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

MAR 03 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-2

REFERENCE: Letter, Hunt to McGuire, DNFSB 2012-1 Action 2A-2, "Evaluate Fixed Combustibles and Define the Fixed Combustible Removed, Encapsulation, or Isolation Scope", 02/11/13

This letter transmits a deliverable consistent with Commitment 2A-2 of the Department of Energy's IP for DNFSB 2012-1, Savannah River Site Building 235-F Safety. The deliverable is a documented review and execution plan for the removal of Building 235-F Fixed combustibles. This plan may be subject to adjustments based on actual field conditions. Changes to the plan that result in a change of this commitment will be discussed and coordinated with your staff prior to implementation.

Due to further evaluation of the approach to the electrical de-energization (Action 2B-1), an additional three weeks are needed to complete the action. The action will be forwarded on March 25, 2013.

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

David C. Moody
Manager

NMPD-13-0021

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

cc w/encl:
David Huizenga, EM-1
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Enclosure: Letter, SUBJECT: Transmittal of
Defense Nuclear Facilities Safety Board Recommendation
2012-1 Implementation Plan Deliverable 2A-2, dated
MAR 0 3 2013

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February 11, 2013

SRNS-N0000-2013-00009
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 2A-2, "EVALUATE FIXED COMBUSTIBLES AND DEFINE THE FIXED COMBUSTIBLE REMOVAL, ENCAPSULATION, OR ISOLATION SCOPE"

The purpose of this letter is to provide the response to the DOE-SR deliverable listed in Action 2a-2 of the approved DOE Implementation Plan for DNFSB Recommendation 2012-1. The attached "Evaluation and Removal Plan for Building 235-F Fixed Combustibles" constitutes that response. Minor adjustments to the execution of this plan are expected based on the field conditions in the building as the work progresses and will be handled through our normal work control processes. Any departures we believe are needed that could be reasonably perceived as a diminution of commitment will be coordinated with the appropriate members of your staff before they are implemented.

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.

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Evaluation and Removal Plan for Building 235-F Fixed Combustibles

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Authority: NI.434.98.28.01.K.03

Retention: 75 Years After Decommissioning

Evaluation and Removal Plan for Building 235-F Fixed Combustibles

F-ESR-F-00192

SRNS APPROVAL SIGNATURES

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Reviewer / 235-F Project Engineer	J. Musall		2-28-13
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and

Savannah River Nuclear Solutions, LLC

Aiken, South Carolina

Revision History

Revision	Date	Description of Revision
0	2/6/2013	Original Issue
1	2/28/13	Incorporate DOE Comments. Changes indicated by revision bars in right margin.

Table of Contents

ACRONYMS 6
EXECUTIVE SUMMARY 7
1.0 INTRODUCTION 9
2.0 BACKGROUND 10
3.0 DISCUSSION 10
4.0 SUMMARY AND CONCLUSIONS 16
5.0 REFERENCES 17
Attachment A - Building 235-F Fixed Combustible Inventory 18
Attachment B - Building 235-F Fixed Combustible Items to be Removed 22
Attachment C - Building 235-F Fixed Combustible Items to be Encapsulated 23
Attachment D - Building 235-F Rooms to be Isolated 24
Attachment E - Building 235-F Fixed Combustible Items in Non-Isolated Rooms to be Left in Place 25
Attachment F - Schedule for Fixed Combustible Isolation, Removal and Encapsulation 30
Attachment G - Composite Wall Listing and Determination 31
Attachment H - Building Layout 235-F 32
Attachment I - Building Layout 235-F 34

ACRONYMS

BC	Base Coving
CP	Carpet
CT	Ceiling Tile
CW	Composite Wall
D & D	Deactivation & Decommissioning
DI	Duct Insulation
DOE	Department of Energy
DNFSB	Defense Nuclear Facilities Safety Board
EC	Electrical Cables
FPE	Fire Protection Engineering
HC	Hazard Class
JCO	Justification for Continued Operations
PI	Pipe Insulation
S & M	Surveillance & Maintenance
SNM	Special Nuclear Material
SRNS	Savannah River Nuclear Solutions
SRS	Savannah River Site
ST	Stair Threads
TID	Tamper Indicating Device

EXECUTIVE SUMMARY

Building 235-F contains significant residual radiological contamination (primarily plutonium-238 oxide in particulate form). An accident (e.g., a seismic event with resultant fire) could breach the confinement (e.g., cells and gloveboxes) for the radiological contamination, and cause it to be dispersed to the environment. Then, worker exposure may result, which would lead to an uptake and dose to the exposed workers. The removal of fixed combustibles (to the extent feasible) is desirable because it reduces fire severity, spread and duration, and therefore reduces the severity and incidence of worker exposure (less combustible material equates to a smaller plume and lower concentrations of contaminants in the plume).

Savannah River Nuclear Solutions (SRNS) inventoried the fixed combustibles located in Building 235-F, and evaluated the inventory for removal, encapsulation or isolation. The evaluation yielded the following primary conclusions:

- All composite walls (CW) will be removed or encapsulated. Walls that continue to serve a function (e.g., confine or direct air in support of ventilation) will be encapsulated rather than be removed. (Removal is preferred for combustible control.)
- For isolated rooms, all CW's will be removed, because the CW's make a notable contribution to fire loading, and they can be readily removed during the removal of nearby CW's in non-isolated rooms. Additional fixed combustibles will remain in place for two reasons. First, the combustible loading for Building 235-F is already very low as a result of previous efforts (by the facility owner) to remove and control fixed and transient combustibles. Therefore, the removal of fixed combustibles from the isolated rooms is judged to make a negligible/marginal impact on fire severity. Second, there is already very low risk of fire in the isolated rooms due to minimal activity in those rooms and/or due to planned actions to de-energize those rooms (i.e., reduce ignition sources).
- For non-isolated rooms, miscellaneous fixed combustibles (that are not ceiling tiles, base coving, piping/duct insulation, electrical cables/wire, or stair treads) will be removed.
- For non-isolated rooms, the following conclusions apply:
    - Composite walls (CW) will be removed or encapsulated. Walls that continue to serve a function (e.g., confine or direct air in support of ventilation) will be encapsulated rather than be removed. (Removal is preferred for combustible

control.)

- Ceiling tiles (CT) will remain in place for two reasons. First, they continue to perform two critical functions: (1) confine and direct air in support of building ventilation, and (2) allow proper operation of heat and smoke detectors. Second, they are Class A materials, of limited mass, which have a negligible / marginal impact on fire severity.
- Base coving (BC) will remain in place because it is a Class A material of limited mass, which makes a negligible/marginal impact on fire severity.
- Piping insulation (PI) and duct insulation (DI) will remain in place because the insulation is judged to make a negligible/marginal impact on fire severity and because the insulation continues to serve its function (e.g., to insulate active water lines and supply ducts). (For the purpose of this evaluation, the insulation is assumed to be combustible.)
- Insulation associated with electrical cables (EC) will remain in place because the insulation continues to serve its purpose (i.e., continues to insulate electrical conductors). Also insulation will remain in place because its removal could lead to damage of adjacent energized cables and/or lead to the spread of contamination.
- Stair treads (ST) will remain in place because all stairways remain in use and provide a path of egress from the second floor of the building. The stair treads provide a non-slip surface and help prevent slips, trips and falls by workers using the stairs.

The evaluation yielded a list of rooms to be isolated thereby isolating the fixed combustibles in those rooms (see Attachment D), a listing of fixed combustibles to be removed (see Attachment B), and a listing of fixed combustibles to be encapsulated (see Attachment C). Room isolation and fixed combustible removal/encapsulation is scheduled to be completed by 10/30/2013. See Attachment F for a Level 1 schedule of activities to be completed between now and 10/30/2013. After completion of the activities detailed in Attachments B, C and D; fixed combustibles within Building 235-F will be isolated/removed/encapsulated to the extent feasible in support of ongoing surveillance and maintenance (S&M) and planned deactivation.

