9.8 DOE O 4330.4B, "Maintenance Management Program."
9.9 DOE O 5480.19, "Conduct of Operations Requirements for DOE Facilities."
9.10 John C. Musall, "Manipulator Evaluation for PuFF Facility Cells 1-9 Within Building 235-F," SDD-2012-00111, Revision 0, dated December 17, 2012.
9.11 John C. Musall, "Engineering Input for Restoration of Lighting in PuFF Facility Cells 6-9 within Building 235-F," SDD-2012-00095, Revision 0, dated October 4, 2012.
9.12 John C. Musall, "Engineering Input for Restoration of Shield Windows' Clarity in PuFF Facility Cells 6-9 within Building 235-F," SDD-2012-00085, Revision 0, dated September 24, 2012.
9.13 John C. Musall, "Engineering Input for Smoke Test of PuFF Facility Cells 6-9 within Building 235-F," SDD-2012-00039, Revision 0, dated July 2, 2012.
9.14 SRNS Drawing No. A-A2-F-2979, "Building 235-F, 1st Floor Room Plan," Revision 3, dated February 6, 2005.
9.15 SRNS Drawing No. A-A2-F-2980, "Building 235-F, 2nd Floor Room Plan," Revision 1, dated October 1, 2004.
9.16 DOE-STD-3009, "Preparation Guide for U.S. Department of Energy Non-Reactor Nuclear Facility Documented Safety Analyses."
9.18 10 CFR Part 830, "Nuclear Safety Management."
9.19 "235-F Radioactive Waste Management Basis," Q-RWM-F-00001, Revision 0, dated December 2, 2010.
9.20 Stephen Costner, "Deactivation Project Plan, FAMS Complex," V-PMP-F-00056, Revision 0, dated December 28, 2005.
9.21 Stephen Costner, "In-Situ Deactivation Project Plan, FAMS Complex," V-PMP-F-00066, Revision 0, dated September 27, 2006.
9.22 G. R. Rose, "Risk Reduction Evaluation for Building 235-F," G-TRT-F-00022, Revision 0, dated October 15, 2008.
9.23 DOE-STD-1066, "Fire Protection," dated December 2012.

10.0 References

10.1 Defense Nuclear Facilities Safety Boards 2012-1, "Savannah River Site Building 235-F Safety," dated 05/09/2012.
10.2 DOE, "Implementation Plan for Defense Nuclear Facility Safety Board Recommendation 2012-1," dated October 2012.
10.3 James Lovett, Jr. (DOE-Savannah River) to John W. Temple (SRNS), "Letter of Direction to Implement the Department of Energy's Implementation Plan (IP) for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2012-1 for Building 235-F (Letter Chu to Winokur, 12/05/12)," NMPD-13-0014, dated January 24, 2013.
10.4 SRNS Facility Disposition Manual 1C, Procedure 302, "Preparing a Deactivation Project Plan," latest revision.
10.5 SRNS Program Management Manual 6B, Procedure 1.4, "Standards for Projectizing Operational Projects and Activities," latest revision.
10.6 "Master Engineering Calculation for 235-F Holdup Measurements," S-CLC-F-00534, Revision 1, dated February 9, 2007.

10.7 "Consolidated Hazard Analysis for 235-F Phase 1A Deactivation," S-CHA-F-00016, Revision 0, dated February 2013.
10.8 SRNS Manual 5Q, "Radiological Control," latest revision.
10.9 Manual WSRC-TM-95-1, Engineering Standard No. 11595, "Breathing Air Distribution Systems," Revision 4, dated February 10, 2011.
10.10 Guy R. Baldwin, "Structural Integrity Program Inspection Report," T-CLC-F-00488, Revision 0, dated May 3, 2012.
10.11 "Building 235-F Basis for Interim Operations," U-BIO-F-00002, Revision 0, October 2012.
10.12 J. R. Rosema, "235-F Enclosure Integrity Program, Description Document," M-TRT-F-00038, Revision 0, dated January 14, 2013.
10.13 SRNS Procedure No. 235-F-3302, "Enclosure Integrity Evaluation," Revision 0, Effective Date – January 31, 2013.
10.14 "Savannah River Nuclear Solutions, Building 235-F, Safety Basis List," S-SBL-F-00001, Revision 1, dated December 4, 2012.
10.15 "Safety Analysis – 200 Area, Building 235-F," WSRC-RP-89-575, Revision 3, January 2003.
10.16 "Technical Safety Requirements, Building 235-F," WSRC-TS-97-3, Revision 14, April 2010.
10.17 "Justification for Continued Operations, Upgraded Interim Control Posture For Building 235-F," WSRC-RP-2004-00432, Revision 7, April 2010.
10.18 "Technical Safety Requirements, Building 235-F," U-TSR-F-00002, Revision 0, October 2012.
10.19 "Basis for Interim Operations for Building 235-F, Deactivation," U-BIO-F-00003, Revision 0 (draft), date TBD.
10.20 "Technical Safety Requirements, Savannah River Site, Building 235-F, Deactivation," U-TSR-F-00005, Revision 0 (draft), date TBD.
10.21 L. Wiencek, "235-F S&M and D&D Accident Analysis," S-CLC-F-00646, Revision 1 (draft), date TBD.
10.22 DOE Handbook (J. Mishima), "Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facilities," DOE-HDBK-3010-94, Change Notice 1, March 2000.
10.23 M. Sutton, R. P. Fischer, M. M. Thoet, M. O'Neill and G. Edgington, "Plutonium Decontamination Using CBI Decon Gel 1101 in Highly Contaminated and Unique Areas at LLNL," LLNL-TR-404723, dated June 17, 2008.
10.24 SRNS Facility Disposition Manual 1C, Procedure 301, "Deactivation of Facilities," latest revision.
10.25 "Determining End Points for Disposition Projects Using the Checklist Method," WSRC-TR-2001-00208, Revision 0, dated April 16, 2001.
10.26 Email, Thomas Gaughan to Dewitt Beeler, "Re: Deactivation of Facilities/ Determination of Deactivation End Points – RE: Manual 1C, Procedure 301,

Pages 4 and 5 of 7, Section 4, 2nd and 3rd Paragraphs," SDD-2013-00022, dated February 26, 2013.

10.27 G-SMPL-F-00005, "Surveillance and Maintenance Plan, F-Area Material Storage (FAMS) Metallurgical Building," Revision 0, dated January 31, 2006.

10.28 SRNS Facility Disposition Manual 1C, Procedure 105, "Preparing a Surveillance and Maintenance Plan.".

10.29 "Savannah River Site Management & Operating, Roles, Responsibilities, Accountabilities, and Authorities for Projects (R2A2)," Revision 4, dated July 2009.

10.30 "End State Vision for Deactivation of Plutonium Fuel Form Facility, Building 235-F, Metallurgical Building," SDD-2013-00023, Revision 0, dated May 8, 2013.

10.31 John C. Musall, "Manipulator Evaluation for PuFF Facility Cells 1-9 Within Building 235-F," SDD-2012-00111, Revision 0, dated December 17, 2012.

10.32 SRNS Estimating Guide, WSRC-IM-95-7, Revision 0, dated January 31, 2003.

10.33 Interoffice Memorandum, Robert Dettmer to Dewitt L. Beeler, "Project: 235-F Plutonium Fuel Form (PuFF) Deactivation Project," SRNS-F7400-2013-00007, dated May 21, 2013.

10.34 SRNS SRS Radioactive Waste Requirements Manual 1S, Chapter 7, "Transuranic Waste," latest revision.

10.35 SRNS Program Management Manual 6B, Procedure 7.1, "M&O Change Control Process," latest revision.

10.36 SRNS Program Management Manual 6B, Procedure 1.5, "Earned Value Management System (EVMS)," latest revision.

10.37 SRNS Program Management Manual 6B, Procedure 5.2, "Estimates at Completion," latest revision.

10.38 SRNS Program Management Manual 6B, Procedure 1.6, "M&O Variance Analysis and Reporting," latest revision.

10.39 SRNS Project Management Manual E11, Procedure 2.15, "Project Trend Program," latest revision.

10.40 SRNS Conduct of Engineering Manual E7, Procedure 2.05, "Modification Traveler," latest revision.

10.41 SRNS Facility Safety Document Manual 11Q, Procedure 1.05, "Nuclear Facility Unreviewed Safety Questions," latest revision.

10.42 SRNS Manual 1B, Procedure 4.19, "Requirements for Facility Operations Safety Committees," latest revision.

10.43 SRNS Conduct of Engineering Manual E7, Procedure 2.25, "Functional Classifications," latest revision.

10.44 SRNS Manual 1B, Procedure 3.32, "Document Control," latest revision.

10.45 SRNS Manual 1B, Procedure 3.31, "Records Management," latest revision.

10.46 SRNS Risk Management Manual 14B, Section 2.0, "Risk and Opportunity Assessments," latest revision.

10.47 10 CFR 1021, "National Environmental Policy Act Implementing Procedures," Appendix B to Subpart D, "Categorical Exclusions Applicable to Specific Agency Actions," as amended.

10.48 SRNS Environmental Compliance Manual 3Q, Procedure ECM 5.1, "National Environment Policy Act (NEPA) Implementation and the Environmental Evaluation Checklist," latest revision.

10.49 Interoffice Memorandum, Kevin Wells to John Musall, "NONA Letter," SRNS-J2250-2013-00005, dated March 12, 2013.

10.50 SRNS Environmental Compliance Manual 3Q, Section 6.0, "Wastes," latest revision.

10.51 SRNS SRS Radioactive Waste Requirements Manual 1S, Chapter 6, "RCRA, TSCA, Mixed, and LLLW," latest revision.

10.52 "F-Area Operations Low Level, TRU, RCRA Hazardous Waste, and Mixed Radioactive Waste Certification Program," NMP-SFC-94-0531, Revision 21, dated May 13, 2010.

10.53 "Polychlorinated Biphenyl (PCB) Manual," SRNS-95-55, latest revision.

10.54 40 CFR 61, "National Emission Standards for Hazardous Air Pollutants," as amended.

10.55 Permit Number TV-0080-0041, Attachment B, "Diesel Permit reference, Part 70 Air Quality Permit," South Carolina Department of Health and Environmental Control, Bureau of Air Quality, Rev. 8, dated November 22, 2005.

10.56 SRNS Facility Disposition Manual 1C, Procedure 104, "Preparing a Facility Condition Documentation Package," latest revision.

10.57 "Characterization Report Building 235-F, FAMS Complex For Beryllium, Asbestos, Lead, PCBs and Holdup Assays", SDD-FAMS-2006-00007, Revision 0, dated September 28, 2006.

10.58 "F-Area Material Storage Facility (FAMS) Beryllium Surface Sample Results", EHS-HIS-2006-00083, dated September 27, 2006.

10.59 "VSDS Standard Map RSLS FCA Survey of East/West Maintenance Wing at 235-F", CANY-M-20120928-2, dated September 28, 2012.

10.60 SRNS Management Policies Manual 1-01, Policy 1.22, "Integrated Safety Management System," latest revision.

10.61 "Consolidated Hazard Analysis Process, (CHAP) Program and Methods Manual," SCD-11, Revision 10, dated October 6, 2012.

10.62 SRNS Fire Protection Manual 2Q, Procedure 2.14, "Fire Hazards Analysis Document Administration," latest revision.

10.63 SRNS Safety Manual 8Q, Procedure 122, "Task Level Hazard Analysis," latest revision.

10.64 SRNS Facility Safety Document Manual 11Q, Procedure 1.11, "Safety Basis Requirement Determination," latest revision.

10.65 SRNS Conduct of Operations Manual 2S, Procedure 1.3, "Procedure Compliance," latest revision.

10.66 "235-F Area Residual Nuclear Material (FRM) Material Control & Accountability (MC&A) Implementing Plan (MIP)," SRNS-RP-2011-01619, dated November 1, 2011.

10.67 SRNS Material Control and Accountability Manual 14Q, Procedure 2.08, "Discards, Inventory Adjustments, and Losses," latest revision.
10.68 SRNS Environmental Compliance Manual 3Q, Procedure ECM 6.11, "Pollution Prevention Program," latest revision.
10.69 "Analytical Labs and F-Area Complex Training Program Description", ALFCTPD1.PDES.
10.70 "Handling "Green-Is-Clean" Solid Low Level Waste (LLW) and Hazardous/Mixed Waste in F-Area Operations Facilities", 221-F-55025, latest revision.
10.71 "Inspection and Sampling of Asbestos Containing Material," SOP FDD-079, latest revision.
10.72 "Conceptual 235-F Waste Handling Plan Phase I: Cells 3-9," SDD-2013-00001, Revision 1, dated February 4, 2013.
10.73 SRNS Industrial Hygiene Manual 4Q, Procedure 209, "Chronic Beryllium Disease Prevention Program," latest revision.
10.74 SRNS Industrial Hygiene Manual 4Q, Procedure 208, "Lead Compliance Program," latest revision.
10.75 SRNS Environmental Compliance Manual 3Q, Procedure ECM 6.20, "Metallic Lead Management," latest revision.
10.76 "Input and Assumptions for the 235-F Documented Safety Analysis," S-CLC-F-00493, Revision 3, dated April 27, 2005.
10.77 DOE Order 474.2, Administrative Change 2, "Nuclear Material Control and Accountability."
10.78 Environmental Restoration Section Procedures Manual C2, Procedure FDP 2.04, "Electrical and Mechanical Isolation of Facilities to Support D&D Work," latest revision.
10.79 "Building 235-F PuFF Facility Deactivation Risk Analysis Report," Y-RAR-F-00059, Revision 0, dated April 10, 2013.
10.80 F-MFHA-F-00001, "Modification Hazards Analysis for F-Area Complex, Building 235-F Deactivation Phase I," Revision 0, dated April 18, 2013.
10.81 F-FHA-F-00034, "Fire Hazards Analysis for Surveillance, Maintenance, and Remote Monitoring of Building 235-F including Support Buildings," Revision 2, dated July 2012.

11.0 Manuals and Procedures

11.1 SRNS Manual 1-01, "Management Policies"
11.2 SRNS Manual 3B, "Property and Materials Management"
11.3 SRNS Manual 4B, "Training and Qualification Program"
11.4 SRNS Manual 6B, "Program Management"
11.5 SRNS Manual 14B, "Conduct of Risk and Opportunity Management"
11.6 SRNS Manual 1C, "Facility Disposition"
11.7 SRNS Manual 1D, "Site Infrastructure and Services"
11.8 SRNS Manual 1Q, "Quality Assurance"
11.9 SRNS Manual 2Q, "Fire Protection Program"
11.10 SRNS Manual 3Q, "Environmental Compliance"
11.11 SRNS Manual 4Q, "Industrial Hygiene"

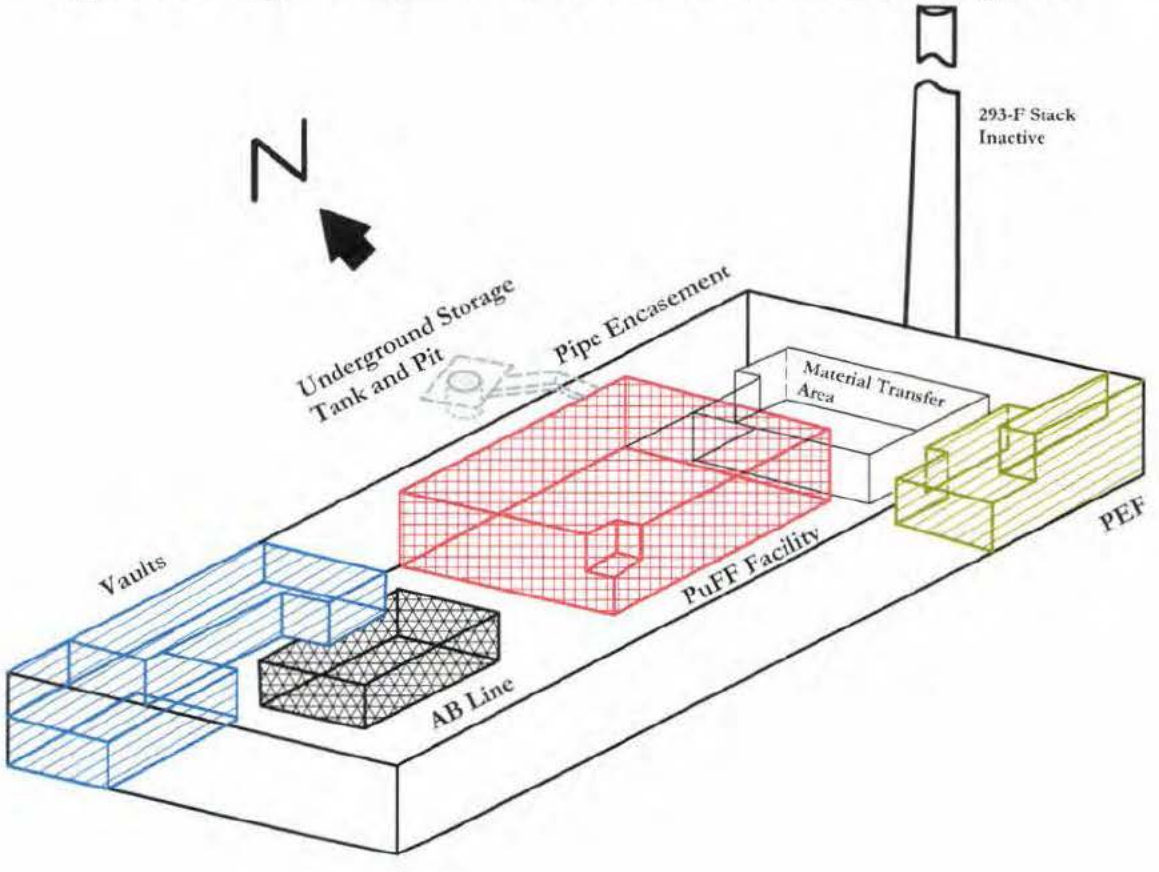
11.12 SRNS Manual 5Q, "Radiological Control"
11.13 SRNS Manual 6Q, Volume II, "SRS Emergency Plan/Emergency Management Program"
11.14 SRNS Manual 7Q, "Security"
11.15 SRNS Manual 8Q, "Employee Safety"
11.16 SRNS Manual 11Q, "Facility Safety Document"
11.17 SRNS Manual 12Q, "Assessment"
11.18 SRNS Manual 14Q, "Material Control and Accountability"
11.19 SRNS Manual 19Q, "Transportation Safety"
11.20 SRNS Manual 1S, "SRS Radioactive Waste Requirements Manual"
11.21 SRNS Manual 2S, "Conduct of Operations"
11.22 SRNS Manual 1Y, "Conduct of Maintenance"
11.23 SRNS Manual E7, "Conduct of Engineering"
11.24 SRNS Manual E11, "Conduct of Project Management & Controls"

Appendix A – Facility History

Building 235-F was constructed in the 1950's as part of the original Savannah River Plant, and has been used for a variety of missions since that time. The original mission slated for Building 235-F was "C-Line". C-Line was to take Pu-239 metal and make triggers. However, before any equipment was installed, the mission was cancelled. Following the cancellation, the building was reconfigured for other missions.

The first mission for the reconfigured Building 235-F was the ABL. This line produced special billets (e.g., containing Np-237) for irradiation in SRS reactors. The next mission was the PEF and the PuFF Facility including a Metallography Lab (old ML or OML). These facilities produced spheres or pellets that were installed in a system referred to as a RTG. The RTGs act as a power source, and convert heat from the radioactive decay of the pellets (containing plutonium-238) into electricity. All metallurgical processes within Building 235-F (including PEF, the PuFF Facility, OML and ABL) were shut down by 1990. For the approximate location and configuration of the PuFF Facility, ABL and PEF within Building 235-F, see Figure A.1.

Figure A.1 – Approximate Location of Process Areas within Building 235-F



In the mid-to-late '70s, Slug Facility cabinets were truncated to the current ABL configuration, i.e., cabinets were removed that would have extended into the present day PuFF west & east maintenance rooms. Then, the PuFF Facility project installed Cells 1-5 (east line), Cells 6-9 (west line), and the auxiliary systems located on the 2nd level. The PuFF Facility process had the following primary components:

- Cells 1 and 2 – These cells received Pu-238 oxide in 5320 "satellite" casks from HB-Line. The inner EP60 was introduced to the line and opened, and its contents were weighed. The oxide was then loaded into the Oxygen Exchange Furnace (platinum/rhodium internals), flooded with oxygen (rich in O-16 isotope), and heated. The purpose was to force the exchange of O-18/O-17 with O-16 so as to radiolytically stabilize the material, i.e., the exchange reduced the neutron emissions (alpha, n reactions) about three-fold. Note that Cells 1-5 were maintained in an argon atmosphere to prevent back exchange. Material was processed through a ball-mill/roller assembly and then cold pressed to resize the oxide particles.
- Cell 3 – This cell acted as a buffer area. No processing took place in this cell.
- Cells 4 and 5 – The oxide particles were "high-fired" (1600°C) or "low-fired" (1200°C). The resultant particles were then mixed in a 60/40 ratio ("low-fired"/"high-fired") and pressed into spheres or pellets under vacuum/heat. The Multi-Hundred Watt spheres were originally produced (at about 250 grams oxide each) from start-up in 1978 until 1980. In 1980, the process switched to the General Purpose Heat Source (GPHS) pellet at about 150 grams oxide each. From Cell 5, the spheres/pellets were transported to Cell 6 using an under-floor, belt transfer device ("the rabbit").
- Cell 6 - Cell 6 was operated with a helium atmosphere during Tungsten Inert Gas welding activities. The sphere/pellet was placed into a matched set of iridium metal shells and welded.
- Cells 7 and 8 – These cells were primarily used to decontaminate the encapsulated spheres/pellets.
- Cell 9 - Leak testing of the encapsulated sphere/pellet was performed within Cell 9. In addition, product exited the PuFF process via Cell 9. Cell 9 contained an air lock for loading out product, which was subsequently placed into shipping packages/containers.

In summary, the PuFF Facility produced spheres or pellets that were installed in a system referred to as a RTG. The RTGs act as a power source, and convert heat from the radioactive decay of the spheres/pellets (containing plutonium-238) into electricity. All metallurgical processes within Building 235-F (including the PuFF Facility) were shut down by 1990. In general, operations within Building 235-F including the PuFF Facility were dry metallurgical processes with cold and hot presses and welding cabinets.

The building's most recent mission provided for the receipt, storage (within vaults), and disbursement of plutonium bearing materials in support of SRS and the DOE complex. Around October 2006, the vaults were de-inventoried and the facility was transitioned to a reduced S&M state. The primary focus of the reduced S&M is/was the operation and maintenance of systems for monitoring and containing the remaining radiological holdup within the process areas.

Appendix B – Work Breakdown Structure (WBS)

Note- Expected Control Accounts are shaded light red, while work packages are shaded light green.

WBS #	WBS Element	Projected Year
01.29.24.01.06	Engineering - Initial Deactivation of 235-F	FY13
01.29.24.01.06.01	Prepare/Issue Rev. 0 Deact. Safety Basis (1-2)	FY13
01.29.24.01.06.01.01	Prepare/Approve CHAP/Support Documents (TFHA/PFHA)	FY13
01.29.24.01.06.01.02	Prepare/Approve BIO/TSR	FY13
01.29.24.01.06.03	Design Prep for Cells 6-9 Work (1-3)	FY13
01.29.24.01.06.03.01	Determine Means to Manipulate Items/Components in Cells	FY13
01.29.24.01.06.03.02	Prepare Design Input/Output for Temporary Lighting	FY13
01.29.24.01.06.03.03	Prepare Design Input/Output for Shielded Window Removal	FY13
01.29.24.01.06.04	Design Decon, Cells 6-9 (1-14)	FY13
01.29.24.01.06.04.01	Perform Evaluation of Decon Means/Methods	FY13
01.29.24.01.06.05	Design Material Removal, Cells 6-9 (1-14)	FY13
01.29.24.01.06.05.01	Photograph Cells and Document Material to Be Removed	FY13
01.29.24.01.06.05.02	Perform Evaluation of Material Removal	FY13
01.29.24.01.06.06	Plan the Deactivation Project (1-1)	FY13
01.29.24.01.06.06.01	Prepare the Deactivation Project Plan and Supporting Docs	FY13
01.29.24.01.06.06.02	Maintain the Deactivation Project Plan and Supporting Docs	FY13
01.29.24.01.07	Field Operations - Initial Deactivation of 235-F	FY13
01.29.24.01.07.01	Implement Rev. 0 Deact. Safety Basis and Verify Readiness (1-4)	FY13
01.29.24.01.07.01.01	Implement BIO/TSR (SBIP Preparation and Execution)	FY13
01.29.24.01.07.01.02	Perform Readiness Assessment	FY13
01.29.24.01.07.03	Implement Prep for Cells 6-9 Work (1-3)	FY13
01.29.24.01.07.03.01	Remediate In-Leakage Identified by Smoke Test	FY13
01.29.24.01.07.03.02	Install Gloves and Reactivate Glove Ports	FY13
01.29.24.01.07.03.03	Remove Shielded Windows	FY13
01.29.24.01.07.03.04	Install Temporary Lighting to Cells	FY13
01.29.24.01.07.04	Build Mockup (1-3)	FY13
01.29.24.01.07.04.01	Fabricate Mockup at Shop	FY13
01.29.24.01.07.04.02	Install Mockup in F-Area	FY13
01.29.24.01.08	Project Management - Initial Deactivation of 235-F	FY13
01.29.24.01.08.01	Perform Project Management (1-1, 1-2, 1-3, 1-4, 1-14)	FY13
01.29.24.01.09	Engineering – Planning/Design for Cells 3-5	FY14
01.29.24.01.09.01	Prepare Planning Documents for Cells 3-5 (1-11)	FY14
01.29.24.01.09.01.01	Prepare Scoping Document for Smoke Testing, Cells 3-5	FY14
01.29.24.01.09.01.02	Prepare Scoping Document for Glove Installation, Cells 3-5	FY14
01.29.24.01.09.01.03	Prepare Scoping Document for Shield Window Remediation, Cells 3-5	FY14
01.29.24.01.09.01.04	Prepare Scoping Document for Temporary Lighting, Cells 3-5	FY14
01.29.24.01.09.02	Prepare Designs for Cells 3-5 Deactivation (1-11)	FY14
01.29.24.01.09.02.01	Prepare Design for Shield Window D&R, Cells 3-5	FY14
01.29.24.01.09.03	Prepare Design for D&R of Cell 5 Glove-box (1-14)	FY14

