ENGINEERING CHANGE NOTICE

Page 1 of 3

1. ECN 632229

Proj.
ECN

2. ECN Category (mark one) Supplemental ☐ Direct Revision ☒ Change ECN ☐ Temporary ☐ Standby ☐ Supersedeure ☐ Cancel/Void ☐	3. Originator's Name, Organization, MSIN, and Telephone No. GG Bergquist, Process Engineering, T5-55, 373-2709 6. Project Title/No./Work Order No. PFP Authorization Basis/K6058 9. Document Numbers Changed by this ECN (includes sheet no. and rev.) HNF-WHC-SD-CP-SDD-008, Rev. 2	4. USQ Required? ☒ Yes ☐ No 7. Bldg./Sys./Fac. No. 234-5Z/236-Z/PFP 10. Related ECN No(s). N/A	5. Date January 14, 1997 8. Approval Designator SQ 11. Related PO No. N/A
12a. Modification Work ☐ Yes (fill out Blk. 12b) ☒ No (NA Blks. 12b, 12c, 12d)	12b. Work Package No. 12347 N/A	12c. Modification Work Complete N/A Design Authority/Cog. Engineer Signature & Date	12d. Restored to Original Condition (Temp. or Standby ECN only) N/A Design Authority/Cog. Engineer Signature & Date
13a. Description of Change 1. Changed procedure number ZSE-23B-002 to ZSE-72-001 which performs monthly inspection. 2. Update design drawing numbers in component identification listing.			
14a. Justification (mark one) Criteria Change ☒ Design Improvement ☐ Environmental ☐ Facility Deactivation ☐ As-Found ☐ Facilitate Const ☐ Const. Error/Omission ☐ Design Error/Omission ☐			
14b. Justification Details Annual update to the SDD.			
15. Distribution (include name, MSIN, and no. of copies) See Distribution List

632229

Signature	Date	Signature	Date
Design Authority _____		Design Agent _____	
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DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature _____

ADDITIONAL _____

UNREVIEWED SAFETY QUESTION (USQ) SCREENING AND EVALUATION

1. Identification Number: *ECN 632229*

USQ SCREENING

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2. Title: *Definition and Means of Maintaining the Criticality Prevention Design Features Portion of the PFP Safety Envelope, WHC-SD-CP-SDD-008, Revision 3.*

HNF H48 V2847

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: *The revision to the SDD incorporates a change made to the surveillance procedure number ZSE-72-001 which still implements OSR LCO 3.1.1.2 requirements. Other minor changes to the SDD are of the routine update nature, and do not in themselves, change any portion of the facility or procedures described in the Authorization Basis.*

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

☐ N/A ☒ No ☐ Yes/Maybe

BASIS: *The changes to this document do not change any condition analyzed in the Authorization Basis. WHC-SD-CP-SAR-021, section 9.2.3 generally discusses criticality events within PFP, however it is not specific to individual criticality design feature described in SDD 008.*

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: *ECN 632229 is not a test or 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: *The changed does not impact LCO 3.1.1.2*

USQE #1 *G. G. Bergquist*

(Print Name)

USQE #2

m w G. Lson
(Print Name)

G. G. Bergquist
Signature

Date: *1/13/97*

m w G. Lson
Signature

Date: *1/20/96*

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)?

Definition and Means of Maintaining the Criticality Prevention Design Features Portion of the PFP Safety Envelope

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Abstract: This document summarizes existing criticality safety evaluations and identifies design features that are considered to be one of the two contingencies required to prevent exceeding the criticality limit of $0.95 k_{eff}$ in the Plutonium Finishing Plant.

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1.0 PURPOSE

The purpose of this document is to record the technical evaluation of the Operational Safety Requirements described in the Plutonium Finishing Plant Final (PFP) Operational Safety Requirements, WHC-SD-CP-OSR-010, Rev. 0., Section 3.1.1, "Criticality Prevention System." This document, with its appendices, provides the following:

1. The results of a review of Criticality Safety Analysis Reports (CSAR), later called Criticality Safety Evaluation Reports (CSER), and Criticality Prevention Specifications (CPS) to determine which equipment or components analyzed in the CSER or CPS are considered as one of the two unlikely, independent, and concurrent changes to reach the limit of $0.95 K_{eff}$.
2. Evaluations of equipment or components to determine the safety boundary for the system (Section 4).
3. A list of essential drawings that show the safety system or component (Appendix A).
4. A list of the safety envelope (SE) equipment (Appendix B).
5. Functional requirements for the individual safety envelope equipment (Sections 3 and 4).
6. A list of the operational and surveillance procedures necessary to maintain the system equipment within the safety envelope (Section 5).

