

ENGINEERING CHANGE NOTICE

H

1. ECN **651321**

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Proj.
ECN

2. ECN Category (mark one) Supplemental <input type="checkbox"/> Direct Revision <input checked="" type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedure <input type="checkbox"/> Cancel/Void <input type="checkbox"/>	3. Originator's Name, Organization, MSIN, and Telephone No. M. K. Ullah, 15510, T4-20, 6-2944	4. USQ Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Date 12/18/98	
	6. Project Title/No./Work Order No. NA	7. Bldg./Sys./Fac. No. General/99C & 15B/PFP	8. Approval Designator SQ	
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) HNF-SD-CP-SDD-009, rev 2	10. Related ECN No(s). None	11. Related PO No. None	

12a. Modification Work <input type="checkbox"/> Yes (fill out Blk. 12b) <input checked="" type="checkbox"/> No (NA Blks. 12b, 12c, 12d)	12b. Work Package No. NA	12c. Modification Work Complete NA Design Authority/Cog. Engineer Signature & Date	12d. Restored to Original Condition (Temp. or Standby ECN only) N/A Design Authority/Cog. Engineer Signature & Date
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13a. Description of Change 13b. Design Baseline Document? Yes No

Direct revision to the System Design Description (SDD -009) Document is made to incorporate the following:

- Delete Section 4.1.3 "Illumination Equipment" including its references to the Appendices.
- Delete Section 4.2.2 "Back Up Lighting" including its references to the Appendices.
- Delete Section 5.2.2 "Emergency Lights" including its references to the Appendices.
- Add a new description for the "General Service Speakers" in Section 4.1.3.
- Add a reference procedure for "Evacuation/Take Cover Siren Audible Test" in Section 5.2.
- Editorial changes were made as necessary.

USQ screening attached. Jan 3/11/99

14a. Justification (mark one)

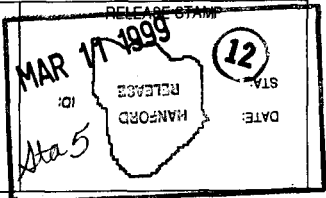
Criteria Change <input type="checkbox"/>	Design Improvement <input checked="" type="checkbox"/>	Environmental <input type="checkbox"/>	Facility Deactivation <input type="checkbox"/>
As-Found <input type="checkbox"/>	Facilitate Const. <input type="checkbox"/>	Const. Error/Omission <input type="checkbox"/>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

14b. Justification Details

A new SDD is generated for the Back Up Power System i.e. SDD-024, and information deleted from this SDD-009 is consolidated into this new SDD in order to maintain consistency.

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

See Distribution List



ENGINEERING CHANGE NOTICE

16. Design Verification Required

17. Cost Impact

18. Schedule Impact (days)

	ENGINEERING	CONSTRUCTION	
<input type="checkbox"/>	Additional <input type="checkbox"/> \$	Additional <input type="checkbox"/> \$	Improvement <input type="checkbox"/>
<input checked="" type="checkbox"/> No	Savings <input type="checkbox"/> \$ N/A	Savings <input type="checkbox"/> \$ N/A	Delay <input type="checkbox"/> N/A

19. 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 13. Enter the affected document number in Block 20.

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"/>	None	<input checked="" type="checkbox"/>
Environmental Permit	<input type="checkbox"/>	Inventory Adjustment Request	<input type="checkbox"/>		<input type="checkbox"/>

20. 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
None		

21. Approvals

	Signature	Date		Signature	Date
Design Authority WF White	<i>WF White</i>	<u>12/28/98</u>	Design Agent		
✓ Cog. Eng. WF White	<i>WF White</i>	<u>1/19/99</u>	PE		
✓ Cog. Mgr. GA Glover	<i>GA Glover</i>	<u>5-11-99</u>	QA		
✓ QA DR Groth	<i>DR Groth</i>	<u>2/19/99</u>	Safety		
✓ Safety S. Munn (Nuclear Safety)	<i>S. Munn</i>	<u>3/2/99</u>	Design		
✓ Environ. Other OSR REP	<i>J. P. ...</i>	<u>3/2/99</u>	Environ.		
✓ M.K. U. Hatt	<i>M.K. U. Hatt</i>	<u>1/26/99</u>	Other		
			DEPARTMENT OF ENERGY		
			Signature or a Control Number that tracks the Approval		
			Signature		
			ADDITIONAL		

