



Department of Energy  
Savannah River Operations Office  
P.O. Box A  
Aiken, South Carolina 29802

AUG 29 2013

RECEIVED  
2013 SEP -9 PM 3:40  
DNF SAFETY BOARD

The Honorable Peter S. Winokur  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue, NW, Suite 700  
Washington, DC 20004

Dear Mr. Chairman:

SUBJECT: Transmittal of Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2012-1 Implementation Plan (IP) Deliverable 3-4 and Revised IP Dates (Letter, Hunt to McGuire, DNFSB 2012-1 Action 3-4, "Execute at Least One Formally Assessed Drill Each Year...", 08/22/13)

This letter transmits a deliverable consistent with Commitment 3-4 of the Department of Energy's IP for DNFSB 2012-1, Savannah River Site Building 235-F Safety. The deliverable is to execute at least one formally assessed drill each year, based on a postulated radiological release from Building 235-F that includes successful demonstration of the ability to adequately protect workers in all facilities and construction sites surrounding Building 235-F. The drills for 2013 have been completed and the results are documented in the "Building 235-F Assessed Drill After-Action Report" (Enclosure 1). Future drills will be commensurate with the activities at that time (i.e. Deactivation activities in Building 235-F). We will continue to submit the results of our annual drills and lessons learned reports until the hazard has been removed or mitigated.

In addition, we previously notified you that IP commitments would be delayed due to the Fiscal Year 2013 Continuing Resolution. We have completed our review of impacts and determined that six of the 12 deliverables scheduled for completion through the end of Calendar Year 2014 will be delayed. The deliverables which will be delayed along with new delivery dates are contained in Enclosure 2.

We will continue to work with your staff to effectively respond to the concerns raised in the recommendation, and complete the IP.

If you have any questions please contact me, or have your staff contacts Patrick McGuire, Assistant Manager for the Nuclear Materials Stabilization Project at (803) 208-3927.

Sincerely,

David C. Moody  
Manager

NMPD-13-0044

Honorable Winokur

2

**AUG 29 2013**

2 Enclosures:

1. Letter, Hunt to McGuire, 08/22/13
2. Revised Dates for 2012-1 IP Milestones

cc w/encl:

David Huizenga, EM-1  
Matthew Moury, EM-40  
Todd Lapointe, EM-41  
Mari-Josette Campagnone, HS-1.1  
Bill Clark, NNSA  
Scott Cannon, NNSA  
Kevin Hall, NNSA

bcc w/encls:

Vickie Wheeler, NMPD  
Tony Polk, NMPD  
JJ Hynes, AMNMSP  
Pat McGuire, AMNMSP  
Michael Mikolanis, DOE-SR  
Manager's Reading File  
AMNMSP Reading File  
AMNMSP File Copy  
File Code:

Enclosure 1: Letter, SUBJECT: Transmittal of Defense  
Nuclear Facilities Safety Board Recommendation 2012-1  
Implementation Plan (IP) Deliverable 3-4 and Revised  
IP Dates, dated **AUG 29 2013**

August 22, 2013

SRNS-N0000-2013-00054  
RSM Track No. 10667

Mr. Patrick W. McGuire, Assistant Manager  
Nuclear Material Stabilization Project  
Savannah River Operation Office  
P. O. Box A  
Aiken, SC 29802

Dear Mr. McGuire:

**DNFSB 2012-1 ACTION 3-4, "EXECUTE AT LEAST ONE FORMALLY ASSESSED DRILL EACH YEAR..."**

The purpose of this letter is to provide the response to the DOE-SR deliverable listed in Action 3.4 of the approved DOE Implementation Plan for DNFSB Recommendation 2012-1. The attached "Building 235-F Assessed Drill After-Action Report" constitutes that response. This report has been coordinated with your staff.

Please feel free to contact me or Dewitt Beeler, 2-4372, of my staff if you need additional information.

Sincerely,



Paul D. Hunt, Senior Vice President  
Environmental Management Operations

db/cc

Att.

c: J. J. Hynes, 703-H  
P. A. Polk, 703-H  
J. D. Kekacs, 703-H  
L. M. Quarles, 703-H  
V. B. Wheeler, 703-H  
D. J. Dearolph, NNSA-SRSO, 246-H  
D. A. Wilson, SRNS, 730-1B  
J. F. Dohse, 730-1B  
J. W. Temple, 730-1B  
L. C. Clevinger, 730-1B  
S. J. Howell, 703-H  
W. R. Tadlock, 707-F  
D. P. Drake, 707-F  
M. M. Lepard, 703-45A  
A. C. Doswell, 730-1B  
J. W. Rumley, 707-7F  
Records Administration, 773-52A  
DOE ECATS, 730-B



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# Building 235-F Assessed Drill After-Action Report

## Defense Nuclear Facilities Safety Board Recommendation 2012-1, Action 3-4

Approved by:

  
\_\_\_\_\_  
William R. Tadlock, Facility Manager, F-Area Complex

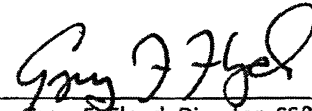
8/21/13  
Date

  
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Melanie M. Lepard, Manager, Emergency Management


8/21/13  
Date

  
\_\_\_\_\_  
Donald R. Ludwick, Manager, Emergency Services

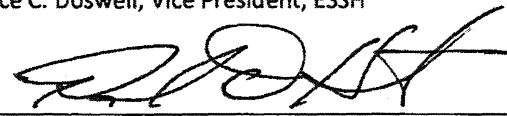
8/21/13  
Date

  
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Greg. F. Floyd, Director, SS&ES

8/21/13  
Date

  
\_\_\_\_\_  
Alice C. Doswell, Vice President, ESSH

8/21/13  
Date

  
\_\_\_\_\_  
Paul D. Hunt, Vice President, EM Operations

8/21/13  
Date

# Building 235-F Assessed Drill After-Action Report

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## EXECUTIVE SUMMARY

As outlined in the Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 2012-1, Action 3-4, Savannah River Site (SRS) committed to executing at least one formally assessed drill based on a radiological release from Building 235-F that includes successful demonstration of the ability to adequately protect workers in adjacent facilities and construction sites. This report serves as the deliverable for this action.