2.0 BACKGROUND

One hundred twenty seven Criticality Safety Evaluation Reports (CSER) in 14 volumes and 82 Criticality Prevention Specifications (CPS) were reviewed to determine if an equipment or system failure considered in the analysis as one of the two unlikely, independent, and concurrent changes required to reach the limit of $0.95 K_{eff}$ had been included in specifications, procedures, and surveillances.

The CSERs take into consideration and use various factors as error or failure parameters. These include:

- Geometrically favorable equipment,
- Maximum fissile masses,
- Moderation control,
- Maximum single container volume and mass,
- Maximum total volume and mass,

- Minimum spacing between containers,
- Maximum glovebox solids accumulation,
- Criticality drains,
- Maximum solids in tanks,
- Plutonium solution pH to control polymerization,
- Expeditious spill cleanup, and
- Fissile material content of glovebox gloves.

The parameters are addressed in each CSER to assure that after two independent failure/error contingencies the system will remain subcritical. These parameters and the calculations that establish their CPS limits were not inspected during this review. The review was concerned only with the identification of any specified physical or mechanical item evaluated as one of the two allowed events or contingencies and that the item identified was properly included in essential design drawings, the CSER, the CPS, and surveillance procedures.

3.0 SYSTEM FUNCTIONAL REQUIREMENTS

The Limiting Condition of Operation (LCO) requirements for the Criticality Prevention System are:

- 3.1.1.1 The 26-Inch Process Vacuum Liquid Detection Interlock System shall be OPERABLE whenever the 26-Inch Process Vacuum System is operating.
- 3.1.1.2 Glovebox Criticality Drains shall be OPERABLE (unobstructed) in the following locations:

234-5Z Gloveboxes

HC-4	HC-9B
HC-6	HC-227S
HC-7	HC-227T
HA-23S	

Pu Process Support Laboratories Gloveboxes

188-1
179-10
179-12

Engineering Laboratory Glovebox

522 (Room 152)

236-Z Gloveboxes

MT-5	
MT-6	1st Floor East Cell Access
4th Floor Column	1st Floor West Cell Access
5th Floor Column	2nd Floor East Cell Access
6th Floor Column	2nd Floor West Cell Access

3.1.1.3 The following criticality safety features shall be in place.

- Glovebox Sump Discs in gloveboxes HC-7, HC-9B
- Glovebox Floor Filler Plates in glovebox HC-6
- Raschig Rings in Room 166 Sump

Compliance with the requirements in the LCO, CPS and CSER are ensured by monthly inspections of the plant, equipment and criticality prevention postings; performance of functional tests; and compliance with procedural requirements. If the LCO, CPS or CSER requirements are not met, affected fissionable materials operations are immediately halted, specified notifications made, and a recovery plan is prepared and approved.

4.0 SAFETY ENVELOPE EQUIPMENT

Based on the review performed, there are several specific physical components or systems that must be present and/or operable to prevent exceeding $0.95 K_{eff}$ after the occurrence of two independent failure contingencies. These are:

- Automatic shutdown and isolation features of the 26-inch Hg Process Vacuum System,
- Glovebox sump discs or floor filler plates used to limit glovebox solution depths before overflow,
- The Raschig rings used in the HC-6 overflow tank system in Room 166, and
- Glovebox criticality drains.

Since these systems and component are considered to be present to prevent a criticality, they are Safety Class items in accordance with WHC-CM-4-46, Section 9.0 Table 1, Item 5. CSER evaluations have assumed that these items are present and operable. A more detailed description of these items is presented below.

**4.1 26-INCH HG PROCESS VACUUM SYSTEM AUTOMATIC SHUTDOWN AND ISOLATION
FEATURES (CSER 78-013 AND CPS 80141)**

Accidental criticality could occur in the 26-inch process vacuum HEPA filters if a solution containing plutonium were to enter the HEPA filterbox.

The possibility of accidental criticality is reduced by providing one engineered contingency (26-inch process vacuum interlock system) and administrative controls (PFP Operating Procedures) governing the use of the vacuum system for liquid transfers.

Further details on the 26-inch Hg Process Vacuum System, including procedures and surveillances, are provided in WHC-SD-CP-SDD-013, Definition and Means of Maintaining the Process Vacuum Liquid Detection Interlock Systems Portion of the PFP Safety Envelope.

4.2 GLOVEBOX SUMP AND FLOOR FILLERS

Glovebox sump and floor fillers have been installed to limit the solution depth to the criticality drain overflows and to fill 11-inch diameter by 2-inch deep sumps. These are Safety Class items.