UNREVIEWED SAFETY QUESTION (USQ)

ECN 651321

SCREENING AND EVALUATION

Page 3 of 4

1. IDENTIFICATION NUMBER: ECN 651321

USQ SCREENING

Page of

2. TITLE: HNF-SD-CP-SDD-009 UPDATE

INSTRUCTIONS:

Respond to each question and provide justification for each response. A re-statement 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).

DESCRIPTION:

ECN 651321 is a complete revision of HNF-SD-CP-SDD-009, "DEFINITION AND MEANS OF MAINTAINING THE EMERGENCY NOTIFICATION AND EVACUATION SYSTEM PORTION OF THE PLUTONIUM FINISHING PLANT SAFETY ENVELOPE," Rev. 2. This change removes references to the emergency lights from the document as they are covered by the Life Safety Code, NFPA 101 so are not Safety Significant or Safety Class equipment. Additionally, sections were added to the document to clarify the boundaries between Safety Significant and General Service PAX speakers and to list the newly developed Evacuation Siren test procedure (ZSR-99C-001) as a maintenance procedure. Other editorial changes were made as necessary. These editorial changes do not affect the technical content of the document.

INTRODUCTION:

The emergency light system at PFP is a series of self-contained battery-powered lights placed along plant egress routes. These lights provide adequate illumination to allow people to exit the buildings during a loss of normal lighting. The emergency lights are governed by requirements contained in NFPA 101, Section 5.9. Since they are controlled by an existing program, the lights are not considered Safety Class or Safety Significant, and should not be mentioned in SDD-009. The PAX speaker clarification spells out which speakers are considered General Service, the reasoning behind that determination, and acceptable replacement speaker specifications.

SCOPE:

This screening covers the complete revision of HNF-SD-CP-SDD-009, Rev. 2 per ECN 651321.

AUTHORIZATION BASIS:

PFP's Emergency Notification and Evacuation System (ENES) is covered by the PFP Final Safety Analysis Report (FSAR), WHC-SD-CP-SAR-021, sections 1.2.2.3.7 (Rev. 0-B), 5.4.10.1 (Rev. 0-G), and 5.4.10.2.1. There are no OSRs, LCOs, or Surveillance Requirements associated with this system. The remaining documents of FSP-PFP-5-8, Section 2.23, Appendix A (Rev. 12) do not apply.

CONCLUSION:

The document revision described by ECN 651321 is within the bounds of the Authorization Basis. All screening questions have been answered "No" or "N/A" so a USQ Evaluation is not required. No changes to the Authorization Basis are required.

REFERENCES:

FSP-PFP-5-8, Section 2.23, IDENTIFICATION AND RESOLUTION OF UNRESOLVED SAFETY QUESTIONS, Appendix A, Rev. 12.
HNF-SD-CP-SAR-021, PLUTONIUM FINISHING PLANT FINAL SAFETY ANALYSIS REPORT, Rev. 1.
Life Safety Code, NFPA 101, Section 5.9.

QUESTIONS:

- 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: WHC-SD-CP-SAR-021, Plutonium Finishing Plant Final Safety Analysis Report, sections 1.2 and 5.4 describe the ENES. These descriptions are general in nature, and do not give specific details of system configuration or layout. Additionally, the emergency lights are described in 5.4.10.1.4. The SDD revision only removes emergency lights from the SDD. No physical changes to the emergency light configuration or design are made. This revision will not change any of the above descriptions.

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

ECN 651321
Page 4 of 4.

1. IDENTIFICATION NUMBER: ECN 651321

USQ SCREENING

Page of

2. TITLE: HNF-SD-CP-SDD-009 UPDATE

2. Does the proposed change or occurrence represent conditions that have not been analyzed in the Authorization Basis?
 N/A No Yes/Maybe

BASIS: Several of the accidents analyzed in Chapter 9 of the FSAR will result in activation of one or more of the emergency notification systems. The SDD revision, however, does not change any of the systems. Their ability to act as an alarm or notification system will remain unaffected, so any Chapter 9 analysis will not be affected by the revision.