01.29.24.01.09.04	Prepare Design for Breathing Air Distribution (1-11, 1-14)	FY14
01.29.24.01.09.05	Develop Method/Design for Enhanced Char., Cells 3-9 (1-9)	FY14
01.29.24.01.10	Engineering – Planning/Design for Cells 1-2	FY14
01.29.24.01.10.01	Prepare Planning Documents, Cells 1-2 (1-11)	FY14
01.29.24.01.10.01.01	Prepare Scoping Document for Smoke Testing, Cells 1-2	FY14
01.29.24.01.10.01.02	Prepare Scoping Document for Glove Installation, Cells 1-2	FY14
01.29.24.01.10.01.03	Prepare Scoping Document for Shield Window Remediation, Cells 1-2	FY14
01.29.24.01.10.01.04	Prepare Scoping Document for Temporary Lighting, Cells 1-2	FY14
01.29.24.01.10.02	Prepare Designs for Cells 1-2 Deactivation (1-11)	FY14
01.29.24.01.10.02.01	Prepare Design for Shield Window D&R, Cells 1-2	FY14
01.29.24.01.11	Field Operations – Deactivation of Cells 6-9	FY14
01.29.24.01.11.01	Develop/Implement TRU Waste Handling Program (1-14)	FY14
01.29.24.01.11.01.01	Develop/Issue Waste Handling Strategy	FY14
01.29.24.01.11.01.02	Prepare Waste Characterization/Certification Plans	FY14
01.29.24.01.11.01.03	Design/Fabricate/Install Equipment	FY14
01.29.24.01.11.01.04	Develop and Issue Procedures/Train Personnel	FY14
01.29.24.01.11.01.05	Assess Program for Readiness	FY14
01.29.24.01.11.02	Develop/Checkout Long-Handled/Extension Tools (1-14)	FY14
01.29.24.01.11.02.01	Prepare Scoping Document/Design for Tools	FY14
01.29.24.01.11.02.02	Fabricate/Procure Tools	FY14
01.29.24.01.11.02.03	Checkout Tools in Mockup	FY14
01.29.24.01.11.03	Repair/Replace Manipulators for Cells 6-9 (1-14)	FY14
01.29.24.01.11.03.01	Perform Initial Checkout of Manipulators	FY14
01.29.24.01.11.03.02	Repair Manipulators	FY14
01.29.24.01.11.03.03	Replace Manipulators that Cannot Be Repaired	FY14
01.29.24.01.11.04	Deactivate Cells 6-9 (1-14)	FY14
01.29.24.01.11.04.01	Perform Decon of Cells 6-9	FY14
01.29.24.01.11.04.02	Perform Material Removal from Cells 6-9	FY14
01.29.24.01.11.04.03	Perform Waste Handling in Support of Decon/Material Removal	FY14
01.29.24.01.11.05	Electrically/Mechanically Isolate Cells 6-9 (1-14)	FY14
01.29.24.01.11.06	Install Breathing Air Distribution (1-11, 1-14)	FY14
01.29.24.01.12	Project Management - Deactivation of Cells 6-9	FY14
01.29.24.01.12.01	Perform Project Management (1-5, 1-11, 1-14)	FY14
01.29.24.01.12.02	Perform 235-F S&M in Support of Deactivation (1-11, 1-14)	FY14
01.29.24.01.12.03	Technology Development and Support (1-11, 1-14)	FY14
01.29.24.01.13	Engineering – Initial Deactivation of Cells 3-5	FY15
01.29.24.01.13.01	NUMBER NOT USED	N/A
01.29.24.01.13.02	Develop Method/Design to Isolate Cells 6-9 (1-14)	FY15
01.29.24.01.13.03	Prepare Planning Docs for Decon/Material Removal, Cells 3-5 (1-14)	FY15
01.29.24.01.13.03.01	Prepare Scoping Document for Decon, Cells 3-5	FY15
01.29.24.01.13.03.02	Prepare Scoping Document for Material Removal, Cells 3-5	FY15
01.29.24.01.14	Engineering – Initial Deactivation of Cells 1-2	FY15
01.29.24.01.14.01	Prepare/Issue Rev. 1 Deactivation Safety Basis (1-7)	FY15
01.29.24.01.14.01.01	Revise/Approve CHAP/Support Documents (TFHA/PFHA)	FY15
01.29.24.01.14.01.02	Revise/Approve BIO/TSR	FY15
01.29.24.01.14.02	Develop Method/Design for Enhanced Char., Cells 1-2 (1-9)	FY15
01.29.24.01.14.03	Prepare Planning Docs for Decon/Material Removal, Cells 1-2 (1-14)	FY15

01.29.24.01.14.03.01	Prepare Scoping Document for Decon, Cells 1-2	FY15
01.29.24.01.14.03.02	Prepare Scoping Document for Material Removal, Cells 1-2	FY15
01.29.24.01.15	Field Operations – Initial Deactivation of Cells 3-5	FY15
01.29.24.01.15.01	Upgrade TRU Waste Handling Program for Cells 3-5 (1-14)	FY15
01.29.24.01.15.01.01	Revise/Issue Waste Handling Strategy	FY15
01.29.24.01.15.01.02	Revise Certification Plan	FY15
01.29.24.01.15.01.03	D&R the Glove-box for Cell 5	FY15
01.29.24.01.15.01.04	Design/Fabricate/Install Equipment	FY15
01.29.24.01.15.01.05	Revise Procedures	FY15
01.29.24.01.15.01.06	Assess Program for Readiness	FY15
01.29.24.01.15.02	Repair/Replace Manipulators for Cells 3-5 (1-14)	FY15
01.29.24.01.15.02.01	Perform Initial Checkout of Manipulators	FY15
01.29.24.01.15.02.02	Repair Manipulators	FY15
01.29.24.01.15.02.03	Replace Manipulators that Cannot Be Repaired	FY15
01.29.24.01.15.03	Implement Prep for Cells 3-5 Work (1-11)	FY15
01.29.24.01.15.03.01	Perform Smoke Test and Remediate	FY15
01.29.24.01.15.03.02	Install Gloves and Reactivate Glove Ports	FY15
01.29.24.01.15.03.03	Remove Shielded Windows	FY15
01.29.24.01.15.03.04	Remediate Shielded Windows	FY15
01.29.24.01.15.03.05	Install Temporary Lighting to Cells	FY15
01.29.24.01.15.04	Perform Enhanced Characterization of Cells 3-5 (1-9)	FY15
01.29.24.01.15.05	Electrically/Mechanically Isolate Cells 3-5 (1-14)	FY15
01.29.24.01.16	Field Operations – Initial Deactivation of Cells 1-2	FY15
01.29.24.01.16.01	Implement Rev. 1 Deact. Safety Basis and Verify Readiness (1-8)	FY15
01.29.24.01.16.01.01	Implement BIO/TSR (SBIP Preparation and Execution)	FY15
01.29.24.01.16.01.02	Perform Readiness Assessment	FY15
01.29.24.01.16.02	Upgrade TRU Waste Handling Program for Cells 1-2 (1-14)	FY15
01.29.24.01.16.02.01	Revise/Issue Waste Handling Strategy	FY15
01.29.24.01.16.02.02	Revise Waste Characterization/Certification Plans	FY15
01.29.24.01.16.02.03	Design/Fabricate/Install Equipment	FY15
01.29.24.01.16.02.04	Revise Procedures	FY15
01.29.24.01.16.02.05	Assess Program for Readiness	FY15
01.29.24.01.16.03	Repair/Replace Manipulators for Cells 1-2 (1-14)	FY15
01.29.24.01.16.03.01	Perform Initial Checkout of Manipulators	FY15
01.29.24.01.16.03.02	Repair Manipulators	FY15
01.29.24.01.16.03.03	Replace Manipulators that Cannot Be Repaired	FY15
01.29.24.01.16.04	Implement Prep for Cells 1-2 Work (1-11)	FY15
01.29.24.01.16.04.01	Perform Smoke Test and Remediate	FY15
01.29.24.01.16.04.02	Install Gloves and Reactivate Glove Ports	FY15
01.29.24.01.16.04.03	Remove Shielded Windows	FY15
01.29.24.01.16.04.04	Remediate Shielded Windows	FY15
01.29.24.01.16.04.05	Install Temporary Lighting to Cells	FY15
01.29.24.01.16.05	Perform Enhanced Characterization of Cells 1-2 (1-9)	FY15
01.29.24.01.16.06	Electrically/Mechanically Isolate Cells 1-2 (1-14)	FY15
01.29.24.01.17	Field Operations – Final Deactivation of Cells 6-9	FY15
01.29.24.01.17.01	Re-Characterize Cells 6-9 (1-15, 1-16)	FY15
01.29.24.01.17.02	Implement Method/Design to Isolate Cells 6-9 (1-14)	FY15

01.29.24.01.18	Project Management – Initial Deactivation of Cells 1-5	FY15
01.29.24.01.18.01	Perform Project Management (1-6, 1-7, 1-8, 1-9, 1-11, 1-14, 1-16)	FY15
01.29.24.01.18.02	Perform 235-F S&M in Support of Deactivation (1-8, 1-11, 1-14)	FY15
01.29.24.01.18.03	Technology Development and Support (1-11, 1-14)	FY15
01.29.24.01.19	Field Operations – Final Deactivation of Cells 3-5	FY16
01.29.24.01.19.01	Decon Cells 3-5 and Glove-boxes (1-14)	FY16
01.29.24.01.19.01.01	Decon Cells 3-5	FY16
01.29.24.01.19.01.02	Decon Glove-boxes for Cells 3-4	FY16
01.29.24.01.19.02	Perform Material Removal from Cells 3-5/Glove-boxes (1-14)	FY16
01.29.24.01.19.02.01	Perform Material Removal from Cells 3-5	FY16
01.29.24.01.19.02.02	Perform Material Removal from Glove-boxes for Cells 3-4	FY16
01.29.24.01.19.03	Perform Waste Hand. in Support of Decon/Mat. Rem., Cells 3-5 (1-14)	FY16
01.29.24.01.20	Field Operations – Final Deactivation of Cells 1-2	FY16
01.29.24.01.20.01	Decon Cells 1-2 and Glove-boxes (1-14)	FY16
01.29.24.01.20.01.01	Decon Cells 1-2	FY16
01.29.24.01.20.01.02	Decon Glove-boxes for Cells 1-2	FY16
01.29.24.01.20.02	Perform Material Removal from Cells 1-2/Glove-boxes (1-14)	FY16
01.29.24.01.20.02.01	Perform Material Removal from Cells 1-2	FY16
01.29.24.01.20.02.02	Perform Material Removal from Glove-boxes 1-2	FY16
01.29.24.01.20.03	Perform Waste Hand. in Support of Decon/Mat. Rem., Cells 1-2 (1-14)	FY16
01.29.24.01.21	Project Management – Final Deactivation of Cells 1-5	FY16
01.29.24.01.21.01	Perform Project Management (1-10, 1-14)	FY16
01.29.24.01.21.02	Perform 235-F S&M in Support of Deactivation (1-14)	FY16
01.29.24.01.21.03	Technology Development and Support (1-14)	FY16
01.29.24.01.22	Engineering – Project Closeout	FY17
01.29.24.01.22.01	Prepare/Issue Rev. 2 Deactivation Safety Basis (1-16)	FY17
01.29.24.01.22.01.01	Revise/Approve CHA/Support Documents (TFHA/PFHA)	FY17
01.29.24.01.22.01.02	Revise/Approve BIO/TSR	FY17
01.29.24.01.22.02	Prepare/Issue Manual 1C Documentation	FY17
01.29.24.01.22.02.01	Prepare/Issue Deactivation Project Final Report	FY17
01.29.24.01.22.02.02	Revise/Issue S&M Plan	FY17
01.29.24.01.23	Field Operations – Project Closeout	FY17
01.29.24.01.23.01	Re-Characterize Cells 1-5 (1-15, 1-16)	FY17
01.29.24.01.23.02	Implement Rev. 2 Deact. Safety Basis and Verify Readiness	FY17
01.29.24.01.23.02.01	Implement BIO/TSR (SBIP Preparation and Execution)	FY17
01.29.24.01.23.02.02	Perform Readiness Assessment	FY17
01.29.24.01.24	Project Management – Project Closeout	FY17
01.29.24.01.24.01	Perform Project Management (1-12, 1-15, 1-16)	FY17

Appendix C – WBS Dictionary

Note- Expected control accounts are shaded light red, while work packages are shaded light green.

WBS #	WBS Element	Description
01.29.24.01.06	Engineering - Initial Deactivation of 235-F	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.06.01	Prepare/Issue Rev. 0 Deact. Safety Basis (1-2)	The scope of this work package includes all efforts by Engineering to prepare, review and approve a 235-F Deactivation BIO/TSR. The scope includes the preparation, review and approval of all Safety Basis support documents including the CHA, accident analysis calculation, FHA, fire scenario document, etc. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Facility/Operations Management, and includes support of DOE's review and approval.
01.29.24.01.06.01.01	Prepare/Approve CHAP/Support Documents (TFHA/PFHA)	The scope of this WBS element includes all efforts by Engineering to prepare, review and approve all Safety Basis support documents including the CHA, accident analysis calculation, FHA, fire scenario document, etc. in accordance with (iaw) Manual 11Q. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Facility/Operations Management.
01.29.24.01.06.01.02	Prepare/Approve BIO/TSR	The scope of this work package includes all efforts by Engineering to prepare, review and approve a 235-F Deactivation BIO/TSR prepared iaw Manual 11Q. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Facility/Operations Management, and includes support of DOE's review and approval.
01.29.24.01.06.03	Design Prep for Cells 6-9 Work (1-3)	The scope of this work package includes all efforts by Engineering to prepare, review and approve design input (e.g., MTs per Manual E7) and design output (e.g., record drawings, Design Change Forms (DCFs), Design Change Packages (DCPs), etc. per Manual E7) for two separate modifications: (1) partially D&R the shield windows, and (2) install temporary lighting to Cells 6-9. The scope includes revisions only to drawings that are configuration controlled (e.g., shield window mechanical drawings and water recirculation system mechanical drawings), and the generation of a new record drawing for the "clear tubes" to be installed in upper glove-ports for installation of temporary lighting. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. Finally, the scope includes an evaluation of manipulators and long-handled/extension tools so as to identify those manipulators in need of repair or replacement.
01.29.24.01.06.03.01	Determine Means to Manipulate Items/Components in Cells	The scope of this item includes an evaluation of manipulators and long-handled/extension tools so as to identify those manipulators in need of repair or replacement. The scope includes consultation with SRNL maintenance personnel and the review/approval of the evaluation by SRNS stakeholders. (See SDD-2012-00111 for the completed evaluation.)
01.29.24.01.06.03.02	Prepare Design Input/Output for Temporary Lighting	This item includes all efforts by Engineering to prepare, review and approve design input (e.g., MT per Manual E7) and design output (e.g., record drawings, DCFs, DCPs, etc. per Manual E7) for the installation of temporary lighting to Cells 6-9. The scope includes the generation of a new record drawing for the "clear tubes" to be installed in upper glove-ports for installation of temporary lighting. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. (See SDD-2012-00095 & -00107 for additional information regarding the needed design.)

WBS #	WBS Element	Description
01.29.24.01.06.03.03	Prepare Design Input/Output for Shielded Window Removal	The scope of this work package includes all efforts by Engineering to prepare, review and approve design input (e.g., MT per Manual E7) and design output (e.g., record drawings, DCFs, DCPs, etc. per Manual E7) for the partial D&R of the shield windows. The scope includes revisions only to drawings that are configuration controlled (e.g., shield window mechanical drawings and water recirculation system mechanical drawings). Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. (See SDD-2012-0008 for additional information regarding the needed design.)
01.29.24.01.06.04	Design Decon, Cells 6-9 (1-14)	The scope of this work package is an Engineering evaluation of Cells 6-9 where the evaluation defines the methods/techniques for decontamination of those cells, the immobilization of MAR that is difficult to remove, and the disassembly of components to allow their decontamination or their removal through bag out ports. The work package will be worked in concert with WBS 01.29.24.01.06.05 so that decontamination/immobilization/ disassembly are fully integrated with material removal. In general, the evaluation will employ technologies identified in Section 5.08 of this Deactivation Project Plan; however, the evaluation is not restricted to those technologies, but will consider the full range of available technologies. The evaluation supports FY14 efforts to design/test/deploy long-handled/extension tools for decon. Also, the scope includes the review/approval of the evaluation by primary SRNS stakeholders including Radcon Management and Facility/Operations Management.
01.29.24.01.06.04.01	Perform Evaluation of Decon Means/Methods	See above description for Work Package 01.29.24.01.06.04.
01.29.24.01.06.05	Design Material Removal, Cells 6-9 (1-14)	The scope of this work package is an Engineering evaluation of Cells 6-9 where the evaluation defines the methods/techniques for material removal from those cells. The scope includes (1) photographing the cells, (2) developing layouts of the cells so as to locate materials to be removed with respect to glove-ports and manipulators, and (3) document searches/reviews so as to identify/define all components/materials to be removed. The work package will be worked in concert with WBS 01.29.24.01.06.04 so that decontamination/ immobilization/disassembly are fully integrated with material removal. The evaluation supports FY14 efforts to design/test/deploy long-handled/extension tools for material removal. Also, the scope includes the review/approval of the evaluation by primary SRNS stakeholders including Radcon Management and Facility/Operations Management.
01.29.24.01.06.05.01	Photograph Cells and Document Material to Be Removed	See above description for Work Package 01.29.24.01.06.05.
01.29.24.01.06.05.02	Perform Evaluation of Material Removal	See above description for Work Package 01.29.24.01.06.05.
01.29.24.01.06.06	Plan the Deactivation Project (1-1)	The scope of this work package is the preparation/review/approval of a Deactivation Project Plan iaw Manual 1C, Procedure 301 and the tailored requirements within Manual 6B, Procedure 1.4. Engineering is the primary author of the document with support from Project Management and Project Controls. The scope includes the review/approval of the plan by primary SRNS stakeholders including Radcon Management and Facility/Operations Management, and SRNS support of reviews by DOE/DNFSB so that the plan can be submitted to the DNFSB. Also, the scope includes plan maintenance/revisions through the remainder of FY13. Finally, this item includes the preparation/processing/approval of an Environmental Evaluation Checklist iaw Manual 3Q, Procedure 5.1 (a categorical exception (CX) is anticipated), and the preparation of radiological NESHAPs calculation(s) if required.
01.29.24.01.06.06.01	Prepare the Deactivation Project Plan and Supporting Docs	See above description for Work Package 01.29.24.01.06.06.

WBS #	WBS Element	Description
01.29.24.01.06.06.02	Maintain the Deactivation Project Plan and Supporting Docs	See above description for Work Package 01.29.24.01.06.06.
01.29.24.01.07	Field Operations - Initial Deactivation of 235-F	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.07.01	Implement Rev. 0 Deact. Safety Basis and Verify Readiness (1-4)	The scope of this work package includes the preparation, review and approval of a Safety Basis Implementation Plan (SBIP) iaw Manual 11Q and a follow-on Readiness Assessment iaw Manual 12Q. The scope includes the review/approval of the SBIP by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. Also, the scope includes the implementation of the SBIP, which (as a minimum) includes multiple procedure revisions, a modification to the facility per Manual E7 (installation of low delta P alarms for the PuFF Facility cells), and the development/implementation of a "Puncture/Laceration Wound Hazard Management (P/LWHM)" Program.
01.29.24.01.07.01.01	Implement BIO/TSR (SBIP Preparation and Execution)	The item includes the preparation, review and approval of a Safety Basis Implementation Plan (SBIP) iaw Manual 11Q. The scope includes the review/approval of the SBIP by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. Also, the scope includes the implementation of the SBIP, which (as a minimum) includes multiple procedure revisions, a modification to the facility per Manual E7 (installation of low delta P alarms for the PuFF Facility cells), and the development/ implementation of a P/LWHM Program.
01.29.24.01.07.01.02	Perform Readiness Assessment	This item includes a Readiness Assessment iaw Manual 12Q, Procedure RA-1.
01.29.24.01.07.03	Implement Prep for Cells 6-9 Work (1-3)	The scope of this work package includes all efforts by the 235-F Deactivation Project Team to prep PuFF Facility Cells 6-9 and includes (1) the remediation of in-leakage, (2) the installation of gloves (3) D&R and cleaning of the shield windows, and (4) installation of temporary lighting. For Items (1), (3) and (5); Site forces (e.g., Rigging, Operations, Maintenance and Radcon) will conduct the activity iaw a Manual 1Y work package. For Items (2) and (4), in-house resources (e.g., F-Area Maintenance, Operations and Radcon) will perform those activities generally iaw Manual 2S procedures. The work package includes all organizations that support the cell prep (e.g., planners, Radcon, IH, Industrial Safety, Facility Management) along with stakeholders who will review/approve 1Y work packages or work completion. Finally, this work package includes some Engineering so as to conduct as-building and to handle emergent issues that require design changes.
01.29.24.01.07.03.01	Remediate In-leakage Identified by Smoke Test	The smoke tests of Cells 6-9 was completed in early FY13. The smoke tests identified some in-leakage, primarily associated with the manipulators' penetrations/seals. This item covers an Engineering evaluation of the in-leakage and any subsequent efforts to remediate that in-leakage. This item assumes the in-leakage is minor and acceptable and that no remediation is required. Hence only an Engineering evaluation is anticipated for this item. The scope also includes an evaluation of the existing ventilation to verify it provides adequate protection of workers and is compliant with the minimum requirements of SRS Engineering Standard 15889, "Confinement Ventilation System Requirements."

WBS #	WBS Element	Description
01.29.24.01.07.03.02	Install Gloves and Reactivate Glove Ports	The item includes all efforts (labor and material) by the 235-F Deactivation Project Team to install gloves in all of the lower glove ports of Cells 6-9. (See SDD-2012-00055 for additional background on the installation of gloves.) The item includes the development/review/approval/issuance of two procedures for (1) the actual glove installation and (2) the tracking of glove port status/configuration. The item includes worker training on the two procedures via mockups, and include the actual execution of the procedures. Also, the item includes the fabrication/ procurement of glove cartridges and gloves. Finally, the activity includes the design/fabrication/deployment of containments as needed to support the initial glove installation, and includes periodic replacement of the gloves.
01.29.24.01.07.03.03	Remove Shielded Windows	This item includes all efforts (labor and materials) by the 235-F Deactivation Project Team to D&R and clean four shield windows associated with Cells 6-9. (See SDD-2012-00085 for additional background on the windows D&R and cleaning.) It is anticipated that Site forces (e.g., Rigging, Operations, Maintenance and Radcon) will conduct the activity iaw a Manual 1Y work package. The item includes all organizations that support the window D&R and cleaning (e.g., planners, Radcon, IH, Industrial Safety, Facility Management) along with stakeholders who will review/approve 1Y work packages or work completion. Also, the item includes the fabrication/procurement of lift beam, de-construction aids (tabs to stabilize the panes as they are D&R'd), spill pallets, floor crane, etc. The item also includes the collection of water from the four windows and its discharge to ETF. Finally, this work package includes some Engineering so as to conduct as-building and to handle emergent issues that require design changes.
01.29.24.01.07.03.04	Install Temporary Lighting to Cells	This item includes all efforts (labor and materials) by the 235-F Deactivation Project Team to install temporary lighting in Cells 6-9. It is anticipated that in-house resources (e.g., F-Area Maintenance, Operations and Radcon) will perform the activity generally iaw Manual 2S procedures. The item includes worker training on procedures via mockups, and include the actual execution of the procedures. Also the item includes fabrication of "clear tubes" by SRNS Shops. Finally, this work package includes some Engineering so as to conduct as-building and to handle emergent issues that require design changes.
01.29.24.01.07.04	Build Mockup (1-3)	The scope of this work package is to complete the design/fabrication (by N-Area Construction) of a mockup of Cells 1 and 2 of the PuFF Facility. The mockup will be used for the training of workers conducting intrusive/in-cell activities and for the design/check-out of long-handled/extension tools and specialized assay equipment. The scope includes the relocation and installation of the mockup into Building 717-F or Building 221-33F.
01.29.24.01.07.04.01	Fabricate Mockup at Shop	This item includes all efforts (labor and materials) by the 235-F Deactivation Project Team to complete the design/fabrication (by N-Area Construction) of a mockup of Cells 1 and 2 of the PuFF Facility. Note that the mockup was partially completed (~50%) prior to this deactivation project. Critical mockup features include the following: overall dimensions that mimic Cells 1 and 2, glove-ports, bag-out ports, transfer locks, and manipulator ports. The mockup will be used for the training of workers conducting intrusive/in-cell activities and for the design/check-out of long-handled/extension tools and specialized assay equipment.
01.29.24.01.07.04.02	Install Mockup in F-Area	This item includes the relocation and installation of the mockup into Building 717-F or Building 221-33F. It is anticipated that no services (e.g., electricity) will be provided to the mockup. Lighting will be provided by temporary lights on stanchion exterior to the mockup. The mockup will be anchored in place.
01.29.24.01.08	Project Management - Initial Deactivation of 235-F	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.08.01	Perform Project Management (1-1, 1-2, 1-3, 1-4, 1-14)	The scope of this work package is to provide project management and project controls support to the implementation of the engineering and field operations work required to meet the near-term milestones in the implementation plan.

WBS #	WBS Element	Description
01.29.24.01.09	Engineering – Planning/Design for Cells 3-5	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.09.01	Prepare Planning Documents for Cells 3-5 (1-11)	The scope of this work package includes all efforts by Engineering to prepare, review and approve scoping/planning documents for: (1) smoke testing of Cells 3-5, (2) the installation of gloves into Cells 3-5 glove-ports, (3) the remediation of shield windows for Cells 3-5, and (4) the installation of temporary lighting to Cells 3-5. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. In general, planning documents will include an analysis of alternatives. Note that "Cells 3-5" refers to the cells themselves along with their close-coupled glove-boxes (i.e., the Particle Coating Glove-box and the Hot Press Entry Glove-box).
01.29.24.01.09.01.01	Prepare Scoping Document for Smoke Testing, Cells 3-5	The scope of this item includes all efforts by Engineering to prepare, review and approve scoping/planning documents for smoke testing of Cells 3-5. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. The scope also includes an evaluation of the existing ventilation to verify it provides adequate protection of workers and is compliant with the minimum requirements of SRS Engineering Standard 15889, "Confinement Ventilation System Requirements."
01.29.24.01.09.01.02	Prepare Scoping Document for Glove Installation, Cells 3-5	The scope of this item includes all efforts by Engineering to prepare, review and approve scoping/planning documents for the installation of gloves into Cells 3-5 glove-ports. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management.
01.29.24.01.09.01.03	Prepare Scoping Document for Shield Window Remediation, Cells 3-5	The scope of this item includes all efforts by Engineering to prepare, review and approve scoping/planning documents for the remediation of the shield windows for Cells 3-5. Remediation includes a calculation/evaluation by Radiological Engineering to verify that dose is sufficiently low that the shield windows may remain disassembled after cleaning. If dose is too high, then the shield windows may need to be reassembled after cleaning so as to provide shielding. Therefore, this item includes planning for the draining of the window recirculation systems, along with their recharging and subsequent operation. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. The scope includes the analysis of alternatives that provide the needed window clarity.
01.29.24.01.09.01.04	Prepare Scoping Document for Temporary Lighting, Cells 3-5	The scope of this item includes all efforts by Engineering to prepare, review and approve scoping/ planning documents for the installation of temporary lighting to Cells 3-5. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Fac./Ops. Management. The scope includes the analysis of alternatives that provide the needed lighting.
01.29.24.01.09.02	Prepare Designs for Cells 3-5 Deactivation (1-11)	The scope of this work package includes all efforts by Engineering to prepare, review and approve design input (e.g., MTs per Manual E7) and design output (e.g., record drawings, DCFs, DCPs, etc. per Manual E7) for the partial D&R of the shield windows. The scope includes revisions only to drawings that are configuration controlled (e.g., shield window mechanical drawings and water recirculation system mechanical drawings). Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management.
01.29.24.01.09.02.01	Prepare Design for Shield Window D&R, Cells 3-5	See above description for Work Package 01.29.24.01.09.02.