1.0 INTRODUCTION

The Building 235-F Complex (Building 235-F along with its support facilities (e.g., Sand Filter, Building 292-2F) and ancillary structures (e.g., 235-2F, Refrigeration Building No. 2)) is shut down and has been excessed. As such, all of the facilities and structures within the Complex are candidates for deactivation and/or decommissioning (D&D). While awaiting D&D, the various facilities and structures are being surveyed and maintained (i.e., the facilities and structures are undergoing S&M) so as to keep the facilities and structures in a safe condition while awaiting D&D. Although the facilities are being maintained in a safe condition, that condition is not without significant risk to facility and co-located workers due to the sizeable inventory of residual radiological materials within Building 235-F.

As mentioned in the previous paragraph, Building 235-F contains significant residual radiological contamination, primarily as plutonium-238 oxide in particulate form. An accident could breach the confinement (e.g., cells and gloveboxes) for the radiological contamination, and cause it to be dispersed to the environment. Then, worker exposure may result, which would lead to an uptake and dose to the exposed workers. The removal of fixed combustibles (to the extent feasible) is desirable because it reduces fire severity, duration and spread; and therefore reduces the severity and incidence of worker exposure (less combustible material equates to a smaller plume and lower concentrations of contaminants in the plume).

The Department of Energy (DOE) recognizes the risk associated with the sizeable inventory of residual radiological materials within Building 235-F, and has concurred with the Defense Nuclear Facilities Safety Board's (DNFSB's) recommendations regarding that risk (Reference 5.1). Therefore, DOE has directed SRNS to undertake an initial deactivation project so as to reduce the risk associated with a Building 235-F accident. One element of that initial deactivation project is to remove fixed combustibles from throughout Building 235-F to the extent feasible (so as to lessen the severity, duration and spread of a fire and therefore mitigate the consequences of a fire). This engineering evaluation (i.e., this document) defines the criteria, scope, and schedule for fixed combustible isolation, removal, and encapsulation within Building 235-F so as to meet the DOE's expectations and commitments (regarding fixed combustibles) as defined in the "Implementation Plan for Defense Nuclear Facilities Safety Board, Recommendation 2012-1" (Reference 5.4). To be more specific, this evaluation satisfies the following expectation/commitment within Reference 5.4 (see "Action 2a-2"):

"Evaluate fixed combustibles and define the fixed combustible removal, encapsulation, or isolation scope."

2.0 BACKGROUND

Building 235-F is a Hazard Category 2 (HC2) Nuclear Facility that was constructed in the 1950s as part of the original Savannah River Plant's weapons materials production and fabrication missions. The facility was used primarily for plutonium and neptunium component production processes within shielded cells and glovebox lines since the late 1950s.

Building 235-F is 222 feet long, 109 feet wide and 28 feet tall. The two story structure has double-reinforced, 14-inch thick, concrete exterior walls. Air from the process area passes through double High Efficiency Particulate Air filtration before exiting the building via an exhaust tunnel through a sand filter drawn by fans exhausting through a 134 foot stack.

In 1983 when the last process line was idled, the facility's remaining mission was vault storage, surveillance, and repackaging of containerized Special Nuclear Material (SNM). That storage and repackaging mission was terminated in 2006. All SNM was removed from the building except for holdup. Holdup is defined as nuclear material deposits adhering to process equipment, piping, ducting, filters, and containment walls. The majority of the holdup is in cells and gloveboxes, with small amounts identified in the process exhaust systems.

Building 235-F process systems have been shut down and initially de-inventoried.
Building 235-F is currently in an S&M mode. S&M activities include support for the electrical, diesel generator, ventilation, instrument air, alarm monitoring, steam supply, and chilled water systems that are used for containment, monitoring of residual radiological holdup, and general building habitability.

The current safety envelope is defined in a Justification for Continued Operations (JCO) which addresses the S&M mode and manages the associated risks. Various potential accidents and events associated with the holdup have been analyzed and the resulting controls have been established and implemented. There is an accident scenario in which an earthquake that causes a breach of the facility containment structure is postulated. This seismic event also initiates a fire. This propagates and evolves into a full facility fire, which engulfs the radiological contamination causing it to become airborne and be released from the building.

The Defense Nuclear Facilities Safety Board Recommendation 2012-1, *Savannah River Site Building 235-F Safety,* dated 05/09/2012 (Reference 5.1) recommends that DOE to the extent feasible, remove from Building 235-F all fixed combustibles that are not directly necessary for S & M activities.

3.0 DISCUSSION

To evaluate the 235-F fixed combustibles and to define a path forward for their isolation, encapsulation or removal; SRNS organized a task team consisting of engineering and facility personnel, who were familiar with fire protection requirements and with the structures, systems

and components within Building 235-F. Primary team members are listed in the following table (Table 3.1)

Table 3.1 – Task Team Performing the Fixed Combustible Evaluation and Defining the Path Forward for Identified Fixed Combustibles

Organization	Name	Function/Role
F-Area Engineering	P. Livengood	Cognizant Engineer, Design Authority Manager, Team Lead
	P. McDonagh	Cognizant Engineer, Design Authority, document author
Fire Protection Engineering (FPE)	W. Coscy J. Naylor	SMEs for fire protection requirements, performance of walkdowns, drawing review, development of inventory, development of initial path forward
	D. Moseley J. Apida	SMEs for fire protection requirements, performance of walkdowns, drawing review, development of inventory, development of initial path forward
F-Area Operations	D. McCaskill	Facility Custodian, support of walkdowns, review of inventory and initial path forward
	D. Drake	Facility Management, review of inventory and final path forward