Drills involving an external event, impacting Building 235-F, resulting in an unfiltered radioactive release were conducted on May 15, 2013, July 17, 2013, and August 7, 2013. The intent of these drills was to demonstrate the ability of F-Area emergency response to adequately protect workers in all facilities and construction sites surrounding 235-F. The drills were conducted in a phased approach with participation by MOX Services, Savannah River Remediation (SRR), and Savannah River Nuclear Solutions (SRNS) in one or more of the drills. (Unless needed otherwise for clarification, "SRS" will be used throughout the remainder of this document when referencing SRNS and SRR drill participants.)

SRS Contractor Player and Controller performance was assessed against the Objectives, Criteria, and Lines-of-Inquiry (LOIs) contained in Manual SCD-4, "Assessment Performance Objectives and Criteria," Functional Area 13 (FA-13), "Emergency Preparedness." MOX Services, which is governed by the Nuclear Regulatory Commission (NRC) and for emergency response the Occupational Safety and Health Administration (OSHA) 29 CFR 1910/1926, conducted and assessed their program independently.

SRNS and MOX Services participated in the drill conducted on May 15, 2013, to demonstrate their ability to properly and promptly implement a Remain Indoors protective action for a radiological release from Building 235-F. MOX Services participation was assessed and their objectives were met. The MOX Services drill report for this drill is included as Attachment 2. SRNS conducted this as a training drill for their Players.

SRS participated in the drill conducted on July 17, 2013. The drill was conducted safely and without incident by all Players, Controllers, and Observers. Participants generally met the objectives and expectations outlined in the scenario manual for a successful drill; however, SRNS Players failed to properly classify the event within the time limits specified in DOE O 151.1c. The drill also identified several opportunities for improvement. Most significantly, F-Tank Farm did not activate the Safety Alarm Signal (SAS), to gain attention of their workers, prior to making the Public Address (PA) announcement of Remain Indoors for Protective Actions, and turnover and exchange of information between the Savannah River Site Fire Department (SRSFD) Incident Commander (IC), Incident Scene Coordinator (ISC) and Radiological Protection needed improvement. Additional improvements that were identified are referenced in Attachment 1. Based on the established drill assessment process, the rating for this drill was determined to be "Partially Met". This rating indicates that, though the majority of the response actions were appropriate and effective, improvements were needed. Corrective actions were implemented to address identified weaknesses and improvement items.

SRS conducted a focused drill on August 7, 2013, to validate the effectiveness of corrective actions implemented following the July 17 drill, including Emergency Event Categorization and Classification, implementation of protective actions in F-Tank Farm, and Command Post operations to include turnover

## Building 235-F Assessed Drill After-Action Report

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and exchange of information between the SRSFD, ISC, and Radiological Protection personnel. All performance objectives were met. The results from the drill are included as Attachment 3.

Through the series of drills, most personnel participated in regards to taking protective action when requested; however, there were a very small percentage of employees who failed to take the appropriate protective actions. Each of these individuals was immediately advised of the correct response during a Remain Indoors protective action notification, along with being provided re-training from their management.

As required by Manual 6Q, *SRS Emergency Plan Management Program Procedures*, EMPP-006, "Standards for the Development and Conduct of Facility Emergency Preparedness Drills," corrective actions for significant issues are included in this report as Attachment 4. The remaining items will be addressed by promulgating this report as a Lessons Learned Required Reading document to appropriate personnel. MOX Services will address their Lessons Learned separately.

These actions will be reviewed and revised, if necessary, assigned to the appropriate personnel for action, and tracked to closure in the Site Tracking, Analysis, and Reporting (STAR) database. MOX Services will track their corrective actions.

The overall performance of the facility's Emergency Response Organization, as demonstrated in the drills referenced above, indicates that the facility is capable of responding effectively to a radiological release from 235-F and implementing protective actions to protect personnel in facilities and construction sites surrounding 235-F. As required by the Implementation Plan, SRS will continue to conduct drills involving radiological releases from Building 235-F at least annually.

### **SCENARIO SUMMARY**

The drills simulated a vehicle accident causing obvious structural damage to the 235-F building. The accident resulted in a release of radiological contamination and an injury. As a noteworthy practice, participation in these drills included multiple shifts from the SRS facilities, Savannah River Site Fire Department (SRSFD) and the Savannah River Site Operations Center (SRSOC).

#### **Detailed Scenario Information for Drill Conducted May 15:**

A fuel truck carrying both diesel and gasoline was en route to 235-F to refuel the 235-F and 292-2F diesel fuel tanks. The driver lost control of the fuel truck and it crashed into the west side at the West Man Trap penetrating through the double doors partially into the 235-F facility. Structural damage occurred to 235-F at the West Man Trap location as well as to the concrete plenum that was located on the west vertical wall of 235-F. The ventilation plenum was compromised causing a vacuum alarm when the concrete plenum was damaged. The truck driver was wearing his seatbelt and escaped the accident with minor injuries.

An F Area Complex operator was en route to meet the fuel truck driver when he observed the accident. The fire and smoke were clearly visible to the F Area Complex operator and the fuel truck driver. Smoke detectors located in Vault 101 and Vault 102 were activated and caused a fire alarm to sound for 235-F.

The Shift Operations Manager (SOM) notified the Savannah River Site Operations Center (SRSOC) of the incident and requested SRSFD fire and Emergency Medical Services (EMS) assets. Additionally, the Shift

## Building 235-F Assessed Drill After-Action Report

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Operations Manager (SOM) sent a first aid team to care for the injured person and an Operations and Radiological Protection Department (RPD) employee (ISC) to liaison with the SRSFD. The ISC saw the fuel truck burning and called the SOM about the event.