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: No new tests or experiments will be introduced by this change.

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 OSRs, in their capacity as TSRs do not contain any requirements concerning the ENES. There are no LCOs or Surveillance Requirements associated with these systems. There are no margins of safety defined in the OSR concerning the ENES.

USQE No. 1: W. F. White
 Print Name

USQE No. 2: M. S. BUSCH
 Print Name

USQE No. 1: W. F. White 1/3/11/99
 Signature Date

USQE No. 2: M. S. Busch 3/11/99
 Signature Date

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 EMERGENCY NOTIFICATION AND EVACUATION SYSTEM PORTION OF THE PLUTONIUM FINISHING PLANT SAFETY ENVELOPE

W. F. White

B&W Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 651321 UC: 506
Org Code: 15510 Charge Code: 101404
B&R Code: EW7002000 Total Pages: 15


Key Words: PFP, Evacuation, Emergency Notification, Evacuation Sirens, Safety Envelope Definition, Authorization Basis

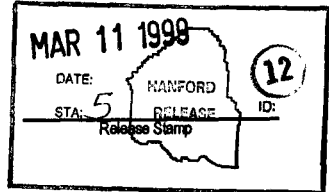
Abstract: The Emergency Evacuation and Notification System provides information to the PFP Building Emergency Director to assist in determining appropriate emergency response, notifies personnel of the required response, and assists in their response. The report identifies the equipment in the Safety Envelope (SE) for this System and the Administrative, Maintenance, and Surveillance Procedures used to maintain the SE Equipment.

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Valcom is trademark for Valcom Inc. Roanoke, Va.

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Approved for Public Release

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1.0 PURPOSE

The purpose of this document is to provide the definition and means of maintaining the safety envelope (SE) for the Emergency Notification and Evacuation System (ENES). Together with the appendices, it provides:

1. The system requirements for determining system operability. (Section 3.0)
2. Evaluations of equipment to determine the safety boundary for the system. (Section 4.0)
3. List of system drawings that are annotated to show the SE boundaries. (Appendix A)
4. Identification of the SE equipment by reference to systems and drawings. (Appendix B)
5. Requirements for the individual SE equipment. (Section 4.0)
6. A list of the operational and surveillance procedures necessary to operate and maintain the system equipment within the SE. (Sections 5.0 and 6.0)

The Private Automatic Exchange (PAX) phones and PAX switchers are outside the safety envelope defined in WHC-SD-CP-OSR-010, Section 5.4.10, "Safety Communication and Alarm Systems," Section 5.4.10.1, "Major Components and Operating Characteristics," and Section 5.4.10.1.12, "PAX System." The PAX override microphone system maintains the safety envelope, and functions as a backup to the evacuation sirens during an emergency.

2.0 BACKGROUND

Plutonium Finishing Plant (PFP) Final Safety Analysis Report (FSAR) WHC-SD-CP-SAR-021, Rev 0, September 1995, Chapter 9.0, postulates a number of abnormal operations and accidents which may require PFP personnel to evacuate the facility or take cover. In addition, the Building Emergency Plan for Plutonium Finishing Plant Complex, HNF-IP-0263-PFP, identifies six generalized potential emergency situations that may require an evacuation or take cover response. The situations and responses, summarized in HNF-IP-0263-PFP, are as follows:

- 1) Potential evacuation response
 - a) Release of hazardous material (radioactive or nonradioactive) at this or another facility impacting this facility
 - b) Loss of utilities
 - c) Protective response to emergencies affecting ability to inhabit the facility (i.e., bomb threat)
- 2) Potential take cover response
 - a) Release of hazardous material outside of a facility
 - b) Attack by hostile factions
 - c) Protective response to emergencies affecting the facility or personnel

The set of equipment at PFP that is designed to provide information to the Building Emergency Director (BED) to determine the appropriate emergency response, notify personnel of the required emergency action, and assist in their response is referred to in this document as the ENES. The table for emergency notification and evacuation system SE equipment is listed in Appendix B.