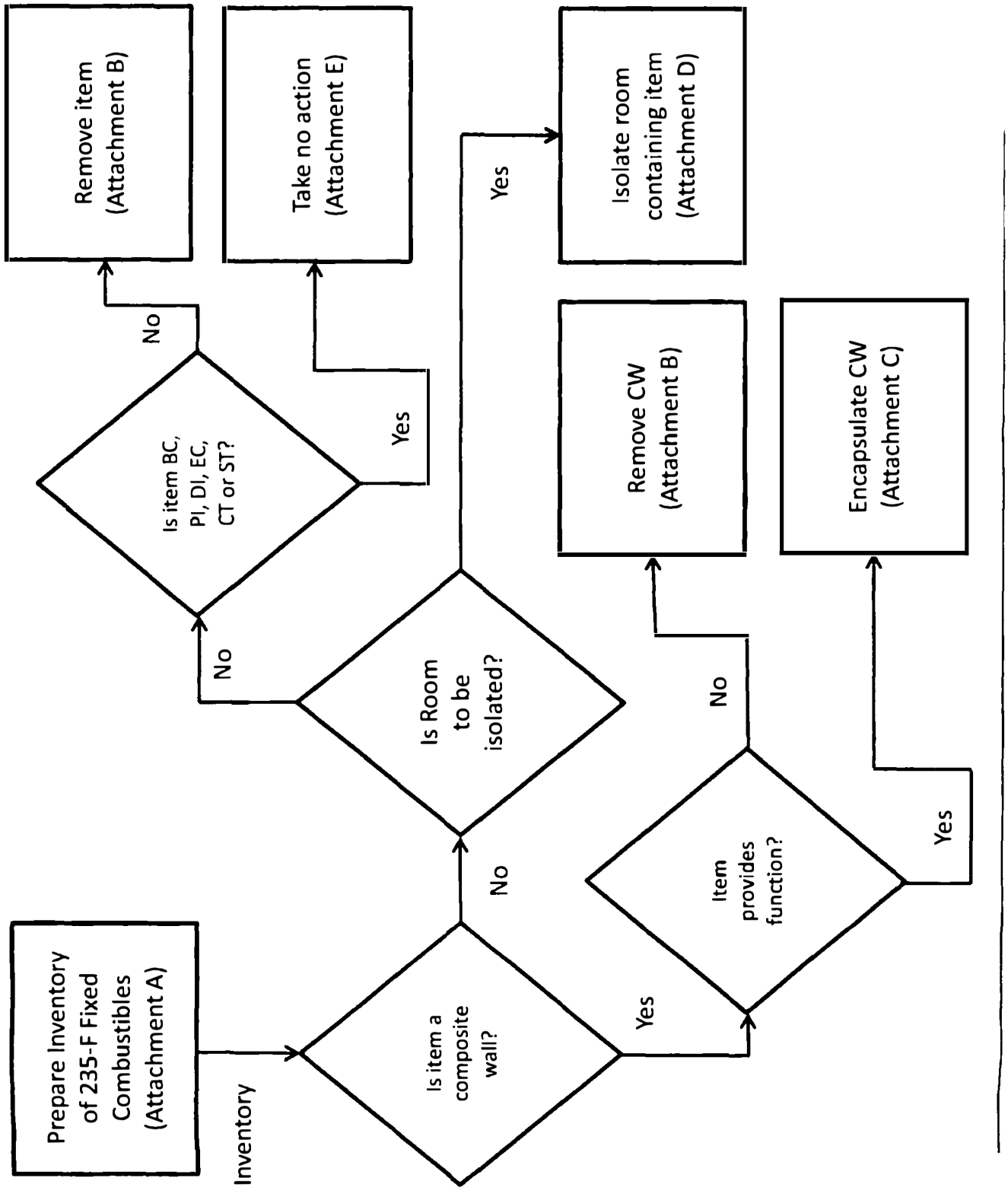
SME = Subject Matter Expert

The above team completed multiple walkdowns of Building 235-F and performed extensive reviews of pertinent documents. Based on the walkdowns and document reviews, the team identified fixed combustibles within Building 235-F and developed an inventory of fixed combustibles on a room-by-room basis (see the spreadsheet in Attachment A for full building inventory, Attachment G for inventory of only composite walls and Attachment I for the locations of composite walls.). The Attachment A spreadsheet provides a listing of all fixed combustible materials (approximately 240 items) and provides a basis for the removal, encapsulation or isolation determination. Note that coatings and finishes (e.g., paint) were not inventoried, because they are a negligible contribution to fire loading. Also note that fixed combustibles that provide confinement of radiological contamination (e.g., elastomeric seals in gloveboxes) were not inventoried, because those materials continue to serve a confinement function and because those materials will be addressed during future deactivation of cells and gloveboxes (e.g., deactivation would include, where feasible, the removal of fixed combustibles from the cells and gloveboxes).

The task team determined a path forward for each item in the inventory (Attachment A) based on the following criteria and flowchart:

1) Is the item a Composite Wall? If yes, consider wall for encapsulation or removal. If no, consider item for isolation.
2) Is the combustible item in a room to be isolated? If yes, then isolate the item in the room. If no, consider item for removal or encapsulation.
3) Is the combustible item required for structural/system integrity? If yes, then leave item in place so that it can continue to serve its purpose. If no, consider item for removal or encapsulation.
4) Is the combustible item needed for planned S&M and/or deactivation activities? If yes, then leave item in place so that it can continue to serve its purpose. If no, consider item for removal or encapsulation.
5) Is the combustible item required for proper air flow in support of ventilation and operation of fire detectors? If yes, then leave item in place so that it can continue to serve its purpose. If no, consider item for removal or encapsulation.
6) Does item potentially contain asbestos-containing materials and/or radiological contamination? If yes, qualitatively consider cost of removal versus the benefit (i.e., reduced fire loading) provided by its removal. If no, consider item for removal. (Note that the asbestos inspection report for Building 235-F (Reference 5.3) listed many positive results for asbestos contained in the putties used where the cables penetrate walls and floors.)
7) Does item have minimal impact to fire loading? If yes, then abandon item in place. If no, consider item for removal or encapsulation.

Figure 3.1 – Combustible Item Determination Flowchart



Applying the above criteria and using the flowchart, the team dispositioned the items listed in Attachment A as follows:

- Fixed combustibles to be removed are listed in Attachment B.
- Fixed combustibles to be encapsulated are listed in Attachment C.
- Rooms to be isolated are listed in Attachment D. (Isolating the rooms isolates the fixed combustibles in those rooms.)
- Fixed combustibles to be left or abandoned in place are listed in Attachment E. Note that "leave in place" indicates that the item is still serving a function in support of facility S&M and/or deactivation. "Abandon in place" indicates that the item serves no current or future function; however, its removal is not planned based on the criteria listed above.
- Composite walls to be removed or encapsulated are listed in Attachment G.

For isolated rooms, all CW's will be removed, because the CW's make a notable contribution to fire loading, and they can be readily removed during the removal of nearby CW's in non-isolated rooms. Additional fixed combustibles will remain in place for two reasons. First, the combustible loading for Building 235-F is already very low as a result of previous efforts (by the facility owner) to remove and control fixed and transient combustibles. Therefore, the removal of fixed combustibles from the isolated rooms is judged to make a negligible/marginal impact on fire severity. Second, there is already very low risk of fire in the isolated rooms due to minimal activity in those rooms and/or due to planned actions to de-energize those rooms (i.e., reduce ignition sources).

For non-isolated rooms, miscellaneous fixed combustibles (that are not ceiling tile (CT), base coving (BC), pipe insulation (PI)/duct insulation (DI), electrical cables (EC) or stair threads (ST)) will be removed. Also for non-isolated rooms, CW will be removed or encapsulated. Walls that continue to serve a function (e.g., confine or direct air in support of ventilation (e.g., Airlock 2014)) will be encapsulated rather than be removed. (See Attachment G for a consolidated listing of CW to be removed or encapsulated.) With respect to CT, BS, PI/DI, EC and ST in non-isolated rooms, the following discussion applies:

- Twenty-Nine (29) non-isolated rooms, corridors and airlocks have CTs installed. The CTs will remain in place for two reasons. First, they continue to perform two critical functions: (1) confine and direct air in support of building ventilation, and (2) allow proper operation of heat and smoke detectors. Second, the CTs will remain in

place because they are a Class A material and they make a negligible/marginal impact on fire severity.

- Approximately 60 items in Attachments A and E are BC. BC is the 4" high plastic molding installed on walls at floor level. The BC will remain in place because it is a Class A material of limited mass, and it makes a negligible/marginal impact on fire severity.
- Ten (10) non-isolated rooms contain ductwork insulated by materials that are potentially combustible, while seven (7) non-isolated rooms contain piping insulated by materials that are potentially combustible. In general, these insulated components are required to support ongoing S&M activities. PI and DI will remain in place because the insulation is judged to make a negligible/marginal impact on fire severity and because the insulation continues to serve its function, e.g., the insulation continues to insulate active water lines and supply ducts. (For the purpose of this evaluation, the insulation is assumed to be combustible)
- Eight (8) non-isolated rooms have exposed ECs (mostly located in cable trays) that are potentially combustible. Electrical Distribution Systems in Building 235-F are typically active and are required to maintain power for ventilation, fire detection, lighting, etc. Insulation associated with EC will remain in place because cables/wires remain energized and the insulation continues to serve its purpose (i.e., continues to insulate electrical conductors). Also insulation will remain in place because its removal could lead to damage of adjacent energized cables and/or lead to the spread or contamination.
- Five non-isolated stairwells have installed STs that are likely combustible. These stairwells provide required access to the second floor to perform S&M and deactivation activities. The STs will be left in place because all stairways remain in use and provide a path of egress from the second floor of the building. The STs provide a non-slip surface and help prevent slips, trips and falls by workers using the stairs.