4.2.1 Glovebox HC-7, Room 228-A (CSERs 79-024, 87-005, 88-001, 90-009, and CPS 80607)

The initial CSER 79-024 evaluation and a subsequent reevaluation, CSER 87-005, assumed that an 11-inch diameter, 2-inch thick stainless steel disc would be in place to fill the floor sump in glovebox HC-7. The sump filler disc is located by H-2-93504-3, EFD, RMC Line and described in H-2-24640 Sheets 1 and 2, Sump Probes for Gloveboxes. The disc's presence is verified by procedure ZSE-72-001, Perform Monthly Criticality Drain Inspection which requires a visual check that the disc is in place. If and when the glovebox is reactivated, a supplemental check of the sump filler disk check will be added to a more frequently performed procedure.

4.2.2 Glovebox HC-9B, Room 228A (CSERs 79-019 and 87-005, and CPS 80609)

A sump disc as described for HC-7 above is also required in HC-9B by the CPS. The disc is located by H-2-93504-3, EFD, RMC Line and described in drawing H-2-24640 Sheets 1 and 2. The verification surveillance is the same as for the HC-7 disc above.

4.2.3 Glovebox HC-6, Room 166 (CSER 79-018 and 79-022 and CPS 80606)

Plates on glovebox HC-6 floor (1-1/2-inch + 1/4-inch thick Lexan¹ and stainless steel) are required by the CPS to maintain a safe slab in event of leakage. CPS 80606 and CSER 79-022 specify the plates. Drawing H-2-19405, ECN 500050 shows the plates location.

4.2.4 Inactive Gloveboxes (MT-3, H-7A and H-9A)

The CSER's for these gloveboxes require steel sump discs in the bottom to prevent exceeding a safe slab thickness before overflow to the criticality drain. All of these gloveboxes are out of service and CPS are no longer needed. The gloveboxes are posted to prevent the addition, movement, storage, or removal of materials. New CSERs and CPS will be required to do any of the above or to start processing in MT-3, H-7A or H-9A.

If any of these gloveboxes are returned to service the sump fillers shall become Safety Class equipment and shall be added to the Safety Equipment List based upon the new CSER and CPS.

4.3 RASCHIG RINGS IN GLOVEBOX HC-6, OVERFLOW TANK SYSTEM (CSER 79-018 AND 79-022 AND CPS 80606)

The CSER and CPS require the two HC-6 overflow tank floor pits in Room 166 near HC-6 be filled with Raschig rings to prevent criticality in case of box overflow through the criticality drains in Room 166. Drawing H-2-25598 specifies the rings. All calculations in the CSERs assumed the rings to be present. The HC-6 storage tanks are blanked off and are not presently in use but solution transfers are made through this box. The HC-4 Glovebox criticality drain is also located near the floor pits.

The ANSI/ANS Standard 8.5-1986, Use of Borosilicate Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material, requires only a biennial settling examination when the rings are used as secondary control and when the rings are not in contact with solutions where solids buildup, ring corrosion, and ring damage from solution agitation is not possible. The rings have been physically measured and standard tests for the specifications of glass density, boron and boron-10 content and chemical corrosion resistance have been conducted in accordance with the standard.

¹ Lexan is a trademark of General Electric Co.

4.4 CRITICALITY DRAINS CSER 80-029, 81-001, AND 90-004 (CPS 80010 AND SPECIFIC GLOVEBOX CPS)

Criticality drains are provided for gloveboxes throughout 234-5Z, including the Plutonium Process Support Laboratory and the Analytical Laboratory, and in building 236-Z. The CSER's for many of these the gloveboxes assume the criticality drains are present, free flowing and not plugged. If the criticality drains were plugged, gloveboxes with sufficient fissile material could become critical with two contingencies. For this reason, the criticality drains in the gloveboxes listed below are included in the safety envelope and are Safety Class equipment:

234-5Z Gloveboxes

• HA-23S	• HC-7*
• HC-4*	• HC-9B*
• HC-6*	• HC-227S*
• HC-227T	

Pu Process Support Laboratories Gloveboxes

188-1
179-10
179-12

Analytical Laboratory Glovebox

522

236-Z Gloveboxes

• 4 TH Floor Column	• 1 ST Floor East Cell Access
• 5 TH Floor Column	• 1 ST Floor West Cell Access
• 6 TH Floor Column	• 2 ND Floor East Cell Access
• MT-5	• 2 ND Floor West Cell Access
• MT-6	

Gloveboxes marked with an asterisk (*) are equipped with sump alarms at approximately 1/2-inch above the floor level to alert the operators before the criticality drain overflow is reached. The sump alarms are Safety Significant instruments and are tested before liquid transfers and periodically when solutions are present under PM 2222134.

The MT-5 and MT-6 gloveboxes are connected to the PRF process portion of the PFP closed loop cooling system. The MT processes are currently inactive and are have no future use scheduled. Should future plans require the use of the process features, technical documents will be revised and re-issued.

Several gloveboxes with criticality drains are out of service and posted to prevent the addition, movement, storage or removal of material. If any of the gloveboxes listed below are returned to service, their criticality drain(s) shall become Safety Class equipment and shall be added to the Safety Equipment List unless additional CSER are prepared to prove the criticality drains are not required.