WBS #	WBS Element	Description
01.29.24.01.09.03	Prepare Design for D&R of Cell 5 Glove-box (1-14)	The scope of this work package includes all efforts by Engineering to prepare, review and approve design input (e.g., MT per Manual E7) and design output (e.g., record drawings, DCFs, DCPs, etc. per Manual E7) for the D&R of the Cell 5 Glove-box and the installation of a new bag-out port to Cell 5. The scope includes revisions only to drawings that are configuration controlled. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management.
01.29.24.01.09.03.01	Prepare Design for D&R of Cell 5 Glove-box	See above description for Work Package 01.29.24.01.09.03.
01.29.24.01.09.04	Prepare Design for Breathing Air Distribution (1-11, 1-14)	The scope of this work package includes all efforts by Engineering to prepare, review and approve design input (e.g., MT per Manual E7) and design output (e.g., record drawings, DCFs, DCPs, calculations, pressure protection records, etc. per Manual E7) for a breathing air distribution system that is compliant with Reference 10.9. It is anticipated that no components of the current "low-pressure," non-compliant distribution will be utilized in the new design, which will make use of portable compressors located outside the north wall of Building 235-F. Three stations (with ~8 connections per station) are envisioned in the hallways (Corridors 1006, 1007, 1008) to the north of the SOB, East Maintenance Area and West Maintenance Area. Piping will be routed from the exterior portable compressor to the stations. This may entail coring of the concrete wall if an existing penetration cannot be identified/re-used. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management, Industrial Hygiene, F-Area Pressure Protection Coordinator, and Facility/Operations Management.
01.29.24.01.09.05	Develop Method/Design for Enhanced Char., Cells 3-9 (1-9)	The scope of this work package includes all efforts (labor and material) by the Project Team to research, design, fabricate and check-out specialized, portable, assay equipment that provides for better characterization of Cells 3-9. The scope also includes an initial characterization of Cells 6-9 prior to decontamination and material removal activities in those cells. It is anticipated that SRNL's NDA Group will be the Technical Agency with lead responsibility for the research, design and fabrication of the equipment. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management, Engineering, and Facility/Operations Management. Also, the scope includes the control and use of sources in support of checkout, and the initial calibration of equipment in accordance with 1Q, Procedure 12-1. Checkout will be via deployment in Cells 6-9/mock-ups and in accordance with a Manual 1Y work package or Manual 2S procedure. Note that "Cells 3-5" refers to the cells themselves along with their close-coupled glove-boxes (i.e., the Particle Coating Glove-box and the Hot Press Entry Glove-box).
01.29.24.01.10	Engineering – Planning/Design for Cells 1-2	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.10.01	Prepare Planning Documents for Cells 1- 2 (1-11)	The scope of this work package includes all efforts by Engineering to prepare, review and approve scoping/planning documents for: (1) smoke testing of Cells 1-2, (2) the installation of gloves into Cells 1-2 glove-ports, (3) the remediation of shield windows for Cells 1-2, and (4) the installation of temporary lighting to Cells 1-2. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. In general, planning documents will include an analysis of alternatives. Note that "Cells 1-2" refers to the cells themselves along with their close-coupled glove-boxes (i.e., the Cold Press Glove-box and the Maintenance Glove-box).

WBS #	WBS Element	Description
01.29.24.01.10.01.01	Prepare Scoping Document for Smoke Testing, Cells 1-2	The scope of this item includes all efforts by Engineering to prepare, review and approve scoping/planning documents for smoke testing of Cells 1-2. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. The scope also includes an evaluation of the existing ventilation to verify it provides adequate protection of workers and is compliant with the minimum requirements of SRS Engineering Standard 15889, "Confinement Ventilation System Requirements."
01.29.24.01.10.01.02	Prepare Scoping Document for Glove Installation, Cells 1-2	The scope of this item includes all efforts by Engineering to prepare, review and approve scoping/planning documents for the installation of gloves into Cells 1-2 glove-ports. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management.
01.29.24.01.10.01.03	Prepare Scoping Document for Shield Window Remediation, Cells 1-2	The scope of this item includes all efforts by Engineering to prepare, review and approve scoping/planning documents for the remediation of the shield windows for Cells 1-2. Remediation includes a calculation/evaluation by Radiological Engineering to verify that dose is sufficiently low that the shield windows may remain disassembled after cleaning. If dose is too high, then the shield windows may need to be reassembled after cleaning so as to provide shielding. Therefore, this item includes planning for the draining of the window recirculation systems, along with their recharging and subsequent operation. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. The scope includes the analysis of alternatives that provide the needed window clarity.
01.29.24.01.10.01.04	Prepare Scoping Document for Temporary Lighting, Cells 1-2	The scope of this item includes all efforts by Engineering to prepare, review and approve scoping/ planning documents for the installation of temporary lighting to Cells 1-2. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Fac./Ops. Management. The scope includes the analysis of alternatives that provide the needed lighting.
01.29.24.01.10.02	Prepare Designs for Cells 1-2 Deactivation (1-11)	The scope of this work package includes all efforts by Engineering to prepare, review and approve design input (e.g., MTs per Manual E7) and design output (e.g., record drawings, DCFs, DCPs, etc. per Manual E7) for the partial D&R of the shield windows. The scope includes revisions only to drawings that are configuration controlled (e.g., shield window mechanical drawings and water recirculation system mechanical drawings). Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management.
01.29.24.01.10.02.01	Prepare Design for Shield Window D&R, Cells 1-2	See above description for Work Package 01.29.24.01.10.02
01.29.24.01.11	Field Operations – Deactivation of Cells 6-9	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.11.01	Develop/Implement TRU Waste Handling Program (1-14)	The scope of the work package includes all efforts by the Project Team to revise and implement a Manual 1S compliant waste handling program for Building 235-F. Currently, the building has a routine low-level waste stream but does not have a routine waste stream for TRU waste. A routine TRU waste stream is needed in support of the planned deactivation. See SDD-2013-00001 for a conceptual description of the desired waste handling program.
01.29.24.01.11.01.01	Develop/Issue Waste Handling Strategy	The scope of this item includes all efforts by Engineering to revise, review and approve a waste handling strategy for Building 235-F. The effort includes a revision to SDD-2009-00132, based on the conceptual information in SDD-2013-00001. The scope includes the review/approval of the document by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Solid Waste SMEs.

WBS #	WBS Element	Description
01.29.24.01.11.01.02	Prepare Waste Characterization/Certification Plans	The scope of this item includes all efforts by the assigned ECA/Waste Engineer to revise, review and approve the Radioactive Waste Management Basis (RWMB, Q-RWM-F-00001), Waste Characterization Plan, Waste Certification Plan (NMP-SFC-94-0531), and new Waste Characterization Forms (WCFs) for Building 235-F. The scope includes the review/approval of the documents by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, NDA Management, ECA Management, MBA Custodian, Engineering, and Solid Waste SMEs. This item assumes that no additional sampling/analysis is needed to establish routine TRU waste stream(s).
01.29.24.01.11.01.03	Design/Fabricate/Install Equipment	The scope of this item includes all efforts (labor and material) by the Project Team to configure the Cells 6 and 9 bag-out ports for waste handling. A small glove-bag is assumed to be designed, fabricated and deployed at each bag-out port. The glove-bag will allow workers/Radcon to screen removed items for TRU content prior to double-bagging/deconning the removed material and prior to their placement in a container.
01.29.24.01.11.01.04	Develop and Issue Procedures/Train Personnel	The scope of this item includes all efforts by the Project Team to develop, review and approve a set of procedures for the handling of TRU waste within Building 235-F. The item also includes the revision of procedures for LLW handling so that they complement the procedures for TRU waste handling. In addition, this item includes the deployment of instrumentation/sources to Building 235-F as needed to support procedure usage. The scope includes the review/approval of procedures by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, NDA Management, ECA Management, MBA Custodian, and Solid Waste SMEs. Finally, the scope includes training on all new and revised procedures.
01.29.24.01.11.01.05	Assess Program for Readiness	The scope of this item includes all efforts by the Project Team to support a performance-based assessment by SMEs from Solid Waste Management (iaw Manual 1S, Chapter 2) of the revised 235-F Waste Certification program.
01.29.24.01.11.02	Develop/Checkout Long-Handled/Extension Tools (1-14)	The scope of the work package includes all efforts by the Project Team to develop and checkout long-handled and extension tools for use within Cells 1-9. (See SDD-2012-00111 for layout of cells and approximate working distances for the needed tools.) Along with select manipulators, workers will use the tools to perform decon and material removal.
01.29.24.01.11.02.01	Prepare Scoping Document/Design for Tools	The scope of this item includes all efforts by Engineering to prepare, review and approve scoping/planning documents for the needed tooling. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. Also, the scope includes design/development work by SRNL's R&D Engineering.
01.29.24.01.11.02.02	Fabricate/Procure Tools	The scope of this item includes all efforts (labor and material) by the Project Team to fabricate and/or procure the needed tools that were designed/specified by SRNL's R&D Engineering.
01.29.24.01.11.02.03	Checkout Tools in Mockup	The scope of this item includes all efforts (labor and material) by the Project Team to checkout tools in a mockup (see 01.29.24.01.07.04 for fabrication and installation of the mockup). The item includes the preparation of a report that documents successful checkout of tools.
01.29.24.01.11.03	Repair/Replace Manipulators for Cells 6-9 (1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to repair and/or replace select manipulators at Cells 6-9. (See SDD-2012-00111 for additional information regarding manipulators to be repaired and/or replaced.) Along with select manipulators, workers will use long-handled/extension tools to perform decon and material removal.

WBS #	WBS Element	Description
01.29.24.01.11.03.01	Perform Initial Checkout of Manipulators	The scope of this item is to prepare and execute a Manual 1Y work package that provides for an initial checkout of the manipulators associated with Cells 6-9. Alternatively, the checkout will be iaw Manual 2S procedure(s). Regardless of what work document is used to control the work, the purpose of the checkout is to establish the current capability of the manipulators, and establish what needs to be repaired and/or replaced with each manipulator. It is envisioned that trained workers will perform the checkout with support from maintenance mechanics familiar with the manipulators. The scope includes the review/approval of work package(s)/ procedure(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance.
01.29.24.01.11.03.02	Repair Manipulators	The scope of this item is to prepare and execute a Manual 1Y work package that provides for the repair of select manipulators. It is envisioned that maintenance mechanics will perform the needed repairs with support from Radcon and Facility Operations. To the extent practical, the repairs will utilize spare parts stored in 707-1F. The effort includes the fabrication and deployment of huts, glove-bags, sleeving, etc. as needed to control contamination along with the use of PPE and supplied air. The scope includes the review/approval of work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance.
01.29.24.01.11.03.03	Replace Manipulators that Cannot Be Repaired	The scope of this item is to prepare and execute a Manual 1Y work package that provides for the replacement of select manipulators. It is envisioned that maintenance mechanics will perform the needed replacements with support from Radcon and Facility Operations. To the extent practical, the repairs will utilize spare parts stored in 707-1F. The effort includes the fabrication and deployment of huts, glove-bags, sleeving, etc. as needed to control contamination along with the use of PPE and supplied air. The scope includes the review/approval of work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance.
01.29.24.01.11.04	Deactivate Cells 6-9 (1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to deactivate Cells 6-9, which includes material removal from those cells along with decontamination. Workers will use select manipulators and appropriate long-handled/extension tools to perform the needed decontamination and material removal. Note that the scope is preliminary and based on what is currently known about the cells. The scope will be finalized during the completion of WBS Nos. 01.29.24.01.6.04 and 01.29.24.01.06.05.
01.29.24.01.11.04.01	Perform Decon of Cells 6-9	As the first step in the removal of Pu 238 hold-up from the cells, the cells will likely be deconned using battery-powered vacuums with HEPA filtration. Workers will use the glove-ports and long-handled tools to manipulate the vacuum's hose/wand. To limit the amount of Pu hold-up on the HEPA filters, any visual debris will be "scooped" up and placed into bags prior to using the vacuums. Decon material will be removed from Cells 6-9 in the performance of this activity via the bag-out ports at Cells 6 and 9. As the next step in the removal of Pu 238 hold-up from the cells, the cells will be deconned using deconning agents. Using the glove-ports and long-handled tools, workers will apply deconning agents to interior surfaces of the cells. In general, the agents will be applied by brush or roller. The agents are designed to adhere to the Pu hold-up and "cure" into a gel, thus containing the hold-up in a removable solid. Using the glove-ports and long-handled tools, workers will remove sections of cured gel and place it into bags for removal from the cells via the glove-ports. The scope includes the review/approval of procedure(s)/work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance. Also the item includes the design/fabrication/deployment of small HEPA vacs, which are not expected to be available off-the-shelf and commercially. Finally, the item includes the procurement of consumable materials such as decon gels, rollers, applicators, etc. and the needed PPE.

WBS #	WBS Element	Description
01.29.24.01.11.04.02	Perform Material Removal from Cells 6-9	The scope of this item is to prepare and execute Manual 2S procedure(s) and/or Manual 1Y work packages that provide for material removal from Cells 6-9. This activity includes the removal of "loose" components/material from inside of the cells for disposal. Other "installed" components that can be easily disconnected or disassembled by hand tools will also be designated for removal and disposal. Workers shall move and manipulate components/material using the existing glove-ports, hand tools, and long-handled tools. This activity will likely occur prior to, during and after decon (the proceeding item, 01.29.24.01.11.04.01).
01.29.24.01.11.04.03	Perform Waste Handling in Support of Decon/Material Removal	The scope of this item is to cover all waste handling activities (both labor and material) in support of decon and material removal. These activities will be conducted by Ops, Radcon, MBA Custodian, NDA, ECA, etc. in accordance with the 235-F Waste Certification Plan and applicable procedures. The activity includes the screening of waste to determine whether it is LLW or TRU, the packaging of waste, the temporary staging of waste while awaiting assay, the assay of the waste, and finally the shipment of waste from Building 235-F. The waste generated will be transferred to Solid Waste for temporary storage (e.g., E-Area TRU pad for staging TRU waste while awaiting final packaging and shipment off-Site) or disposal (e.g., E-Area slit trenches for low level waste (LLW)). The scope includes the preparation of required paperwork (manifests) in support of waste handling.
01.29.24.01.11.05	Electrically/Mechanically Isolate Cells 6-9 (1-14)	The scope of this item is to electrically/mechanically isolate Cells 6-9 (or verify that they are already electrically/mechanically isolated) using an approach similar to EC&ACPs "cold & dark" process as defined by Manual C2, Procedure FDP 2.04 (Reference 10.78). The item includes research by Engineering to identify all connections to the cells, to prepare an index of connections (see SDD-2012-00039 for a preliminary listing of cell penetrations), and then to develop a method of isolation for the identified connections. For mechanical connections, isolation includes the closing of valves, air-gapping of lines, or capping of piping from within the cells. Mechanical isolation also includes the electrical isolation of equipment that could pressurize components within the cells. The purpose of mechanical isolation is to prevent future pressurization of components within the cells and to prevent the spread of contamination as a result of subsequent decontamination and material removal. For electrical connections, isolation includes air-gapping of wires or removal of electrical components (e.g., breaker) so as to permanently break circuits and to ensure permanent absence of electrical hazardous energy. The scope includes all efforts (labor and materials) by the Project Team to implement the required isolations. It is envisioned that the work with be performed by a mixture of deactivation workers, maintenance mechanics and Radcon. As needed, scope includes the preparation of design input (MTs) and design output (DCFs/DCPs) by Engineering to maintain configuration control of the electrical distribution system.
01.29.24.01.11.06	Install Breathing Air Distribution (1-11, 1-14)	The scope of this work package includes all efforts (labor and materials) by the Project Team to install a breathing air distribution system that is compliant with Reference 10.9. It is anticipated that no components of the current "low-pressure," non-compliant distribution will not be utilized in the installation, which will make use of portable compressors located outside the north wall of Building 235-F. It is envisioned that three stations (with ~8 connections per station) will be installed in the hallways (Corridors 1006, 1007, 1008) to the north of the SOB, East Maintenance Area and West Maintenance Area. Piping will be routed from the exterior portable compressor to the stations. This may entail coring of the concrete wall (a "safety significant" component) if an existing penetration cannot be identified/re-used. All components will be pre-fabricated because compressed gas cylinders (for welding) are not allowed inside Building 235-F. Also, the scope includes the development of procedures for operation of the portable breathing air system, initial testing of the distribution by IH iaw Manual 4Q1.1, and the establishment of PMs for the distribution system.
01.29.24.01.12	Project Management - Deactivation of Cells 6-9	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.

WBS #	WBS Element	Description
01.29.24.01.12.01	Perform Project Management (1-5, 1-11, 1-14)	The scope of this work package is to provide project management and project controls support to the implementation of the engineering and field operations work required to meet milestones in the implementation plan. Also, the scope includes Deactivation Project Plan maintenance/revisions during FY14.
01.29.24.01.12.02	Perform 235-F S&M in Support of Deactivation (1-11, 1-14)	The scope of this work package includes half of all efforts (labor and material) by Facility Management and the Project Team to implement an S&M program for the 235-F Complex. (The scope/cost is shared with the 235-F S&M activity.) The scope includes implementation of the Safety Basis (e.g., implementation of an enclosure integrity program and transient combustible control program), utilities (e.g., electricity and steam), operation and maintenance of SSCs (e.g., ventilation, fire detection, backup power, lighting, etc.), rounds, corrective maintenance, waste management, environmental compliance, emergency response, entry control, radiological routines, facility management, project controls, MC&A, etc. The forecasted support is based on previous FY actuals and is assumed to be level-of-effort.
01.29.24.01.12.03	Technology Development and Support (1-11, 1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to develop and deploy technologies that enhance (improve worker safety and/or efficiency) the planned PuFF Facility deactivation activities. SRNL will take the lead and will coordinate all technology development, and will support field activities during deployment of those technologies. Technologies to be developed, deployed and supported include (1) 3-D modeling and contamination mapping, (2) the design, testing and selection of advanced tools for remote material removal and decontamination, (3) the investigation and deployment of enhanced radiological assay and characterization technologies (above and beyond the minimum characterization planned for WBS Nos. 01.29.24.01.09.05 and 01.29.24.01.14.02), (4) the investigation and deployment of non-flammable/non-combustible fixatives, and (5) emergent technology needs as identified by the Project Team. The scope includes review of plans, reports, and other documentation by the Project Team, but does not include support of field activities by Operators/Radcon/IH/Safety/Planners/ECAs. The support of field activities is built into decontamination and material removal activities (e.g., WBS No. 01.29.24.01.11.04).
01.29.24.01.13	Engineering – Initial Deactivation of Cells 3-5	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.13.01	NUMBER NOT USED	N/A
01.29.24.01.13.02	Develop Method/Design to Isolate Cells 6-9 (1-14)	The scope of this work package includes all efforts by Engineering to evaluate Cells 6-9 for isolation and then to prepare design input and design output (iaw Manual E7) for the required isolation(s). The current concept is to provide blank(s) and/or air gap(s) in the "rabbit" that connects Cell 6 to Cell 5. Also, the exhaust ventilation for Cells 6-9 may be isolated from Cells 1-5 via the closing of dampers or air gapping of ductwork provided the Project Team can demonstrate that Cells 6-9 are sufficiently clean that they can go stagnant. Alternatively, HEPA filters may be installed on the Cells 6-9 exhaust to prevent recontamination of Cells 6-9.
01.29.24.01.13.03	Prepare Planning Docs for Decon/Material Removal, Cells 3-5 (1-14)	The scope of this work package is to prepare two Engineering evaluations for Cells 3-5 where the evaluations define (1) the methods/techniques for decon of those cells and (2) the methods/techniques for material removal from those cells. Note that "Cells 3-5" refers to the cells themselves along with their close-coupled glove-boxes (i.e., the Particle Coating Glove-box and the Hot Press Entry Glove-box).

WBS #	WBS Element	Description
01.29.24.01.13.03.01	Prepare Scoping Document for Decon, Cells 3-5	The scope of this work package is an Engineering evaluation of Cells 3-5 where the evaluation defines the methods/techniques for decontamination of those cells, the immobilization of MAR that is difficult to remove, and the disassembly of components to allow their decontamination or their removal through bag out ports. The work package will be worked in concert with WBS 01.29.24.01.13.03.02 so that decontamination/ immobilization/disassembly are fully integrated with material removal. In general, the evaluation will employ technologies identified in Section 5.08 of this Deactivation Project Plan; however, the evaluation is not restricted to those technologies but will consider the full range of available technologies. Also, the scope includes the review/approval of the evaluation by primary SRNS stakeholders including Radcon Management and Facility/Operations Management.
01.29.24.01.13.03.02	Prepare Scoping Document for Material Removal, Cells 3-5	The scope of this work package is an Engineering evaluation of Cells 3-5 where the evaluation defines the methods/techniques for material removal from those cells. The scope includes (1) photographing the cells, (2) developing layouts of the cells so as to locate materials to be removed with respect to glove-ports and manipulators, and (3) document searches/reviews so as to identify/define all components/materials to be removed. The work package will be worked in concert with WBS 01.29.24.01.13.03.01 so that decontamination/ immobilization/disassembly are fully integrated with material removal. Also, the scope includes the review/approval of the evaluation by primary SRNS stakeholders including Radcon Management and Facility/Operations Management.
01.29.24.01.14	Engineering – Initial Deactivation of Cells 1-2	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.

WBS #	WBS Element	Description
01.29.24.01.14.01	Prepare/Issue Rev. 1 Deactivation Safety Basis (1-7)	The scope of this work package includes all efforts by Engineering to revise, review and approve a 235-F Deactivation BIO/TSR that also covers deactivation activities within Cells 1-2 and their associated glove-boxes. The scope includes the preparation, review and approval of all Safety Basis support documents including the CHA, accident analysis calculation, FHA, fire scenario document, etc. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Facility/Operations Management, and includes support of DOE's review and approval. The scope also includes a forward-looking accident analysis, which demonstrates that the overall project objective (less than 100 rem mitigated dose to the facility and co-located worker) is met at project completion. This forward-looking accident analysis will (1) provide a threshold inventory for FY16 decontamination activities within Cells 1-5 and their associated glove boxes and (2) determine whether the Project Team needs to remove/immobilize the inventories in other process areas of Building 235-F. Note that per Reference 10.7, PuFF contains 1,522 grams of Pu-238, PEF contains 22 grams of Pu-238 and OML contains 44 grams of Pu-238. Using the conservative analysis in Reference 10.21, all three of these process areas individually exceed the SRS guideline of 100 rem. The forward looking accident analysis will seek to adjust the RF and ARF for the MAR in the PuFF Facility based on its successful decontamination and immobilization, where the sub-micron particles have been removed and the form of the remaining MAR has been changed (e.g., the MAR is fixed in place). For the other process areas, the Project Team will seek to adjust the RFs and ARFs based on process knowledge and, as needed, additional characterization, which confirms and/or fills gaps in the process knowledge. Along these lines, the scope of this work package includes a review of available facility records, and entries into the PEF and OML glove lines for the purpose of characterization (e.g., sample/analysis to determine particle size distributions, enhanced characterization to establish a revised MAR based on lower uncertainty, and/or sample/analysis to determine what is fixed versus transferrable). Finally, the forward-looking analysis will review the fire scenarios for Building 235-F. Due to the completed combustible removal and de-energization, an unfiltered, full-facility fire may no long be the bounding accident. Rather, a room fire may be the bounding accident and it would be appropriate to establish threshold inventories for the individual process areas versus for the entire facility.
01.29.24.01.14.01.01	Revise/Approve CHAP/Support Documents (TFHA/PFHA)	The scope of this WBS element includes all efforts by Engineering to revise, review and approve all Safety Basis support documents including the CHA, accident analysis calculation, FHA, fire scenario document, etc. iaw Manual 11Q. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Facility/Operations Management. The scope also includes a forward looking accident analysis to demonstrate that the overall project objective is met (less than 100 rem to the facility and co-located worker) at project completion. This forward looking accident analysis will provide a threshold inventory for FY16 decontamination activities within Cells 1-5 and confirm that the Project Team does not need to address the inventories in other process areas of Building 235-F.
01.29.24.01.14.01.02	Revise/Approve BIO/TSR	The scope of this work package includes all efforts by Engineering to prepare, review and approve a 235-F Deactivation BIO/TSR prepared iaw Manual 11Q. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Facility/Operations Management, and includes support of DOE's review and approval.

WBS #	WBS Element	Description
01.29.24.01.14.02	Develop Method/Design for Enhanced Char., Cells 1-2 (1-9)	The scope of this work package includes all efforts (labor and material) by the Project Team to validate that specialized, portable, assay equipment developed for Cells 3-5 is also applicable to Cells 1-2. It is anticipated that SRNL's NDA Group will be the Technical Agency with lead responsibility for validating the equipment. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management, Engineering, and Facility/Operations Management. Also, the scope includes the control and use of sources in support of checkout, and the initial calibration of equipment in accordance with 1Q, Procedure 12-1. Note that "Cells 1-2" refers to the cells themselves along with their close-coupled glove-boxes (i.e., the Cold Press Glove-box and the Maintenance Glove-box).
01.29.24.01.14.03	Prepare Planning Docs for Decon/Material Removal, Cells 1-2 (1-14)	The scope of this work package is to prepare two Engineering evaluations for Cells 1-2 where the evaluations define (1) the methods/techniques for decon of those cells and (2) the methods/techniques for material removal from those cells. Note that "Cells 1-2" refers to the cells themselves along with their close-coupled glove-boxes (i.e., the Cold Press Glove-box and the Maintenance Glove-box).
01.29.24.01.14.03.01	Prepare Scoping Document for Decon, Cells 1-2	The scope of this work package is an Engineering evaluation of Cells 1-2 where the evaluation defines the methods/techniques for decontamination of those cells, the immobilization of MAR that is difficult to remove, and the disassembly of components to allow their decontamination or their removal through bag out ports. The work package will be worked in concert with WBS 01.29.24.01.14.03.02 so that decontamination/immobilization/ disassembly are fully integrated with material removal. In general, the evaluation will employ technologies identified in Section 5.08 of this Deactivation Project Plan; however, the evaluation is not restricted to those technologies but will consider the full range of available technologies. Also, the scope includes the review/approval of the evaluation by primary SRNS stakeholders including Radcon Management and Facility/Operations Management.
01.29.24.01.14.03.02	Prepare Scoping Document for Material Removal, Cells 1-2	The scope of this work package is an Engineering evaluation of Cells 1-2 where the evaluation defines the methods/techniques for material removal from those cells. The scope includes (1) photographing the cells, (2) developing layouts of the cells so as to locate materials to be removed with respect to glove-ports and manipulators, and (3) document searches/reviews so as to identify/define all components/materials to be removed. The work package will be worked in concert with WBS 01.29.24.01.14.03.01 so that decontamination/ immobilization/disassembly are fully integrated with material removal. Also, the scope includes the review/approval of the evaluation by primary SRNS stakeholders including Radcon Management and Facility/Operations Management.
01.29.24.01.15	Field Operations – Initial Deactivation of Cells 3-5	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.15.01	Upgrade TRU Waste Handling Program for Cells 3-5 (1-14)	The scope of the work package includes all efforts by the Project Team to revise and implement a Manual 1S compliant waste handling program for Cells 3-5. As a result of previous efforts (see 01.29.24.01.11.01), Building 235-F has a routine low-level waste stream and a routine waste stream for TRU waste. This work package provides for an expansion of the program to handle TRU waste generation from Cells 3-5 and waste handling within East Maintenance (Room 1002). See SDD-2013-00001 for a conceptual description of the desired waste handling program. Note that "Cells 3-5" refers to the cells themselves along with their close-coupled glove-boxes (i.e., the Cold Press Glove-box and the Maintenance Glove-box).