Room isolation and fixed combustible removal/encapsulation is scheduled to be completed by 10/30/2013. See Attachment F for a Level 1 schedule of activities to be completed between now and 10/30/2013. After completion of the activities detailed in Attachments B, C, and D; fixed combustibles within Building 235-F will be isolated/removed/encapsulated to the extent feasible in support of ongoing S&M and planned deactivation.

4.0 SUMMARY AND CONCLUSIONS

To evaluate the Building 235-F fixed combustibles and to define a path forward for their isolation, encapsulation or removal; SRNS organized a task team consisting of engineering and facility personnel, who were familiar with fire protection requirements and with the structures, systems and components within Building 235-F. The team completed multiple walkdowns of Building 235-F and performed extensive reviews of pertinent documents. Based on the walkdowns and document reviews, the team identified fixed combustibles within Building 235-F and developed an inventory of fixed combustibles on a room-by-room basis.

The task team determined a path forward for each item in the inventory (see Attachment A for a full building inventory and Attachment G for inventory of only composite walls) based on criteria established by the team and a related flowchart. Applying the criteria and using the flowchart, the team dispositioned the items into four categories:

- Fixed combustibles to be removed are listed in Attachment B.
- Fixed combustibles to be encapsulated are listed in Attachment C.
- Rooms to be isolated are listed in Attachment D. (Isolating the rooms isolates the fixed combustibles in those rooms.)
- Fixed combustibles to be left or abandoned in place are listed in Attachment E.

For isolated rooms, identified fixed combustibles would remain in place for two primary reasons. First, the combustible loading for Building 235-F is already very low as a result of previous efforts (by the facility owner) to remove and control transient combustibles. Therefore, the removal of fixed combustibles from the isolated rooms is judged to make a negligible/marginal impact on fire severity. Second, there is already very low risk of fire in the isolated rooms due to minimal activity in those rooms and/or due to planned actions to de-energize those rooms (i.e., reduce ignition sources).

For non-isolated rooms, miscellaneous fixed combustibles (that are not ceiling tile (CT), base coving (BC), pipe insulation (PI)/duct insulation (DI), electrical cables (EC) or stair threads (ST)) will be removed. Also for non-isolated rooms, CW will be removed or encapsulated. Walls that continue to serve a function (e.g., confine or direct air in support of ventilation (e.g., Airlock 2014)) will be encapsulated rather than be removed. (See Attachment G for a listing of only composite walls.) With respect to CT, BC, PI/DI, EC and ST in non-isolated rooms, the following discussion applies:

- CTs will remain in place for two reasons. First, they continue to perform two critical functions: (1) confine and direct air in support of building ventilation, and (2) allow proper operation of heat and smoke detectors. Second, the CTs will remain in place

because they are a Class A material and they make a negligible/marginal impact on fire severity.

- BC will remain in place because it is a Class A material and it makes a negligible/marginal impact on fire severity.
- PI and DI will remain in place because the insulation is judged to make a negligible/marginal impact on fire severity and because the insulation continues to serve its function, e.g., the insulation continues to insulate active water lines and supply ducts.
- Insulation associated with EC will remain in place because cables/wires remain energized and the insulation continues to serve its purpose (i.e., continues to insulate electrical conductors). Also insulation will remain in place because its removal could lead to damage of adjacent energized cables and/or lead to the spread or contamination.
- STs will remain in place because all stairways remain in use and provide a path of egress from the second floor of the building. The stair treads provide a non-slip surface and help prevent slips, trips and falls by workers using the stairs.

Room isolation and fixed combustible removal/encapsulation is scheduled to be completed by 10/30/2013. Attachment F provides a Level 1 schedule of activities to be completed between now and 10/30/2013. After completion of the activities detailed in Attachments B, C, and D; fixed combustibles within Building 235-F will be isolated/removed/encapsulated to the extent feasible in support of ongoing S&M and planned deactivation.

5.0 References

5.1 Defense Nuclear Facilities Safety Boards 2012-1, *Savannah River Site Building 235-F Safety*, dated 05/09/2012

5.2 Fire Protection Engineering Services, *Recommendations for the 235-F Corrective Action Plan to Address DNFSB Concerns*, F-EPF-F-00014, dated 11/12/2012

5.3 Site D&D, Asbestos Inspection Report, *FAMS Outside Facility FAMS Interior*, ADD-APG-2006-00388, dated 9/19/06

5.4 DOE, *Implementation Plan for Defense Nuclear Facility Safety Board Recommendation 2012-1*, dated October 2012.

5.5 National Fire Protection Association, *Life Safety Code, NFPA 101*, dated 2012

Attachment A - Building 235-F Fixed Combustible Inventory

Page 1 of 4

Room #	Fixed Combustible Items
Vault 101	Electrical Cords outside Conduit
Vault 102	BC, PI 20'x8''
Airlock 103	BC
Room 105	BC
Vault 106	DI 80'x 2'x2'
Room 107 A	BC, CT
Room 107 B/D	BC
Room 107 G	BC
Corridor 107 F	BC, Cable Tray wiring from east exit to the north exit of 131 approximately 80% loaded
Room 109	BC, CP
Room 110	BC, PI 10'x1'
Room 111	BC
Room 115	Electrical Cords outside Conduit
Vestibule 116	DI 50'x1'x1'
Room 117A	BC, DI 15'x1'x1', PI 10'x8"
Airlock 117B	BC
Room 118	BC. Telecommunications cable (CAT 3, 5, and 5e), fiber optics, grounding cable
Room 119	PI 30'x8"
Room 120	BC, PI 20'x8",DI 6'x1'x1'
Room 121	BC
Room 122	BC
Room 123	BC
Room 123A	BC
Room 124	BC, PI 20'x8"
Room 125	BC, PI 30'x8"
Corridor 126	BC, DI 30'x1'x1', PI 30'x8", Cable Tray wiring
Corridor 127	BC, CW
Corridor 128	BC, DI 50'x3.5'x3.5'
Room 129	BC, CP

BC = Base Coving, CW = Composite Wall, CP = Carpet, DI = Duct Insulation, CT = Ceiling Tiles,

ST = Stair Treads, PI = Pipe Insulation

Attachment A – Con't

Page 2 of 4

Room #	Fixed Combustible Items
Room 130	BC, CP
Room 131	BC, PI 20'x8"
Room 132	BC
Room 134	BC
Room 135	BC, DI 16'x3.5'x3.5'
Room 136	BC, CP
Room 136A	BC,CT, CP
Room 137	BC
Corridor 138	BC
Room 139	BC
Room 140	BC
Room 141	BC. DI 10'x8"
Room 144	BC, CP, CT, Speaker Box
Corridor 145	BC, DI 80'x4x2
Room 148	Rubber Raised Floor Tile, PI 30'x8"
Room 150	BC, CT
Room 151	BC
Room 152	PI 50'x8"
Room 153	BC, CT
Room 153A	BC, CT
Room 154	BC, CT
Room 156	Low and High voltage cables, breakers, etc.
Airlock 157	BC
Airlock 157B	BC
Airlock 158	BC, CT
Room 160	BC
Room 162	BC, CT
Airlock 163	BC,CT
Room 164	BC,CT
Room 165	BC, CT
Corridor 1000	BC, CT
Corridor 1001	BC, CT
Room 1002	BC,CT, Cable Tray wiring along south wall from 1003 east run, running almost centerline of 1002 and into 1008, approximately 60% full