A "Remain Indoors" PA announcement was made, informing personnel in the area about the emergency and giving directions for areas to avoid. The SOM informed the Emergency Duty Officer (EDO) of the protective action message.

After reviewing the Emergency Action Levels (EALs), the SOM contacted the SRSOC to discuss emergency categorization and classification. With the concurrence of the EDO, the SOM classified the event as a Site Area Emergency (SAE) using SAE-1.1, "External Event Impacting 235-F, Unfiltered Release." The verbal report of the truck impacting the building indicated an external event causing structural damage to the building. Receipt of the vacuum alarm indicated an unfiltered release, satisfying the conditions of the EAL. Upon classification, the SOM assumed the role of Area Emergency Coordinator (AEC).

First Aid Team members provided care for the injured truck driver and provided turnover to SRSFD EMS personnel. RPD members surveyed the driver for contamination and found no contamination. EMS provided first aid treatment for minor injuries.

RPD personnel were performing source checks for the 292-2F stack monitor when the event occurred. The one Radiological Control Inspector (RCI) located at the 292-2F facility observed the accident and initiation of the fire, and notified the RCI located in 235-F RPD office that an accident had occurred with fire initiation.

The SRSFD extinguished the truck fire. Runoff was contained to the immediate area; no runoff made its way to any storm drains. RPD surveyed firefighters and Emergency Medical Technicians (EMT) prior to exiting the fire area and found contamination on protective clothing (helmets, coats, pants, and/or boots). Personnel Protective Equipment (PPE) was removed prior to exit; after gear removal, firefighters were determined "clean" and released to SRSFD management.

### **Detailed Scenario Information for Drills Conducted July 17 and August 7:**

A delivery truck carrying compressed gas cylinders was en route to 292-2F to deliver nitrogen gas cylinders for the 235-F nitrogen backup system. The truck entered the 235-F complex at the main entrance on the northeast side of Building 235-F. The truck driver had a seizure, causing the driver's foot to fully depress the accelerator pedal. Vehicle speed rapidly increased and the truck crashed into the northeast side of 235-F at Door 153, penetrating through the door into the airlock and causing obvious structural damage to the building. The truck driver was seriously injured and remained in the cab of the truck.

The impact damaged the truck railings. One cylinder fell, breaking the valve stem, causing the cylinder to fly off the truck and into the East Maintenance Area, hitting walls and equipment causing a flash fire. Instrumentation modules were damaged and radiological contamination became airborne. A vacuum alarm was activated in the F-Area Complex Control Room because of the damaged fan instrumentation, generating a ventilation upset. Several fans shut down due to the alarm activation.

The fire was localized to the East Maintenance Area and self-extinguished. Smoke detectors activated, causing a fire alarm to sound in 235-F, the F-Area Complex Control Room, and SRSOC. Upon receipt of



## Building 235-F Assessed Drill After-Action Report

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the alarm, SRSOC personnel dispatched the SRS Fire Department and notified the F-Area Complex Control Room.

An operator en route to meet the delivery truck driver witnessed the accident, observed smoke exhausting from the building, and noticed the driver motionless in the cab of the truck. The SOM was notified of the event, including the injured driver and damage to the building.

The SOM notified SRSOC of the incident and requested SRSFD and EMS assets. Additionally, the SOM dispatched RPD personnel to the incident scene.

A "Remain Indoors" PA announcement was made, informing personnel in the area about the emergency and giving directions for areas to avoid. The SOM informed the EDO of the protective action message.

After reviewing the Emergency Action Levels (EALs), the SOM contacted the SRSOC to discuss emergency categorization and classification. With the concurrence of the EDO, the SOM classified the event as a Site Area Emergency using SAE-1.1, "External Event Impacting 235-F, Unfiltered Release." The verbal report of the truck impacting the building indicated an external event causing structural damage to the building. Receipt of the vacuum alarm indicated an unfiltered release, satisfying the conditions of the EAL. The fire is not directly tied to this EAL, but was included in the scenario as required by the drill schedule submitted as Action 3-1 of the Implementation Plan and to add complexity to the drill. Upon classification, the SOM assumed the role of Area Emergency Coordinator (AEC).

The SRSFD arrived and established an Incident Command Post at an upwind location. The Fire Department Incident Commander received turnover from the Incident Scene Coordinator and assumed command of the incident.

SRSFD Emergency Medical Services (EMS) personnel received a briefing from the Safety Officer and made entry to the area to attend to the victim. The patient was unconscious, seriously injured, and potentially contaminated. The patient was removed from the vehicle, treated appropriately, and packaged for transport. The patient was transferred to an ambulance and transported to a medical facility with RPD support.

RPD personnel established appropriate radiological boundaries, monitored personnel for contamination, and implemented appropriate decontamination practices. Potentially contaminated firefighters were surveyed and dressed down.

### **EVALUATION SUMMARY**

MOX Services' performance objectives were met during the May 15 drill. SRNS corrective actions identified during this drill were entered into STAR. Items identified included: providing a briefing package to the Subcontract Technical Representatives of personnel who frequently access the F-Area Power Services Building to ensure all personnel are aware of F-Area Complex's Protective Action response protocol; revision to several F-Area Complex procedures including the Emergency Plan Implementing Procedure (EPIP); specific placement of Emergency Response Maps in the Primary Control Room and Alternate Control Room for F-Area Complex; troubleshooting and repair of muffled speakers in F-Area Complex; and, installing a windsock closer to the Waste Solidification Building (WSB) area. All of these corrective actions were completed prior to conduct of the July 17 drill.

## Building 235-F Assessed Drill After-Action Report

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The majority of performance objectives were "Met" during the July 17 drill; however, the overall rating was "Partially Met". This rating was assigned because the SOM did not classify the event within the time limits specified in DOE O 151.1c. In addition, two significant improvement items were identified; the SAS warble was not sounded in F-Tank Farm, and turnover of incident scene and radiological data status at the Command Post required improvement. These items were the focal points for the August 7 drill. The drill also identified several other opportunities for improvement, as identified in Attachment 1.