WBS #	WBS Element	Description
01.29.24.01.15.01.01	Revise/Issue Waste Handling Strategy	The scope of this item includes all efforts by Engineering to revise, review and approve a waste handling strategy for Building 235-F that includes Cells 3-5 and East Maintenance (Room 1002). The effort includes a revision to SDD-2009-00132, based on the conceptual information in SDD-2013-00001. The scope includes the review/approval of the document by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Solid Waste SMEs.
01.29.24.01.15.01.02	Revise Waste Certification Plan	The scope of this item includes all efforts by the assigned ECA/Waste Engineer to revise, review and approve the Waste Certification Plan (NMP-SFC-94-0531) for Building 235-F. The scope includes the review/approval of the document by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, NDA Management, ECA Management, MBA Custodian, Engineering, and Solid Waste SMEs.
01.29.24.01.15.01.03	D&R the Glove-box for Cell 5	The scope of this item includes all efforts (labor and material) by the Project Team to D&R the Cell 5 glove-box (the Lathe Maintenance Glove-box) in accordance with Manual 1Y work package(s). The item includes decon of the glove-box as needed to allow for its disposal as LLW. The glove-box will be D&R'd so as to convert the east port of Cell 5 into a bag-out port. The installation of a new bag-out port into Cell 5 is included in this item.
01.29.24.01.15.01.04	Design/Fabricate/Install Equipment	The scope of this item includes all efforts (labor and material) by the Project Team to configure the Cells 3, 4 and 5 bag-out ports for waste handling. (For Cells 3 and 4, the bag-out ports reside in the glove-boxes that are close-coupled to Cells 3-4.) A small glove-bag is assumed to be designed, fabricated and deployed at each bag-out port. The glove-bag will allow workers/Radcon to screen removed items for TRU content prior to double-bagging/deconning the removed material and prior to their placement in a container.
01.29.24.01.15.01.05	Revise Procedures	The scope of this item includes all efforts by the Project Team to develop, review and approve a set of procedures for the handling of TRU waste from Cells 3-5 and East Maintenance. The item also includes the revision of procedures for LLW handling so that they complement the procedures for TRU waste handling. In addition, this item includes the deployment of instrumentation/sources to Building 235-F as needed to support procedure usage. The scope includes the review/approval of procedures by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, NDA Management, ECA Management, MBA Custodian, and Solid Waste SMEs. Finally, the scope includes training on all new and revised procedures.
01.29.24.01.15.01.06	Assess Program for Readiness	The scope of this item includes all efforts by the Project Team to support a performance-based assessment by SMEs from Solid Waste Management (iaw Manual 1S, Chapter 2) of the revised 235-F Waste Certification program.
01.29.24.01.15.02	Repair/Replace Manipulators for Cells 3-5 (1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to repair and/or replace select manipulators at Cells 3-5. (See SDD-2012-00111 for additional information regarding manipulators to be repaired and/or replaced.) Along with select manipulators, workers will use long-handled/extension tools to perform decon and material removal.
01.29.24.01.15.02.01	Perform Initial Checkout of Manipulators, Cells 3-5	The scope of this item is to prepare and execute a Manual 1Y work package that provides for an initial checkout of the manipulators associated with Cells 3-5. Alternatively, the checkout will be iaw Manual 2S procedure(s). Regardless of what work document is used to control the work, the purpose of the checkout is to establish the current capability of the manipulators, and establish what needs to be repaired and/or replaced with each manipulator. It is envisioned that trained workers will perform the checkout with support from maintenance mechanics familiar with the manipulators. The scope includes the review/approval of work package(s)/procedure(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance.

WBS #	WBS Element	Description
01.29.24.01.15.02.02	Repair Manipulators, Cells 3-5	The scope of this item is to prepare and execute a Manual 1Y work package that provides for the repair of select manipulators. It is envisioned that maintenance mechanics will perform the needed repairs with support from Radcon and Facility Operations. To the extent practical, the repairs will utilize spare parts stored in 707-1F. The effort includes the fabrication and deployment of huts, glove-bags, sleeving, etc. as needed to control contamination along with the use of PPE and supplied air. The scope includes the review/approval of work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance.
01.29.24.01.15.02.03	Replace Manipulators that Cannot Be Repaired, Cells 3-5	The scope of this item is to prepare and execute a Manual 1Y work package that provides for the replacement of select manipulators. It is envisioned that maintenance mechanics will perform the needed replacements with support from Radcon and Facility Operations. To the extent practical, the repairs will utilize spare parts stored in 707-1F. The effort includes the fabrication and deployment of huts, glove-bags, sleeving, etc. as needed to control contamination along with the use of PPE and supplied air. The scope includes the review/approval of work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance.
01.29.24.01.15.03	Implement Prep for Cells 3-5 Work (1-11)	The scope of this work package includes all efforts by the 235-F Deactivation Project Team to prep PuFF Facility Cells 6-9 and includes (1) smoke testing and the remediation of in-leakage, (2) the installation of gloves (3) D&R and cleaning of the shield windows, (4) installation of temporary lighting, and (5) the repair/replacement of manipulators. For Items (1), (3) and (5); Site forces (e.g., Rigging, Operations, Maintenance and Radcon) will conduct the activity iaw a Manual 1Y work package. For Items (2) and (4), in-house resources (e.g., F-Area Maintenance, Operations and Radcon) will perform those activities generally iaw Manual 2S procedures. The scope includes all organizations that support the cell prep (e.g., planners, Radcon, IH, Industrial Safety, Facility Management) along with stakeholders who will review/approve IY work packages or work completion. Finally, the scope includes some Engineering so as to conduct as-building and to handle emergent issues that require design changes. Note that "Cells 3-5" refers to the cells themselves along with their close-coupled glove-boxes (i.e., the Cold Press Glove-box and the Maintenance Glove-box).
01.29.24.01.15.03.01	Perform Smoke Test and Remediate, Cells 3-5	This scope of this item includes all efforts (labor and material) by the project team to smoke test Cells 3-5 iaw a Manual 1Y work package. This item includes an Engineering evaluation of the in-leakage and any subsequent efforts to remediate that in-leakage. The scope includes the review/approval of work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance.
01.29.24.01.15.03.02	Install Gloves and Reactivate Glove Ports, Cells 3-5	The item includes all efforts (labor and material) by the 235-F Deactivation Project Team to install gloves in all of the lower glove ports of Cells 3-5. The item includes the revision/review/approval/issuance of two procedures for (1) the actual glove installation and (2) the tracking of glove port status/configuration. The item includes worker training on the two procedures via mockups, and include the actual execution of the procedures. Also, the item includes the fabrication/procurement of glove cartridges and gloves. Finally, the activity includes the design/fabrication/deployment of containments as needed to support the initial glove installation, and includes periodic replacement of the gloves.

WBS #	WBS Element	Description
01.29.24.01.15.03.03	Remove Shielded Windows, Cells 3-5	This item includes all efforts (labor and materials) by the 235-F Deactivation Project Team to D&R and clean three shielded windows associated with Cells 3-5. It is anticipated that Site forces (e.g., Rigging, Operations, Maintenance and Radcon) will conduct the activity iaw a Manual 1Y work package. The item includes all organizations that support the window D&R and cleaning (e.g., planners, Radcon, IH, Industrial Safety, Facility Management) along with stakeholders who will review/approve IY work packages or work completion. Also, the item includes the fabrication/procurement of lift beam, de-construction aids (tabs to stabilize the panes as they are D&R'd), spill pallets, floor crane, etc. The item also includes the collection of water from the three windows and its discharge to ETF. Finally, this work package includes some Engineering so as to conduct as-building and to handle emergent issues that require design changes.
01.29.24.01.15.03.04	Remediate Shielded Windows, Cells 3-5	The scope of this item includes all efforts by the Project Team to remediate the shield windows for Cells 3-5 in accordance with Manual 1Y work package(s) and/or Manual 2S procedure(s). Remediation includes the recharging of the shield windows and their subsequent operation. The scope includes the review/approval of work package(s)/procedure(s) by primary SRNS stakeholders including Radcon Management, Engineering and Facility/Operations Management.
01.29.24.01.15.03.05	Install Temporary Lighting to Cells 3-5	This item includes all efforts (labor and materials) by the 235-F Deactivation Project Team to install temporary lighting in Cells 3-5. It is anticipated that in-house resources (e.g., F-Area Maintenance, Operations and Radcon) will perform the activity generally iaw Manual 2S procedures. The item includes worker training on procedures via mockups, and include the actual execution of the procedures. Also the item includes fabrication of "clear tubes" by SRNS Shops.
01.29.24.01.15.04	Perform Enhanced Characterization of Cells 3-5 (1-9)	This work package includes all efforts (labor and material) by the Project Team to characterize Cells 3-5 (and associated glove-boxes) before their decon and the removal of material. It is anticipated that SRNL's NDA Group will conduct the characterization using specialized assay equipment with support from Ops and Radon under a Manual 1Y work package. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management, Engineering, and Facility/Operations Management. Also, the scope includes the control and use of sources in support of the characterization in accordance with 1Q, Procedure 12-1. Finally, the scope includes the generation of a characterization report by SRNL. Note that the characterization is assumed to be intrusive to the cells.

WBS #	WBS Element	Description
01.29.24.01.15.05	Electrically/Mechanically Isolate Cells 3-5 (1-14)	The scope of this item is to electrically/mechanically isolate Cells 3-5 and their glove boxes (or verify that they are already electrically/mechanically isolated) using an approach similar to EC&ACPs "cold & dark" process as defined by Manual C2, Procedure FDP 2.04 (Reference 10.78). The item includes research by Engineering to identify all connections to the cells/glove boxes, to prepare an index of connections (see SDD-2012-00039 for a preliminary listing of cell/glove box penetrations), and then to develop a method of isolation for the identified connections. For mechanical connections, isolation includes the closing of valves, air-gapping of lines, or capping of piping from within the cells/glove boxes. Mechanical isolation also includes the electrical isolation of equipment that could pressurize components within the cells/glove boxes. The purpose of mechanical isolation is to prevent future pressurization of components within the cells/glove boxes and to prevent the spread of contamination as a result of subsequent decontamination and material removal. For electrical connections, isolation includes air-gapping of wires or removal of electrical components (e.g., breaker) so as to permanently break circuits and to ensure permanent absence of electrical hazardous energy. The scope includes all efforts (labor and materials) by the Project Team to implement the required isolations. It is envisioned that the work with be performed by a mixture of deactivation workers, maintenance mechanics and Radcon. As needed, scope includes the preparation of design input (MTs) and design output (DCFs/DCPs) by Engineering to maintain configuration control of the electrical distribution system.
01.29.24.01.16	Field Operations – Initial Deactivation of Cells 1-2	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.16.01	Implement Rev. 1 Deact. Safety Basis and Verify Readiness (1-8)	The scope of this work package includes the preparation, review and approval of a Safety Basis Implementation Plan (SBIP) iaw Manual 11Q and a follow-on Readiness Assessment iaw Manual 12Q. The scope includes the review/approval of the SBIP by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. Also, the scope includes the implementation of the SBIP, which includes multiple procedure revisions as a minimum.
01.29.24.01.16.01.01	Implement BIO/TSR (SBIP Preparation and Execution)	The item includes the preparation, review and approval of a Safety Basis Implementation Plan (SBIP) iaw Manual 11Q. The scope includes the review/approval of the SBIP by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. Also, the scope includes the implementation of the SBIP, which (as a minimum) includes multiple procedure revisions.
01.29.24.01.16.01.02	Perform Readiness Assessment	This item includes a Readiness Assessment iaw Manual 12Q, Procedure RA-1.
01.29.24.01.16.02	Upgrade TRU Waste Handling Program for Cells 1-2 (1-14)	The scope of the work package includes all efforts by the Project Team to revise and implement a Manual 1S compliant waste handling program for Cells 1-2. As a result of previous efforts (see 01.29.24.01.11.01), Building 235-F has a routine low-level waste stream and a routine waste stream for TRU waste. This work package provides for an expansion of the program to handle TRU waste generation from Cells 1-2 and additional waste handling within East Maintenance (Room 1002). Note that "Cells 1-2" refers to the cells themselves along with their close-coupled glove-boxes (i.e., the Cold Press Glove-box and the Maintenance Glove-box).
01.29.24.01.16.02.01	Revise/Issue Waste Handling Strategy	The scope of this item includes all efforts by Engineering to revise, review and approve a waste handling strategy for Building 235-F that includes Cells 1-2 and East Maintenance (Room 1002). The effort includes a revision to SDD-2009-00132. The scope includes the review/approval of the document by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Solid Waste SMEs.

WBS #	WBS Element	Description
01.29.24.01.16.02.02	Revise Waste Certification Plans	The scope of this item includes all efforts by the assigned ECA/Waste Engineer to revise, review and approve the Waste Certification Plan (NMP-SFC-94-0531) for waste generation from Cells 1-2. The scope includes the review/approval of the document by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, NDA Management, ECA Management, MBA Custodian, Engineering, and Solid Waste SMEs.
01.29.24.01.16.02.03	Design/Fabricate/Install Equipment	The scope of this item includes all efforts (labor and material) by the Project Team to configure the Cell 1 bag-out ports for waste handling. (For Cell 1, the bag-out ports reside in the glove-boxes that are close-coupled to Cell 1.) A small glove-bag is assumed to be designed, fabricated and deployed at each bag-out port. The glove-bag will allow workers/Radcon to screen removed items for TRU content prior to double-bagging/deconning the removed material and prior to their placement in a container.
01.29.24.01.16.02.04	Revise Procedures	The scope of this item includes all efforts by the Project Team to develop, review and approve a set of procedures for the handling of TRU waste from Cells 1-2 within East Maintenance. The item also includes the revision of procedures for LLW handling so that they complement the procedures for TRU waste handling. In addition, this item includes the deployment of instrumentation/sources to Building 235-F as needed to support procedure usage. The scope includes the review/approval of procedures by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, NDA Management, ECA Management, MBA Custodian, and Solid Waste SMEs. Finally, the scope includes training on all new and revised procedures.
01.29.24.01.16.02.05	Assess Program for Readiness	The scope of this item includes all efforts by the Project Team to support a performance-based assessment by SMEs from Solid Waste Management (iaw Manual 1S, Chapter 2) of the revised 235-F Waste Certification program.
01.29.24.01.16.03	Repair/Replace Manipulators for Cells 1-2 (1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to repair and/or replace select manipulators at Cells 1-2. (See SDD-2012-00111 for additional information regarding manipulators to be repaired and/or replaced.) Along with select manipulators, workers will use long-handled/extension tools to perform decon and material removal.
01.29.24.01.16.03.01	Perform Initial Checkout of Manipulators, Cells 1-2	The scope of this item is to prepare and execute a Manual 1Y work package that provides for an initial checkout of the manipulators associated with Cells 1-2. Alternatively, the checkout will be iaw Manual 2S procedure(s). Regardless of what work document is used to control the work, the purpose of the checkout is to establish the current capability of the manipulators, and establish what needs to be repaired and/or replaced with each manipulator. It is envisioned that trained workers will perform the checkout with support from maintenance mechanics familiar with the manipulators. The scope includes the review/approval of work package(s)/ procedure(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance.
01.29.24.01.16.03.02	Repair Manipulators, Cells 1-2	The scope of this item is to prepare and execute a Manual 1Y work package that provides for the repair of select manipulators. It is envisioned that maintenance mechanics will perform the needed repairs with support from Radcon and Facility Operations. To the extent practical, the repairs will utilize spare parts stored in 707-1F. The effort includes the fabrication and deployment of huts, glove-bags, sleeving, etc. as needed to control contamination along with the use of PPE and supplied air. The scope includes the review/approval of work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance.

WBS #	WBS Element	Description
01.29.24.01.16.03.03	Replace Manipulators that Cannot Be Repaired, Cells 1-2	The scope of this item is to prepare and execute a Manual 1Y work package that provides for the replacement of select manipulators. It is envisioned that maintenance mechanics will perform the needed replacements with support from Radcon and Facility Operations. To the extent practical, the repairs will utilize spare parts stored in 707-1F. The effort includes the fabrication and deployment of huts, glove-bags, sleeving, etc. as needed to control contamination along with the use of PPE and supplied air. The scope includes the review/approval of work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance.
01.29.24.01.16.04	Implement Prep for Cells 1-2 Work (1-11)	The scope of this work package includes all efforts by the 235-F Deactivation Project Team to prep PuFF Facility Cells 1-2 and includes (1) smoke testing and the remediation of in-leakage, (2) the installation of gloves (3) D&R and cleaning of the shield windows, (4) installation of temporary lighting, and (5) the repair/replacement of manipulators. For Items (1), (3) and (5); Site forces (e.g., Rigging, Operations, Maintenance and Radcon) will conduct the activity iaw a Manual 1Y work package. For Items (2) and (4), in-house resources (e.g., F-Area Maintenance, Operations and Radcon) will perform those activities generally iaw Manual 2S procedures. The work package includes all organizations that support the cell prep (e.g., planners, Radcon, IH, Industrial Safety, Facility Management) along with stakeholders who will review/approve 1Y work packages or work completion. Finally, this work package includes some Engineering so as to conduct as-building and to handle emergent issues that require design changes. Note that "Cells 1-2" refers to the cells themselves along with their close-coupled glove-boxes (i.e., the Cold Press Glove-box and the Maintenance Glove-box).
01.29.24.01.16.04.01	Perform Smoke Test and Remediate, Cells 1-2	This scope of this item includes all efforts (labor and material) by the project team to smoke test Cells 1-2 iaw a Manual 1Y work package. This item includes an Engineering evaluation of the in-leakage and any subsequent efforts to remediate that in-leakage. The scope includes the review/approval of work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance.
01.29.24.01.16.04.02	Install Gloves and Reactivate Glove Ports, Cells 1-2	The item includes all efforts (labor and material) by the 235-F Deactivation Project Team to install gloves in all of the lower glove ports of Cells 1-2. The item includes the revision/review/approval/issuance of two procedures for (1) the actual glove installation and (2) the tracking of glove port status/configuration. The item includes worker training on the two procedures via mockups, and include the actual execution of the procedures. Also, the item includes the fabrication/procurement of glove cartridges and gloves. Finally, the activity includes the design/fabrication/deployment of containments as needed to support the initial glove installation, and includes periodic replacement of the gloves.
01.29.24.01.16.04.03	Remove Shielded Windows, Cells 1-2	This item includes all efforts (labor and materials) by the 235-F Deactivation Project Team to D&R and clean four shield windows associated with Cells 1-2. It is anticipated that Site forces (e.g., Rigging, Operations, Maintenance and Radcon) will conduct the activity iaw a Manual 1Y work package. The item includes all organizations that support the window D&R and cleaning (e.g., planners, Radcon, IH, Industrial Safety, Facility Management) along with stakeholders who will review/approve 1Y work packages or work completion. Also, the item includes the fabrication/procurement of lift beam, de-construction aids (tabs to stabilize the panes as they are D&R'd), spill pallets, floor crane, etc. The item also includes the collection of water from the four windows and its discharge to ETF. Finally, this work package includes some Engineering so as to conduct as-building and to handle emergent issues that require design changes.

WBS #	WBS Element	Description
01.29.24.01.16.04.04	Remediate Shielded Windows, Cells 1-2	The scope of this item includes all efforts by the Project Team to remediate the shield windows for Cells 1-2 in accordance with Manual 1Y work package(s) and/or Manual 2S procedure(s). Remediation includes the recharging of the shield windows and their subsequent operation. The scope includes the review/approval of work package(s)/procedure(s) by primary SRNS stakeholders including Radcon Management, Engineering and Facility/Operations Management.
01.29.24.01.16.04.05	Install Temporary Lighting to Cells 1-2	This item includes all efforts (labor and materials) by the 235-F Deactivation Project Team to install temporary lighting in Cells 1-2. It is anticipated that in-house resources (e.g., F-Area Maintenance, Operations and Radcon) will perform the activity generally iaw Manual 2S procedures. The item includes worker training on procedures via mockups, and include the actual execution of the procedures. Also the item includes fabrication of "clear tubes" by SRNS Shops.
01.29.24.01.16.05	Perform Enhanced Characterization of Cells 1-2 (1-9)	This work package includes all efforts (labor and material) by the Project Team to characterize Cells 1-2 (and associated glove-boxes) before their decon and the removal of material. It is anticipated that SRNL's NDA Group will conduct the characterization using specialized assay equipment with support from Ops and Radcon under a Manual 1Y work package. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management, Engineering, and Facility/Operations Management. Also, the scope includes the control and use of sources in support of the characterization in accordance with 1Q, Procedure 12-1. Finally, the work package includes the generation of a characterization report by SRNL. Note that the characterization is assumed to be intrusive to the cells.
01.29.24.01.16.06	Electrically/Mechanically Isolate Cells 1-2 (1-14)	The scope of this item is to electrically/mechanically isolate Cells 1-2 and their glove boxes (or verify that they are already electrically/mechanically isolated) using an approach similar to EC&ACPs "cold & dark" process as defined by Manual C2, Procedure FDP 2.04 (Reference 10.78). The item includes research by Engineering to identify all connections to the cells/glove boxes, to prepare an index of connections (see SDD-2012-00039 for a preliminary listing of cell/glove box penetrations), and then to develop a method of isolation for the identified connections. For mechanical connections, isolation includes the closing of valves, air-gapping of lines, or capping of piping from within the cells/glove boxes. Mechanical isolation also includes the electrical isolation of equipment that could pressurize components within the cells/glove boxes. The purpose of mechanical isolation is to prevent future pressurization of components within the cells/glove boxes and to prevent the spread of contamination as a result of subsequent decontamination and material removal. For electrical connections, isolation includes air-gapping of wires or removal of electrical components (e.g., breaker) so as to permanently break circuits and to ensure permanent absence of electrical hazardous energy. The scope includes all efforts (labor and materials) by the Project Team to implement the required isolations. It is envisioned that the work with be performed by a mixture of deactivation workers, maintenance mechanics and Radcon. As needed, scope includes the preparation of design input (MTs) and design output (DCFs/DCPs) by Engineering to maintain configuration control of the electrical distribution system.
01.29.24.01.17	Field Operations – Final Deactivation of Cells 6-9	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.

WBS #	WBS Element	Description
01.29.24.01.17.01	Re-Characterize Cells 6-9 (1-15, 1-16)	This work package includes all efforts (labor and material) by the Project Team to re-characterize Cells 6-9 (and associated glove-boxes) after their decon, removal of material and isolation. It is anticipated that SRNL's NDA Group will conduct the characterization using traditional and specialized assay equipment with support from Ops and Radon under a Manual 1Y work package. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management, Engineering, and Facility/Operations Management. Also, the scope includes the control and use of sources in support of the characterization in accordance with 1Q, Procedure 12-1. Finally, the work package includes the generation of a characterization report by SRNL. Note that the characterization is assumed to be intrusive to the cells.
01.29.24.01.17.02	Implement Method/Design to Isolate Cells 6-9 (1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to isolate Cells 6-9 iaw Manual 1Y work package(s) or Manual 2S procedure(s). The isolation is anticipated to include the installation of blank(s) and/or air gap(s) in the "rabbit" that connects Cell 6 to Cell 5. Also, exhaust ventilation for Cells 6-9 may be isolated from Cells 1-5 via the closing of dampers or air gapping of ductwork provided the Project Team can demonstrate that Cells 6-9 are sufficiently clean that they can go stagnant. Alternatively, HEPA filters may be installed on the Cells 6-9 exhaust to prevent recontamination of Cells 6-9 due to the deactivation activities in Cells 1-5.
01.29.24.01.18	Project Management – Initial Deactivation of Cells 1-5	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.18.01	Perform Project Management (1-6, 1-7, 1-8, 1-9, 1-11, 1-14, 1-16)	The scope of this work package is to provide project management and project controls support to the implementation of the engineering and field operations work required to meet the milestones in the implementation plan. Also, the scope includes Deactivation Project Plan maintenance/revisions during FY15.
01.29.24.01.18.02	Perform 235-F S&M in Support of Deactivation (1-8, 1-11, 1-14)	The scope of this work package includes half of all efforts (labor and material) by Facility Management and the Project Team to implement an S&M program for the 235-F Complex. (The scope/cost is shared with the 235-F S&M activity.) The scope includes implementation of the Safety Basis (e.g., implementation of an enclosure integrity program and transient combustible control program), utilities (e.g., electricity and steam), operation and maintenance of SSCs (e.g., ventilation, fire detection, backup power, lighting, etc.), rounds, corrective maintenance, waste management, environmental compliance, emergency response, entry control, radiological routines, facility management, project controls, MC&A, etc. The forecasted support is based on previous FY actuals and is assumed to be level-of-effort.
01.29.24.01.18.03	Technology Development and Support (1-11, 1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to develop and deploy technologies that enhance (improve worker safety and/or efficiency) the planned PuFF Facility deactivation activities. SRNL will take the lead and will coordinate all technology development, and will support field activities during deployment of those technologies. Technologies to be developed, deployed and supported include (1) 3-D modeling and contamination mapping, (2) the design, testing and selection of advanced tools for remote material removal and decontamination, (3) the investigation and deployment of enhanced radiological assay and characterization technologies (above and beyond the minimum characterization planned for WBS Nos. 01.29.24.01.09.05 and 01.29.24.01.14.02), (4) the investigation and deployment of non-flammable/non-combustible fixatives, and (5) emergent technology needs as identified by the Project Team. The scope includes review of plans, reports, and other documentation by the Project Team, but does not include support of field activities by Operators/Radcon/IH/Safety/Planners/ECAs. The support of field activities is built into cell preparatory activities (e.g., WBS Nos. 01.29.24.01.15.03 and 01.29.24.01.16.04).

WBS #	WBS Element	Description
01.29.24.01.19	Field Operations – Final Deactivation of Cells 3-5	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.19.01	Decon Cells 3-5 and Glove-boxes (1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to decon Cells 3-5 and their close-coupled glove-boxes. Workers will use select manipulators and appropriate long-handled/extension tools to perform the needed decontamination and material removal. Where decontamination and material removal are not practical and/or unsuccessful, yet significant MAR remains, workers may grout equipment to immobilize the MAR. Note that the scope is preliminary and based on what is currently known about the cells and glove boxes. The scope will be finalized during the completion of WBS No. 01.29.24.01.13.03.
01.29.24.01.19.01.01	Decon Cells 3-5	As the first step in the removal of Pu 238 hold-up from the cells, the cells will be deconned using battery-powered vacuums with HEPA filtration. Workers will use the glove ports and long-handled tools to manipulate the vacuum's hose/wand. To limit the amount of Pu hold-up on the HEPA filters, any visual debris will be "scooped" up and placed into bags prior to using the vacuums. Decon material will be removed from Cells 3-5 in the performance of this activity via the bag-out ports at Cell 5 and the glove-boxes for Cells 3/4. As the next step in the removal of Pu 238 hold-up from the cells, the cells will be deconned using deconning agents. Using the glove-ports and long-handled tools, workers will apply deconning agents to interior surfaces of the cells. In general, the agents will be applied by brush or roller. The agents are designed to adhere to the Pu hold-up and "cure" into a gel, thus containing the hold-up in a removable solid. Using the glove-ports and long-handled tools, workers will remove sections of cured gel and place it into bags for removal from the cells via the glove-ports. The scope includes the review/approval of procedure(s)/work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance. Also the item includes the fabrication/deployment of small HEPA vacs, which are not expected to be available off-the-shelf and commercially. Finally, the item includes the procurement of consumable materials such as decon gels, rollers, applicators, etc. and the needed PPE. If needed, this activity includes the grouting of select equipment to immobilize MAR.
01.29.24.01.19.01.02	Decon Glove-boxes for Cells 3-4	As the first step in the removal of Pu 238 hold-up from the glove-boxes, the glove-boxes will be deconned using battery-powered vacuums with HEPA filtration. Workers will use the glove-ports and long-handled tools to manipulate the vacuum's hose/wand. To limit the amount of Pu hold-up on the HEPA filters, any visual debris will be "scooped" up and placed into bags prior to using the vacuums. Decon material will be removed from the glove-boxes in the performance of this activity via the bag-out ports at the glove-boxes for Cells 3/4. As the next step in the removal of Pu 238 hold-up from the cells, the glove-boxes will be deconned using deconning agents. Using the glove-ports and long-handled tools, workers will apply deconning agents to interior surfaces of the cells. In general, the agents will be applied by brush or roller. The agents are designed to adhere to the Pu hold-up and "cure" into a gel, thus containing the hold-up in a removable solid. Using the glove-ports and long-handled tools, workers will remove sections of cured gel and place it into bags for removal from the cells via the glove-ports. The scope includes the review/approval of procedure(s)/work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance. Also the item includes the fabrication/deployment of small HEPA vacs, which are not expected to be available off-the-shelf and commercially. Finally, the item includes the procurement of consumable materials such as decon gels, rollers, applicators, etc. and the needed PPE. If needed, this activity includes the grouting of select equipment to immobilize MAR.