BC = Base Coving, CW = Composite Wall, CP = Carpet, DI = Duct Insulation, CT = Ceiling Tiles,

ST = Stair Treads, PI = Pipe Insulation

Attachment A – Con't

Page 3 of 4

Room #	Fixed Combustible Items
Room 1003 (SOB)	BC,CT, Cable Tray Wiring: runs down both sides of the room, the length of the room (west enters from 1004 approximately 80% loaded. and East approximately 50 % loaded)
Room 1004	BC,CT, Cable Tray wiring from north entrance, along the east wall, running approximately 30' and into 1003 west wall run, approximately 60% loaded
Room 1005	BC,CT, Lexan Panels
Airlock 1006	BC, CT
Airlock 1007	CT, Cable Tray wiring from east exit of 1008 to north entrance of 1004 east wall run, approximately 60% loaded
Airlock 1008	CT, Cable Tray wiring from north exit of 1002 to east exit of 1007, approximately 60% loaded
Airlock 1009	BC, CT
Airlock 1010	BC, CT
Corridor 1013	BC, CT, PI 30'x8"
Room 202	Air Handling Unit Insulation (Foam)
Room 202A	BC, CT, Counter Top, Cabinet, Composite Ceiling
Room 202B	BC, CT, CP, CW
Room 203	BC
Room 203A	Plenum, BC
Room 206	CW non-transite panels installed on south east wall
Room 207A	BC, CP, CW, Composite Ceiling
Vestibule 207B	BC
Room 207B	BC, CT,CP, CW,
Room 207C	BC, CP, CW
Room 207D	BC, CP, CW
Room 207E	BC, CW
Room 208	Water Heater
Room 209B	15' DI
Room 211	BC, CT, Particle Wall (PW), Cabinets
Room 213	BC,CT,CP
Room 214	BC,CT,CP
Room 216A	BC,CP
Room 216B	BC
Room 217	BC
Room 219	BC, CP
Room 222	BC

BC = Base Coving, CW = Composit Wall, CP = Carpet, DI = Duct Insulation, CT = Ceiling Til s,

ST = Stair Treads. PI = Pip Insulation

Attachment A – Con't

Room #	Fixed Combustible Items
Room 222A	BC, CT, CP, CW
Room 223	BC, PI 10'x8"
Room 224	BC
Room 226	DI 10'x1'x1'
Room 227	BC
Plenum (227A)	BC
Airlock 228	BC
Room 229	BC
Room 233	BC, cable, motor controllers
Room 234	BC
Corridor 236	BC, DI 10'x1'x1'
Room 2000	BC, PI 10'x8", DI 10'x1'x1'
Corridor 2001	BC,CT
Corridor 2002	BC,CT, DI 20'x1'x1'
Room 2003	BC,CT
Room 2004	CT
Airlock 2005	BC, CT
Airlock 2006	BC,CT
Room 2007	BC
Room 2008	BC, CT, PI 10'x8"
Room 2009	BC, CT, PI 10'x8"
Room 2010	BC, CT
Room 2011	BC, CT, Cabinet/Sink
Corridor 2012	BC,CT
Corridor 2013	BC,CT
Airlock 2014	BC, CW, and composite ceiling.
Airlock 2015	BC
Airlock 2016	BC
Stairwell # 1	BC, Plastic Stair Treads
Stairwell # 2	BC, Plastic Stair Treads
Stairwell # 3	Plastic Stair Treads
Stairwell # 4	BC, Plastic Stair Treads
SW # 4 (Closet)	BC
Stairwell # 5	Plastic Stair Treads

BC = Base Coving, CW = Composite Wall, CP = Carpet, DI = Duct Insulation, CT = Ceiling Tiles,

ST = Stair Treads, PI = Pipe Insulation

Attachment B - Building 235-F Fixed Combustible Items to be Removed

Room #	Item Description
Room 136	Carpet
Room 136A	Carpet
Room 1005	Lexan Panels (Hut)
Room 202A	North Composite Wall
Room 202A	Ceiling, Counter Top & Cabinet
Room 202B	East & South Composite Walls
Room 202B	Ceiling
Room 202B	Carpet
Room 206	Non-Transite Panels in Southeast Walls
Room 207A	West & South Composite Walls
Room 207A	Carpet
Room 207A	Ceiling
Room 207B	North & East Composite Walls
Room 207D	West & South Composite Walls
Room 207E	North & East Composite Wall
Room 208	Water Heater
Room 222A	North, West & South (interior) Walls
Room 2011	Cabinet/Sink

Attachment C - Building 235-F Fixed Combustible Items to be Encapsulated

Note: Encapsulation includes the installation of fire-rated gypsum board on both sides of the composite wall. Because it has negligible impact on overall progress of a fire, joints between boards will not be taped.

Room #	Item Description
Room 131	Both Sides of the Hole in East Wall
Corridor 127	Both Sides of the North Wall of Room 127
Room 211	Piping Access Panel in South Wall
Airlock 2014	Composite Walls (including base coving if not removed) & Ceiling

Attachment D - Building 235-F Rooms to be Isolated

Page 1 of 1

Note: Isolated rooms are those rooms that contain no transient combustibles and that have no remaining function (or operating components). As such, these rooms are not entered routinely. Instead, the rooms are entered only in an emergency and/or as needed periodically to confirm the absence of transient combustibles. Isolation includes the closing of doors to the listed room, and the locking of the closed doors. If locks are not currently installed, then the doors will be fitted with a hasp and padlock or a tamper indicating device (TID). Also note that isolated rooms are not necessarily de-energized rooms.

Room	Room	Room
Vault 101	Room 150	Room 217
Vault 102	Room 151	Room 219
Room 109*	Room 160	Room 222
Room 110*	Room 162	Room 222A
Room 111*	Room163	Room 223
Room 115	Room 164	Room (Vault) 224
Room 119	Room 165	Room 234
Room 120	Room 203	
Room 123	Plenum 203A	
Room 123A	Vault 204	
Room 125	Room 207B	
Corridor 127	Room 207C	
Room 129	Room 207D	
Room 130	Room 209B	
Room 132	Room 211*	
Room 134*	Room 213	
Room 138	Room 214	
Room 139	Room 216A	
Room 141	Room 216B	
Room 144		
Room 148		

*Add door to allow isolation of room.

Attachment E - Building 235-F Fixed Combustible Items in Non-Isolated Rooms to be Left in Place

Page 1 of 5

Room #	Item Description	Path Forward (1 & 2)	Leave/ Abandon Criteria (3)
Airlock 103	Base Coving	Abandon in Place	7
Room 105	Base Coving	Abandon in Place	7
Vault 106	Base Coving	Abandon in Place	7
Room 107A	Base Coving	Abandon in Place	7
Room 107A	Ceiling Tile	Leave in Place	5
Room 107B/D	Base Coving	Abandon in Place	7
Room 107G	Base Coving	Abandon in Place	7
Corridor 107F	Base Coving	Abandon in Place	7
Corridor 107F	Exposed Cable in Cable Tray	Leave in Place	4 & 6
Room 116	Duct Insulation	Leave in Place	4 & 6
Room 117A	Base Coving	Abandon in Place	7
Room 117A	Duct Insulation	Leave in Place	4 & 6
Room 117A	Pipe Insulation	Leave in Place	4 & 6
Room 117B	Base Coving	Abandon in Place	7
Room 118	Base Coving	Abandon in Place	7
Room 118	Cabling	Leave in Place	4
Room 121	Base Coving	Abandon in Place	7
Room 122	Base Coving	Abandon in Place	7
Room 124	Base Coving	Abandon in Place	7
Room 124	Pipe Insulation	Leave in Place	4 & 6
Room 126	Base Coving	Abandon in Place	7
Room 126	Duct Insulation	Leave in Place	4 & 6
Room 126	Pipe Insulation	Leave in Place	4 & 6
Room 126	Cable Tray	Leave in Place	4 & 7
Corridor 128	Base Coving	Abandon in Place	7
Corridor 128	Duct Insulation	Leave in Place	4 & 6
Room 131	Base Coving	Abandon in Place	7
Room 131	Pipe Insulation	Leave in Place	4 & 6
Room 135	Base Coving	Abandon in Place	7
Room 135	Duct Insulation	Abandon in Place	7

(1) Abandoned in Place = Item has no function

(2) Leave in Place = Item continues to provide design function

(3) See Section 3.0 for a listing of criteria.

