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

FEB 13 2013

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 2a-1, (Letter, Hunt to McGuire, Transient Combustible Control Program Description for Building 235-F, Revision 2, 02/11/13)

This letter transmits a deliverable consistent with Commitment 2a-1 of the Department of Energy's IP for DNFSB 2012-1, *Savannah River Site Building 235-F Safety*. The deliverable for commitment 2a-1 is a Transient Combustible Control Program specific to Building 235-F. The program is a credited feature in the facility's Safety Basis for maintaining combustible loads as low as reasonably achievable. The implementing procedures will be provided at a future date for information only.

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 contact Patrick McGuire, Assistant Manager for the Nuclear Materials Stabilization Project at (803) 208-3927.

Sincerely,

David C. Moody
Manager

NMPD-13-0016

Enclosure:
Letter, Hunt to McGuire, 02/11/13

cc w/encl:
David Huizenga, EM-1
Matthew Moury, EM-40
Todd Lapointe, EM-41
Mari-Josette Campagnone, HS-1.1

Enclosure: Letter, SUBJECT: Transmittal of
Defense Nuclear Facilities Safety Board Recommendation
2012-1 Implementation Plan Deliverable 2a-1, dated
FEB 13 2013

Savannah River
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February 11, 2013

SRNS-N0000-2013-00011
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:

TRANSIENT COMBUSTIBLE CONTROL PROGRAM DESCRIPTION FOR BUILDING 235-F, REVISION 2

The purpose of this letter is to provide an updated and final response which incorporates DOE-SR comments to the Department of Energy – Savannah River (DOE-SR) deliverable listed in Action 2a-1 of the approved DOE Implementation Plan for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2012-1.

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/ccc
Att.

c: P. W. McGuire, 703-H
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F-TRT-F-00011 Revision 2

Building 235-F Transient Combustible Control Program Description

Publication Date: February 7, 2013

FIRE PROTECTION PROGRAM

Savannah River
Nuclear Solutions, LLC
A Fluor Daniel Partnership

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SRS

Savannah River Site
Aiken, SC 29808

Signature Page

Developed by:

William V.F. Cosey, Fire Protection Engineering Services, Technical Support

Approved by:

Patrick Livengood, F-Area Facility Engineering Manager

Richard Lewis, Site Fire Protection Services

William Tadlock, F-Area Complex Facility Manager

P. Scott Church 2/7/13
P. Scott Church, F-Area Complex Safety Basis Regulatory Authority

1.0 Background

This document defines the requirements of the Transient Combustible Control Program for 235-F. The Building 235-F Transient Combustible Control Program supplements the F-Area Complex Fire Protection Program Plan and the Site Fire Protection Program Manual. The Basis for Interim Operation (BIO) for Building 235-F Surveillance and Maintenance credits this Transient Combustible Control Program as a required administrative control.

The Basis for Interim Operation (BIO) for Building 235-F Surveillance and Maintenance establishes a Transient Combustible Control Specific Administrative Control (SAC) to limit the fire severity to ensure confinement of Material at Risk (MAR) and allow personnel egress for fire events in Building 235-F. This SAC is implemented in the Building 235-F Technical Safety Requirements (TSR) as a Limiting Condition of Operation (LCO).

Transient Combustible Control is part of the first Level of Control (LOC) for the fire events identified in the Building 235-F BIO. This control reduces the frequency of fires by limiting the quantity of transient combustible material allowed in the vicinity of MAR, discussed in Section 4.5.1 of the Building 235-F BIO. The control also performs a mitigative function throughout Building 235-F by reducing the intensity of any fire. As a result, the fire severity will not be sufficient to overcome the E5 exhaust ventilation system.

The actions and procedures used to ensure compliance with this SAC are considered to be routine requiring no unique human factor considerations. The Building 235-F exhaust ventilation system (E5) serves as another part of the first LOC for these events. The control strategy for all fire events, regardless of where the fire starts, employs fire-resistant and non-combustible confinement with restrictions on transient combustible material to limit the spread and intensity of fires. The ventilation system ensures a filtered, elevated release of any entrained radiological material. The event control set is intended to ensure confinement through ventilation, while reducing the frequency and intensity of any fires that may occur through control over transient combustible materials and reducing the contribution of in-situ combustibles in adjacent rooms.

There are multiple engineered and administrative controls that reduce the frequency and consequences associated with a fire (Building 235-F structure, fire protection program, etc.). A failure to properly control transient combustible material has been postulated to result in a filtered release equivalent to the consequence values for a fire events documented in the Building 235-F BIO.

2.0 Safety Function/Purpose

The Safety Function of the Building 235-F Transient Combustible Control Program is to provide guidance to limit fire severity within enclosure rooms and adjacent rooms to mitigate a release of radiological material from an enclosure to a room long enough for facility workers to identify and respond to the fire conditions; and to prevent an unmitigated release of radiological material to the environment. The program assures that potential fire conditions are minimized by limiting the amount of combustibles available, or placing transient combustible materials in approved non-combustible containers when the

materials are not in use. The transient combustible material control SAC limits transient combustible material in a room and the entire building to quantities below that which may result in fire severity sufficient to overcome the E5 exhaust ventilation system. Additionally, the program provides a means to disposition transient combustible materials discovered to be out of compliance with the program. Should a fire start, the intensity, duration, and involvement of a fire in Building 235-F will be limited until facility workers identify and respond to the fire conditions.