• H-7A	• H-9A	• MT-3
• HA-40F	• HC-46F*	

Gloveboxes HC-1 and HC-5 have criticality drains installed, however they have very large floor areas and are used to handle only dry powders. The CSER's for these gloveboxes consider only spherical water moderating geometries rather than the slab geometries considered for the other gloveboxes. As a result, the criticality drains in these gloveboxes are not required as a contingency to prevent a slab criticality. Therefore, the criticality drains in HC-1 and HC-5 are included in the safety envelope but are Safety Significant equipment.

The criticality drain in Glovebox HC-60 is also included in the safety envelope as Safety Significant equipment. Due to restrictions on the amount of plutonium allowed in HC-60 the minimum critical mass necessary for a criticality is not contained in HC-60; therefore, operability of the criticality drain is not considered to be one of the required two contingencies for this Glovebox.

5.0 SAFETY ENVELOPE PROCEDURES

Safety envelope (ZSE) procedures provide administrative control over the operation, maintenance, and surveillance of process equipment to maintain the operability of safety envelope components. ZSE procedures also provide for proper response to alarms resulting from abnormal conditions and/or equipment failures. In addition, the procedures identified below satisfy criticality prevention specifications and provide operators with instructions and precautions related to the presence and operation of the criticality prevention design features identified in this document.

5.1 26-INCH HG VACUUM SYSTEM

Operation, maintenance and surveillance procedures which satisfy CPS-Z-165-80141 (26-Inch Hg Vacuum System) are provided in Definition and Means of Maintaining the Process Vacuum Liquid Detection Interlock Systems Portion of the PFP Safety Envelope, WHC-SD-CP-SDD-013.

5.2 SUMP AND FLOOR FILLERS

Procedure ZO-100-400, Perform Nuclear Operations Surveillance and Responses is performed on regularly scheduled workdays. During procedure performance visual inspections of gloveboxes are made which would detect an obviously off-standard condition which would include missing sump or floor fillers in gloveboxes HC-6, HC-7 and HC-9B. This satisfies CPS-Z-165-80607, Glovebox HC-7: Feed Preparation; CPS-Z-165-80609, Glovebox HC-9B: Continuous Nitrate to Oxide Conversion; and CPS-Z-165-80606, Glovebox HC-6: Solution Transfer. If and when glovebox processes are reactivated, more detailed supplemental checks of sump and floor fillers will be added to procedures that are performed more frequently than the ZSE inspections.

Surveillance Requirement 3.1.1.3.1 is satisfied by performing ZSE-72-001, Perform Monthly Criticality Drain Inspection.

5.3 RASCHIG RINGS-GLOVEBOX HC-6 OVERFLOW TANK SYSTEM, ROOM 166

Surveillance Requirement 3.1.1.3.1 is satisfied by performing ZSE-72-001, Perform Monthly Criticality Drain Inspection.

5.4 CRITICALITY DRAINS

Procedure ZO-100-400, Perform Nuclear Operations Surveillance and Responses is performed on regularly scheduled workdays. During procedure performance visual inspections of gloveboxes are made which would detect an obviously off-standard condition which would include solutions in excess of criticality prevention specification limits discovered standing in glovebox bays or on floors indicating a restricted criticality drain. This satisfies CPS-Z-165-80010, General Limits, and CPS-L-114-00010, Laboratory Uniform General Limits. If and when glovebox processes are reactivated, more detailed supplemental checks of criticality drains will be added to procedures that are performed more frequently than the ZSE inspections.

Procedure ZO-180-040, Test MT Criticality Drains, performs a monthly flow check of the MT-5 and MT-6 criticality drains to verify the drains are free flowing and not plugged. This

procedure does not have to be performed to satisfy SR 3.1.1.2.1. It is an optional procedure performed to comply with good engineering practice and may not be performed when the MT-5 and MT-6 gloveboxes are not being used for processing.

Plant Operating Procedures for gloveboxes with criticality drains include criticality safety cautions concerning criticality drain operability and/or water flow limitations into the glovebox. The complete list of these procedures is provided as Attachment 1 of Appendix A.

Surveillance Requirement 3.1.1.2.1 is satisfied by performing ZSE-72-001, Perform Monthly Criticality Drain Inspection.