Objectives and criteria that have a greater impact on health, safety, and the environment carry more weight than objectives and criteria that do not directly affect personnel health and safety.

Detailed Controller/Evaluator SCD-4 comments, which provide an in-depth assessment of each objective and criterion evaluated during the July 17 drill, are included in Attachment 1.

Some criteria in Attachment 1 are not listed, they were purposely omitted. Those criteria were either not evaluated or had no Strengths, Good Practices, Improvement Items, Weaknesses or Deficiencies identified, in which case the criterion is evaluated as "Met".

# Building 235-F Assessed Drill After-Action Report

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## Attachment 1 – Detailed Controller/Evaluator Comments

### **Objective 1: Demonstrate Facility and Site ERO members perform response activities safely**

This Objective was MET, indicating that Player performance met expectations. Players at all venues conducted response activities safely and in accordance with site policy and practices.

#### **Criterion 1.01: Facility and site ERO members perform response activities safely. (Critical)**

##### Good Practices

1. The Fire Department Safety Officer's briefing to the Entry Team was very good. The Safety Officer ensured that all personnel making entry clearly understood the tasks to be performed, the risks and hazards present in the area, the equipment and methods needed to ensure the safety of the Entry Team, and reminded Entry Team members to stay aware of possible heat stress issues.

### **Objective 2: Demonstrate the ability to develop and implement appropriate protective actions in accordance with approved procedures.**

This Objective was MET, indicating that Player performance met expectations. Players determined and implemented appropriate protective actions throughout F-Area, including accounting for personnel directed to evacuate Building 235-F. Improvement items were noted, but do not indicate an overall inability to protect personnel.

#### **Criterion 2.01: Determine/implement protective actions for the facility/area. (Critical)**

##### Good Practices

1. Appropriate protective actions were implemented for F-Area promptly.
2. WSB had two individuals designated to perform sweeps, ensuring that all personnel were notified and the facility was cleared.

#### **Criterion 2.06: Non-essential personnel perform protective actions as instructed. (Major)**

##### Improvement Items

1. Some instances of personnel not adhering to the protective action of Remain Indoors were noted in WSB (one person) and F-Tank Farm (three people). This represents a small percentage of the population in F-Area.

After conduct of the drill, these personnel were briefed on expectations for taking protective actions. No further action required.

2. Ventilation shutdown instructions in 704-10F and 707-F are inconsistent and may not match current equipment configurations.

On August 1, these two buildings were walked down by the Emergency Preparedness Coordinator and the Building Custodian. The ventilation shutdown instructions were verified to be accurate and to reflect current equipment

## Building 235-F Assessed Drill After-Action Report

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configuration. During the walkdown, it was noted that the posting in 707-F could be improved by adding instructions to contact the Control Room for access. That posting has been revised and placed on the door. No further action is needed.

### **Criterion 2.08: Demonstrate effective communications.**

#### Improvement Items

1. The F-Tank Farm Facility Emergency Coordinator (FEC) did not ensure the SAS/warble for F-Tank Farm was sounded to gain attention of workers prior to making the PA announcement of Remain Indoors for Protective Actions. However, the FEC followed up by making radio and telephone announcements. {See Corrective Actions 1 and 3}

### **Objective 3: Demonstrate the ability to properly mitigate, stabilize conditions and gain control over the emergency situation in accordance with procedures.**

This Objective was MET, indicating that Player performance met expectations. Players took actions to minimize or stop hazardous material releases in progress.

### **Criterion 3.03: Demonstrate effective communications.**

#### Good Practices

1. When difficulties occurred with maintaining communications with the F-Area Complex Control Room, the ISC requested the Control Room to stay on the line.
2. The first notification to the Control Room was good. Event information was relayed clearly and concisely.

### **Criterion 3.04: Demonstrate Command and Control.**

#### Good Practice

1. Excellent Command and Control was maintained at the Incident Command Post. The turnover and transfer of command from the ISC to the FDIC was very good and the FDIC encouraged all Command Post personnel to work together to solve problems and develop mitigation strategies. All Command Post personnel remained at the Command Post location, ensuring that face-to-face communications between Command Post staff were maintained.

### **Criterion 3.05: SRSFD personnel mitigate the emergency effectively. (Major)**

#### Good Practice

1. The SRSFD Entry Team took appropriate actions with regard to patient care, accident scene stabilization, and contamination control. Examples include the Entry Team covering the hole in the building to minimize contamination spread, taking the equipment needed to fight a fire even though no fire was obvious, and the SRSFD receiving crew changing gloves immediately after taking the patient across the Hot/Cold line.

## Building 235-F Assessed Drill After-Action Report

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### **Criterion 3.09: Demonstrate effective use of procedures.**

#### Improvement Item

1. Because extra copies of procedures were in the binder, the FLM had difficulty locating the appropriate procedure for the vacuum alarm. This was corrected by Players during the drill and verified immediately following drill termination. No further action required.

### **Objective 4: Demonstrate the ability to minimize exposure and control chemical and radiological conditions as appropriate in accordance with primary emergency response priorities.**

This Objective was MET, indicating that Player performance met expectations. Improvement items were noted relative to establishing the firefighter dress-down line and communication of information to the Control Room.

### **Criterion 4.01: Monitor and control radiological and chemical conditions and exposures in the incident facility consistent with the emergency response priorities, procedures, and guidelines. (Critical)**

#### Good Practices

1. Good habitability surveys, including air samples, were performed in the F-Area Complex Control Room and at the Incident Command Post.
2. When the Command Post location was moved, RPD appropriately surveyed the people and equipment moved.
3. When firefighters were taken out of bunker gear, appropriate measures such as taking personnel to a decontamination station and contacting Internal Dosimetry were implemented.

