION REQUIREMENTS

Regulations outlining the requirements for inspections of containment building TSD units are located in 40 CFR 265, Subpart DD "Containment Buildings". In summary, these regulations require the owner/operator to perform the following actions:

- Develop and follow an inspection schedule and procedure that ensures maintenance of the structural integrity of the unit and prompt detection of any leaks or releases to the air, ground, or water; and
- Inspect, at least once every seven days, data gathered from monitoring equipment and leak detection equipment, as well as the containment building and the area surrounding the containment building to detect signs of releases of dangerous waste.

The inspections must be documented in the operating record of the facility. The inspection log must include the time and date of the inspection, the printed name and handwritten signature of the inspector, a notation of the observations made and the date and nature of any repairs or remedial actions taken. The log must be kept at the facility for at least five years from the date of the inspection.

5.2 B PLANT CANYON AND PROCESS CELLS

The B Plant canyon facility and process cells (221-B Building) are permitted as a containment building TSD unit. The 221-B Building is a reinforced concrete structure 259.1 meters (850 feet) long, 20.7 meters (68 feet) wide, and 22.5 meters (74 feet) high. A typical cell is 5.5 meters (18 feet) long, 3.9 meters (13 feet) wide, and 8.5 meters (28 feet) deep. The 221-B Building contains 40 such cells. Each cell has concrete cover blocks which serve as the cell ceiling. The tops of these cover blocks act as the canyon deck.

Solid mixed waste stored in the containment building consists primarily of failed process jumpers and equipment containing lead and/or residues of F-listed process wastes. No free liquids are stored in the containment building. The waste stored in the containment building is protected from the elements (wind, rain, etc.), is solid, and is not subject to moving or shifting.

5.3 B PLANT CONTAINMENT BUILDING INSPECTIONS

Volume 57 of the Federal Register, page 37217 (57 FR 37217), dated August 18, 1992, on the subject of containment building inspections, states that "...these weekly inspections need not be unduly burdensome. Electronic monitoring of liquid in secondary containment systems or of air pressure differentials between the inside and outside of a containment building are examples of relative cost-effective monitoring techniques."

In accordance with this guidance provided by the United States Environmental Protection Agency (EPA), B Plant inspects the B Plant Containment Building on a weekly basis by monitoring the canyon to atmosphere differential pressure as an indicator of potential loss of containment and integrity of the unit. This weekly inspection is performed using an approved Operations Tickler and data sheets from routine surveillance procedures (Appendix A) and utilizes the B Plant Containment Building Weekly Inspection Log Sheet (Figure 2) to document the inspection. Inspection records are maintained at B Plant for at least five years from the date of inspection.

B PLANT CONTAINMENT BUILDING WEEKLY INSPECTION LOG SHEET

- 1. B Plant Canyon to Atmosphere Differential Pressure (PI-C-PV1, Area 1-D), (0.04 inches vacuum minimum) _____ in. vac.
- 2. Has daily surveillance been performed per Operating procedure, BO-040-001, section 5.1[4] (B Plant Canyon Exhaust System Surveillance, sheet 4 of 4), within the past week? Circle correct answer. YES / NO
- 3. Have there been any off-normal or unusual notations made on the past week's surveillance sheets which are related to an inability or difficulty in maintaining the required canyon to atmosphere differential pressure? Circle correct answer. YES / NO

If so, provide explanation in the Comments section below.

COMMENTS/CORRECTIVE ACTIONS: _____

Inspector: _____
 (print name)

(signature)

Date: _____

Time: _____

THIS LOG AND ASSOCIATED DOCUMENTATION MUST BE KEPT AT B PLANT FOR 5 YEARS IN ACCORDANCE WITH WAC 173-303-320 (2)(d).