The SE equipment in this system consists of the following:

- 1) Plant crash alarm system phones
- 2) Internal PAX override microphones
- 3) PAX speakers
- 4) Central PAX amplifiers
- 5) Evacuation sirens

Because this equipment failure could result in significant harm to facility workers due to industrial hazards, it is classified as Safety Significant in the FSAR.

The fire, criticality, and radiation alarms are not considered part of the SE for the ENES. They are, however, part of the PFP SE and are addressed in the SE documents covering fire protection, criticality detectors and alarms, effluent stack monitors and samplers, and room continuous air monitors.

3.0 SYSTEM FUNCTIONAL REQUIREMENTS

The decision to activate the evacuation or take cover alarm is made by the PFP BED for PFP facility emergencies. Area or site wide emergencies may also require PFP personnel to take emergency action. Once the decision is made to notify personnel of the required emergency action (e.g., evacuation or take cover), there are various means available within the PFP facility to do so. The ENES therefore, is required to perform the following functions:

- 1) Annunciation of the evacuation or take cover alarm.
- 2) Provide notification to PFP personnel of action to be taken, and as a backup communication source to the emergency sirens (i.e., evacuation, take cover, criticality).

4.0 SAFETY ENVELOPE EQUIPMENT

4.1 SELECTION OF SAFETY ENVELOPE EQUIPMENT

The equipment in the ENES SE can be grouped by two basic functions it performs.

4.1.1 Communication Equipment

There are PAX override microphones located in Room 104 in 234-5Z Building, and in Room 25 in 270-Z Building. Also, phone lines - Line 1 and Line 2, can be used for PAX overrides within building 234-5Z. The phones in Room 321A - 234-5Z Building, the Micon¹ Station - 234-5ZA Building, Room 500 - 291Z Building, and Room 602 - 2736-ZB Building all have Line 1 and Line 2 capability. The system will provide the PFP facility with PAX announcement capabilities, if the phones are left off the hook. The PAX override microphone system is safety significant equipment (SSE).

The PAX speakers are utilized for two safety of personnel actions: 1) to announce an evacuation of air spaces during a potential airborne contamination event (e.g., continuous air monitor (CAM) alarm, serious contamination spread, loss of ventilation), and 2) to announce a test of the Criticality Alarm System Horns. The speakers that insure the areas to be covered by these announcements

¹ MICON is a registered trademark of MICON Systems, Inc., Houston, TX.

hear the announcements are SSE. Table 4.1 identifies the areas encompassed by the ENES SE. The SSE speakers must meet the requirements of section 4.1.3. Commercial grade equipment meeting those requirements may be used to replace/supplement the SSE speakers.

4.1.2 Notification Equipment

The primary system used to notify PFP facility personnel to evacuate or take cover is the evacuation sirens. The PAX system will function as a supplement to the evacuation sirens in an emergency at PFP. The crash alarm system, a feature of the plant telephone system, is used to notify the PFP BED for site or area emergencies.

The evacuation siren system consists of more than 31 sirens and a siren controller. There are approximately 28, 125VDC powered sirens in various PFP facility buildings. These sirens are powered from 125VDC Emergency Panel PD via Panel DC (about 27 sirens) and Panel DD (1 siren). These panels are located in rooms 265 and 266 of 234-5Z Building, respectively. Control power for Panel PD is via 125 VDC switchgear batteries. The switchgear batteries are charged by parallel battery chargers tied to the emergency bus. There are two 120VAC sirens in 270-Z Building, which are powered by normal power via Panel A and have their own UPS. Panel A is located in Corridor 7, Column E19 of the 234-5Z Building.

There are three 480VAC sirens, one in the ventilation plenum, one on the roof of the 234-5Z Building, and one on the roof of the 2736-ZB Building. The sirens are powered from emergency power backup.

There is a siren controller for all the DC and AC powered sirens. It controls the tone of the siren to indicate which emergency action to take: a steady tone is the signal for facility evacuation, a wavering tone - take cover. There are siren control switches in plant locations: 234-5Z, Room 321A; 2701-ZA; and 2736-ZB, Room 607. The siren controller is powered directly from emergency 125VDC Panel PD.