Attachment E - (Con't)

Page 2 of 5

Room #	Item Description	Path Forward	Leave/ Abandon Criteria
Room 136	Base Coving	Abandon in Place	7
Room 136A	Base Coving	Abandon in Place	7
Room 136A	Ceiling Tile	Leave in Place	5
Room 137	Base Coving	Abandon in Place	7
Room 140	Base Coving	Abandon in Place	7
Room 145	Base Coving	Abandon in Place	7
Room 145	Duct Insulation	Leave in Place	4 & 6
Room 152	Pipe Insulation	Leave in Place	4 & 6
Room 153	Base Coving	Abandon in Place	7
Room 153	Ceiling Tile	Leave in Place	5
Room 153A	Base Coving	Abandon in Place	7
Room 153A	Ceiling Tile	Leave in Place	5
Room 154	Base Coving	Abandon in Place	7
Room 154	Ceiling Tile	Leave in Place	5
Room 156	Electrical cords outside of conduit	Leave in Place	4 & 6
Airlock 157	Base Coving	Abandon in Place	7
Airlock 157B	Base Coving	Abandon in Place	7
Airlock 158	Base Coving	Abandon in Place	7
Airlock 158	Ceiling Tile	Leave in Place	5
Corridor 1000	Base Coving	Abandon in Place	7
Corridor 1000	Ceiling Tile	Leave in Place	5
Corridor 1001	Base Coving	Abandon in Place	7
Corridor 1001	Ceiling Tile	Leave in Place	5
Room 1002	Base Coving	Abandon in Place	7
Room 1002	Ceiling Tile	Leave in Place	5
Room 1002	Loaded Cable Trays	Leave in Place	4 & 6
Room 1003	Base Coving	Abandon in Place	7
Room 1003	Ceiling Tile	Leave in Place	5
Room 1003	Loaded Cable Trays	Leave in Place	4 & 6
Room 1004	Base Coving	Abandon in Place	7
Room 1004	Ceiling Tile	Leave in Place	5
Room 1004	Loaded Cable Trays	Leave in Place	4 & 6
Room 1005	Ceiling Tile	Leave in Place	5
Room 1005	Base Coving	Abandon in Place	7

Attachment E - (Con't)

Page 3 of 5

Room #	Item Description	Path Forward	Leave/ Abandon Criteria
Airlock 1006	Base Coving	Abandon in Place	7
Airlock 1006	Ceiling Tile	Leave in Place	5
Airlock 1007	Ceiling Tile	Leave in Place	5
Airlock 1007	Loaded Cable Trays	Leave in Place	4 & 6
Airlock 1008	Ceiling Tile	Leave in Place	5
Airlock 1008	Loaded Cable Trays	Leave in Place	4 & 6
Airlock 1009	Base Coving	Abandon in Place	7
Airlock 1009	Ceiling Tile	Leave in Place	5
Airlock 1010	Base Coving	Abandon in Place	7
Airlock 1010	Ceiling Tile	Leave in Place	5
Corridor 1013	Base Coving	Abandon in Place	7
Corridor 1013	Ceiling Tile	Leave in Place	5
Corridor 1013	Pipe Insulation	Leave in Place	4 & 6
Room 202	Air Handling Unit Insulation	Leave in Place	4 & 6
Room 202A	Base Coving	Abandon in Place	7
Room 202B	Base Coving	Abandon in Place	7
Room 207A	Base Coving East & West Walls	Abandon in Place	7
Room 207 E	Base Coving	Abandon in Place	7
Room 226	Duct Insulation 10 L.F.	Leave in Place	4 & 6
Room 227	Base Coving	Abandon in Place	7
Plenum 227A	Base Coving	Abandon in Place	7
Air Lock 228	Base Coving	Abandon in Place	7
Room 229	Base Coving	Abandon in Place	7
Room 233	Base Coving	Abandon in Place	7
Room 233	Cables	Leave in Place	4 & 6
Room 233	Motor Controllers	Leave in Place	4 & 6
Corridor 236	Base Coving	Abandon in Place	7
Corridor 236	Duct Insulation	Leave in Place	4 & 6
Room 2000	Base Coving	Abandon in Place	7
Room 2000	Pipe Insulation	Leave in Place	4 & 6
Room 2000	Duct Insulation	Leave in Place	34& 6

Attachment E - (Con't)

Page 4 of 5

Room #	Item Description	Path Forward	Leave/ Abandon Criteria	Remarks
Corridor 2001	Base Coving	Abandon in Place	7	
Corridor 2001	Ceiling Tile	Leave in Place	4 & 6	
Corridor 2002	Base Coving	Abandon in Place	7	
Corridor 2002	Ceiling Tile	Leave in Place	4 & 6	
Corridor 2002	Duct Insulation	Leave in Place	4 & 6	
Room 2003	Base Coving	Abandon in Place	7	
Room 2003	Ceiling Tile	Leave in Place	5	
Room 2004	Ceiling Tile	Leave in Place	5	
Airlock 2005	Base Coving	Abandon in Place	7	
Airlock 2005	Ceiling Tile	Leave in Place	5	
Airlock 2006	Base Coving	Abandon in Place	7	
Airlock 2006	Ceiling Tile	Leave in Place	5	
Room 2007	Base Coving	Abandon in Place	7	
Room 2008	Base Coving	Abandon in Place	7	
Room 2008	Ceiling Tile	Leave in Place	5	
Room 2008	Pipe Insulation	Leave in Place	4 & 6	
Room 2009	Base Coving	Abandon in Place	7	
Room 2009	Ceiling Tile	Leave in Place	5	
Room 2009	Pipe Insulation	Leave in Place	4 & 6	
Room 2010	Base Coving	Abandon in Place	7	
Room 2010	Ceiling Tile	Leave in Place	5	
Room 2011	Base Coving	Abandon in Place	7	
Room 2011	Ceiling Tile	Leave in Place	5	
Corridor 2012	Base Coving	Abandon in Place	7	
Corridor 2012	Ceiling Tile	Leave in Place	5	
Corridor 2013	Base Coving	Abandon in Place	7	
Corridor 2013	Ceiling Tile	Leave in Place	5	
Airlock 2015	Base Coving	Abandon in Place	7	
Airlock 2016	Base Coving	Abandon in Place	7	
Stairwell #1	Base Coving	Abandon in Place	7	
Stairwell #1	Plastic Stair Threads	Leave in Place	3 & 4	
Stairwell #2	Base Coving	Abandon in Place	7	
Stairwell #2	Plastic Stair Threads	Leave in Place	3 & 4	
Stairwell #3	Plastic Stair Threads	Leave in Place	3 & 4	
Stairwell #4	Base Coving	Abandon in Place	7	

Attachment E - (Con't)

Page 5 of 5

Room #	Item Description	Path Forward	Leave/ Abandon Criteria	Remarks
Stairwell #4	Plastic Stair Threads	Leave in Place	3 & 4	
SW #4 Closet	Base Coving	Abandon in Place	7	
Stairwell #5	Plastic Stair Threads	Leave in Place	3 & 4	

Attachment F - Schedule for Fixed Combustible Isolation, Removal and Encapsulation

Note – Except for the final milestone listed below, the following activities and durations are subject to change at the discretion of SRNS, whose overall goal/commitment is to complete the scope identified in this document by 10/30/13. In the pursuit of the final milestone, SRNS reserves the authority to accelerate or extend activities as needed to accommodate the sharing of resources with other Savannah River Site (SRS) activities and to address emergent issues and concerns related to the design, planning and execution of work.