6.0 REFERENCES

1. WHC-SD-CP-SAR-021, Plutonium Finishing Plant Final Safety Analysis Report (PFP FSAR), Rev. 0.
2. WHC-SD-CP-OSR-010, Plutonium Finishing Plant Operational Safety Requirements, Rev. 0.
3. WHC-SD-C084-RA-001, PFP Seismic Upgrades Review.
4. WHC-CM-4-46, Safety Analysis Manual, Section 9.0, Safety Classification of Structures, Systems, and Components.
5. WHC-SD-CP-SDD-013, Definition and Means of Maintaining the Process Vacuum Liquid Detection Interlock Systems Portion of the PFP Safety Envelope, Rev. 0.
6. ANSI/ANS Standard 8.5-1986, Use of Borosilicate Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material.
7. WHC-CM-4-29, Nuclear Criticality Safety Manual

APPENDIX A - OSR COMPLIANCE SHEET

OSR LCO COMPLIANCE SHEET

APPLICABLE OSR LCO (WHC-SD-CP-OSR-010, Rev. 0, Section 3.0):

3.1.1 Criticality Prevention System

LCO 3.1.1.1 The 26-Inch Process Vacuum Liquid Detection Interlock System shall be OPERABLE whenever the 26-Inch Process Vacuum System is operating.

LCO 3.1.1.2 Glovebox Criticality Drains shall be OPERABLE (Unobstructed) in the following locations:

234-5Z Gloveboxes

HC-4	HC-9B
HC-6	HC-227S
HC-7	HA-23S
HC-227T	

Pu Process Support Laboratories Gloveboxes

188-1
179-10
179-12

Analytical Laboratory Glovebox

522 (Room 152)

236-Z Gloveboxes

MT-5	1st Floor East Cell Access
MT-6	1st Floor West Cell Access
4th Floor Column	2nd Floor East Cell Access
5th Floor Column	2nd Floor West Cell Access
6th Floor Column	

LCO 3.1.1.3 The following criticality safety features shall be in place:

- Glovebox Sump Discs in gloveboxes HC-7, HC-9B
- Glovebox Floor Filler Plates in glovebox HC-6
- Raschig Rings in Room 166 Sump

APPLICABILITY: 3.1.1.1 All MODES
3.1.1.2 All MODES
3.1.1.3 All MODES

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PREVENTION DESIGN FEATURES PORTION OF THE PFP
SAFETY ENVELOPE

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OSR LCO COMPLIANCE SHEET		
APPLICABLE OSR LCO (WHC-SD-CP-OSR-010, Rev. 0, Section 3.0):		
3.1.1 Criticality Prevention System		
ACTIONS:		
CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Process Vacuum Liquid Detection Interlock System is inoperable.	A.1 Shut down 26-Inch Process Vacuum System.	IMMEDIATELY
	AND A.2 Enter MODE 2, Limited Plutonium Handling Operations. Prohibit all liquid transfers using 26" vacuum system.	IMMEDIATELY
B. Criticality Drain is inoperable.	B.1 Suspend operations in affected glovebox.	IMMEDIATELY
	AND -----NOTE----- If a criticality drain is inoperable due to an obstruction which can be easily and quickly cleared (e.g. debris temporarily blocking the drain entrance, item inappropriately placed on top of drain bag), the cognizant shift manager shall be notified IMMEDIATELY and the obstruction may be cleared with his concurrence. In such instances, the Required Action statement B.2 shall be considered as having been entered. Appropriate notifications and documentation shall be completed. ----- B.2 Restore Criticality Drain to OPERABLE condition in accordance with a RECOVERY PLAN.	IMMEDIATELY
C. Criticality safety feature required by LCO 3.1.1.3 is not present.	C.1 Suspend operations in affected glovebox(es).	IMMEDIATELY
	AND C.2 Restore criticality safety features in accordance with a RECOVERY PLAN.	IMMEDIATELY

**DEFINITION AND MEANS OF MAINTAINING THE CRITICALITY
PREVENTION DESIGN FEATURES PORTION OF THE PFP
SAFETY ENVELOPE**

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OSR LCO COMPLIANCE SHEET		
APPLICABLE OSR LCO (WHC-SD-CP-OSR-010, Rev. 0, Section 3.0):		
3.1.1 Criticality Prevention System		
SURVEILLANCE REQUIREMENTS:		
SURVEILLANCE		FREQUENCY
SR 3.1.1.1.1	VERIFY OPERABILITY of the Process Vacuum Liquid Detection Interlock System supervisory circuit.	Once within 24 hours prior to startup of the 26-Inch Process Vacuum System <u>AND</u> Daily thereafter while the 26-Inch Process Vacuum System is operating
SR 3.1.1.1.2	Perform a FUNCTIONAL TEST of the Process Vacuum Liquid Detection Interlock System.	Semi-annually
SR 3.1.1.2.1	VERIFY OPERABILITY of the Criticality Drains.	Monthly
SR 3.1.1.3.1	VERIFY presence of the criticality safety features required by LCO 3.1.1.3.	Monthly
APPLICABLE ACCIDENT ANALYSES FSAR (WHC-SD-CP-SAR-021, CH 9) SECTION/TITLE:		
9.2 ACCIDENTS 9.2.3 Criticality		
APPLICABLE PLANT/PROCESS DESIGN/OPERATION DESCRIPTION(S) [FSAR CHAPTER/SECTION]:		
4.0 PRINCIPAL DESIGN CRITERIA 4.3 SAFETY PROTECTION SYSTEMS 4.3.4 Nuclear Criticality Design Criteria		