Figure 2. B Plant Containment Building Weekly Inspection Log Sheet

APPENDIX A

**B PLANT OPERATIONS TICKLERS AND PROCEDURES
USED TO MEET TSD FACILITY INSPECTION REQUIREMENTS**

B PLANT OPERATIONS TICKLERS

- W-12 Check Emergency Well Pumps
- W-19 Crash Alarm Test
- W-45 Inspection of SCBA's
- W-50 B Plant Containment Building Weekly Inspection
- M-03 Check Inside Canyon Door Locks and Stairwell Lights
- M-07 Inspect Outside Area Lights and Stairwell Doors
- M-08 Inspect Fire Extinguishers & Hose Lines
- M-13 Inspection of Vent. Systems (Canyon, P.G. & Op gal.)
- M-19 Check Acid Suit Lockers - B Plant
- M-21 Primary and Secondary Valve Check
- M-23 Siren Alarm and B Plnt/WEP Pax System Alarm Test
- M-48 Check Safety Showers/Eyewashes @ B Plant
- S-07 Change Out Port. Eye Wash Saline Sol. in Elec. Gallery
- A-02 Inspection of Out Buildings Around B Plant/WESF

W-weekly tickler
M-monthly tickler
S-semiannual tickler
A-annual tickler

PREVENTATIVE MAINTENANCE PROCEDURES (PM)

PM 2B15001	Fire Door Inspection-B Plant/WESF
PM 2B22009	Emergency Lantern Inspection
PM 2B22017	B Plant Emergency Light Electrical Inspection
PM 2B22038	Emergency Lantern Annual Test

PLANT OPERATING PROCEDURES (POP)

B0-020-005	Remove Cell Blocks and Perform Cell Work
B0-020-021	Inspect and Test Fire Protection Water System
B0-020-025	Store WESF Waste Drums in Cell 4
B0-040-001	Ventilation System Surveillance
B0-040-002	Perform General Surveillance
B0-140-002	Test Fire Protection in 291-B
B0-140-005	Test Emergency Water Well Pumps

APPENDIX B

**HANFORD FIRE DEPARTMENT AND FIRE SYSTEM MAINTENANCE
INSPECTION/MAINTENANCE SCHEDULE FOR B PLANT**

FIRE INSPECTION/MAINTENANCE ACTIVITY (FREQUENCY)

Control Panels

1. Verify that all panel lamps and light emitting diodes have the capability to light and to provide the correct indications. (annually)
2. Verify that circuit interface properly transmits alarm signals to the computer-aided dispatch system. (every 4 months)
3. Functional test audible and visible trouble signals. (annually)
4. Functional test zone disconnect or isolating switches. (annually)

Input Devices

5. Inspect smoke detectors. (every 6 months)
6. Functional test each smoke detector. (annually)
7. Sensitivity test each smoke detector. (every 2 years)
8. Inspect and functional test all flame, fire and gas detectors. (every 6 months)
9. Operational test water flow alarms. (every 4 months)
10. Operational test the extinguishing systems alarm initiation switch. (every 6 months)
11. Operational test manual stations/pull boxes. (annually)
12. Operational test supervisory signal initiating devices. (annually)
13. Operational test post indicator valve. (annually)

Emergency Power

14. Inspect lead acid batteries for fire protection emergency power. (varies depending on need)

Output Devices

15. Operational test alarm indicating appliances. (annually for supervised devices, bimonthly for unsupervised devices)
16. Operational test all annunciators. (annually)
17. Functional test all automatic initiation circuits. (annually)
18. Audible sound check fire bells/gongs. (monthly)

Sprinkler Systems

19. Flow test main drains. (every 4 months)
20. Inspect all gages. (monthly)
21. Inspect internal condition of piping. (every 10 years)
22. Clean and inspect strainers and nozzles. (annually)
23. Functional test deluge and preaction systems. (annually)
24. Inspect low-expansion systems. (every 6 months)
25. Inspect fire hoses and hose stations. (annually)
26. Functional test fire hoses. (every 3 years)
27. Inspect fire department connections. (every 4 months)
28. Inspect fire hydrants. (every 4 or 6 months for various components)
29. Flush/drain test fire hydrants. (annually)
30. Flow test fire main hydrant. (annually)

Barriers and Doors

31. Inspect, repair and operational test fire doors. (every 6 months)