Evacuation and take cover alarms can also be initiated using the crash alarm system. This is a feature of the plant phone system that allows a message to be given over selected phones throughout the facility by dialing one number. This system is primarily used for area or site emergencies. The crash phones in the PFP facility are in the 234-5Z Building, Rooms 104, 107, and 321 and 270-Z Building, Room 62 and are identified by yellow stickers on the handset. Instructions received via the crash alarm system are then relayed to other PFP personnel by sirens, PAX, or verbal instructions.

4.1.3 Speaker Qualification

4.1.3.1 Safety Envelope Speakers

Commercial grade speakers meeting the following specifications are acceptable for use when connected to the central PAX amplifier system. Speakers of less than 10 watts shall have a variable impedance selector (for volume control) and be designed for use from a 70 volt central amplifier system. Speakers greater than or equal to 10 watts do not need to have a volume adjustment, but must be designed for use with a 70 volt central amplifier system. The following are the part numbers for speaker assemblies from the manufacturer of the amplifiers used in the PAX system. Speakers are not restricted to this list, but must be functional equivalents.

- Bogen **WBS8T725BVR** (Wall mount box with 7 watt speaker and volume control)
- Bogen **SPT15A** (weatherproof horn with 15 watt output)
- Bogen **SPT30A** (weatherproof horn with 30 watt output)

4.1.3.2 General Service Speakers

Speakers outside the safety envelope (see Table 4.1) are typically powered from an independent 24VDC power supply connected to a local power panel. Replacement or new installation speakers for this portion of the system shall be commercial grade speakers rated between 5 and 30 watts. The following speakers, or their functional equivalent, are acceptable:

- VALCOM **V-1030C** (weatherproof horns; 5, 15, or 30 watts) with manufacturer's recommended power supply.

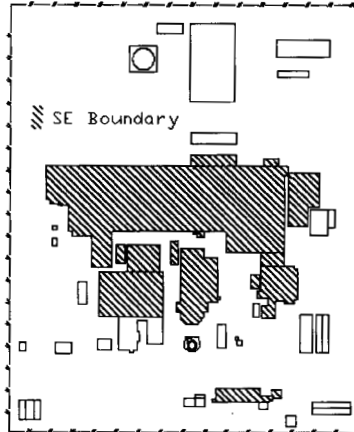


Table 4.1
Buildings within SE Boundary for PAX System

241-Z	241-ZA	241-ZB	236-Z
291-Z	2736-Z	2736-ZA	2736-ZB
234-5Z	234-5ZA	2734-ZL	2731-Z
2727-Z			

4.2 JUSTIFICATION FOR EXCLUSION OF EQUIPMENT FROM SAFETY ENVELOPE

Specific components not included in the safety envelope and the reasoning behind their exclusion is discussed below.

4.2.1 PFP PAX Communication System

The PFP PAX communication system (consisting of the PAX phones and PAX switchers) is not included in the safety envelope because the PAX phone system is not needed to evacuate personnel at PFP. The PAX public communication system's main function is to supplement the evacuation sirens in an emergency at

PFP and serves as a backup to the evacuation system in the event of an emergency. These functions of the PAX phone communication system are not considered safety functions.

The fact that personnel can be exposed to airborne contamination in rooms beyond the one with an alarming CAM requires the PAX speakers to inform personnel in the affected areas to exit to a safe area. Areas covered by CAM's will also need to be covered by the PAX speakers for any affected areas. This is a safety function for these selected PAX speakers and they are within the SE boundary.

It is a fact that personnel could be injured evacuating during a Criticality Alarm System Horn sounding. This risk is acceptable if it is an actual alarm. However, if it is a test of the alarm, personnel are notified via the PAX speakers that it is a test and not to respond. This notification provides a safety function preventing injury. The PAX speakers covering the areas within the required area of coverage for the Criticality Alarm Horns are, therefore, within the SE boundary.