**DEFINITION AND MEANS OF MAINTAINING THE CRITICALITY
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OSR LCO COMPLIANCE SHEET

APPLICABLE OSR LCO (WHC-SD-CP-OSR-010, Rev. 0, Section 3.0):

3.1.1 Criticality Prevention System

BOUNDARY IDENTIFICATION DRAWINGS

H-2-93504/1-3,5,6	EFD RMC Line
H-2-29010/1	HA-23S Arrangement
H-2-19405/1	HC-6 Equipment Arrangement, ECN 500050
H-2-95607/1	IEFD Glovebox HC-60
H-2-28013/1,3	Process Engineering Flow Diagram Misc Treat Room MT-5 and MT-6
H-2-27135/1-4	Criticality Drains Gloveboxes HC-7, HC-6, HC-227S, HC-227T HC-4, HC-5B, HA-23S, HC-9B, HC-1, HC-60, and ECNs 621512, 623378, 191519
H-2-28822/1-3	Criticality Drains Screens Gloveboxes HC-6, HC-7, HC-227S, HC-227T, HC-9B, WW-2, EW-2
H-2-27145/1	236-Z Gallery Glovebox Criticality Drain
H-2-26865/1	Misc. Treatment Room Inter Glovebox Criticality Drain
H-2-28934/1-2	Installation Criticality Drain Screen HC-1, HC-5, MT-5, MT-6
H-2-25598/1	Room 166, HC-6, Raschig Rings
H-2-24640/1-2	HC-7 and HC-9B Sump Filler Plates
H-2-28983/1	Criticality & D-4 Drains GB 10 & 12 Room 179-B
H-2-26802/1	Equipment Arrangement GB522 Room 152
H-2-28536/1	Assembly - Glovebox 188-1

ESSENTIAL SYSTEM DRAWINGS

H-2-93504/1-3,5,6	EFD RMC Line
H-2-95607/1	IEFD Glovebox HC-60
H-2-28013/1,3	Process Engineering Flow Diagram Misc Treat Room MT-5 and MT-6
H-2-27135/1-4	Criticality Drains Gloveboxes HC-7, HC-6, HC-227S, HC-227T, HC-4, HC-5B, HA-23S, HC-9B, HC-1, HC-60, and ECNs 621512, 623378, 191519
H-2-28822/1-3	Criticality Drains Screens Gloveboxes HC-6, HC-7, HC-227S, HC-227T, HC-9B, WW-2, EW-2
H-2-27145/1	236-Z Gallery Glovebox Criticality Drain
H-2-26865/1	Misc. Treatment Room Inter Glovebox Criticality Drain
H-2-28934/1-2	Installation Criticality Drain Screen HC-1, HC-5, MT-5, MT-6
H-2-25598/1	Room 166, HC-6, Raschig Rings
H-2-24640/1-2	HC-7 and HC-9B Sump Filler Plates
H-2-28983/1	Criticality & D-4 Drains GB 10 & 12 Room 179B
H-2-26802/1	Equipment Arrangement GB522 Room 152
H-2-28985/1	Criticality Drains and Screens GB 10 and 12 Room 179-B
H-2-28536/1	Assembly - Glovebox 188-1
H-2-28584/1-2	Criticality drains and screens GB 1 Room 188-1

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OSR LCO COMPLIANCE SHEET

APPLICABLE OSR LCO (WHC-SD-CP-OSR-010, Rev. 0, Section 3.0):

3.1.1 Criticality Prevention System

IMPLEMENTING PROCEDURES/COMPLIANCE VERIFICATION

OPERATING [ZO-series]:

ZO-100-400, Perform Nuclear Operations Surveillance and Responses
ZO-170-046, Change Criticality Drain Tubes

LABORATORY [ZP-, LO-, LA- series]: ZP-100-009, Change PPSL Criticality Drain Tubes

HEALTH PHYSICS [WHC-IP-0692 series]: NONE

SUPPORTING DOCUMENTS:

WHC-SD-CP-SDD-008, Definition and Means of Maintaining the Criticality Prevention Design Features Portion of the PFP Safety Envelope

ADMINISTRATIVE [WHC-5-8, etc]:

WHC-CM-5-8, PFP Administration Manual, Section 3.3 Criticality Safety.