#### Improvement Items

1. RPD's firefighter dress-down line was set up too far away from the Hot Zone, so that potentially contaminated firefighters had to walk farther to get out of bunker gear. During the Player hotwash, the SRS Fire Department and RPD discussed zone setup for better contamination control. Additionally, this will be covered in the Lessons Learned. {See Corrective Action 5}
2. When RPD first identified contamination, the location was not marked in any way. After conduct of the drill, RPD personnel were briefed on expectations for contamination control. Additionally, this will be covered in the Lessons Learned. {See Corrective Action 5}

## Building 235-F Assessed Drill After-Action Report

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**Criterion 4.03: Demonstrate command and control of facility RPD and Industrial Hygiene personnel and activities.**

Good Practice

1. RPD First Line Manager (FLM) requested additional support from E-Area, specifically for E-Area to send an RPD FLM to the hospital to meet the ambulance and provide assistance.

**Criterion 4.05: Demonstrate effective communications.**

Improvement Item

1. Few contamination data / field readings were received in the Control Room. After conduct of the drill, personnel were briefed on expectations and will be covered in the Lessons Learned. {See Corrective Action 5}

**Objective 5: Accurately categorize/classify, upgrade, downgrade and/or terminate the emergency in a timely manner and in accordance with approved procedures.**

This Objective was PARTIALLY MET because of a failure of the criterion to appropriately categorize and classify the event in a timely manner.

**Criterion 5.01: Initial event categorization/classification is made appropriately. (Major)**

Weakness

1. Though the event was correctly classified as a Site Area Emergency, the 16 minutes between event recognition/identification/discovery and event classification exceeded the 15-minute time limit specified in DOE O 151.1c. {See Corrective Actions 2 and 3}

Classification was successfully demonstrated during the August 7 drill.

**Objective 6: Activate emergency response facilities in an effective and timely manner based on the type and extent of emergency in accordance with approved procedures.**

This Objective was MET, indicating that Player performance met expectations. Emergency Response Organization (ERO) members reported to their assigned facilities and performed their assigned duties as expected.

**Criterion 6.01: Activated ERO members must report and perform their assigned duties. (Critical)**

Good Practices

1. ERO Personnel provided good support to the SOM/AEC.
2. When the Control Room was activated as an Emergency Response Facility (ERF), personnel arrived promptly and began performing their tasks without delay.

Improvement Items

1. No facility escort met the Fire Department upon arrival at the facility, contributing to the Command Post location confusing some Players that expected the Fire

## Building 235-F Assessed Drill After-Action Report

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Department at a different location. This will be covered in the Lessons Learned. {See Corrective Action 5}

2. When requests for outside RPD assistance were made, personnel did not specify the number of people requested, the desired arrival location, and the type of equipment (PPE and instruments) they should bring with them. After conduct of the drill, RPD personnel were briefed on expectations, and additionally, this will be covered in the Lessons Learned. {See Corrective Action 5}

### **Criterion 6.02: Demonstrate command and control during the staffing/activation process.**

#### Good Practices

1. When the AEC conducted briefings, feedback and input from other Control Room personnel was encouraged.
2. The SOM/AEC delegated tasks appropriately, allowing him to focus on overall management of the facility and the emergency.

### **Criterion 6.03: Demonstrate effective communications.**

#### Improvement Item

1. When the first PA announcement was made for 235-F personnel to go to the 707-1F Rally Point, RPD responded to that location initially. The Command Post was established by the Incident Commander based on the information received from Fire Dispatch and direct observation as the Fire Department entered the area. The Command Post was at a location different than RPD expected, resulting in RPD support to the Command Post being delayed.

Corrective actions were validated during the August 7 drill. See Attachment 3. No further action required.

### **Criterion 6.05: Demonstrate effective use of procedures.**

#### Good Practices

1. The recently revised Emergency Plan Implementing Procedure (EPIP) worked well for Players.

### **Objective 7: Demonstrate the ability to provide appropriate medical care for injured personnel in accordance with approved procedures.**

This Objective was MET, indicating that Player performance met expectations. Injured personnel were provided medical assistance to the level of injury.

### **Objective 8: Perform all onsite and offsite notifications in accordance with approved procedures.**

This Objective was MET, indicating that Player performance met expectations. Improvement items were noted regarding the transmittal of information forms to appropriate locations and use of proper terminology.

## Building 235-F Assessed Drill After-Action Report

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### **Criterion 8.04: Demonstrate effective communications.**

#### Improvement Items

1. The EDO Information Form and TSR Briefing Worksheet were sent to the same location. L2-1-EPIP-002 contains different fax destinations for these two forms. Corrective actions were validated during the August 7 drill. Additionally, this will be included in the Lessons Learned. {See Corrective Action 5}
2. When the F-Area Complex Facility Manager was notified, the classification was described as a "Site Area Alert" instead of "Site Area Emergency". The use of the word "alert" may have caused confusion since it is a different classification level. After conduct of the drill, personnel were briefed on expectations, and additionally, this will be covered in the Lessons Learned. {See Corrective Action 5}

### **Objective 13: Demonstrate the adequacy and functionality of facilities and equipment to support emergency operations.**

This Objective was MET, indicating that facilities and equipment were adequate and met expectations. Improvement items were noted regarding the ability to hear and understand the PA announcements in a few areas.

### **Criterion 13.01: Facilities and equipment are adequate, functional and safe to operate. (Critical)**

#### Improvement Item

1. Several instances of PA speakers that were hard to hear or understand were noted. {See Corrective Action 4}

### **Objective 14: Demonstrate the ability of the Controller/Evaluator organization to effectively conduct an exercise.**

This Objective was PARTIALLY MET because of a failure of the criterion to effectively control a drill. This criterion was failed based on several Controller performance issues that impacted Player performance. A scenario was developed based on hazards assessments, the drill was controlled safely, and performance was evaluated appropriately.