WBS #	WBS Element	Description
01.29.24.01.19.02	Perform Material Removal from Cells 3-5/Glove-boxes (1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to deactivate Cells 3-5, which includes material removal from those cells along with decontamination. Workers will use select manipulators and appropriate long-handled/extension tools to perform the needed decon and material removal. Note that the scope is preliminary and based on what is currently known about the cells. The scope will be finalized during the completion of WBS Nos. 01.29.24.01.13.03.
01.29.24.01.19.02.01	Perform Material Removal from Cells 3-5	The scope of this item is to prepare and execute Manual 2S procedure(s) and/or Manual 1Y work package(s) that provide for material removal from Cells 3-5. This activity includes the removal of "loose" components/material from inside of the cells for disposal. Other "installed" components that can be easily disconnected or disassembled by hand tools will also be designated for removal and disposal. Workers shall move and manipulate components/material using the existing glove-ports, hand tools, and long-handled tools. This activity will likely occur prior to, during and after decon (see item 01.29.24.01.19.01.01).
01.29.24.01.19.02.02	Perform Material Removal from Glove-boxes for Cells 3-4	The scope of this item is to prepare and execute Manual 2S procedure(s) and/or Manual 1Y work packages that provide for material removal from the glove-boxes close-coupled to Cells 3 and 4. This activity includes the removal of "loose" components/material from inside of the cells for disposal. Other "installed" components that can be easily disconnected or disassembled by hand tools will also be designated for removal and disposal. Workers shall move and manipulate components/material using the existing glove-ports, hand tools, and long-handled tools. This activity will likely occur prior to, during and after decon (see item 01.29.24.01.19.01.02).
01.29.24.01.19.03	Perform Waste Hand. in Support of Decon/Mat. Rem., Cells 3-5 (1-14)	The scope of this item is to cover all waste handling activities (both labor and material) in support of decon and material removal. These activities will be conducted by Ops, Radcon, MBA Custodian, NDA, ECA, etc. in accordance with the 235-F Waste Certification Plan and applicable procedures. The activity includes the screening of waste to determine whether it is LLW or TRU, the packaging of waste, the temporary staging of waste while awaiting assay, the assay of the waste, and finally the shipment of waste from Building 235-F. The waste generated will be transferred to Solid Waste for temporary storage (e.g., E-Area TRU pad for staging TRU waste while awaiting final packaging and shipment off-Site) or disposal (e.g., E-Area slit trenches for low level waste (LLW)). The scope includes the preparation of required paperwork (manifests) in support of waste handling.
01.29.24.01.20	Field Operations – Final Deactivation of Cells 1-2	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.20.01	Decon Cells 1-2 and Associated Glove-boxes (1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to decon Cells 1-2 and their close-coupled glove-boxes. Workers will use select manipulators and appropriate long-handled/extension tools to perform the needed decontamination. Where decontamination and material removal are not practical and/or unsuccessful, yet significant MAR remains, workers may grout equipment to immobilize the MAR. Note that the scope is preliminary and based on what is currently known about the cells. The scope will be finalized during the completion of WBS Nos. 01.29.24.01.14.03.

WBS #	WBS Element	Description
01.29.24.01.20.01.01	Decon Cells 1-2	As the first step in the removal of Pu 238 hold-up from the cells, the cells will be deconned using battery-powered vacuums with HEPA filtration. Workers will use the glove-ports and long-handled tools to manipulate the vacuum's hose/wand. To limit the amount of Pu hold-up on the HEPA filters, any visual debris will be "scooped" up and placed into bags prior to using the vacuums. Decon material will be removed from Cells 1-2 in the performance of this activity via the bag-out ports at the glove-boxes for Cell 1. As the next step in the removal of Pu 238 hold-up from the cells, the cells will be deconned using deconning agents. Using the glove-ports and long-handled tools, workers will apply deconning agents to interior surfaces of the cells. In general, the agents will be applied by brush or roller. The agents are designed to adhere to the Pu hold-up and "cure" into a gel, thus containing the hold-up in a removable solid. Using the glove-ports and long-handled tools, workers will remove sections of cured gel and place it into bags for removal from the cells via the glove-ports. The scope includes the review/approval of procedure(s)/work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance. Also the item includes the fabrication/deployment of small HEPA vacs, which are not expected to be available off-the-shelf and commercially. Finally, the item includes the procurement of consumable materials such as decon gels, rollers, applicators, etc. and the needed PPE. If needed, this activity includes the grouting of select equipment to immobilize MAR.
01.29.24.01.20.01.02	Decon Glove-boxes for Cell 1	As the first step in the removal of Pu 238 hold-up from the glove-boxes, the glove-boxes will be deconned using battery-powered vacuums with HEPA filtration. Workers will use the glove-ports and long-handled tools to manipulate the vacuum's hose/wand. To limit the amount of Pu hold-up on the HEPA filters, any visual debris will be "scooped" up and placed into bags prior to using the vacuums. Decon material will be removed from the glove-boxes in the performance of this activity via the bag-out ports at the glove-boxes for Cell 1. As the next step in the removal of Pu 238 hold-up from the cells, the glove-boxes will be deconned using deconning agents. Using the glove-ports and long-handled tools, workers will apply deconning agents to interior surfaces of the cells. In general, the agents will be applied by brush or roller. The agents are designed to adhere to the Pu hold-up and "cure" into a gel, thus containing the hold-up in a removable solid. Using the glove-ports and long-handled tools, workers will remove sections of cured gel and place it into bags for removal from the cells via the glove-ports. The scope includes the review/approval of procedure(s)/work package(s) by primary SRNS stakeholders including Radcon Management, Facility/Operations Management, and Maintenance. Also the item includes the fabrication/deployment of small HEPA vacs, which are not expected to be available off-the-shelf and commercially. Finally, the item includes the procurement of consumable materials (e.g., decon gels, rollers, applicators, etc.) and PPE. If needed, this activity includes the grouting of select equipment to immobilize MAR.
01.29.24.01.20.02	Perform Material Removal from Cells 1-2 and Associated Glove-boxes (1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to remove materials from Cells 1-2. Workers will use select manipulators and appropriate long-handled/extension tools to perform the needed material removal. Note that the scope is preliminary and based on what is currently known about the cells. The scope will be finalized during the completion of WBS Nos. 01.29.24.01.14.03.
01.29.24.01.20.02.01	Perform Material Removal from Cells 1-2	The scope of this item is to prepare and execute Manual 2S procedure(s) and/or Manual 1Y work packages that provide for material removal from Cells 1-2. This activity includes the removal of "loose" components/material from inside of the cells for disposal. Other "installed" components that can be easily disconnected or disassembled by hand tools will also be designated for removal and disposal. Workers shall move and manipulate components/material using the existing glove-ports, hand tools, and long-handled tools. This activity will likely occur prior to, during and after decon (see item 01.29.24.01.20.01.01).

WBS #	WBS Element	Description
01.29.24.01.20.02.02	Perform Material Removal from Glove-boxes for Cell 1	The scope of this item is to prepare and execute Manual 2S procedure(s) and/or Manual 1Y work packages that provide for material removal from the glove-boxes close-coupled to Cell 1. This activity includes the removal of "loose" components/material from inside of the cells for disposal. Other "installed" components that can be easily disconnected or disassembled by hand tools will also be designated for removal and disposal. Workers shall move and manipulate components/material using the existing glove-ports, hand tools, and long-handled tools. This activity will likely occur prior to, during and after decon (see item 01.29.24.01.20.01.02).
01.29.24.01.20.03	Perform Waste Hand. in Support of Decon/Mat. Rem., Cells 1-2 (1-14)	The scope of this item is to cover all waste handling activities (both labor and material) in support of decon and material removal. These activities will be conducted by Ops, Radcon, MBA Custodian, NDA, ECA, etc. in accordance with the 235-F Waste Certification Plan and applicable procedures. The activity includes the screening of waste to determine whether it is LLW or TRU, the packaging of waste, the temporary staging of waste while awaiting assay, the assay of the waste, and finally the shipment of waste from Building 235-F. The waste generated will be transferred to Solid Waste for temporary storage (e.g., E-Area TRU pad for staging TRU waste while awaiting final packaging and shipment off-Site) or disposal (e.g., E-Area slit trenches for low level waste (LLW)). The scope includes the preparation of required paperwork (manifests) in support of waste handling.
01.29.24.01.21	Project Management – Final Deactivation of Cells 1-5	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.21.01	Perform Project Management (1-10, 1-14)	The scope of this work package is to provide project management and project controls support to the implementation of the engineering and field operations work required to meet the milestones in the implementation plan. Also, the scope includes Deactivation Project Plan maintenance/revisions during FY16.
01.29.24.01.21.02	Perform 235-F S&M in Support of Deactivation (1-14)	The scope of this work package includes half of all efforts (labor and material) by Facility Management and the Project Team to implement an S&M program for the 235-F Complex. (The scope/cost is shared with the 235-F S&M activity.) The scope includes implementation of the Safety Basis (e.g., implementation of an enclosure integrity program and transient combustible control program), utilities (e.g., electricity and steam), operation and maintenance of SSCs (e.g., ventilation, fire detection, backup power, lighting, etc.), rounds, corrective maintenance, waste management, environmental compliance, emergency response, entry control, radiological routines, facility management, project controls, MC&A, etc. The forecasted support is based on previous FY actuals and is assumed to be level-of-effort.
01.29.24.01.21.03	Technology Development and Support (1-14)	The scope of this work package includes all efforts (labor and material) by the Project Team to develop and deploy technologies that enhance (improve worker safety and/or efficiency) the planned PuFF Facility deactivation activities. SRNL will take the lead and will coordinate all technology development, and will support field activities during deployment of those technologies. Technologies to be developed, deployed and supported include (1) 3-D modeling and contamination mapping, (2) the design, testing and selection of advanced tools for remote material removal and decontamination, (3) the investigation and deployment of enhanced radiological assay and characterization technologies (above and beyond the minimum characterization planned for WBS Nos. 01.29.24.01.09.05 and 01.29.24.01.14.02), (4) the investigation and deployment of non-flammable/non-combustible fixatives, and (5) emergent technology needs as identified by the Project Team. The scope includes review of plans, reports, and other documentation by the Project Team, but does not include support of field activities by Operators/Radcon/IH/Safety/Planners/ECAs. The support of field activities is built into decon and material removal activities (e.g., WBS No. 01.29.24.01.19.01).
01.29.24.01.22	Engineering – Project Closeout	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.

WBS #	WBS Element	Description
01.29.24.01.22.01	Prepare/Issue Rev. 2 Deactivation Safety Basis (1-16)	The scope of this work package includes all efforts by Engineering to revise, review and approve a 235-F Deactivation BIO/TSR for a facility with greatly reduced MAR and no potential for a facility-wide fire. The scope includes the preparation, review and approval of all Safety Basis support documents including the CHA, accident analysis calculation, FHA, fire scenario document, etc. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Facility/Operations Management, and includes support of DOE's review and approval.
01.29.24.01.22.01.01	Revise/Approve CHAP/Support Documents (TFHA/PFHA)	The scope of this WBS element includes all efforts by Engineering to revise, review and approve all Safety Basis support documents including the CHA, accident analysis calculation, FHA, fire scenario document, etc. iaw Manual 11Q. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Facility/Operations Management.
01.29.24.01.22.01.02	Revise/Approve BIO/TSR	The scope of this work package includes all efforts by Engineering to revise, review and approve a 235-F Deactivation BIO/TSR prepared iaw Manual 11Q. Also, the scope includes the review/approval of all documents by primary SRNS stakeholders including Facility/Operations Management, and includes support of DOE's review and approval.
01.29.24.01.22.02	Prepare/Issue Manual 1C Documentation	This work package includes all efforts by Engineering and Project Management to prepare completion report(s) for the deactivation project iaw Manual 1C, and to update the S&M for Building 235-F that reflects the partially deactivated condition of the building. The item includes the review/approval of the documents by primary SRNS stakeholders including Facility/Operations Management.
01.29.24.01.22.02.01	Prepare/Issue Deactivation Project Final Report	See above description for Work Package 01.29.24.01.22.02.
01.29.24.01.22.02.02	Revise/Issue S&M Plan	See above description for Work Package 01.29.24.01.22.02.
01.29.24.01.23	Field Operations – Project Closeout	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.23.01	Re-Characterize Cells 1-5 (1-15, 1-16)	This work package includes all efforts (labor and material) by the Project Team to re-characterize Cells 1-5 (and associated glove-boxes) after their decon and the removal of material. It is anticipated that SRNL's NDA Group will conduct the characterization using traditional and specialized assay equipment with support from Ops and Radon under a Manual 1Y work package. The scope includes the review/approval of all documents by primary SRNS stakeholders including Radcon Management, Engineering, and Facility/Operations Management. Also, the scope includes the control and use of sources in support of the characterization in accordance with 1Q, Procedure 12-1. Finally, the work package includes the generation of a characterization report by SRNL. Note that the characterization is assumed to be intrusive to the cells.
01.29.24.01.23.02	Implement Rev. 2 Deact. Safety Basis and Verify Readiness	The scope of this work package includes the preparation, review and approval of a Safety Basis Implementation Plan (SBIP) iaw Manual 11Q and a follow-on Readiness Assessment iaw Manual 12Q. The scope includes the review/approval of the SBIP by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. Also, the scope includes the implementation of the SBIP, which (as a minimum) includes multiple procedure revisions.
01.29.24.01.23.02.01	Implement BIO/TSR (SBIP Preparation and Execution)	The item includes the preparation, review and approval of a Safety Basis Implementation Plan (SBIP) iaw Manual 11Q. The scope includes the review/approval of the SBIP by primary SRNS stakeholders including Radcon Management and Facility/Operations Management. Also, the scope includes the implementation of the SBIP, which (as a minimum) includes multiple procedure revisions.
01.29.24.01.23.02.02	Perform Readiness Assessment	This item includes a Readiness Assessment iaw Manual 12Q, Procedure RA-1.

WBS #	WBS Element	Description
01.29.24.01.24	Project Management – Project Closeout	See below work packages for description of scope associated with this element of the WBS, which is the control account for the below work packages.
01.29.24.01.24.01	Perform Project Management (1-12, 1-15, 1-16)	The scope of this work package is to provide project management and project controls support to the implementation of the engineering and field operations work required to meet the milestones in the implementation plan. Also, the scope includes Deactivation Project Plan maintenance/revisions during FY17.

Appendix D – Zone Identification

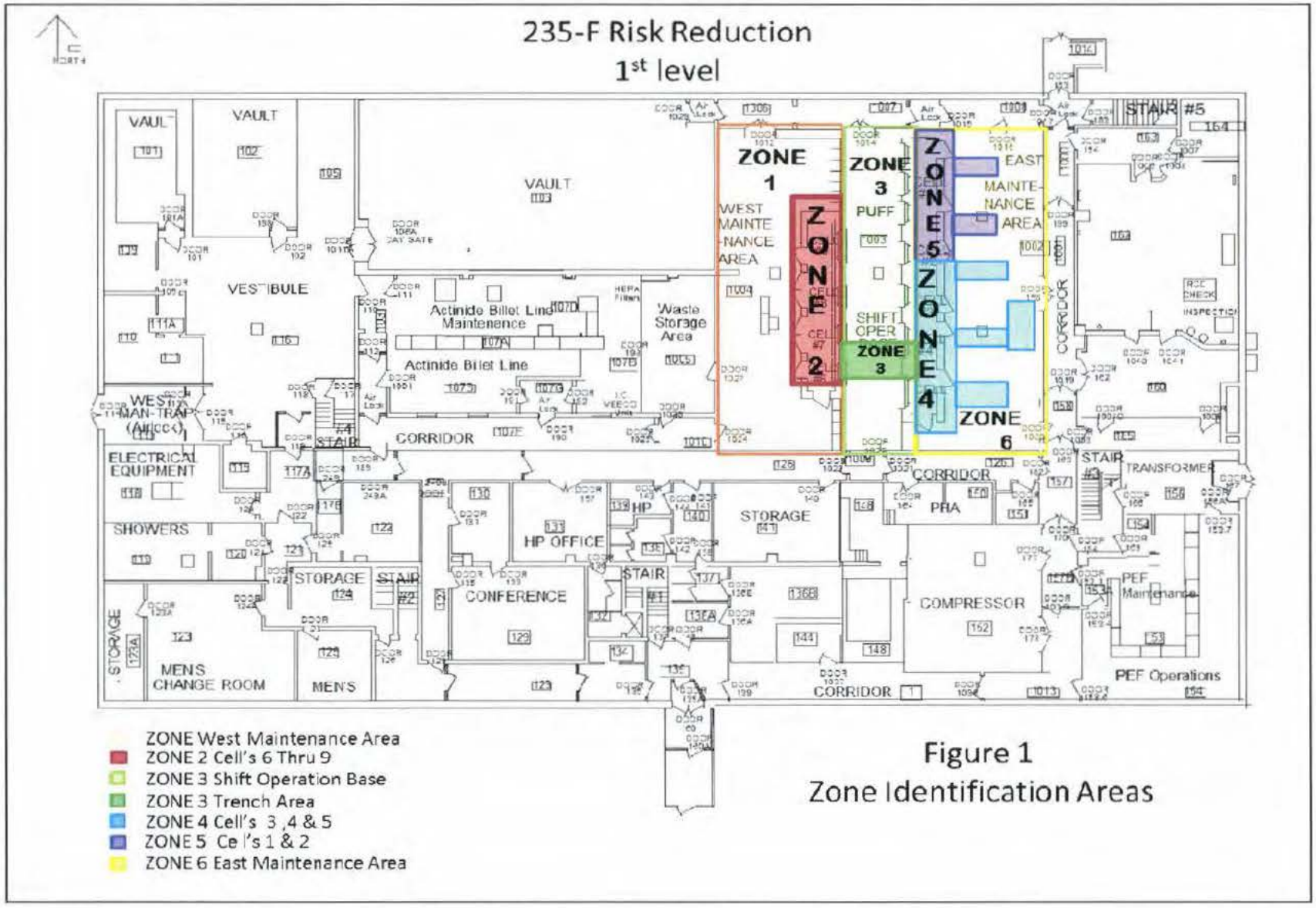
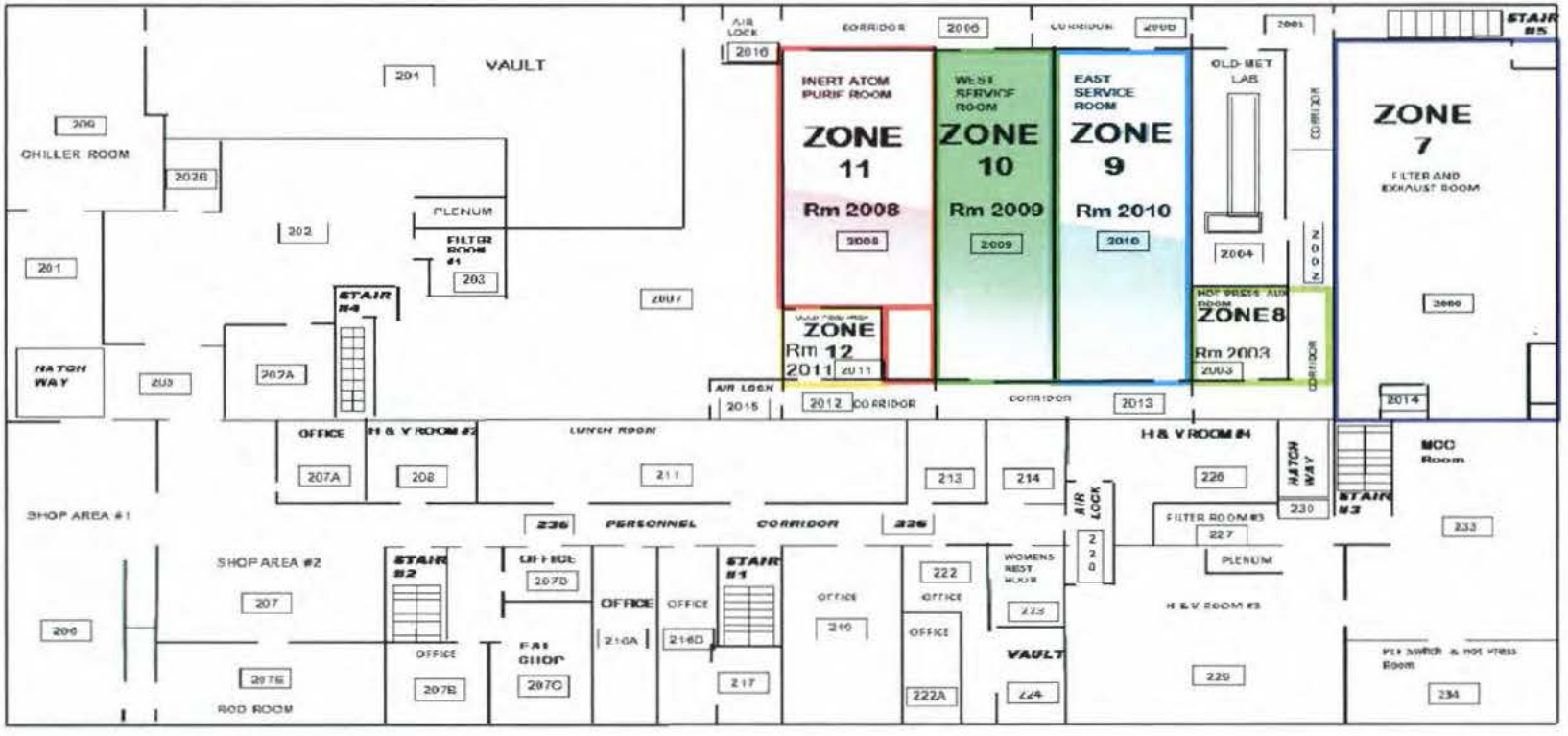


Figure 1
Zone Identification Areas

235-F
2nd level Risk Reduction



- ZONE 7 HEPA Filter RM 2000
- ZONE 9 West Service RM 2009
- ZONE 10 East Service RM 2010
- ZONE 11 Inert Atmosphere Purification RM 2008
- ZONE 12 Cold Feed Prep RM 2011
- ZONE 8 Hot Press Aux. Equipment RM 2003 Includes equipment corridor 2002

Figure 2
Zone Identification Areas

Appendix E – Listing of Deactivation End Points

The Building 235-F PuFF Facility has been divided into twelve (12) distinct zones (see Appendix D for map of zones), as described in Section 3.0 of this plan, for the deactivation project. Deactivation End Points (EPs), as follows, have been developed for each zone:

End Point	Activity Description	End Point	Verification Method
APPLICABLE TO ALL ZONES			
EE-GEN-EP-1	Prepare & submit EEC/NEPA Environmental Permit for approval iaw Manual 3Q, Procedure 5.1.	Notice of NEPA Approval (NONA) is issued. EEC is approved.	Document review.
RVA-GEN-EP-2	Prepare & submit request for screening of real property for disposition.	DOE has approved excessing of assets.	Document review.
ERH-GEN-EP-3	Per Manual 3Q, Procedure ECM 4.14, perform inspection(s) of affected PuFF Facility SSCs within Zones 1-12 for asbestos containing materials and issue the required report.	Inspection has been completed and required report issued.	Document review.
ERH-GEN-EP-4	Prepare and submit notice of asbestos disturbance for deactivation scope in Zones 1-12, if applicable.	Notice of asbestos disturbance has been prepared and issued, if applicable.	Document review.
ERH-GEN-EP-5	Complete asbestos abatement actions, if applicable.	Asbestos abatement actions have been completed, if applicable.	Document review.
ERH-GEN-EP-6	Remove and dispose of identified hazardous materials.	Hazardous materials have been removed and disposed in accordance with Manuals 1S and 3Q.	Document review & visual observation.
EE-GEN-EP-7	Conduct Readiness Assessments in support of SB implementation iaw Manual 12Q.	Readiness Assessments are complete.	Document review.
DL-GEN-EP-8	Re-characterize that portion of the 235-F Building associated with Zones 1-12 following removal of the Pu-238 holdup.	Zones 1-12 have been re-characterized.	Document review.
EE-GEN-EP-9	Conduct a Final Acceptance Inspection (FAI) iaw Manual 8Q, Procedure 51, when PuFF Facility deactivation scope is completed.	FAI-51 Inspection has been completed and all punchlist items have also been completed.	Document review & visual observation.
ZONE 1			
ERC-1-EP-1	Decontaminate West Maintenance Area to the extent practicable and roll back to a RBA.	West Maintenance Area has been decontaminated to the extent practicable and rolled back to a RBA.	Document review.
RDW-1-EP-2	Remove all waste and transfer custodianship to Solid Waste.	All waste has been removed and transferred to Solid Waste for custodianship.	Document review & visual observation.
RDW-1-EP-3	Remove all temporary containments.	All temporary containments have been removed.	Visual observation.
RDW-1-EP-4	Remove all temporary risk reduction equipment, including temporary lighting.	All temporary risk reduction equipment, including temporary lighting has been removed.	Visual observation.

End Point	Activity Description	End Point	Verification Method
ERH-1-EP-5	Electrically disconnect, drain, and air gap the two (2) Shield Water Recirculating Systems.	Shield Water Recirculating Systems (2) have been electrically disconnected, drained, and air gapped.	Document review & visual observation.
ZONE 2			
RI-2-EP-1	Place all lower glove ports back into service (including establishment of procedures and configuration controls for Operations and Maintenance) until subsequently isolated following cell decontamination and material removal (see Zone 2 EP-12).	All lower glove ports have been placed back into service ((including establishment of procedures and configuration controls for Operations and Maintenance) until subsequently isolated following cell decontamination and material removal (see Zone 2 EP-12).	Document review & visual observation.
RI-2-EP-2	Establish temporary lighting for each cell until subsequently removed following cell decontamination and material removal (see Zone 2 EP-13).	Temporary lighting has been established for each cell until subsequently removed following cell decontamination and material removal (see Zone 2 EP-13).	Visual observation.
ICH-2-EP-3	Isolate all electrical circuits to/in cells, except electrical which supports functional operability of ventilation for maintaining cell integrity and monitoring.	All electrical circuits to/in cells have been isolated, except electrical which supports functional operability of ventilation for maintaining cell integrity and monitoring.	Document review & visual observation.
ICH-2-EP-4	Isolate all unnecessary piping/tubing to cells (by closing valves, air gapping, or plugging as close as feasible to the stainless steel cell walls). This includes that piping/tubing shown on cell drawings W448609, W448610, W448671, and W449419, but does not include piping/tubing that maintains/supports functional operability of ventilation for maintaining cell integrity and monitoring.	All unnecessary piping/tubing to cells has been isolated (by closing valves, air gapping, or plugging as close as feasible to the stainless steel cell walls). This includes that piping/tubing shown on cell drawings W448609, W448610, W448671, and W449419, but does not include piping/tubing that maintains/supports functional operability of ventilation for maintaining cell integrity and monitoring.	Document review & visual observation.
RI-2-EP-5	Re-establish operability of Bag Ports until subsequently isolated following cell decontamination and material removal (see Zone 2 EP- 12).	Operability of Bag Ports has been re-established until subsequently isolated following cell decontamination and material removal (see Zone 2 EP- 12).	Visual observation.
ERH-2-EP-6	Drain and verify empty the Nitric Acid piping & vessels for Cells 7 & 8.	Nitric Acid piping & vessels for Cells 7 & 8 have been drained and verified empty.	Document review & visual observation.
RDW-2-EP-7	Remove loose material and equipment, to the extent feasible and/or to the extent needed to train workers and prove out methods/techniques, from Cells 6 – 9.	Loose material and equipment have been removed, to the extent feasible and/or to the extent needed to train workers and prove out methods/techniques, from Cells 6 – 9.	Visual observation.
ERC-2-EP-8	Decontaminate Cells 6 – 9 to the extent practicable and/or to the extent needed to train workers and prove out methods/techniques.	Cells 6 – 9 have been decontaminated to the extent practicable and/or to the extent needed to train workers and prove out methods/techniques.	Document review.