Since part of the PAX system speakers are within the SE boundary, and the amplifiers and microphones necessary to generate the signal to the speakers are also within the SE boundary. Based on the above conditions, the PAX override microphones, the identified speakers, and the system amplifiers are SSE.

5.0 SAFETY ENVELOPE PROCEDURES

There are no SE procedures for the ENES. However, there are administrative and facility preventive maintenance procedures which address some of the equipment in this system.

5.1 OPERATING PROCEDURES

There is an administrative procedure that defines the responsibilities, duties, and responses for PFP facility emergencies. This procedure is the Building Emergency Plan for Plutonium Finishing Plant Complex, HNF-IP-0263-PFP. This procedure identifies what and how to signal for an evacuation or take cover emergency. Fluor Daniel Hanford Emergency Management Procedures, DOE-0223, Vol. 1,2,3, *Emergency Plan Implementing Procedures, Richland Operations Office* addresses area and site wide emergencies which may require a response from PFP personnel.

A monthly siren operability check is conducted by PFP Operations in accordance with

DOE-0223 RLEP 3.1, Section 4.1. The sirens are activated from one of the manual switches. The activation location is rotated each month so all active switches are checked. Completion of this check is documented in the Operations Tickle File, reference: FSP-PFP-0821, Conduct of Operations Manual, Chapter 19.

5.2 MAINTENANCE PROCEDURES

5.2.1 Evacuation Sirens

2Z22163, "Switchgear Control Battery Maintenance," provide instructions for operability testing the emergency battery. The emergency battery provides 125VDC power to the DC powered sirens and the siren controller in the event of loss of AC power.

ZSR-15B-001, "Private Automatic Exchange (PAX) System Audible Test"

This procedure is to verify the audibility of the PAX System in-location at the PFP Facility.

ZSR-99C-001, "Evacuation/Take Cover Siren Audible Test"

This procedure verifies the operability of each of the evacuation/take-cover sirens.

6.0 SAFETY ENVELOPE SURVEILLANCE REQUIREMENTS

There are no SE surveillance requirements for the ENES. However, there are administrative procedures for emergency planning and response that require the periodic testing of some of equipment in this system. Surveillance testing is specified for the following:

Emergency Drills: Plutonium Finishing Plant Administration, HNF-CM-5-8, Section 5.1, requires an emergency drill and exercise program be implemented at PFP. As part of the program, the following emergency drills need to be conducted annually:

- a. Fire
- b. Evacuation
- c. Take cover
- d. Bomb threat
- e. Contamination spread
- f. Loss of utilities
- g. Security
- h. Hazardous material
- i. Criticality
- j. Seismic
- k. Process upset

Sirens: DOE/RL-94-02, *Hanford Emergency Response Plan*, Section 10.3, "Maintenance and Testing of Alarm and Communication Systems," requires quarterly testing of building evacuation and take cover alarms. This testing requirement is implemented at PFP by the monthly operability check described in Section 5.1, and in conjunction with the audible testing procedure ZSR-99C-001.

DOE/RL-94-02 requires monthly audible testing of both the evacuation (steady tone) and take cover (wavering tone) alarm. Facility operations personnel audibly test both alarms at PFP on the first Thursday of each month.

Crash alarm system: DOE/RL-94-02, Section 10.3, requires periodic testing of the crash alarm feature of the plant telephone system. These tests include site wide and area tests to be conducted monthly. The Emergency Preparedness staff conducts these tests with the building wardens or BEDs responding to the crash alarm tests in each facility.

7.0 REFERENCES

PFP FSAR, WHC-SD-CP-SAR-021, REV. 0-J, 9/95

WHC-SD-CP-OSR-010, Rev. O-H.