### **Criterion 14.02: Effectively control a drill/exercise in accordance with the rules of conduct and in a manner that maximizes free-play by participants and ensures that sufficient opportunity is provided for all objectives to be met. (Major)**

#### Improvement Items

1. Controllers did not clearly communicate the contamination readings that had been given prior to the arrival of RPD. Because of this, the line between the Hot and Warm zones was moved, causing one of the firefighters to walk past other personnel that were in lower levels of PPE. Prior to conduct of the August 7 drill, controllers were briefed on expectations, and additionally, this will be covered in the Lessons Learned. {See Corrective Action 5}



## Building 235-F Assessed Drill After-Action Report

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2. Because RPD had to move, one RPD Controller was not aware of the contamination readings to be given at the Command Post, resulting in some confusion among Players. Because the MOX Services (gravel) road could not be closed, the Command Post was set up closer than it should have been which was inside the areas on the contamination map from the scenario. The decision was made NOT to give contamination data at this location, since the actual location was a drill artificiality. This decision was not properly communicated to Scene, RPD, and Command Post controllers. Prior to conduct of the August 7 drill, controllers were briefed on expectations, and additionally, this will be covered in the Lessons Learned. {See Corrective Action 5}
3. When three of the four firefighters on the Entry Team were taken out of their bunker gear for safety (heat stress) concerns, some Players were confused and did not understand that the firefighters would have still been in bunker gear and in play. Instead, the Players believed the firefighters had been surveyed clean, resulting in the firefighters getting less stringent surveys than appropriate. Controllers at the scene did not clearly communicate the reason for taking the firefighters out of bunker gear to the Players, nor was the simulated status of those firefighters communicated to the Players. Prior to conduct of the August 7 drill, controllers were briefed on expectations, and additionally, this will be covered in the Lessons Learned. {See Corrective Action 5}
4. Because of the need to allow some vehicle movement within F-Area during drill play, Law Enforcement roadblocks to isolate the incident scene were established at locations within F-Area as opposed to the normal practice of setting roadblocks on site roads to isolate all of F-Area. When the Controller organization chose the locations for the traffic control points, the entry point for F-Tank Farm was not included, resulting in vehicles entering F-Tank Farm while a protective action of Remain Indoors was in effect. Corrective actions will be covered in the Lessons Learned. {See Corrective Action 5}
5. Because of the limited resources available to establish traffic control points within F-Area, two vehicles entered the drill area; one behind 221-F and one at 717-F. Both vehicles appeared to enter through the Naval Fuels area. This was identified by Controllers as a possibility during the walk-down. Corrective actions will be covered in the Lessons Learned. {See Corrective Action 5}

# Building 235-F Assessed Drill After-Action Report

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## Attachment 2 – MOX Services Drill Report

### Summary:

On May 15, 2013, a Remain Indoors Drill was conducted in F-Area with MOX Services participating in the capacity of a fully assessed Drill in response to a request by NNSA to support the Savannah River Site response to the Defense Nuclear Facility Safety Board concerns. The initiating factor for the drill is the potential of an accident in Building 235-F which could impact the MOX Services project. The drill included all MOX Services facilities, all subcontractors and craft personnel as well as all established buildings and occupants associated with the project. Approximately 1000 craft personnel were evacuated from the Mixed Oxide Fuel Fabrication (MFFF) structure under construction. These personnel were relocated to buildings where the doors and windows could be closed and the ventilation systems shut down to meet the criteria for the Remain Indoors protective action. The established structures occupied by MOX Services personnel participated in that the ventilation systems were “simulated” shut down and all access and egress points manned to prevent personnel exiting and to segregate incoming personnel who are potentially contaminated. To evaluate the protective action process, eighteen MOX Services Controllers were stationed in the structures, within the MFFF building and in the surrounding yards. NNSA personnel were assigned as Observers and either assigned to specific buildings or to general areas of the project. The one drill objective was met and no injuries were reported. There were a few minor concerns as a result of the drill.

### Time Line:

At approximately 0900, the pre-drill announcement was given in F-Area. The event was initiated and at 0933 and a Remain Indoors protective action was issued. Craft personnel evacuated the MFFF structure and moved to acceptable buildings where the protective actions could be “simulated.” Some subcontract personnel went to their company facilities that were approved as acceptable structure while others evacuated to the Craft Building, Secure Warehouse and Technical Support Buildings. Building Fire Wardens initiated and simulated protective actions in accordance with the MFFF Emergency Response Manual. At approximately 0950 MOX Services participation was terminated.

- 0900 Pre-drill announcement indication a drill was to be performed
- 0910 Announcement that an accident had occurred at Building 235-F
- 0933 Alarm sounded
- 0948 All MOX facilities reported that protective actions had been implemented
- 0950 MOX Services participation was terminated

### Participants:

- Approximately 1000 craft personnel
- Approximately 1100 engineering / office personnel
- Controllers 18 MOX Services personnel
- Observers 12 NNSA personnel

## Building 235-F Assessed Drill After-Action Report

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### **Drill Objective:**

Demonstrate that all MOX Services personnel (craft as well as office / engineering) can perform the protective actions as directed in a Remain Indoor directive as a result of a radiological / toxic material airborne release.

**This Objective was fully met, with the exception of one individual.**

### **NNSA Observations:**

National Nuclear Security Administration (NNSA) personnel observed MOX Services' response to a radiological release drill held on Wednesday May 15, 2013. Following are the NNSA observations of the drill response.

**1. Controllers check all elevations of the Fuel Manufacturing (MP), Aqueous Polishing (AP) and Shipping and Receiving Building (BSR) are empty**

NNSA had 10 personnel observing the drill primarily following MOX Services personnel. NNSA observed these personnel clearing the building of any remaining people once the drill began.

**2. Controllers check to ensure no personnel are wandering around the site**

NNSA observed MOX Services personnel standing outside entrances to the MFFF (to prevent entry) and inside the entrance to the Process Assembly Facility (PAF), Equipment Engineering Complex (EEC), Technical Support Building (BTS) and Administration Building (BAD) prohibiting exit of personnel. Additionally, in the PAF a "contamination area" was designated for those individuals who came in from outside. A Controller in the MFFF yard did a good job of verifying that an NNSA employee was identified as a drill observer.