3.0 Key Attributes

The key attributes of the program include:

- A Specific Administrative Control (SAC) in the TSR using the LCO format which provides Mode Applicability, Area Applicability, Condition, Required Action, Completion Time, and Surveillance Requirements and Frequency
- Locations where the Building 235-F Transient Combustible Controls apply
- Controlled entry through the F Area Complex (FAC) Shift Operations Manager (SOM) for all personnel entering Building 235-F

4.0 Program Description

The Building 235-F Transient Combustible Control Program, as implemented by the Building 235-F Transient Combustible Control procedure, limits the amount of transient combustible materials to mitigate the fire spread and fire severity in order to avoid a loss of confinement in the MAR enclosure long enough to allow personnel egress. Fire Protection personnel will procedurally verify that the transient combustible material limits established by the LCO SAC are met.

Transient combustibles are combustibles that are not permanently installed in the facility, whose storage and use are temporary or incidental to the primary functions and activities of the area, and are not located in a permanently designated storage area (warehouse, storage rooms, etc.). Examples of transient combustibles are wood, plastics, oil, boxes, etc. Hand carried items, not left unattended, are not considered transient combustibles.

The following combustible items are excluded from Transient Combustible determination:

- Attached tags and labels for equipment status, labeling or safety (e.g., DNO tags)
- Combustible material that may exist within the enclosures, equipment, and process piping
- In-use combustible material
- Other items evaluated and excluded as transient combustible material in writing by the Fire Protection Engineer (FPE)

The in-situ components of the rooms that are considered fixed (i.e., non-transient) include, but are not limited to, materials of construction, wiring, electrical outlets, installed gloves, glove ports, retainers and sashes.

An approved, non-combustible container is any container that is either Factory Mutual approved or equivalent or has been evaluated and approved for use by the FPE. Approved containers are defined in the facility approved procedures.

In-use refers to combustible material involved in work being performed. The combustible material shall be placed in an approved, non-combustible container when personnel stop using the material for greater than one hour.

SAC LCO 3.5.1 limits the quantity of transient combustible materials outside an approved non-combustible storage container to 150 lbs. wood equivalent in a room and 500 lbs. wood equivalent in Building 235-F. The LCO limit of 150 lbs. wood equivalent in a room and 500 lbs. wood equivalent in Building 235-F is based on the administrative inputs provided for the Building 235-F Fire Scenario Document.

The amount of transient combustible material available for fire involvement can be de-rated based on how it exists and stored in a room. The material can be in one of three configurations: free, partially enclosed, or fully enclosed. Each configuration determines the level of de-rating that can be applied to a specific quantity of material. De-rating factors are determined by the FPE. If transient combustible materials are found that are greater than 150 lbs. wood equivalent in a room or greater than 500 lbs. wood equivalent in Building 235-F, then Facility Management is notified to enter LCO. Any temporary transient combustible storage area established will be approved as designated storage. The area should be roped off or have limits posted. The Fire Protection Coordinator (FPC) will conduct periodic inspections to verify good housekeeping practices and posted limits are observed, as implemented by procedure.

For work evolutions that extend multi-day or are interrupted, the preferred method for interim disposition of transient combustibles is to remove them from the building and store in an outside location. Other disposition options are:

1. Temporary storage in a Designated Storage Area within a de-rating container.
2. Quantify materials, and if below TSR limit, leave in place.
3. Establish fire watch to ensure combustibles are constantly attended.

LCO 3.5.1 requires that surveillances be performed every seven (7) days to ensure that the quantity of transient combustible material that is not in use and that is outside an approved, non-combustible container does not exceed the 150 lbs. wood equivalent in a room or 500 lbs. wood equivalent in Building 235-F. If the transient combustible material limit is exceeded for a room or for Building 235-F; a fire patrol must be established for the affected location in Building 235-F within four hours and every four hours thereafter, as well as immediately storing or removing sufficient transient combustible material from the affected location to bring the location into compliance with the LCO. Because these surveillances are semi-quantitative, care is taken to make this transient combustible material determination conservatively. These surveillances are implemented by facility approved procedures.

5.0 References

1. 221-F-51120, *F-Area Complex Fire Protection Program Plan.*
2. 2Q, *Site Fire Protection Program Manual*
3. U-BIO-F-00002, *Basis for Interim Operation for Building 235-F Surveillance and Maintenance*
4. U-TSR-F-00002, *Technical Safety Requirements for Building 235-F Surveillance and Maintenance.*
5. SRNS-T8000-2012-00387, Department of Energy's (DOE) Implementation Plan (IP) for the Defense Nuclear Safety Board's (Board) Recommendation 2012-1, *Savannah River Site Building 235-F Safety.*
6. 235-F-SF-016, *Building 235-F Control of Transient Combustibles.*
7. 235-F-SF-018, *TSR Surveillance for 235-F Transient Combustible Loading*
8. FRM-235-F-209, *Transient Combustible Permit*
9. FRM-235-F-210, *Building 235-F Transient Combustible Room Log*
10. FRM-235-F-211, *Building 235-F Transient Combustible Permit Index*
11. FRM-235-F-212, *Building 235-F Current Cumulative Transient Combustible Building Log*
12. FRM-235-F-213, *Transient Combustible Loading Table for Lb. Wood Equivalencies*