DL-2-EP-9	Re-characterize Cells 6 – 9 and establish a new inventory for each cell.	Cells 6 – 9 have been re-characterized and a new inventory has been established for each cell.	Document review.
ERH-2-EP-10	Remove hazardous materials from Cells 6 – 9.	Hazardous materials have been removed from Cells 6 – 9.	Visual observation.
ERH-2-EP-11	Remove combustible materials to the extent practicable.	Combustible materials have been removed to the extent practicable.	Visual observation.
ICH-2-EP-12	Isolate Cells 6 – 9 following decontamination and material removal to include the closure of the transfer locks, bag out ports, glove ports, and rabbit (between Cell 5 and Cell 6).	Cells 6 – 9 have been isolated following decontamination and material removal to include the closure of the transfer locks, bag out ports, glove ports, and rabbit (between Cell 5 and Cell 6).	Visual observation.
RVA-2-EP-13	Remove temporary lighting following decontamination and material removal.	Temporary lighting has been removed following decontamination and material removal.	Visual observation.
ZONE 3			
RI-3-EP-1	Repair or replace select manipulators (minimum of 7 total).	Select manipulators have been repaired or replaced.	Visual observation.
ICH-3-EP-2	Following completion of risk reduction work inside the cells, remove the master portion of all manipulator arms and cap & seal cell penetrations.	Following completion of risk reduction work inside the cells, the master portion of all manipulator arms have been removed and cell penetrations capped & sealed.	Visual observation.
ERC-3-EP-3	Decontaminate the Shift Operating Base (SOB) to the extent practicable and roll back to an RBA.	The Shift Operating Base (SOB) has been decontaminated to the extent practicable and rolled back to an RBA.	Document review & visual observation.
RI-3-EP-4	Clean all shield windows, remove outer panes, and install a protective barrier in place of outer shield window panes.	All shield windows have been cleaned, outer panes removed, and a protective barrier installed in place of outer shield window panes.	Visual observation.
RDW-3-EP-5	Remove all waste and transfer to Solid Waste for custodianship.	All waste has been removed and transferred to Solid Waste for custodianship.	Document review & visual observation.
RDW-3-EP-6	Remove all temporary containments.	All temporary containments have been removed.	Visual observation.
RDW-3-EP-7	Remove all temporary risk reduction equipment, including temporary lighting.	All temporary risk reduction equipment, including temporary lighting, has been removed.	Visual observation.
ZONE 4			
RI-4-EP-1	Place all lower glove ports back into service (including establishment of procedures and configuration controls for Operations and Maintenance) until subsequently isolated following cell decontamination and material removal (see Zone 4 EP-14).	All lower glove ports have been placed back into service (including establishment of procedures and configuration controls for Operations and Maintenance) until subsequently isolated following cell decontamination and material removal (see Zone 4 EP-14).	Document review & visual observation.

RI-4-EP-2	Establish temporary lighting for each cell until subsequently removed following cell decontamination and material removal (see Zone 4 EP-15). Re-lamp existing fixtures for wing cabinets.	Temporary lighting has been established for each cell until subsequently removed following cell decontamination and material removal (see Zone 4 EP-15). Existing fixtures for wing cabinets have been re-lamped.	Visual observation
ICH-4-EP-3	Isolate all electrical circuits to/in cells/wing cabinets, except electrical which supports functional operability of external lighting and ventilation for maintaining cell integrity and monitoring.	All electrical circuits to/in cells/wing cabinets have been isolated, except electrical which supports functional operability of external lighting and ventilation for maintaining cell integrity and monitoring.	Document review & visual observation.
ICH-4-EP-4	Isolate all unnecessary piping/tubing to cells (by closing valves, air gapping, or plugging as close as feasible to the stainless steel cell walls). This includes that piping/tubing shown on cell drawings W448606, W448607, and W448608, but does not include piping/tubing that maintains/supports functional operability of ventilation for maintaining cell integrity and monitoring.	All unnecessary piping/tubing to cells has been isolated (by closing valves, air gapping, or plugging as close as feasible to the stainless steel cell walls). This includes that piping/tubing shown on cell drawings W448606, W448607, and W448608, but does not include piping/tubing that maintains/supports functional operability of ventilation for maintaining cell integrity and monitoring.	Document review & visual observation.
RI-4-EP-5	Re-establish operability of Bag Ports and add a new Bag Port to Cell 5 until subsequently isolated following cell decontamination and material removal (see Zone 4 EP-14).	Operability of Bag Ports has been re-established and a new Bag Port added to Cell 5 until subsequently isolated following cell decontamination and material removal (see Zone 4 EP-14).	Visual observation.
ICH-4-EP-6	Remove Wing Cabinet from Cell 5 and temporarily relocate /store in the PuFF facility or elsewhere in the 235-F building.	Wing Cabinet has been removed from Cell 5 and temporarily relocated /stored in the PuFF facility or elsewhere in the 235-F building.	Visual observation.
RDW-4-EP-7	Remove loose material and equipment, to the extent feasible, from Cells 3 – 5.	Loose material and equipment have been removed, to the extent feasible, from Cells 3 – 5.	Visual observation.
RDW-4-EP-8	Remove transfer container and cable from the rabbit between Cells 5&6 and decontaminate the empty tube to the extent practicable.	Transfer container and cable have been removed from the rabbit between Cells 5&6 and the empty tube has been decontaminated to the extent practicable.	Document review & visual observation.
ERC-4-EP-9	Decontaminate Cells 3 – 5 to the extent practicable and/or immobilize the remaining inventory to the extent practicable in support of an overall project objective to have a mitigated dose of less than 100 rem to the facility and co-located worker.	Cells 3 – 5 have been decontaminated to the extent practicable and/or the remaining inventory immobilized to the extent practicable in support of an overall project objective to have a mitigated dose of less than 100 rem to the facility and co-located worker.	Document review.
DL4-EP-10	Re-characterize Cells 3 – 5 and establish a new inventory for each cell.	Cells 3 – 5 have been re-characterized and a new inventory has been established for each cell.	Document review.

ERH-4-EP-11	Remove hazardous materials from Cells 3 – 5.	Hazardous materials have been removed from Cells 3 – 5.	Visual observation.
ERH-4-EP-12	Remove combustible materials including hydraulic oil (Example: in Hot Press) to the extent practicable.	Combustible materials including hydraulic oil (Example: in Hot Press) have been removed to the extent practicable.	Document review & visual observation.
ERH-4-EP-13	Sample & drain Primary Cooling Water loops, if determined to be necessary due to contamination.	Primary Cooling Water loops have been sampled and drained, if determined to be necessary due to contamination.	Document review & visual observation.
ICH-4-EP-14	Isolate Cells 3 – 5 following decontamination and material removal to include the closure of the transfer locks, bag out ports, glove ports, and rabbit (between Cell 5 and Cell 6).	Cells 3 – 5 have been isolated following decontamination and material removal to include the closure of the transfer locks, bag out ports, glove ports, and rabbit (between Cell 5 and Cell 6).	Visual observation.
RVA-4-EP-15	Remove temporary lighting following decontamination and material removal.	Temporary lighting has been removed following decontamination and material removal.	Visual observation.
ZONE 5			
RI-5-EP-1	Place all lower glove ports back into service (including establishment of procedures and configuration controls for Operations and Maintenance) until subsequently isolated following cell decontamination and material removal (see Zone 5 EP-12).	All lower glove ports have been placed back into service (including establishment of procedures and configuration controls for Operations and Maintenance) until subsequently isolated following cell decontamination and material removal (see Zone 5 EP-12).	Document review & visual observation.
RI-5-EP-2	Establish temporary lighting for each cell until subsequently removed following cell decontamination and material removal (see Zone 5 EP-13). Re-lamp existing fixtures for wing cabinets.	Temporary lighting has been established for each cell until subsequently removed following cell decontamination and material removal (see Zone 5 EP-13). Existing fixtures for wing cabinets have been re-lamped.	Visual observation
ICH-5-EP-3	Isolate all electrical circuits to/in cells/wing cabinets, except electrical which supports functional operability of external lighting and ventilation for maintaining cell integrity and monitoring.	All electrical circuits to/in cells/wing cabinets have been isolated, except electrical which supports functional operability of external lighting and ventilation for maintaining cell integrity and monitoring.	Document review & visual observation.

ICH-5-EP-4	Isolate all unnecessary piping/tubing to cells (by closing valves, air gapping, or plugging as close as feasible to the stainless steel cell walls). This includes that piping/tubing shown on cell drawings W449827, W449828, and W448605, but does not include piping/tubing that maintains/supports functional operability of ventilation for maintaining cell integrity and monitoring.	All unnecessary piping/tubing to cells has been isolated (by closing valves, air gapping, or plugging as close as feasible to the stainless steel cell walls). This includes that piping/tubing shown on cell drawings W449827, W449828, and W448605, but does not include piping/tubing that maintains/supports functional operability of ventilation for maintaining cell integrity and monitoring.	Document review & visual observation.
RI-5-EP-5	Re-establish operability of Bag Ports until subsequently isolated following cell decontamination and material removal (see Zone 5 EP-12).	Operability of Bag Ports has been re-established until subsequently isolated following cell decontamination and material removal (see Zone 5 EP-12).	Visual observation.
RDW-5-EP-6	Remove loose material and equipment, to the extent feasible, from Cells 1 – 2.	Loose material and equipment have been removed, to the extent feasible, from Cells 1 – 2.	Visual observation.
ERC-5-EP-7	Decontaminate Cells 1 – 2 to the extent practicable and/or immobilize the remaining inventory to the extent practicable in support of an overall project objective to have a mitigated dose of less than 100 rem to the facility and co-located worker.	Cells 1 – 2 have been decontaminated to the extent practicable and/or the remaining inventory immobilized to the extent practicable in support of an overall project objective to have a mitigated dose of less than 100 rem to the facility and co-located worker.	Document review.
DL-5-EP-8	Re-characterize Cells 1 – 2 and establish a new inventory for each cell.	Cells 1 – 2 have been re-characterized and a new inventory has been established for each cell.	Document review.
ERH-5-EP-9	Remove hazardous materials from Cells 1 – 2.	Hazardous materials have been removed from Cells 1 – 2.	Visual observation.
ERH-5-EP-10	Remove combustible materials including hydraulic oil (Example: in Cold Press) to the extent practicable.	Combustible materials including hydraulic oil (Example: in Cold Press) have been removed to the extent practicable.	Document review & visual observation.
ERH-5-EP-11	Sample & drain Primary Cooling Water loops, if determined to be necessary due to contamination.	Primary Cooling Water loops have been sampled and drained, if determined to be necessary due to contamination.	Document review & visual observation.
ICH-5-EP-12	Isolate Cells 1 – 2 following decontamination and material removal to include the closure of the transfer locks, bag out ports, and glove ports.	Cells 1 – 2 have been isolated following decontamination and material removal to include the closure of the transfer locks, bag out ports, and glove ports.	Visual observation.
RVA-5-EP-13	Remove temporary lighting following decontamination and material removal.	Temporary lighting has been removed following decontamination and material removal.	Visual observation.
ZONE 6			
ERH-6-EP-1	Drain/verify empty the Chilled Water Collector Tank.	Chilled Water Collector Tank has been drained and verified empty.	Visual observation.

ERC-6-EP-2	Decontaminate East Maintenance Area to the extent practicable.	East Maintenance Area has been decontaminated to the extent practicable.	Document review.
RDW-6-EP-3	Remove and transfer all waste to Solid Waste for custodianship.	All waste has been removed and transferred to Solid Waste for custodianship.	Document review & visual observation.
RDW-6-EP-4	Remove all temporary containments.	All temporary containments have been removed.	Visual observation.
RDW-6-EP-5	Remove all temporary risk reduction equipment, including temporary lighting.	All temporary risk reduction equipment, including temporary lighting, has been removed.	Visual observation.
ZONE 7			
Zone 7	None	None	N/A
ZONE 8			
ERH-8-EP-1	Drain oil from equipment and verify empty.	Oil has been drained from equipment and verified.	Visual observation.
ICH-8-EP-2	Mechanically isolate equipment in Zone 8 (including the Cooling Water Recirculation Skid, E.N. F543-100-22, in Corridor 2002) shown on W447252, W718187, W449981, & W700225 from the PuFF Facility cells (by closing valves, air gapping, or plugging).	Equipment in Zone 8 (including the Cooling Water Recirculation Skid, E.N. F543-100-22, in Corridor 2002) shown on W447252, W718187, W449981, & W700225 has been mechanically isolated from the PuFF cells (by closing valves, air gapping, or plugging).	Visual observation.
ICH-8-EP-3	Electrically isolate M.T.S. Hydraulic Unit and verify.	M.T.S. Hydraulic Unit has been electrically isolated/verified.	Document review.
ICH-8-EP-4	Electrically isolate equipment item 2-4-40 at breaker A-5-A.	Equipment item 2-4-40 has been electrically isolated at breaker A-5-A.	Document review & visual observation.
ICH-8-EP-5	Isolate E.P. 3-513-1 Power Distribution Panel for the Hot Press Auxiliary Equipment Room.	E.P. 3-513-1 Power Distribution Panel for the Hot Press Auxiliary Equipment Room has been isolated.	Document review & visual observation.
ICH-8-EP-6	Isolate Tocco Control Station, Tocco Motor Starter, and Tocco MG Set E.P. 2-4-30.1 and verify.	Tocco Control Station, Tocco Motor Starter, and Tocco MG Set E.P. 2-4-30.1 have been electrically isolated/verified.	Document review & visual observation.
ICH-8-EP-7	Electrically isolate E.P. 2-4-301 Work Station and E.P. 2-4-30-6 and verify.	E.P. 2-4-301 Work Station and E.P. 2-4-30-6 have been electrically isolated/verified.	Document review & visual observation.
ICH-8-EP-8	Isolate Cooling Water supply and return to Tocco MG set and verify.	Cooling Water supply and return to Tocco MG set have been isolated/verified.	Visual observation.
ICH-8-EP-9	Isolate Cooling Water supply and return to M.T.S. Hydraulic Unit and verify.	Cooling Water supply and return to M.T.S. Hydraulic Unit have been isolated/verified.	Visual observation.
ICH-8-EP-10	Isolate Cooling Water supply and return to Work Station E.P. 2-4-301 and Water Cooled Bus E.P. 2-4-30-6 and verify.	Cooling Water supply and return to Work Station E.P. 2-4-301 and Water Cooled Bus E.P. 2-4-30-6 have been isolated/verified.	Visual observation.

ZONE 9			
ICH-9-EP-1	Mechanically isolate Argon supply stations to Cells 1 – 5 and verify.	Argon supply stations to Cells 1 – 5 have been isolated/verified.	Visual observation.
ICH-9-EP-2	Mechanically isolate six pumps along west wall (two for 1st level hot press, two for 2nd level hot press, and two for cooling water) and verify.	Six pumps along west wall (two for 1st level hot press, two for 2nd level hot press, and two for cooling water) have been mechanically isolated/verified..	Visual observation.
ICH-9-EP-3	Electrically isolate six pumps along west wall (two for 1st level hot press, two for 2nd level hot press, and two for cooling water) and verify.	Six pumps along west wall (two for 1st level hot press, two for 2nd level hot press, and two for cooling water) have been electrically isolated/verified..	Document review & visual observation.
ICH-9-EP-4	Mechanically isolate/verify tanks E.P. 30-3-7.2, E.P. 5-1-1.1, and E.P. 30-3-4.2 and verify tanks have been drained.	Tanks E.P. 30-3-72, E.P. 5-1-1.1, and E.P. 30-3-4.2 have been drained, isolated, and verified.	Visual observation.
ERH-9-EP-5	Drain tank located inside old collection cabinet; mechanically isolate the tank and verify.	Tank located inside old collection cabinet has been drained and mechanically isolated.	Visual observation.
ERH-9-EP-6	Drain hydraulic oil from Cold Press hydraulic valve rack (located in cabinet) and hydraulic supply and return lines to/from valve rack and mechanically isolate the supply and return lines.	Cold Press hydraulic valve rack, including supply and return lines to/from valve rack have been drained of hydraulic oil and mechanically isolated/verified.	Visual observation.
ICH-9-EP-7	Electrically isolate the Cold Press hydraulic valve rack and verify.	Cold Press hydraulic valve rack has been isolated/verified.	Document review & visual observation.
ICH-9-EP-8	Electrically isolate the three (3) High Volume Air Monitors and verify.	Three High Volume Air Monitors have been electrically isolated/verified.	Document review & visual observation.
ZONE 10			
ICH-10-EP-1	Electrically isolate Instrument Panel 480 B11 and adjacent Inert Gas Panels and verify.	Instrument Panel 480 B11 and adjacent Inert Gas Panels have been electrically isolated/verified.	Document review & visual observation.
ICH-10-EP-2	Isolate electrical disconnects (3) on east wall just north of F.A.R.M.S. H.V.A.M. #8 and verify.	Electrical disconnects (3) on east wall just north of F.A.R.M.S. H.V.A.M. #8 have been isolated/verified.	Document review & visual observation.
ICH-10-EP-3	Electrically isolate Evacuable Lock Pump E.P. 1-1-51 and verify (see schematic W449914 and single line diagram W147552).	Evacuable Lock Pump E.P. 1-1-51 has been electrically isolated/verified (see schematic W449914 and single line diagram W147552).	Document review & visual observation.
ERH-10-EP-4	Drain oil from E.P. 1-1-51 and verify.	Oil has been drained from E.P. 1-1-51 and verified.	Visual observation.
ICH-10-EP-5	Mechanically isolate Recycled Cooling Water supply and return lines for E.P. 5-1-1.2 Furnace and Cooled Storage heat exchanger and verify.	Recycled Cooling Water supply and return lines for E.P. 5-1-1.2 Furnace and Cooled Storage heat exchanger have been mechanically isolated/verified.	Visual observation.
ICH-10-EP-6	Isolate Cooling Water supply and return lines for the Hot Press Heat Exchanger and verify.	Cooling Water supply and return lines for the Hot Press Heat Exchanger have been isolated/verified.	Visual observation.

ICH-10-EP-7	Isolate Cooling Water supply and return lines for the Hot Press Auxiliary Equipment Heat Exchanger and verify.	Cooling Water supply and return lines for the Hot Press Auxiliary Equipment Heat Exchanger have been isolated/verified.	Visual observation.
ZONE 11			
ICH-11-EP-1	Isolate Helium supply line (located on west wall) and verify.	Helium supply line (located on west wall) has been isolated/verified.	Visual observation.
ICH-11-EP-2	Isolate Argon supply line (located on west wall) and verify.	Argon supply line (located on west wall) has been isolated/verified.	Visual observation.
ICH-11-EP-3	Electrically isolate Unit A Blower, Unit A Heater, Unit B Blower, Unit B Heater, and main disconnect located above them and verify.	Unit A Blower, Unit A Heater, Unit B Blower, Unit B Heater, and main disconnect located above them have been electrically isolated/verified.	Document review & visual observation.
ICH-11-EP-4	Electrically isolate Helium purification equipment, E.P. 30-6-5 and E.P. 30-6-6, and verify.	Helium purification equipment, E.P. 30-6-5 and E.P. 30-6-6, have been electrically isolated/verified.	Document review & visual observation.
ICH-11-EP-5	Mechanically isolate O16 Supply to Cell 1 and verify (see drawings W449892, W700372, & W449827).	O16 Supply to Cell 1 has been mechanically isolated/verified (see drawings W449892, W700372, & W449827).	Visual observation.
ICH-11-EP-6	Mechanically isolate O16 Recycle lines and verify (see drawing W449830).	O16 Recycle lines have been isolated/verified (see drawing W449830).	Visual observation.
ICH-11-EP-7	Isolate Deoxo. Cat. Converter Skid, E.N. 30-4-5; Argon Blowers, E.N. 30-4-1 & E.N. 30-4-2, Skid; and Dryers, E.N. 30-4-9 & E.N. 30-4-10, Skid shown on drawings W447252 & W718187 and verify.	Deoxo. Cat. Converter Skid, E.N. 30-4-5; Argon Blowers, E.N. 30-4-1 & E.N. 30-4-2, Skid; and Dryers, E.N. 30-4-9 & E.N. 30-4-10, Skid shown on drawing W447252 & W718187 have been isolated/verified.	Document review & visual observation.
ZONE 12			
ICH-12-EP-1	Isolate supply lines to tanks CF-1, CF-2, and CF-3 and verify; drain tanks and verify.	Supply lines to tanks CF-1, CF-2, and CF-3 have been isolated/verified and tanks drained/verified.	Visual observation.

Appendix F – Crosswalk between Deactivation Project Plan & Manual 6B, Procedure 1.4

Item #	Project Control/Project Management Criteria/Tool	Required by 6B, 1.4 for Category 5?	Discussion
ORGANIZATION			
1	Project Execution Plan (PEP)	No	N/A
2	Team Execution Plan (TEP) (Including R2A2)	**Yes**	The Deactivation Project Plan (DPP) will act as the TEP. The DPP will discuss "responsibilities and organizational interfaces" (within Section 5.01 of the plan).
3	Work Breakdown Structure (WBS)	**Yes**	The DPP will contain a WBS. The WBS will be contained within an appendix and discussed within Section 5.02 of the plan.
4	WBS Dictionary	**Yes** (Part 1 only)	The DPP will contain a WBS dictionary. The dictionary will be contained within an appendix (separate from the WBS) and discussed within Section 5.02 of the plan.
5	Organizational Breakdown Structure (OBS)	**Yes**	The DPP will contain an OSB within Section 5.01 and Appendix J of the DPP.
6	Responsibility Assignment Matrix (RAM)	No	N/A
7	Control Account	**Yes**	Section 5.05 of the DPP will describe how the project team will measure cost performance and progress, which includes the establishment of control accounts. Anticipated control accounts will be listed in Appendix B.
8	Control Account Plan	No	N/A
9	Work Packaging - Earned Value (EV)	**Yes**	Sections 5.03 and 5.05 of the DPP will describe how the project team will measure cost performance and progress, which includes the establishment of work packages and value associated with those packages.
10	Acquisition Strategy Plan	No	N/A
11	Material Assignment Schedule (MAS)	No	N/A
SCOPE			
12	Planning - Scope of Work (Identify Need, Statement of Work, Scope of Work)	**Yes**	Sections 2.05 and 5.02 along with Appendices C and E of the DPP will provide the scope of work, along with project objectives. Section 5.02 will also define/describe efforts by the project team to prepare detailed design documents, which act as the basis for Manual 1Y work packages and Manual 2S procedures for use by deactivation workers.
13	Risk Management Plan	No*	Although a Risk Management Plan is not required, the Project Team will implement and maintain a Risk Management Program. See Section 5.07 for additional details.

14	Work Authorization and Execution	**Yes**	Section 5.05 addresses project authorization (via the BCP process). As needed, "constraints" associated with the funding/authorization will be discussed within Section 2.06 of the DPP. Also, Section 5.01 will specify that the PM has the R2A2 to provide work and resource authorization through the Project Team.
15	Request for Project Authorization (RPA)	No	N/A
SCHEDULE			
16	Site Summary Schedule - Master Schedule	**Yes**	Section 5.04 of the DPP will discuss the summary baseline schedule (which will be provided in an appendix to the DPP) and will discuss schedule maintenance. Note that there is no intent to revise the DPP appendix as the project progresses: the schedule will be maintained independent of the DPP.
17	Area Projects - Support Schedules	**Yes**	Section 5.04 of the DPP will discuss the initial support schedule and will discuss schedule maintenance. Note that there is no intent to revise the DPP appendix as the project progressed: the schedule will be maintained independent of the DPP.
18	Cost and Schedule Integration	**Yes**	Sections 5.03 and 5.04 of the DPP will discuss cost and schedule integration.
19	Milestone Tracking	**Yes**	Sections 5.03/5.05 of the DPP will discuss milestone tracking.
20	Critical Path	**Yes**	Sections 5.04/5.05 of the DPP will discuss development and maintenance of a critical path.
21	Resource Plan	**Yes**	Sections 5.01/5.03 of the DPP will describe how the project will make use of the "Integrated Budget System" (IBS) and the SRS cost processor,Cobra. Note that per Manual 6B, Procedure 1.4, the IBS and ICTS satisfy this requirement.
22	Resource Loading of Network Schedules (Example P3 Schedule)	No	N/A
COST			
23	Estimate	**Yes**	Section 5.03 of the DPP will provide/discuss the baseline cost for the project. The actual estimate will be provided in an appendix to DPP or referenced in the DPP.
24	BDER Estimates	No	N/A
25	Contingency Development (Probability of Success)	No	N/A
26	Technical & Programmatic Risk Contingency	No	N/A
27	Schedule Contingency	No	N/A
28	Estimate Contingency	No	N/A
29	Contingency Utilization	No	N/A
30	Budgeting - Performance Measurement Baseline	**Yes**	Section 5.03 of the DPP will provide/discuss the baseline cost for the project. (The actual estimate will be provided in an appendix to DPP or referenced in the DPP.) Also, Section 5.03 will describe how the project will make use of the cost processor, Cobra.
31	Budgeting - Control Accounts	**Yes**	Sections 5.03/5.05 of the DPP will discuss control accounts.

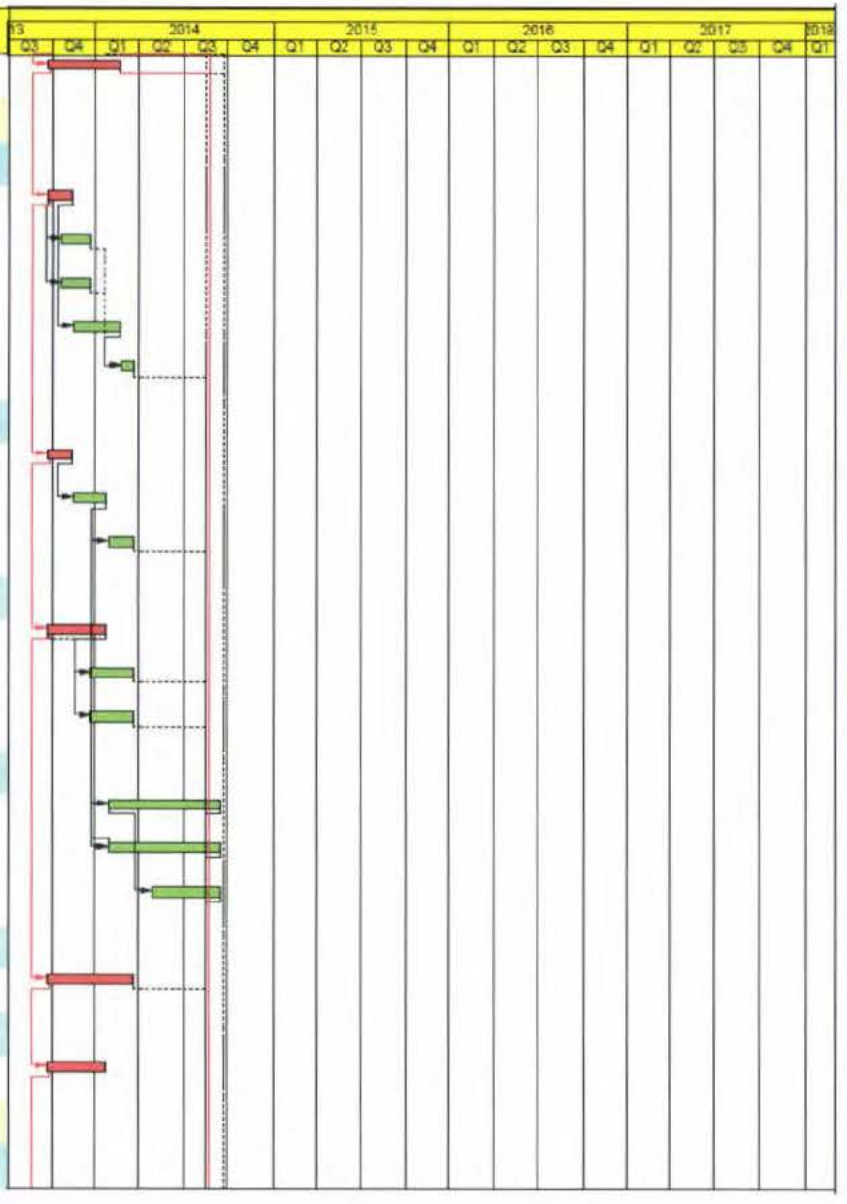
32	Budgeting - Work Packages	**Yes**	Sections 5.03/5.05 of the DPP will discuss work packages.
33	Budgeting - Planning Packages	No	N/A
34	M&O Accounting System	**Yes**	Sections 5.03/5.05 of the DPP will discuss the M&O accounting system.
35	Cost Collection	**Yes**	Sections 5.03/5.05 of the DPP will discuss cost collection.
36	Direct & Indirect Costs	**Yes**	Sections 5.03/5.05 of the DPP will discuss the capture/tracking of both direct and indirect costs.
37	Material and Subcontract Accounting	**Yes**	Sections 5.03/5.05 of the DPP will discuss accounting related to materials/subcontracts.
38	Project Cost Classification	No	N/A
39	Project Data Sheet (PDS)	No	N/A
40	Funds Management	**Yes**	Sections 5.03/5.05 of the DPP will discuss funds management.
REPORTING			
41	Earned Value Management System (EVMS)	**Yes**	Section 5.05 of the DPP will discuss efforts to implement and employ an EVMS.
42	Performance Measurement/Earned Value	**Yes**	Section 5.05 of the DPP will discuss efforts to implement and employ an EVMS.
43	Commodity Tracking (Bulk Quantities)	Yes*	This item is not applicable to the deactivation project. There are no commodities (in bulk) that will be procured or used by the project team. This item will therefore not be discussed in the DPP.
44	Schedule Status	**Yes**	Section 5.05 of the DPP will discuss efforts by the project team to provide schedule statuses during the life of the project.
45	Cost Status	**Yes**	Section 5.05 of the DPP will discuss efforts by the project team to provide cost statuses during the life of the project.
46	Subcontract Status	**Yes**	Section 5.05 of the DPP will discuss efforts by the project team to provide subcontract statuses during the life of the project.
47	Material Status and Reporting	**Yes**	Section 5.05 of the DPP will discuss efforts by the project team to provide material statuses during the life of the project.
48	Estimate-at-Completion (EAC) Development	**Yes**	Section 5.05 of the DPP will discuss efforts by the project team to provide/develop EACs during the life of the project.
49	Forecast-at-Completion (FAC) Development	**Yes**	Section 5.05 of the DPP will discuss efforts by the project team to provide/develop FACs during the life of the project.
50	Variance Analysis Thresholds	**Yes**	Section 5.05 of the DPP will define thresholds for variance analysis.
51	Variance Analysis	**Yes**	Section 5.05 of the DPP will discuss variance analysis by the project team.
52	Variance Analysis Report	No	N/A
53	Project Reporting	**Yes**	Section 5.05 of the DPP will discuss project reporting by the project team.
54	Project Action Items	**Yes**	Section 5.05 of the DPP will discuss project reporting by the project team, which includes the identification of Project Action Items.