**3. Controllers validate that the office buildings have been secured (doors posted, ventilation systems shutdown-simulated)**

NNSA observed proper simulated shutdown procedures for the BTS and BAD. Craft personnel in the designated craft buildings were also aware of the simulated shutdown. The Secure Warehouse (BSW) was observed to have its garage doors remain open throughout the drill. Other areas designated as shelters were unable to be observed by NNSA.

**4. Controllers spot check external structures including those not acceptable for the event**

MOX Services was observed by NNSA checking structures exterior to the BSR for individuals. NNSA performed a spot check on the East side and found no individuals.

**5. If the MFFF is empty (except the office areas), no one is wandering around on the site, no personnel are in unfit structures, and the office buildings are secure**

### **COMMENT:**

While not a part of the drill, a common thread was that the PA system was hard to hear. This was noted by NNSA and MOX Services personnel. One individual commented that the PA system the day prior was provided intelligible communication, however on the day of the drill; the warble was the only clearly discernible feature in some areas. This individual theorized that it may not have been the PA system

## Building 235-F Assessed Drill After-Action Report

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itself, rather the person giving the announcement not using the PA microphone in the most effective manner.

### **MOX Services Evaluation:**

#### **Drill Performance:**

Due to the pre-announcements and beforehand training, craft personnel had pre-staged their movement to their refuge buildings. However, the timing of the drill was coordinated with the craft normal morning break period to minimize the construction impacts. Even with this drill artificiality incorporated, personnel moved quickly to acceptable locations in a minimum amount of time. The drill objective was fully demonstrated with the exception of one individual who indicated he had no information as to where to go and what to do should an event occur. All personnel performed their duties as identified in the Emergency Response Manual (go to any structure, close all doors and windows and secure the ventilation). No one was injured in the performance of the drill.

The drill was performed by personnel in a professional manner without any unknown conditions of major concern.

#### **Areas of concern:**

- Building 226-2F has 12 identified Fire Wardens but only 6 decided to participate in the drill making their designation as a Fire Warden invalid.

**Resolution:** The Chief Fire Warden is investigating removing those who did not participate and getting replacements trained.

- One Shaw Project Services Group (SPSG) craft worker stated that he had “just returned to work at 0915 today” and was not told anything. He further stated that he did not understand the announcements and did not know what to do. When questioned further he stated that he heard the alarm but did not go outside or to any building to listen for announcements.

**Resolution:** This was turned over to his supervisor for investigation.

- Building 706-5F actually shut down the ventilation system instead of simulating. Not a problem.
- One NNSA Drill Observer questioned the Fire Wardens in the Construction Administration Complex (CAC) without first requesting permission of the Controller against drill rules.

**Resolution:** This was directed to the NNSA for resolution.

- A significant number of personnel commenced to relocate to appropriate locations upon issuance of the announcements and before the alarm was issued. This is attributed to the number of announcements prior to the alarm and the PA system not providing clear information. Not considered as a problem.
- The automatic door switches at 706-3F failed to deactivate the opening mechanism when turned off. This allowed the doors to open automatically with the electric eye.

**Resolution:** This was turned over to the MOX Services Facility group for repair.

## Building 235-F Assessed Drill After-Action Report

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The following Controller and Observer comments all refer to the Public Address System problems identified during the drill:

- "Speakers in the PAF Assembly area should be checked. It was very difficult to understand the announcements."
- "All reports (from other Controllers: sic) indicate the speakers are inaudible throughout the buildings."
- "Monday and Tuesday of this week when PA system was being tested, test announcements heard in the MFFF BSR basement and 1<sup>st</sup> level were clearly understood. Announcements today from F-Area Complex Control Room for today's drill were garbled and difficult to understand."
- "The announcement for the start of the drill came over the PA system around 0900 this morning. At the time I was on the roof and the announcement of we are about to have a shelter in place drill was garbled and hard to understand. On the 5<sup>th</sup> level of the AP Building the PA has not been installed. On both levels 3<sup>rd</sup> and 4<sup>th</sup> the announcement was garbled and hard to understand."
- "All went well at the Mini-MAC (small addition to the MOX Administration Complex) yesterday, Wednesday, May 15, 2013, as the drill took place in F- Area. Ventilation was simulated to the shut-down mode and personnel stayed indoors. There was one issue: As I stood out on the balcony looking towards the MOX Facility, there were speakers not working. This was verified by standing under them, no sound. There are 3 bull horns on two poles out in front of the MOX Administration Complex (MAC). These were not working. Sound coming from the direction of the MAC to the Mini-MAC was good."

Public Address issues found during the Severe Weather Drill in April resulted in the repair of the speakers at 706-6F (EEC) and 226-2F (PAF). These locations did not have external speaker issues during this drill. Additionally the system was tested and checked prior to the drill and no issues were identified. Craft actually commented that the announcements prior to the drill were excellent. During the drill the conditions appeared to revert to the previous condition as identified in the comments above.

### **Resolution of Public Address:**

Retesting of the PA system was initiated on May 16, 2013, to determine if a cause of the conditions can be resolved as soon as possible. Testing indicated that the feed from 772-F is of such strength that it is driving the amps in the MOX System causing the message to be "garbled." The issue is to be further addressed during the week of May 20, 2013, by SRNS personnel along with the repair of the speakers that do not function. A Corrective Action will be written to address the SRNS feed issue and another to address the lack of speakers internal to the MFFF on the upper elevations.

## Building 235-F Assessed Drill After-Action Report

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### **Attachment 3 – Results of August 7 Drill**

SRS conducted a focused drill on August 7 to validate the effectiveness of corrective actions implemented following the July 17 drill. This drill was focused specifically on the following elements:

- Event categorization and classification
- Implementation of protective actions in F-Tank Farm
- Command Post operations to include turnover and exchange of information between the Fire Department, Incident Scene Coordinator and Radiological Protection

For consistency, the same scenario and Controller assignments were used wherever possible. Protective actions other than F-Tank Farm were simulated. All objectives were met for this drill.