HNF-IP-0263-PFP REV. 4, *Building Emergency Plan for Plutonium Finishing Plant Complex*

HNF-CM-5-8, *Plutonium Finishing Plant Administration*

HNF-PRO-351, *Fire Protection System Testing/Inspecting and Maintenance Frequencies*

DOE-0223, *Emergency Plan Implementing Procedures, Richland Operations Office*

DOE/RL 94-02, *Hanford Emergency Response Plan*

**DEFINITION AND MEANS OF MAINTAINING THE
EMERGENCY NOTIFICATION AND EVACUATION
SYSTEM PORTION OF THE PFP SAFETY
ENVELOPE**

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Appendix A – SAFETY ENVELOPE SYSTEMS DATA SHEET
APPLICABLE OSR (CH 11): None
APPLICABLE FSAR ANALYSES: 9.0 ACCIDENT SAFETY ANALYSES 9.1 ABNORMAL OPERATIONS 9.2 ABNORMAL OPERATIONS/ACCIDENTS
APPLICABLE PLANT/PROCESS DESIGN/ OPERATION DESCRIPTION(S) [FSAR CHAPTER/ SECTION]: PFP FSAR, WHC-SD-SAR-021, REV. 0: Chapter 5.0/5.4.10 Safety Communications and Alarms
SAFETY SYSTEM DRAWINGS: H-2-70181, Sheet 1-4: Evacuation Siren
IMPLEMENTING PROCEDURES/COMPLIANCE VERIFICATION
OPERATING [ZO-series]: N/A
LABORATORY [LO-, LA- series]: N/A
HEALTH PHYSICS [HNF-IP-0718 series]: N/A
OPERATING SPECIFICATION(S) [OSD-Z-184-series]: N/A
ADMINISTRATIVE: HNF-CM-5-8 PFP Administration, Sections 5.1 and 5.3 HNF-IP-0263-PFP Building Emergency Plan for Plutonium Finishing Plant Complex DOE/RL-94-02 Hanford Emergency Response Plan
SURVEILLANCE: 2Z22049 Annual Test of the Evacuation Siren UPS - 270-Z. 2Z22163 Switchgear Control Battery Maintenance (Maintenance Bi-Monthly, Semi Annual, and Annual) ZSR-15B-001 Private Automatic Exchange (PAX) System Audible Test ZSR-99C-001 Evacuation/Take Cover Siren Audible Test
OTHER: Preventive Maintenance Procedures: 2Z22049 Evacuation and Take Cover Alarm Panel and Relay Test 2Z20163 Switchgear Control Battery (Bi-Monthly)

**DEFINITION AND MEANS OF MAINTAINING THE
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Appendix B - EMERGENCY NOTIFICATION AND EVACUATION SYSTEM			
Safety Significant			
SAFETY ENVELOPE SYSTEM EQUIPMENT			
EQUIPMENT TYPE	FUNCTIONAL DESCRIPTION	SYSTEM	ESSENTIAL DRAWING NUMBER
Crash alarm system phones	Provide alternate means of initiating evacuation and take cover alarms or providing other pertinent emergency information to plant personnel.	Site phones	N/A
PAX override Mics.	Allow immediate dissemination of emergency information over all PAX Speakers	PAX	H-2-96389
PAX Speakers (within 25 Rem boundary)	Provide audible announcements throughout the facility to notify PFP personnel about plant conditions.	PAX	H-2-96389
Central PAX amps	Provide signal amplification for PAX speakers.	PAX	H-2-96389
Evacuation Sirens	Provide audible signal to notify PFP facility personnel to evacuate or take cover	Evacuation Sirens	H-2-70181
Siren Controller	provides ability to control siren tone: steady tone-evacuate; wavering tone- take cover	Evacuation Sirens	H-2-70181

DISTRIBUTION SHEET

To Plutonium Finishing Plant (PFP) Facility	From PFP Facility Systems Engineering	Page 1 of 1 Date 12/18/98
Project Title/Work Order HNF-SD-CP-SDD-009, REV 3, DEFINITION AND MEANS OF MAINTAINING THE EMERGENCY NOTIFICATION AND EVACUATION SYSTEM PORTION OF THE PLUTONIUM FINISHING PLANT SAFETY ENVELOPE		EDT No. ECN No. 651321

Name	MSI N	Text With All Attac h.	Text Only	Attach. / Append ix Only	EDT/E CN Only
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M. S. Busch	T4-20	x			
D. A. Conners	T5-11	x			
O. P. Dhiman	T4-20	x			
L. E. Edvalson	T5-48	x			
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