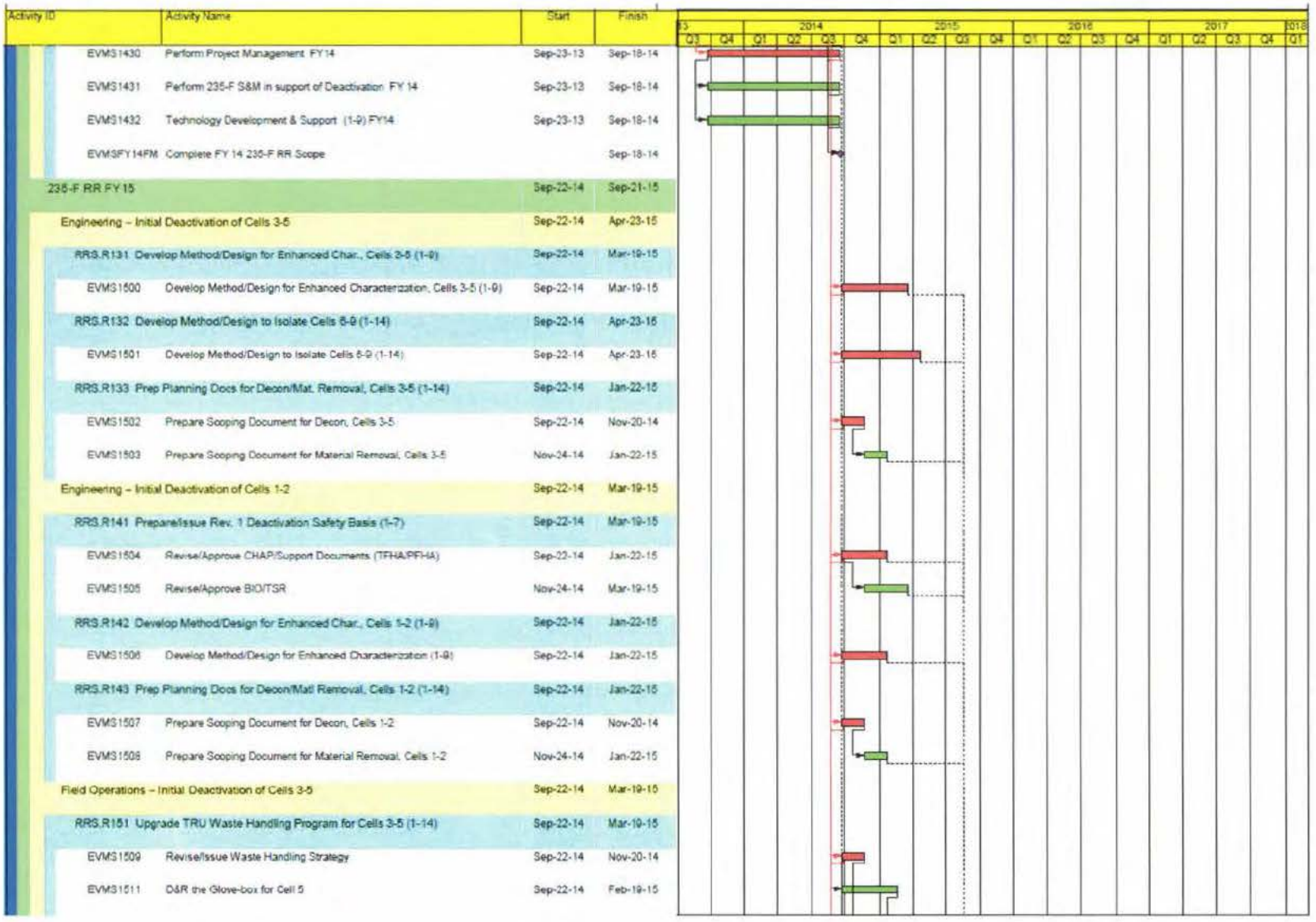
55	Performance Productivity Reports	Yes*	Similar to Item 43, this item is not applicable to the deactivation project. There is no commodity/component/item that is being produced that can be tracked by the project team. Therefore, this item will not be discussed in the DPP.
CHANGE CONTROL			
56	Change Control / Approval Levels	**Yes**	Section 5.05 of the DPP will discuss/identify approval levels associated with change control.
57	Project Change Identification (Including Trend Process)	**Yes**	Section 5.05 of the DPP will discuss efforts by the project team to implement a trend process/program.
58	Early Warning	**Yes**	Section 5.05 of the DPP will discuss efforts by the project manager to provide written early warning to SRNS senior management.
59	Emergency/Urgent Changes (ECNs, PARs)	**Yes**	Section 5.05 of the DPP will discuss emergency/urgent changes.
OTHER			
60	Surveillance (Self Assessments, Project Review Teams)	**Yes**	Section 5.05 of the DPP will discuss efforts by the project team to implement a surveillance program.
61	Project Close Out	**Yes**	Section 5.05 of the DPP will discuss efforts by the project team to close out the project.
62	Key Activities for Successful Execution of Projects (KASE)	No	N/A
63	Project Definition Rating Index (PDRI)	No	N/A

Appendix G – Summary Baseline Schedule

Activity ID	Activity Name	Start	Finish
Total		Sep-23-13	Sep-21-17
235-F RR FY14		Sep-23-13	Sep-18-14
Engineering – Planning/Design for Cells 3-5		Sep-23-13	May-22-14
RRS.R91	Prepare Planning Documents for Cells 3-5 (1-11)	Sep-23-13	May-22-14
EVMS1401	Prepare Scoping Document for Smoke Testing, Cells 3-5	Sep-23-13*	Nov-14-13
EVMS1402	Prepare Scoping Document for Glove Installation, Cells 3-5	Nov-18-13	Jan-23-14
EVMS1403	Prepare Scoping Document for Shield Window Remediation, Cells 3-5	Jan-27-14	Mar-20-14
EVMS1404	Prepare Scoping Document for Temporary Lighting, Cells 3-5	Mar-24-14	May-22-14
RRS.R92	Prepare Designs for Cells 3-5 Deactivation (1-11)	Sep-23-13	Feb-20-14
EVMS1405	Prepare Design for Shield Window D&R, Cells 3-5	Sep-23-13	Feb-20-14
RRS.R93	Prepare Design for D&R of Cell 5 Glove-box (1-14)	Sep-23-13	Feb-20-14
EVMS1406	Prepare Design for D&R of Cell 5 Glove-box (1-14)	Sep-23-13	Feb-20-14
RRS.R94	Prepare Design for Breathing Air Distribution (1-14)	Sep-23-13	Jan-23-14
EVMS1407	Prepare Design for Breathing Air Distributon (1-14)	Sep-23-13	Jan-23-14
RRS.R95	Develop Method/Design for Enhanced Char., Cells 3-5 (1-9)	Sep-23-13	Mar-27-14
EVMS1408	Develop Method/Design for Enhanced Char., Cells 3-5 (1-9)	Sep-23-13	Mar-27-14
Engineering – Planning/Design for Cells 1-2		Sep-23-13	May-22-14
RRS.R101	Prepare Planning Documents for Cells 1-2 (1-11)	Sep-23-13	May-22-14
EVMS1409	Prepare Scoping Document for Smoke Testing, Cells 1-2	Sep-23-13	Nov-14-13
EVMS1410	Prepare Scoping Document for Glove Installation, Cells 1-2	Nov-18-13	Jan-23-14
EVMS1411	Prepare Scoping Document for Shield Window Remediation, Cells 1-2	Jan-27-14	Mar-20-14
EVMS1412	Prepare Scoping Document for Temporary Lighting, Cells 1-2	Mar-24-14	May-22-14
RRS.R102	Prepare Designs for Cells 1-2 Deactivation (1-11)	Sep-23-13	Feb-20-14

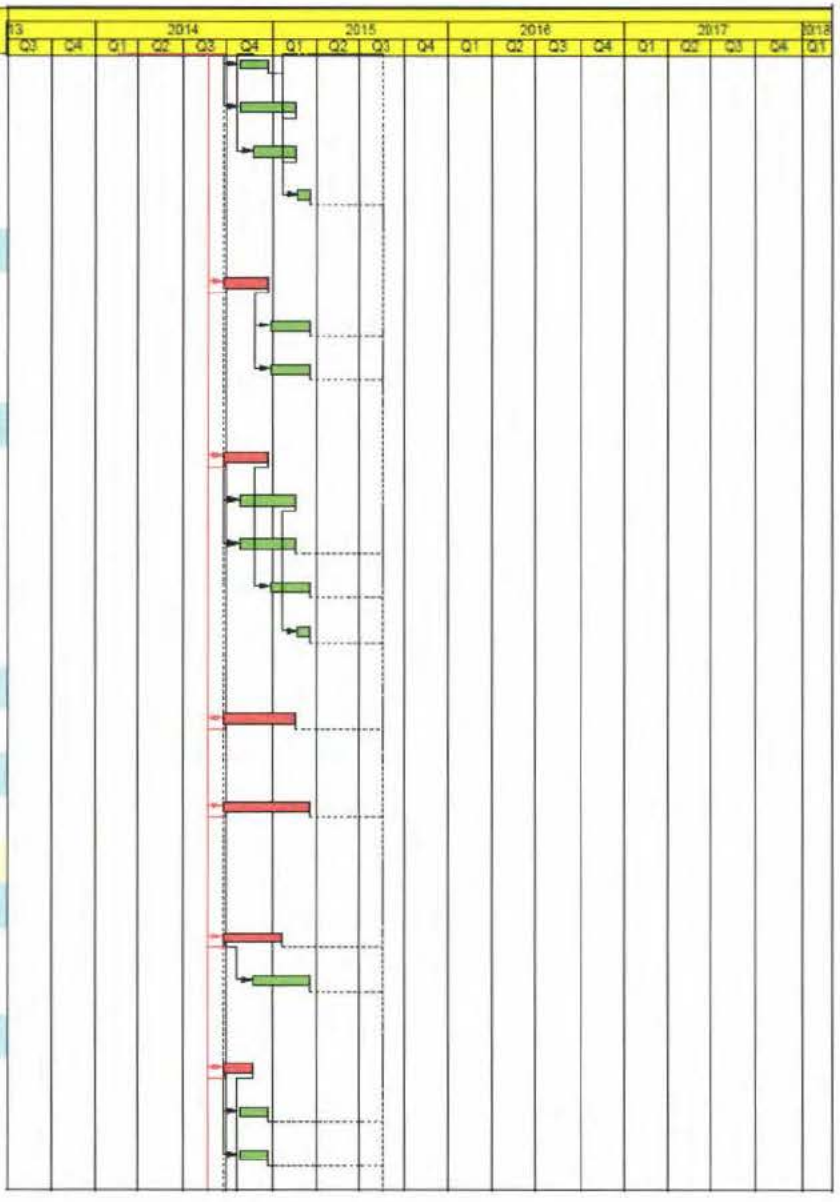
Activity ID	Activity Name	Start	Finish
EVMS1413	Prepare Design for Shield Window D&R, Cells 1-2	Sep-23-13	Feb-20-14
Field Operations – Deactivation of Cells 6-9		Sep-23-13	Sep-18-14
RRS.R111	Develop/Implement TRU Waste Handling Program (1-14)	Sep-23-13	Mar-20-14
EVMS1414	Develop/Issue Waste Handling Strategy	Sep-23-13	Nov-14-13
EVMS1415	Prepare Waste Characterization/Certification Plans	Oct-21-13	Dec-19-13
EVMS1416	Design/Fabricate/Install Equipment	Oct-21-13	Dec-19-13
EVMS1417	Develop and Issue Procedures/Train Personnel	Nov-18-13	Feb-20-14
EVMS1418	Assess Program for Readiness	Feb-24-14	Mar-20-14
RRS.R112	Develop/Checkout Long-Handled/Extension Tools (1-14)	Sep-23-13	Mar-20-14
EVMS1419	Prepare Scoping Document/Design for Tools	Sep-23-13	Nov-14-13
EVMS1420	Fabricate/Procure Tools	Nov-18-13	Jan-23-14
EVMS1421	Checkout Tools in Mockup	Jan-27-14	Mar-20-14
RRS.R113	Repair/Replace Manipulators for Cells 6-9 (1-14)	Sep-23-13	Mar-20-14
EVMS1422	Perform Initial Checkout of Manipulators	Sep-23-13	Jan-23-14
EVMS1424	Replace Manipulators that Cannot Be Repaired	Dec-23-13	Mar-20-14
EVMS1423	Repair Manipulators	Dec-23-13	Mar-20-14
RRS.R114	Deactivate Cells 6-9 (1-14)	Jan-27-14	Sep-18-14
EVMS1426	Perform Material Removal from Cells 6-9	Jan-27-14	Sep-18-14
EVMS1425	Perform Decon of Cells 6-9	Jan-27-14	Sep-18-14
EVMS1427	Perform Waste Handling in Support of Decon/Material Removal	Apr-28-14	Sep-18-14
RRS.R115	Electrically/Mechanically Isolate Cells 6-9 (1-14)	Sep-23-13	Mar-20-14
EVMS1428	Electrically/Mechanically Isolate Cells 6-9 (1-14)	Sep-23-13	Mar-20-14
RRS.R116	Install Breathing Air Distribution (1-14)	Sep-23-13	Jan-23-14
EVMS1429	Install Breathing Air Distribution (1-11, 1-14)	Sep-23-13	Jan-23-14
Project Management - Deactivation of Cells 6-9		Sep-23-13	Sep-18-14
RRS.R121	Perform Project Management	Sep-23-13	Sep-18-14



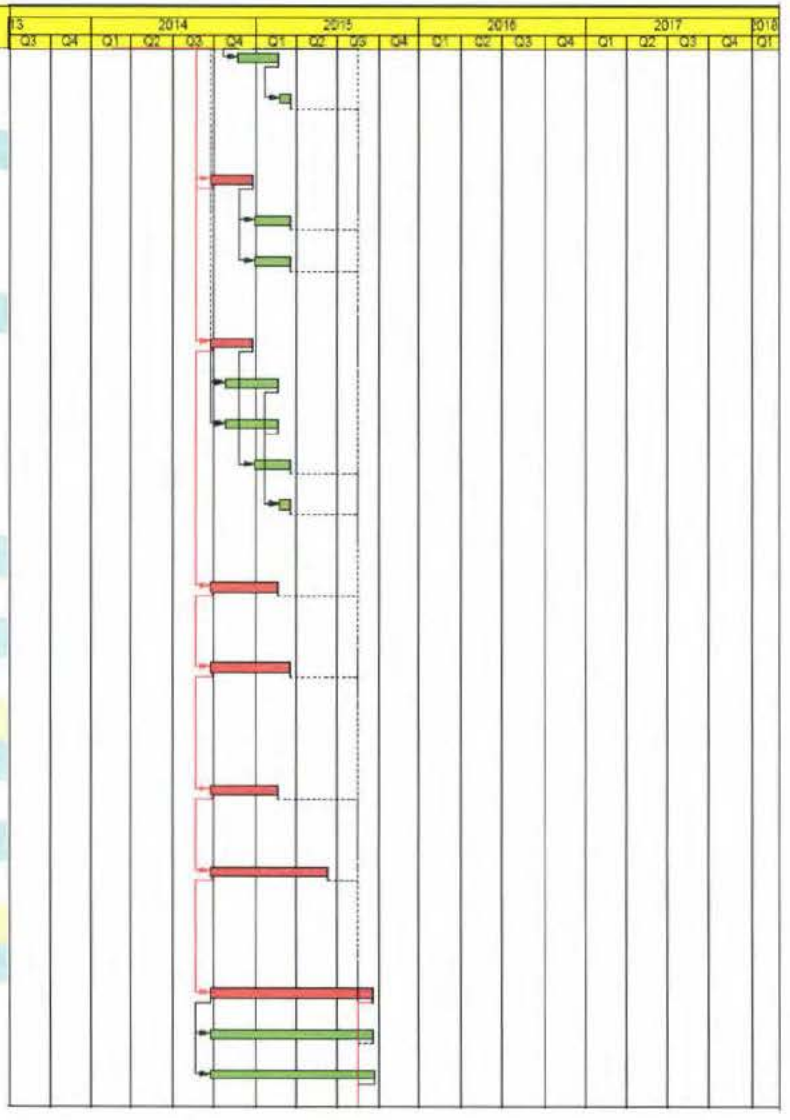


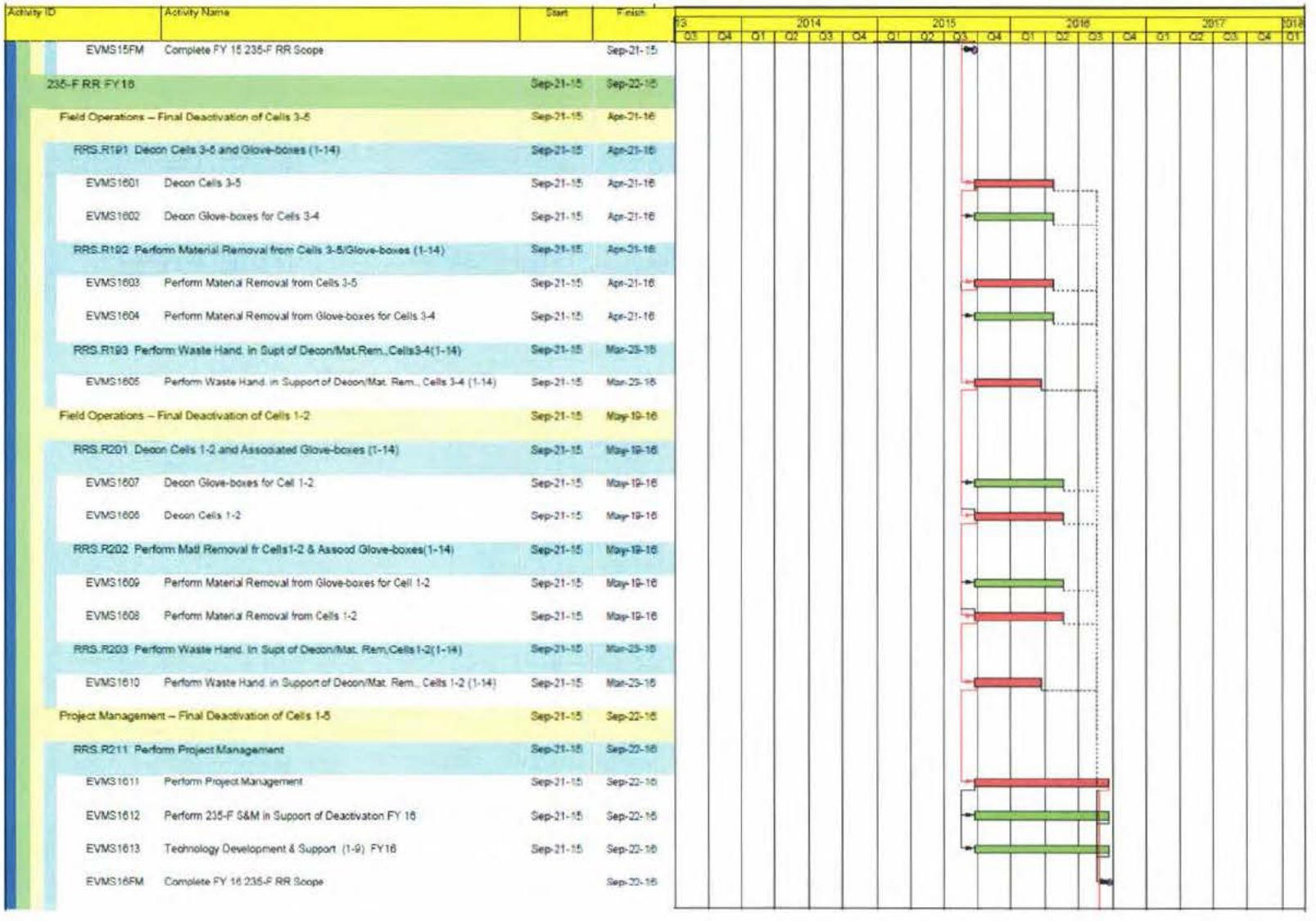
Activity ID	Activity Name	Start	Finish
EVMS1430	Perform Project Management FY14	Sep-23-13	Sep-18-14
EVMS1431	Perform 235-F S&M in support of Deactivation FY14	Sep-23-13	Sep-18-14
EVMS1432	Technology Development & Support (1-9) FY14	Sep-23-13	Sep-18-14
EVMSFY14FM	Complete FY 14 235-F RR Scope		Sep-18-14
235-F RR FY15		Sep-22-14	Sep-21-15
Engineering – Initial Deactivation of Cells 3-5		Sep-22-14	Apr-23-15
RRS.R131	Develop Method/Design for Enhanced Char., Cells 3-5 (1-9)	Sep-22-14	Mar-19-15
EVMS1500	Develop Method/Design for Enhanced Characterization, Cells 3-5 (1-9)	Sep-22-14	Mar-19-15
RRS.R132	Develop Method/Design to Isolate Cells 6-9 (1-14)	Sep-22-14	Apr-23-15
EVMS1501	Develop Method/Design to Isolate Cells 6-9 (1-14)	Sep-22-14	Apr-23-15
RRS.R133	Prep Planning Docs for Decon/Mat. Removal, Cells 3-5 (1-14)	Sep-22-14	Jan-22-15
EVMS1502	Prepare Scoping Document for Decon, Cells 3-5	Sep-22-14	Nov-20-14
EVMS1503	Prepare Scoping Document for Material Removal, Cells 3-5	Nov-24-14	Jan-22-15
Engineering – Initial Deactivation of Cells 1-2		Sep-22-14	Mar-19-15
RRS.R141	Prepare/Issue Rev. 1 Deactivation Safety Basis (1-7)	Sep-22-14	Mar-19-15
EVMS1504	Revise/Approve CHAP/Support Documents (TFHA/PFHA)	Sep-22-14	Jan-22-15
EVMS1505	Revise/Approve BIO/TSR	Nov-24-14	Mar-19-15
RRS.R142	Develop Method/Design for Enhanced Char., Cells 1-2 (1-9)	Sep-22-14	Jan-22-15
EVMS1506	Develop Method/Design for Enhanced Characterization (1-9)	Sep-22-14	Jan-22-15
RRS.R143	Prep Planning Docs for Decon/Matl Removal, Cells 1-2 (1-14)	Sep-22-14	Jan-22-15
EVMS1507	Prepare Scoping Document for Decon, Cells 1-2	Sep-22-14	Nov-20-14
EVMS1508	Prepare Scoping Document for Material Removal, Cells 1-2	Nov-24-14	Jan-22-15
Field Operations – Initial Deactivation of Cells 3-5		Sep-22-14	Mar-19-15
RRS.R151	Upgrade TRU Waste Handling Program for Cells 3-5 (1-14)	Sep-22-14	Mar-19-15
EVMS1509	Revise/Issue Waste Handling Strategy	Sep-22-14	Nov-20-14
EVMS1511	D&R the Glove-box for Cell 5	Sep-22-14	Feb-19-15

Activity ID	Activity Name	Start	Finish
EVMS1510	Revise Certification Plan	Oct-27-14	Dec-23-14
EVMS1512	Design/Fabricate/Install Equipment	Oct-27-14	Feb-19-15
EVMS1513	Revise Procedures	Nov-24-14	Feb-19-15
EVMS1514	Assess Program for Readiness	Feb-23-15	Mar-19-15
RRS.R152	Repair/Replace Manipulators for Cells 3-5 (1-14)	Sep-22-14	Mar-19-15
EVMS1515	Perform Initial Checkout of Manipulators	Sep-22-14	Dec-23-14
EVMS1516	Repair Manipulators	Dec-29-14	Mar-19-15
EVMS1517	Replace Manipulators that Cannot Be Repaired	Dec-29-14	Mar-19-15
RRS.R153	Implement Prep for Cells 3-5 Work (1-11)	Sep-22-14	Mar-19-15
EVMS1518	Perform Smoke Test and Remediate	Sep-22-14	Dec-23-14
EVMS1520	Remove Shielded Windows	Oct-27-14	Feb-19-15
EVMS1521	Remediate Shielded Windows	Oct-27-14	Feb-19-15
EVMS1522	Install Temporary Lighting to Cells	Dec-29-14	Mar-19-15
EVMS1519	Install Gloves and Reactivate Glove Ports	Feb-23-15	Mar-19-15
RRS.R154	Perform Enhanced Characterization of Cells 3-5 (1-9)	Sep-22-14	Feb-19-15
EVMS1523	Perform Enhanced Characterization of Cells 3-5 (1-9)	Sep-22-14	Feb-19-15
RRS.R155	Electrically/Mechanically Isolate Cells 3-5 (1-14)	Sep-22-14	Mar-19-15
EVMS1524	Electrically / Mechanically Isolate Cells 3-5 (1-14)	Sep-22-14	Mar-19-15
Field Operations – Initial Deactivation of Cells 1-2		Sep-22-14	Mar-19-15
RRS.R161	Implement Rev.1 Deact. Safety Basis & Verify Readiness (1-8)	Sep-22-14	Mar-19-15
EVMS1525	Implement BIO/TSR (SBIP Preparation and Execution)	Sep-22-14	Jan-22-15
EVMS1526	Perform Readiness Assessment	Nov-24-14	Mar-19-15
RRS.R162	Upgrade TRU Waste Handling Program for Cells 1-2 (1-14)	Sep-22-14	Mar-19-15
EVMS1527	Revise/Issue Waste Handling Strategy	Sep-22-14	Nov-20-14
EVMS1528	Revise Waste Characterization/Certification Plans	Oct-27-14	Dec-23-14
EVMS1529	Design/Fabricate/Install Equipment	Oct-27-14	Dec-23-14