Activity	Description	Start	Finish
1	Evaluate fixed combustibles and define the fixed combustible removal, encapsulation and isolation scope.	October 2012	3/4/13
2	Prepare design for wall removal and encapsulation (see Attachments B & C for listing of walls). Also, prepare design for isolating rooms (see Attachment D for a listing of rooms to be isolated).	2/1/13	3/31/13
2	Develop work package(s) for fixed combustible removal/encapsulation and room isolation.	4/1/13	5/31/13
3	Execute work package(s) for fixed combustible removal/encapsulation and room isolation.	6/1/13	8/31/13
4	Develop work package(s) for removal other combustible materials (see Attachment B for a listing of other materials to be removed).	3/1/13	4/30/13
5	Execute work package(s) for the removal of miscellaneous combustible materials.	5/1/13	7/31/13
7	Perform acceptance inspection of work (i.e., a Facility Acceptance Inspection in accordance with SRNS Manual 8Q, Procedure 51).	9/1/13	9/8/13
8	Disposition findings from acceptance inspection and complete punch list items.	9/9/13	9/19/13
8	Develop letter and notify DNFSB that removal, encapsulation and isolation of fixed combustibles is complete.	9/20/13	10/30/13
9	Achieve milestone regarding the completion of scope for fixed combustible removal, encapsulation and isolation as defined by this plan and as required by Reference 5.4.	N/A	10/30/13

Attachment G - Composite Wall Listing and Determination

Note: The following table lists all composite walls within Building 235-F, and summarizes the walls listed in Attachment A

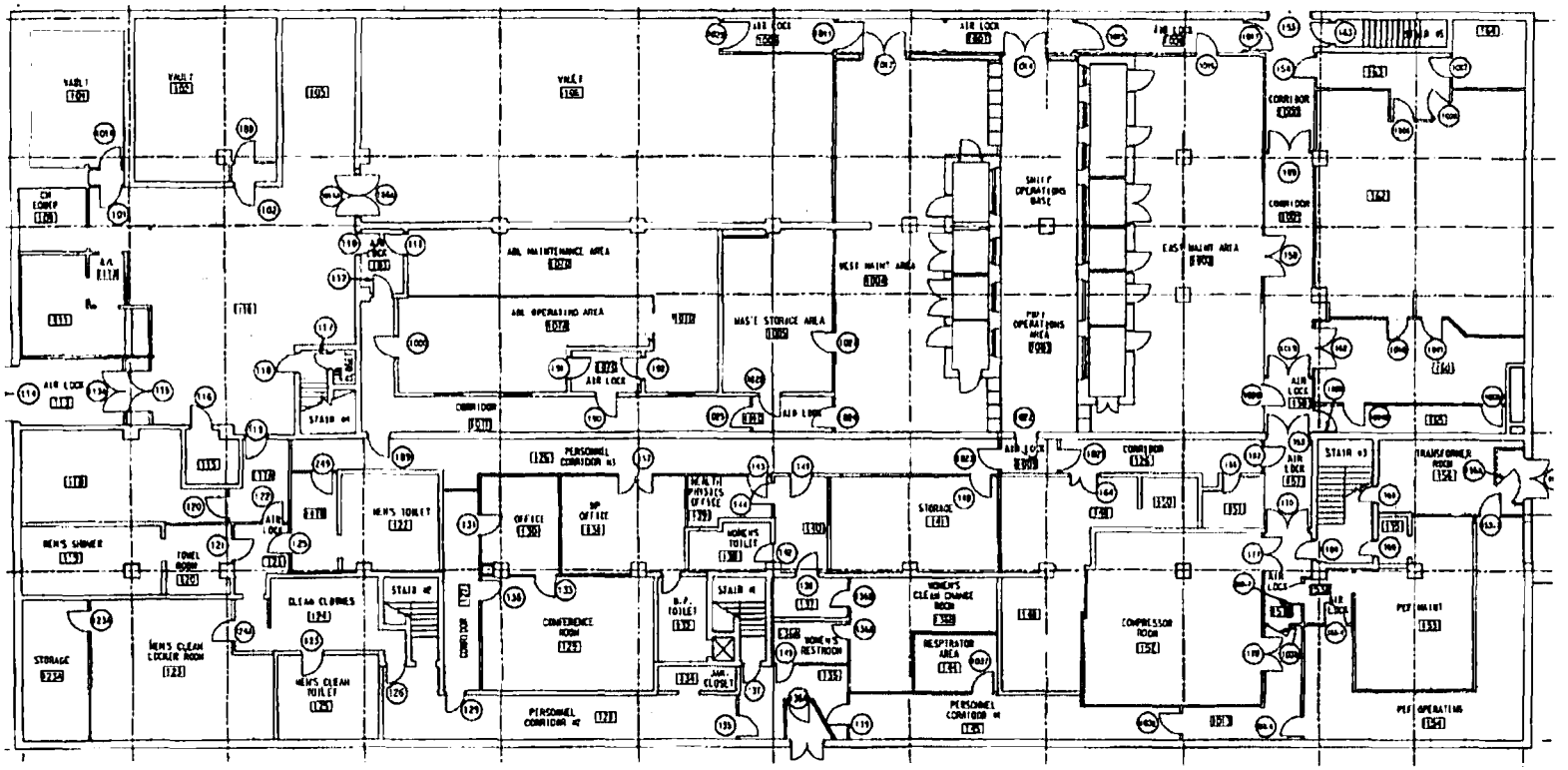
Room #	Determination
Corridor 127	Encapsulate both sides of North Wall (wall not shown on Att. H)
Room 202A	Remove North Wall (Composite ceiling to be removed as well)
Room 202B	Remove East & South Walls
Room 206	Remove non-transite panels in Southwest Wall
Room 207A	Remove West & South Walls (Composite ceiling to be removed as well)
Room 207B	Remove North & East Walls
Room 207D	Remove West & South Walls
Room 207E	Remove North & East Wall
Room 222A	Remove North, West & South (interior wall)
Airlock 2014	Encapsulate North, East and West Walls (Composite ceiling to be encapsulated as well)

Attachment H - Building Layout 235-F

Page 1 of 2

Note - The following layout is excerpted from Drawings A-A2-F-2979 ("Building 235-F, 1st Floor Room Plan") or A-A2-F-2980 ("Building 235-F, 2nd Floor Room Plan"), which are currently the best available floor plans for Building 235-F.