MAINTENANCE [2Z-, 1-ZM-, etc]: NONE

SURVEILLANCE REQUIREMENT	PROCEDURE NUMBER	DESCRIPTION	PROCEDURE FREQUENCY
SR 3.1.1.1.1	See WHC-SD-CP-SDD-013		
SR 3.1.1.1.2	See WHC-SD-CP-SDD-013		
SR 3.1.1.2.1	ZSE-72-001	Monthly Criticality Drain and Safety Feature Inspection	Monthly
SR 3.1.1.3.1	ZSE-72-001	Monthly Criticality Drain and Safety Feature Inspection	Monthly

OTHER: NONE

NOTES/COMMENTS:

APPENDIX B - MASTER COMPONENT INDEX LISTING

SE SYSTEMS COMPLIANCE SHEET CRITICALITY DRAINS AND SCREENS, FILLER DISCS AND RASCHIG RINGS			
APPLICABLE OSR LCO (WHC-SD-CP-OSR-010 Section 3.0):			
3.1.1 Criticality Prevention System			
SE SYSTEM EQUIPMENT/COMPONENT LIST			
MASTER COMPONENT INDEX NUMBER	FUNCTIONAL DESCRIPTION	CRITICALITY PREVENTION SPECIFICATION NUMBER	ESSENTIAL DRAWING NUMBER
CRDR-1ST_EAST	236-Z GLOVEBOX 1st FLOOR EAST CRITICALITY DRAIN AND SCREEN. FOR ASSEMBLY, ARRANGEMENT, and INSTALLATION SEE DRAWINGS H-2-27145 and H-2-28822.	CPS-Z-165-80707	H-2-27145
CRDR-1ST_WEST	236-Z GLOVEBOX 1st FLOOR WEST CRITICALITY DRAIN AND SCREEN. FOR ASSEMBLY, ARRANGEMENT, and INSTALLATION SEE DRAWINGS H-2-27145 and H-2-28822.	CPS-Z-165-80708	H-2-27145
CRDR-HA-23S	GLOVEBOX HA-23S CRITICALITY DRAIN AND SCREEN. FOR ASSEMBLY, ARRANGEMENT, and INSTALLATION SEE DRAWINGS H-2-27135, H-2-28822, and H-2-29010.	CPS-Z-165-80090	H-2-27135 H-2-28822
CRDR-HC-4	GLOVEBOX HC-4 CRITICALITY DRAIN AND SCREEN. FOR ASSEMBLY, ARRANGEMENT, and INSTALLATION SEE DRAWINGS H-2-27135 and H-2-28822.	CPS-Z-165-80604	H-2-93504 sht 1
CRDR-HC-6	GLOVEBOX HC-6 CRITICALITY DRAIN AND SCREEN. FOR ASSEMBLY, ARRANGEMENT, and INSTALLATION SEE DRAWINGS H-2-27135 and H-2-28822.	CPS-Z-165-80606	H-2-93504 sht 1
CRDR-HC-7	GLOVEBOX HC-7 CRITICALITY DRAIN AND SCREEN. FOR ASSEMBLY, ARRANGEMENT, and INSTALLATION SEE DRAWINGS H-2-27135 and H-2-28822.	CPS-Z-165-80607	H-2-93504 sht 3
CRDR-HC-9B	GLOVEBOX HC-9B CRITICALITY DRAIN AND SCREEN. FOR ASSEMBLY, ARRANGEMENT, and INSTALLATION SEE DRAWINGS H-2-27135 and H-2-28822.	CPS-Z-165-80609	H-2-93504 sht 5
CRDR-HC-227S	GLOVEBOX HC-227S CRITICALITY DRAIN AND SCREEN. FOR ASSEMBLY, ARRANGEMENT, and INSTALLATION SEE DRAWINGS H-2-27135 and H-2-28822.	CPS-Z-165-80623	H-2-93504 sht 2
CRDR-HC-227T	HOOD HC-227T CRITICALITY DRAIN AND SCREEN. FOR ASSEMBLY, ARRANGEMENT, and INSTALLATION SEE DRAWINGS H-2-27135 and H-2-28822.	CPS-Z-165-80601	H-2-93504 sht 2