#### **Event Categorization and Classification**

The event was correctly classified as a Site Area Emergency within the time limit of DOE O 151.1c, i.e. within 15 minutes of event recognition/identification/discovery. The event was classified approximately eight minutes after sufficient information was available in the Control Room to positively determine event classification. The AEC compared known information to the EAL statement in L2-1-EPIP-001 and determined the probable event classification. Once the AEC determined that the conditions of an EAL had been met, the EDO in SRSOC was contacted to classify the event.

#### **Implementation of Protective Actions**

Protective actions for F-Tank Farm were implemented appropriately and promptly after being directed to do so by the EDO in SRSOC. Personnel made Public Address announcements, including sounding the Safety Alarm System signal, and verified by visual observation that the facility entry had been secured by WSI. Personnel within F-Tank Farm who were not exempted from drill participation implemented the protective action properly, with the exception of one person.

One roadblock was established by WSI Law Enforcement to isolate F-Tank Farm at the entry gate (F-15). This location was chosen because F-Tank Farm personnel outside this gate were not expected to participate in this drill, as well as to minimize the possibility of blocking access to the MOX laydown yard.

#### **Command Post Operations**

The Incident Command Post was established promptly and effectively. All personnel arriving at the Command Post received a briefing on the known information including the sequence of events, the presence of hazards, and actions that had been taken. After proper turnover, the Fire Department Incident Commander assumed command of the event, briefed and dispatched an entry team, and started formulating a mitigation strategy. Radiological Protection personnel performed habitability surveys at the Command Post and initiated radiological surveys for the surrounding areas. A dress-down line for potentially contaminated firefighters was established (simulated) promptly. All personnel at the Command Post provided appropriate support to the Incident Commander, with one improvement item noted. At one point, the Incident Scene Coordinator left the Command Post location and crossed the hot/cold line. This was noticed by Radiological Protection personnel, who surveyed the ISC and returned him to the Command Post.

## Building 235-F Assessed Drill After-Action Report

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### Attachment 4 –Corrective Actions

1. (SRR) Brief all personnel responsible for directing the implementation of protective actions on the protective action process and the need to follow established procedures.
  - a. Deliverables include a copy of the briefing package and completed Class Implementation Rosters documenting completion. Assigned to SRR Training and Procedure Manager. Due Date 9/30/2013
2. Brief all F-Area Complex personnel qualified as Area/Facility Emergency Coordinator (AEC/FEC) on the need to classify an emergency event within 15 minutes of event recognition, identification, or discovery.
  - a. Deliverables include copy of the briefing package and completed Class Implementation Rosters documenting completion. Assigned to F-Area Emergency Preparedness Coordinator. Due Date 9/30/2013
3. Evaluate AEC/FEC training to ensure adequate coverage of the following topics:
  - 15-minute classification time requirement
  - Site-wide protective action methods, including the Onsite Protective Action Message
  - Appropriate methods for implementing protective actions, including the use of the Safety Alarm System signal
  - a. Deliverables include a documented evaluation identifying any needed improvements and a path forward for updating relevant training information. Assigned to SRNS Emergency Management Training Coordinator. Due Date 12/15/2013
4. Troubleshoot and repair any remaining PA speakers for F-Area.
  - a. Deliverables will include verification of operability by successful functional testing to include MOX Services. Assigned to F-Area Operations Support Lead. Due Date 9/30/2013
5. Develop a Lessons Learned document from the 235-F Drills and disseminate to affected F-Area personnel. Assigned to F-Area Emergency Preparedness Coordinator. Due Date 9/30/2013

Enclosure 2: Letter, SUBJECT: Transmittal of  
Defense Nuclear Facilities Safety Board Recommendation  
2012-1 Implementation Plan (IP) Deliverable 3-4 and  
Revised IP Dates, dated



Enclosure 2: Letter, SUBJECT: Transmittal of Defense  
Nuclear Facilities Safety Board Recommendation 2012-1  
Implementation Plan (IP) Deliverable 3-4 and Revised  
IP Dates, dated **AUG 29 2013**

### REVISED DATES FOR 2012-1 IMPLEMENTATION PLAN (IP) MILESTONES

- Action 1-2: Issue the Building 235-F Deactivation Basis for Interim Operations (BIO) (which supersedes the Surveillance and Maintenance BIO to include deactivation activities in Plutonium Fuel Form (PuFF) Facility cells 6 through 9.  
Deliverable: Letter to the Defense Nuclear Facilities Safety Board (DNFSB) forwarding the Deactivation (BIO).  
Due Date: **October 30, 2013 (Current IP date is July 30, 2013)**
- Action 1-3: Restore cell infrastructure in PuFF cells 6 through 9.  
Deliverable: Letter to the DNFSB reporting completion.  
Due Date: **February 28, 2014 (Current IP date is October 30, 2013)**
- Action 1-4: Complete a Readiness Assessment (RA) for initiation of deactivation activities in PuFF cells 6 through 9 and implement the Deactivation BIO.  
Deliverable: Letter to the DNFSB reporting initiation of deactivation activities and providing the RA report.  
Due Date: **April 30, 2014 (Current IP date is October 30, 2013)**
- Action 2a-3: Complete removal, encapsulation or isolation of fixed combustibles scope.  
Deliverable: Letter to the DNFSB reporting completion.  
Due Date: **December 20, 2013 (Current IP date is October 30, 2013)**
- Action 2b-2: Complete electrical de-energization scope including equipment removal as practical.  
Deliverable: Letter to the DNFSB reporting completion.  
Due Date: **April 1, 2014 (Current IP date is December 19, 2013)**
- Action 2c-3: Complete installation and acceptance testing of the PuFF Fire Detection and Suppression (FDAS) for S&M and deactivation phases.  
Deliverable: Letter to inform FDAS installation and acceptance test completion.  
Due Date: **April 1, 2014 (Current IP date is December 20, 2013)**