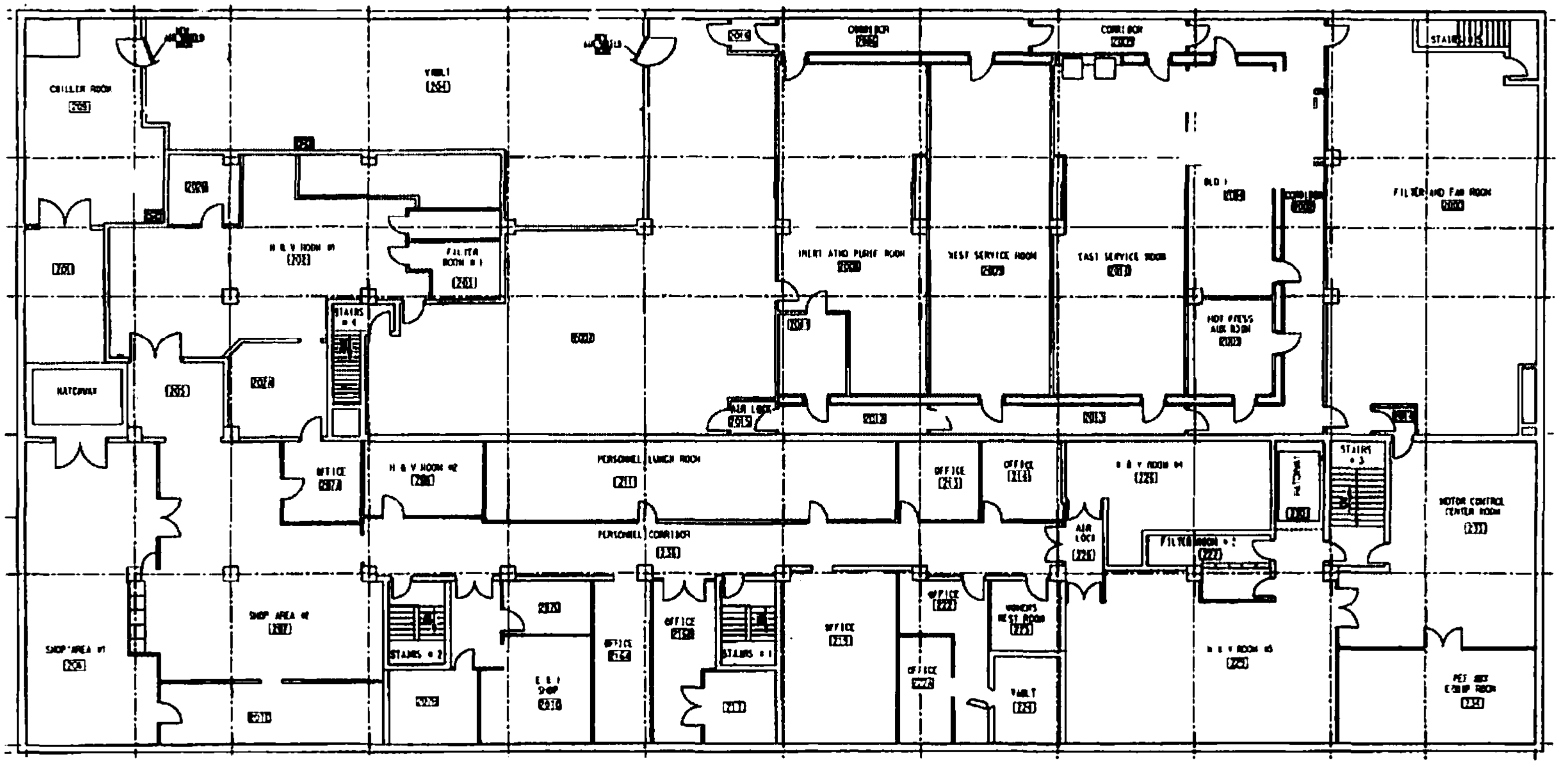
A-A2-F-2979



Attachment H - (Con't)

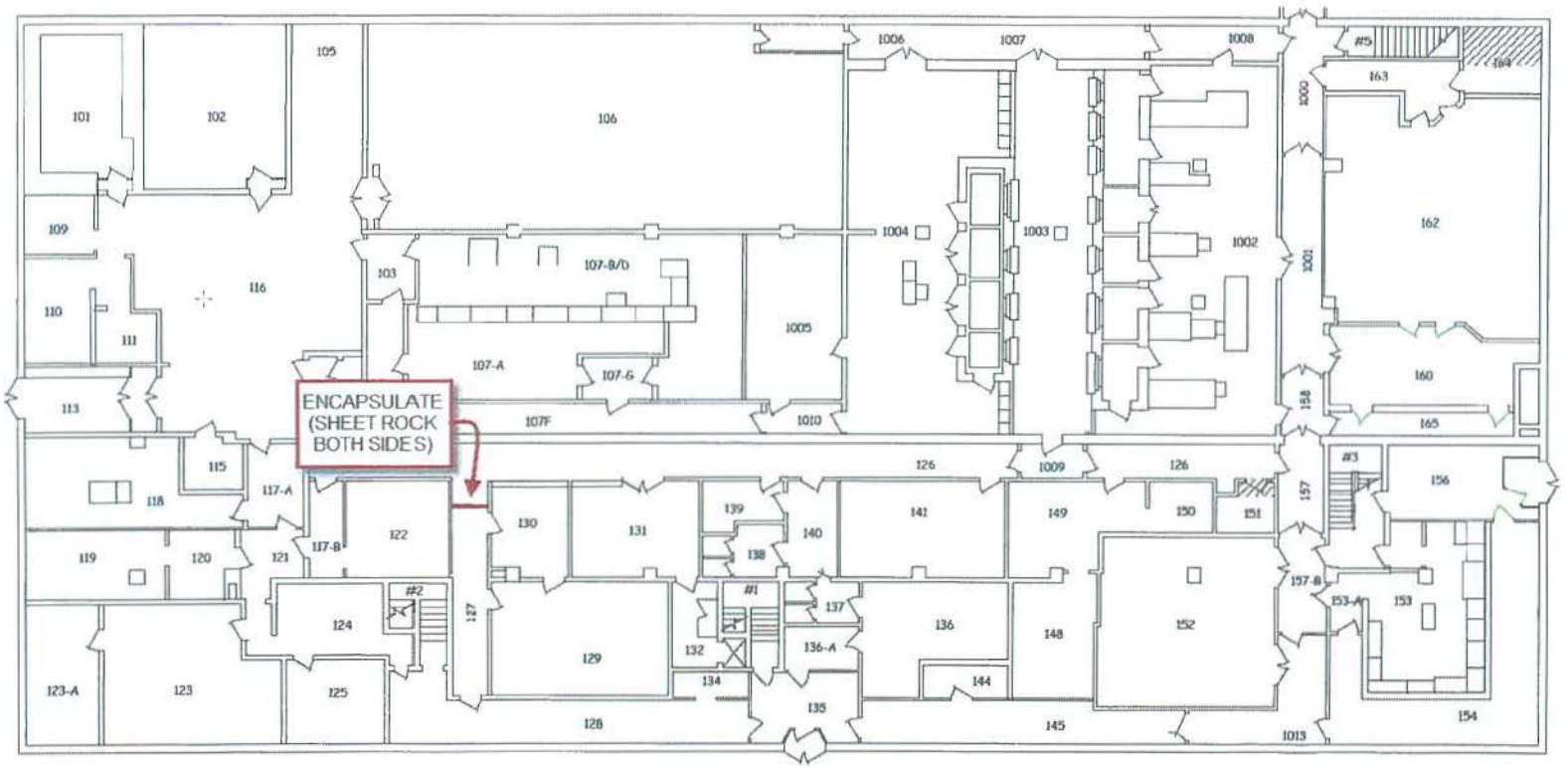
Page 2 of 2

A-A2-F-2980



Attachment 1 - Building Layout 235-F

First Floor



Composite Wall

Attachment 1 - (Con't)

Page 2 of 2

Second Floor