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SE SYSTEMS COMPLIANCE SHEET CRITICALITY DRAINS AND SCREENS, FILLER DISCS AND RASCHIG RINGS			
APPLICABLE OSR LCO (WHC-SD-CP-OSR-010 Section 3.0):			
3.1.1 Criticality Prevention System			
SE SYSTEM EQUIPMENT/COMPONENT LIST			
MASTER COMPONENT INDEX NUMBER	FUNCTIONAL DESCRIPTION	CRITICALITY PREVENTION SPECIFICATION NUMBER	ESSENTIAL DRAWING NUMBER
CRDR-MT-5	GLOVEBOX MT-5 CRITICALITY DRAIN AND SCREEN. FOR ASSEMBLY, ARRANGEMENT, and INSTALLATION SEE DRAWINGS H-2-26865, H-2-28934 and H-2-28935.	CPS-Z-165-80715	H-2-28013 sht 3
CRDR-MT-6	GLOVEBOX MT-6 CRITICALITY DRAIN AND SCREEN. FOR ASSEMBLY, ARRANGEMENT, and INSTALLATION SEE DRAWINGS H-2-26865, H-2-28934 and H-2-28935.	CPS-Z-165-80716	H-2-28013 sht 1
GB-HC6-SUMP_PLATE GB-HC6-RASCHIG_RINGS	GLOVEBOX HC-6 FLOOR FILLER PLATES AND PIT RASCHIG RINGS SEE DRAWING H-2-25598 and CPS.	CPS-Z-165-80606	H-2-93504 sht 1
GB-HC7-SUMP_DISC	GLOVEBOX HC-7 SUMP FILLER DISCS. FOR ASSEMBLY AND INSTALLATION SEE DRAWING H-2-24640 shts 1 & 2.	CPS-Z-165-80607	H-2-93504 sht 3
GB-HC9B-SUMP_DISC	GLOVEBOX HC-9B SUMP FILLER DISC. FOR ASSEMBLY AND INSTALLATION SEE DRAWING H-2-24640 shts 1 & 2.	CPS-Z-165-80609	H-2-93504 sht 5
CRDR-2ND_WEST-1 CRDR-2ND_WEST-2 CRDR-2ND_WEST-3 CRDR-2ND_WEST-4 CRDR-2ND_WEST-5 CRDR-2ND_WEST-6 CRDR-2ND_WEST-7 CRDR-2ND_WEST-8 CRDR-2ND_WEST-9 CRDR-2ND_WEST-10 CRDR-2ND_WEST-11	CRITICALITY DRAIN 2ND WEST GLOVEBOXES. FOR ASSEMBLY AND INSTALLATION SEE DRAWING H-2-29941 sht 1.	CPS-Z-165-80710	H-2-28379 H-2-28373
CRDR-2ND_EAST-1 CRDR-2ND_EAST-2 CRDR-2ND_EAST-3 CRDR-2ND_EAST-4 CRDR-2ND_EAST-5 CRDR-2ND_EAST-6 CRDR-2ND_EAST-7 CRDR-2ND_EAST-8 CRDR-2ND_EAST-9 CRDR-2ND_EAST-10	CRITICALITY DRAIN 2ND EAST GLOVEBOXES. FOR ASSEMBLY AND INSTALLATION SEE DRAWING H-2-29941 sht 1.	CPS-Z-165-80709	H-2-28380 H-2-28374
CRDR-10-179	CRITICALITY DRAIN FOR GB-10-179. FOR ASSEMBLY AND INSTALLATION SEE DRAWING H-2-28983.	CPS-L-114-00020	H-2-28983

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**SE SYSTEMS COMPLIANCE SHEET
CRITICALITY DRAINS AND SCREENS,
FILLER DISCS AND RASCHIG RINGS**

APPLICABLE OSR LCO (WHC-SD-CP-OSR-010 Section 3.0):

3.1.1 Criticality Prevention System

SE SYSTEM EQUIPMENT/COMPONENT LIST

MASTER COMPONENT INDEX NUMBER	FUNCTIONAL DESCRIPTION	CRITICALITY PREVENTION SPECIFICATION NUMBER	ESSENTIAL DRAWING NUMBER
CRDR-12-179	CRITICALITY DRAIN FOR GB-12-179. FOR ASSEMBLY AND INSTALLATION SEE DRAWING H-2-28983 sht 1.	CPS-L-114-00010	H-2-28983 sht 1
CRDR-1-188	CRITICALITY DRAIN FOR GB-1-188. FOR ASSEMBLY AND INSTALLATION SEE DRAWINGS H-2-28536 sht 1, H-2-28584 shts 1 & 2, H-2-27135, AND H-2-28551.	CPS-L-114-00010	H-2-28536 H-2-28584 shts 1 & 2
CRDR-522	CRITICALITY DRAIN FOR GB-522. FOR ASSEMBLY AND INSTALLATION SEE DRAWING H-2-26802 AND H-2-26803.	CPS-L-114-00010	H-2-26802
CRDR-4TH_COLUMN	CRITICALITY DRAINS FOR 4TH FLOOR COLUMN GLOVEBOXES.	CPS-Z-165-80704	H-2-28412
CRDR-5TH_COLUMN	CRITICALITY DRAINS FOR 5TH FLOOR COLUMN GLOVEBOXES.	CPS-Z-165-80705	H-2-28412
CRDR-6TH_COLUMN	CRITICALITY DRAINS FOR 6TH FLOOR COLUMN GLOVEBOXES.	CPS-Z-165-80706	H-2-28412