Activity ID	Activity Name	Start	Finish
EVMS1530	Revise Procedures	Nov-24-14	Feb-19-15
EVMS1531	Assess Program for Readiness	Feb-23-15	Mar-19-15
RRS.R163	Repair/Replace Manipulators for Cells 1-2 (1-14)	Sep-22-14	Mar-19-15
EVMS1532	Perform Initial Checkout of Manipulators	Sep-22-14	Dec-23-14
EVMS1533	Repair Manipulators	Dec-29-14	Mar-19-15
EVMS1534	Replace Manipulators that Cannot Be Repaired	Dec-29-14	Mar-19-15
RRS.R164	Implement Prep for Cells 1-2 Work (1-11)	Sep-22-14	Mar-19-15
EVMS1535	Perform Smoke Test and Remediate	Sep-22-14	Dec-23-14
EVMS1537	Remove Shielded Windows	Oct-27-14	Feb-19-15
EVMS1538	Remediate Shielded Windows	Oct-27-14	Feb-19-15
EVMS1539	Install Temporary Lighting to Cells	Dec-29-14	Mar-19-15
EVMS1536	Install Gloves and Reactivate Glove Ports	Feb-23-15	Mar-19-15
RRS.R165	Perform Enhanced Characterization of Cells 1-2 (1-9)	Sep-22-14	Feb-19-15
EVMS1540	Perform Enhanced Characterization of Cells 1-2 (1-9)	Sep-22-14	Feb-19-15
RRS.R166	Electrically/Mechanically Isolate Cells 1-2 (1-14)	Sep-22-14	Mar-19-15
EVMS1541	Electrically/Mechanically Isolate Cells 1-2 (1-14)	Sep-22-14	Mar-19-15
Field Operations – Final Deactivation of Cells 6-9		Sep-22-14	Jun-11-15
RRS.R171	Re-Characterize Cells 6-9 (1-15, 1-16)	Sep-22-14	Feb-19-15
EVMS1542	Re-Characterize Cells 6-9 (1-15, 1-16)	Sep-22-14	Feb-19-15
RRS.R172	Implement Method/Design to Isolate Cells 6-9 (1-14)	Sep-22-14	Jun-11-15
EVMS1543	Implement Method/Design to Isolate Cells 6-9 (1-14)	Sep-22-14	Jun-11-15
Project Management – Initial Deactivation of Cells 1-5		Sep-22-14	Sep-21-15
RRS.R181	Perform Project Management	Sep-22-14	Sep-21-15
EVMS1544	Perform Project Management FY 15	Sep-22-14	Sep-17-15
EVMS1546	Technology Development & Support (1-9) FY 15	Sep-22-14	Sep-17-15
EVMS1545	Perform 235-F S&M in Support of Deactivation FY 15	Sep-22-14	Sep-21-15





Activity ID	Activity Name	Start	Finish
EVMS15FM	Complete FY 15 235-F RR Scope		Sep-21-15
235-F RR FY16		Sep-21-15	Sep-22-16
Field Operations – Final Deactivation of Cells 3-5		Sep-21-15	Apr-21-16
RRS.R191	Decon Cells 3-5 and Glove-boxes (1-14)	Sep-21-15	Apr-21-16
EVMS1601	Decon Cells 3-5	Sep-21-15	Apr-21-16
EVMS1602	Decon Glove-boxes for Cells 3-4	Sep-21-15	Apr-21-16
RRS.R192	Perform Material Removal from Cells 3-5/Glove-boxes (1-14)	Sep-21-15	Apr-21-16
EVMS1603	Perform Material Removal from Cells 3-5	Sep-21-15	Apr-21-16
EVMS1604	Perform Material Removal from Glove-boxes for Cells 3-4	Sep-21-15	Apr-21-16
RRS.R193	Perform Waste Hand. in Supt of Decon/Mat.Rem.,Cells3-4(1-14)	Sep-21-15	Mar-29-16
EVMS1605	Perform Waste Hand. in Support of Decon/Mat. Rem., Cells 3-4 (1-14)	Sep-21-15	Mar-29-16
Field Operations – Final Deactivation of Cells 1-2		Sep-21-15	May-19-16
RRS.R201	Decon Cells 1-2 and Associated Glove-boxes (1-14)	Sep-21-15	May-19-16
EVMS1607	Decon Glove-boxes for Cell 1-2	Sep-21-15	May-19-16
EVMS1606	Decon Cells 1-2	Sep-21-15	May-19-16
RRS.R202	Perform Matl Removal fr Cells1-2 & Assood Glove-boxes(1-14)	Sep-21-15	May-19-16
EVMS1609	Perform Material Removal from Glove-boxes for Cell 1-2	Sep-21-15	May-19-16
EVMS1608	Perform Material Removal from Cells 1-2	Sep-21-15	May-19-16
RRS.R203	Perform Waste Hand. in Supt of Decon/Mat. Rem,Cells 1-2(1-14)	Sep-21-15	Mar-29-16
EVMS1610	Perform Waste Hand. in Support of Decon/Mat. Rem., Cells 1-2 (1-14)	Sep-21-15	Mar-29-16
Project Management – Final Deactivation of Cells 1-5		Sep-21-15	Sep-22-16
RRS.R211	Perform Project Management	Sep-21-15	Sep-22-16
EVMS1611	Perform Project Management	Sep-21-15	Sep-22-16
EVMS1612	Perform 235-F S&M in Support of Deactivation FY 16	Sep-21-15	Sep-22-16
EVMS1613	Technology Development & Support (1-9) FY16	Sep-21-15	Sep-22-16
EVMS16FM	Complete FY 16 235-F RR Scope		Sep-22-16

Activity ID	Activity Name	Start	Finish
235-F RR FY17		Sep-26-16	Sep-21-17
Engineering – Project Closeout		Sep-26-16	Mar-23-17
RRS.R221	Prepare/Issue Rev. 2 Deactivation Safety Basis (1-16)	Sep-26-16	Mar-23-17
EVMS1701	Revse/Approve CHAP/Support Documents (TFHA/PFHA)	Sep-26-16	Jan-19-17
EVMS1702	Revse/Approve BIO/TSR	Nov-28-16	Mar-23-17
RRS.R222	Prepare/Issue Manual 1C Documentation	Sep-26-16	Feb-16-17
EVMS1703	Prepare/Issue Deactivation Project Final Report	Sep-26-16	Dec-21-16
EVMS1704	Revse/Issue S&M Plan	Dec-27-16	Feb-16-17
RRS.R231	Re-Characterize Cells 1-5 (1-15, 1-16)	Sep-26-16	Feb-16-17
EVMS1705	Re-Characterize Cells 1-5 (1-15, 1-16)	Sep-26-16	Feb-16-17
RRS.R232	Implement Rev. 2 Deact. Safety Basis and Verify Readiness	Sep-26-16	Mar-23-17
EVMS1706	Implement BIO/TSR (SB/P Preparation and Execution)	Sep-26-16	Jan-19-17
EVMS1707	Perform Readiness Assessment	Nov-28-16	Mar-23-17
Project Management – Project Closeout		Sep-26-16	Sep-21-17
RRS.R241	Perform Project Management	Sep-26-16	Sep-21-17
EVMS1708	Perform Project Management	Sep-26-16	Sep-21-17
EVMS1709	Technology Development & Support (1-9) FY17	Sep-26-16	Sep-21-17
EVMS17FM	235-F Risk Reduction Complete		Sep-21-17

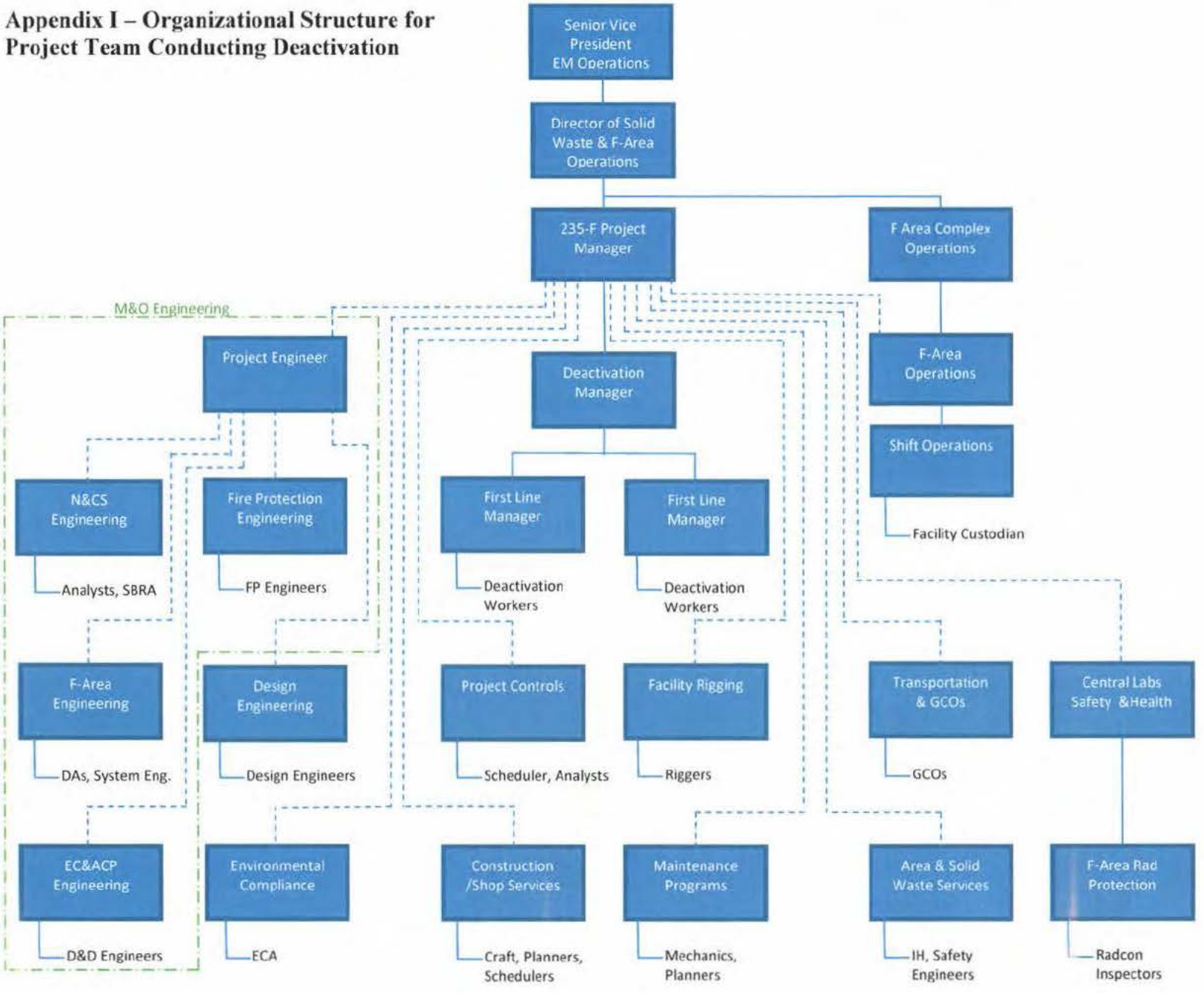
Appendix H – Listing of Predecessors and Successors for Work Packages

Work Package #	Work Package Title	Year	Predecessor Work Package	Successor Work Package
01.29.24.01.06.01	Prepare/Issue Rev. 0 Deact. Safety Basis (1-2)	FY13	None	01.29.24.01.07.01
01.29.24.01.06.03	Design Prep for Cells 6-9 Work (1-3)	FY13	None	01.29.24.01.07.03
01.29.24.01.06.04	Design Decon, Cells 6-9 (1-14)	FY13	None	01.29.24.01.11.04
01.29.24.01.06.05	Design Material Removal, Cells 6-9 (1-14)	FY13	None	01.29.24.01.11.04
01.29.24.01.06.06	Plan the Deactivation Project (1-1)	FY13	None	All FY14 Work Packages
01.29.24.01.07.01	Implement Rev. 0 Deact. Safety Basis and Verify Readiness (1-4)	FY13	01.29.24.01.06.01	01.29.24.01.11.05, 01.29.24.01.15.02, 01.29.24.01.15.04, 01.29.24.01.19.01, 01.29.24.01.19.02, 01.29.24.01.19.03
01.29.24.01.07.03	Implement Prep for Cells 6-9 Work (1-3)	FY13	01.29.24.01.06.03	01.29.24.01.11.05, 01.29.24.01.13.02, 01.29.24.01.15.03
01.29.24.01.07.04	Build Mockup (1-3)	FY13	None	01.29.24.01.11.02
01.29.24.01.08.01	Perform Project Management (1-1, 1-2, 1-3, 1-4, 1-14)	FY13	None	01.29.24.01.12.01
01.29.24.01.09.01	Prepare Planning Documents for Cells 3-5 (1-11)	FY14	01.29.24.01.06.06	01.29.24.01.15.03
01.29.24.01.09.02	Prepare Designs for Cells 3-5 Deactivation (1-11)	FY14	01.29.24.01.06.06	01.29.24.01.15.03
01.29.24.01.09.03	Prepare Design for D&R of Cell 5 Glove-box (1-14)	FY14	01.29.24.01.06.06	01.29.24.01.15.03
01.29.24.01.09.04	Prepare Design for Breathing Air Distribution	FY14	01.29.24.01.06.06	01.29.24.01.11.06
01.29.24.01.09.05	Develop Method/Design for Enhanced Char., Cells 3-9 (1-9)	FY14	01.29.24.01.06.06	01.29.24.01.15.04, 01.29.24.01.14.02
01.29.24.01.10.01	Prepare Planning Documents, Cells 1 & 2 (1-11)	FY14	01.29.24.01.06.06	01.29.24.01.16.04
01.29.24.01.10.02	Prepare Designs for Cells 1-2 Deactivation (1-11)	FY14	01.29.24.01.06.06	01.29.24.01.16.04
01.29.24.01.11.01	Develop/Implement TRU Waste Handling Program (1-14)	FY14	01.29.24.01.06.06	01.29.24.01.11.04, 01.29.24.01.15.01
01.29.24.01.11.02	Develop/Checkout Long-Handled/Extension Tools (1-14)	FY14	01.29.24.01.06.06, 01.29.24.01.07.04	01.29.24.01.11.04
01.29.24.01.11.03	Repair/Replace Manipulators for Cells 6-9 (1-14)	FY14	01.29.24.01.06.06	01.29.24.01.11.04
01.29.24.01.11.04	Deactivate Cells 6-9 (1-14)	FY14	01.29.24.01.06.04, 01.29.24.01.06.05, 01.29.24.01.06.06, 01.29.24.01.11.01, 01.29.24.01.11.02, 01.29.24.01.11.03, 01.29.24.01.11.05, 01.29.24.01.11.06	01.29.24.01.13.03, 01.29.24.01.14.01, 01.29.24.01.17.02, 01.29.24.01.19.01, 01.29.24.01.19.02, 01.29.24.01.19.03, 01.29.24.01.22.02
01.29.24.01.11.05	Electrically/Mechanically Isolate Cells 6-9 (1-14)	FY14	01.29.24.01.06.06, 01.29.24.01.07.01, 01.29.24.01.07.03	01.29.24.01.11.04, 01.29.24.01.15.05
01.29.24.01.11.06	Install Breathing Air Distribution (1-11, 1-14)	FY14	01.29.24.01.09.04	01.29.24.01.11.04
01.29.24.01.12.01	Perform Project Management (1-5, 1-11, 1-14)	FY14	01.29.24.01.06.06, 01.29.24.01.08.01	01.29.24.01.18.01
01.29.24.01.12.02	Perform 235-F S&M in Support of Deactivation (1-11, 1-14)	FY14	N/A	01.29.24.01.18.02
01.29.24.01.12.03	Technology Development and Support (1-11, 1-14)	FY14	N/A	01.29.24.01.18.03
01.29.24.01.13.01	NUMBER NOT USED	N/A	N/A	N/A

Work Package #	Work Package Title	Year	Predecessor Work Package	Successor Work Package
01.29.24.01.13.02	Develop Method/Design to Isolate Cells 6-9 (1-14)	FY15	01.29.24.01.07.03	01.29.24.01.17.02
01.29.24.01.13.03	Prepare Planning Docs for Decon/Material Removal, Cells 3-5 (1-14)	FY15	01.29.24.01.11.04	01.29.24.01.14.03, 01.29.24.01.19.01, 01.29.24.01.19.02
01.29.24.01.14.01	Prepare/Issue Rev. 1 Deactivation Safety Basis (1-7)	FY15	01.29.24.01.11.04	01.29.24.01.16.01
01.29.24.01.14.02	Develop Method/Design for Enhanced Characterization (1-9)	FY15	01.29.24.01.13.01	01.29.24.01.16.05
01.29.24.01.14.03	Prepare Planning Docs for Decon/Material Removal, Cells 1-2 (1-14)	FY15	01.29.24.01.13.03	01.29.24.01.20.01, 01.29.24.01.20.02
01.29.24.01.15.01	Upgrade TRU Waste Handling Program for Cells 3-5 (1-14)	FY15	01.29.24.01.11.01	01.29.24.01.19.03, 01.29.24.01.16.02
01.29.24.01.15.02	Repair/Replace Manipulators for Cells 3-5 (1-14)	FY15	01.29.24.01.07.01, 01.29.24.01.11.03	01.29.24.01.16.03, 01.29.24.01.19.01, 01.29.24.01.19.02
01.29.24.01.15.03	Implement Prep for Cells 3-5 Work (1-11)	FY15	01.29.24.01.07.03, 01.29.24.01.09.01, 01.29.24.01.09.02, 01.29.24.01.09.03	01.29.24.01.15.04, 01.29.24.01.16.04, 01.29.24.01.19.01, 01.29.24.01.19.02, 01.29.24.01.19.03
01.29.24.01.15.04	Perform Enhanced Characterization of Cells 3-5 (1-9)	FY15	01.29.24.01.07.01, 01.29.24.01.13.01, 01.29.24.01.15.03	01.29.24.01.19.01, 01.29.24.01.19.02, 01.29.24.01.19.03
01.29.24.01.15.05	Electrically/Mechanically Isolate Cells 3-5 (1-14)	FY15	01.29.24.01.11.05, 01.29.24.01.15.03	01.29.24.01.16.06, 01.29.24.01.19.01, 01.29.24.01.19.02
01.29.24.01.16.01	Implement Rev. 1 Deact. Safety Basis and Verify Readiness (1-8)	FY15	01.29.24.01.14.01	01.29.24.01.16.03, 01.29.24.01.16.06, 01.29.24.01.20.01, 01.29.24.01.20.02, 01.29.24.01.20.03
01.29.24.01.16.02	Upgrade TRU Waste Handling Program for Cells 1-2 (1-14)	FY15	01.29.24.01.15.01	01.29.24.01.20.03
01.29.24.01.16.03	Repair/Replace Manipulators for Cells 1-2 (1-14)	FY15	01.29.24.01.15.02, 01.29.24.01.16.01	01.29.24.01.20.01, 01.29.24.01.20.02
01.29.24.01.16.04	Implement Prep for Cells 1-2 Work (1-11)	FY15	01.29.24.01.10.01, 01.29.24.01.10.02, 01.29.24.01.15.03	01.29.24.01.16.06, 01.29.24.01.20.01, 01.29.24.01.20.02, 01.29.24.01.20.03
01.29.24.01.16.05	Perform Enhanced Characterization of Cells 1-2 (1-9)	FY15	01.29.24.01.14.02	01.29.24.01.20.01, 01.29.24.01.20.02, 01.29.24.01.20.03
01.29.24.01.16.06	Electrically/Mechanically Isolate Cells 1-2 (1-14)	FY15	01.29.24.01.15.05, 01.29.24.01.16.01, 01.29.24.01.16.04	01.29.24.01.20.01, 01.29.24.01.20.02
01.29.24.01.17.01	Re-Characterize Cells 6-9 (1-15, 1-16)	FY15	01.29.24.01.11.04	01.29.24.01.22.01
01.29.24.01.17.02	Implement Method/Design to Isolate Cells 6-9 (1-14)	FY15	01.29.24.01.11.04, 01.29.24.01.13.02	01.29.24.01.22.01
01.29.24.01.18.01	Perform Project Management (1-6, 1-7, 1-8, 1-9, 1-11, 1-14, 1-16)	FY15	01.29.24.01.12.01	01.29.24.01.21.01
01.29.24.01.18.02	Perform 235-F S&M in Support of Deactivation (1-9, 1-11, 1-14)	FY15	01.29.24.01.12.02	01.29.24.01.21.02
01.29.24.01.18.03	Technology Development and Support (1-11, 1-14)	FY15	01.29.24.01.12.03	01.29.24.01.21.03
01.29.24.01.19.01	Decon Cells 3-5 and Glove-boxes (1-14)	FY16	01.29.24.01.07.01, 01.29.24.01.11.04, 01.29.24.01.13.03, 01.29.24.01.15.02, 01.29.24.01.15.04, 01.29.24.01.15.05	01.29.24.01.20.01, 01.29.24.01.20.02, 01.29.24.01.20.03, 01.29.24.01.23.01
01.29.24.01.19.02	Perform Material Removal from Cells 3-5/Glove-boxes (1-14)	FY16	01.29.24.01.07.01, 01.29.24.01.11.04, 01.29.24.01.13.03, 01.29.24.01.15.02, 01.29.24.01.15.04, 01.29.24.01.15.05	01.29.24.01.20.01, 01.29.24.01.20.02, 01.29.24.01.20.03, 01.29.24.01.23.01
01.29.24.01.19.03	Perform Waste Hand. in Support of Decon/Mat. Rem., Cells 3-5 (1-14)	FY16	01.29.24.01.07.01, 01.29.24.01.11.04, 01.29.24.01.15.01, 01.29.24.01.15.03,	01.29.24.01.20.01, 01.29.24.01.20.02, 01.29.24.01.20.03, 01.29.24.01.22.01

Work Package #	Work Package Title	Year	Predecessor Work Package	Successor Work Package
			01.29.24.01.15.04	
01.29.24.01.20.01	Decon Cells 1-2 and Glove-boxes (1-14)	FY16	01.29.24.01.14.03, 01.29.24.01.16.01, 01.29.24.01.16.03, 01.29.24.01.16.04, 01.29.24.01.16.06, 01.29.24.01.19.01, 01.29.24.01.19.02, 01.29.24.01.19.03	01.29.24.01.23.01
01.29.24.01.20.02	Perform Material Removal from Cells 1-2/Glove-boxes (1-14)	FY16	01.29.24.01.14.03, 01.29.24.01.16.01, 01.29.24.01.16.03, 01.29.24.01.16.04, 01.29.24.01.16.06, 01.29.24.01.19.01, 01.29.24.01.19.02, 01.29.24.01.19.03	01.29.24.01.23.01
01.29.24.01.20.03	Perform Waste Hand. in Support of Decon/Mat. Rem., Cells 1-2 (1-14)	FY16	01.29.24.01.16.01, 01.29.24.01.16.02, 01.29.24.01.16.04, 01.29.24.01.16.05, 01.29.24.01.19.01, 01.29.24.01.19.02, 01.29.24.01.19.03	01.29.24.01.22.02
01.29.24.01.21.01	Perform Project Management (1-10, 1-14)	FY16	01.29.24.01.18.01	01.29.24.01.24.01
01.29.24.01.21.02	Perform 235-F S&M in Support of Deactivation (1-14)	FY16	01.29.24.01.18.02	N/A
01.29.24.01.21.03	Technology Development and Support (1-14)	FY16	01.29.24.01.18.03	N/A
01.29.24.01.22.01	Prepare/Issue Rev. 2 Deactivation Safety Basis (1-16)	FY17	01.29.24.01.17.01, 01.29.24.01.17.02, 01.29.24.01.23.01	01.29.24.01.23.02
01.29.24.01.22.02	Prepare/Issue Manual 1C Documentation	FY17	01.29.24.01.11.04, 01.29.24.01.19.03, 01.29.24.01.20.03, 01.29.24.01.23.02,	None
01.29.24.01.23.01	Re-Characterize Cells 1-5 (1-15, 1-16)	FY17	01.29.24.01.19.01, 01.29.24.01.19.02, 01.29.24.01.20.01, 01.29.24.01.20.02	01.29.24.01.22.01
01.29.24.01.23.02	Implement Rev. 2 Deact. Safety Basis and Verify Readiness	FY17	01.29.24.01.22.01	01.29.24.01.22.02
01.29.24.01.24.01	Perform Project Management (1-12, 1-15, 1-16)	FY17	01.29.24.01.21.01	None

Appendix I – Organizational Structure for Project Team Conducting Deactivation



Appendix J – Initial Listing of Project Risks and Opportunities

Note 1 – See Reference 10.79 for additional information (e.g., grading of identified risks, specifics regarding handling strategies, and determination of impacts) regarding project risks and opportunities.
Note 2 – For PFF-004, the Project Team identified the risk as "high," primarily due to a high probability of occurrence (considered "very likely"). For each of four expected occurrences, the Project Team envisions a two (2) week delay for manipulator repair/replacement, which equates to an eight (8) week delay over the life of the project. The Project Team currently accepts the risk because the Project Team will likely have the opportunity to assign workers to other cells undergoing deactivation so that the actual impact/delay to the project is negligible. The Project Team will monitor this risk as the deactivation project moves forward so as to better understand the actual impact/delay.
Note 3 – PFF-008 is considered a major scope change rather than a project risk. Therefore, the item is not addressed by Reference 10.79, and the cost estimate (Reference 10.33) includes no cost or schedule contingency for the item.

Listing of Risks to Be Managed by the Project Team

Risks & Opportunities (R&Os)		Initial Risk Level	Handling Strategy	Residual Risk Level
Identifier	**Description**			
PFF-001	During the life of the project, three Safety Basis revisions are planned. One is currently underway; appropriate resources have been applied and expected completion is 6-8 weeks. In FY15, a second Safety Basis change is needed where the revision incorporates lessons-learned from Cells 6-9 deactivation. A post deactivation Safety Basis that reflects the final deactivated condition of the facility will also be needed. There is a risk the personnel currently available for Safety Basis work may not be available each time the Safety Bases are needed. The results would be an idled team while awaiting approval and implementation of the Safety Basis.	Moderate	Accept	Moderate
PFF-002	DOE approves the Safety Basis revisions to support implementation at three milestones in the project. There is a risk that personnel currently available for Safety Basis work may not be available each time the Safety Bases are needed. Approval of the Safety Basis revisions and issuance of Safety Evaluation Report may be delayed.	Low	Accept	Low
PFF-003	Field work is dependent on support systems (ventilation, fire protection, breathing air, and lighting). There is a risk that support systems will fail (e.g., building ventilation). If this occurs, then field work will not start or, if in progress, will cease.	Moderate	Accept	Moderate
PFF-004	The removal of MAR from the cells is dependent on use of manipulators. One of the early goals is to repair or replace the manipulator where needed in the cells. The Project Team's goal is have at least one operable manipulator per most cells. If one of the manipulators fails, then MAR removal is delayed for that cell.	High	Accept (see Note 2 at beginning of table)	High
PFF-005	Deactivation tasks are performed under approved standard processes/ procedures for dealing with radioactive materials. There is a risk of accidental personnel uptake in these types of operations. Should this occur, downtime for investigation and cause resolution will occur.	High	Mitigate	Moderate

PFF-006	Deactivation tasks are performed under approved standard processes/ procedures for dealing with radioactive materials. There is a risk of inadvertent spread of contamination to multiple locations in these types of operations. Should this occur, downtime for causal analysis, problem resolution and cleanup will occur.	High	Mitigate	Moderate
PFF-007	The minimum Project Team is projected to be 9 for Deactivation Operations and 4 for Radcon. The team will be augmented by subcontractors, who have experience with the decontamination of plutonium glove boxes and/or handling of TRU wastes. There is a risk due to layoffs, retirement or funding that the minimum, experienced staff becomes unavailable. If this occurs, then the knowledge base is lost. Minimum staffing levels will not be maintained and decontamination and/or material removal work must stop until staff is up to the minimum level.	Moderate	Accept	Moderate
PFF-009	Removal of MAR is based on characterization and knowledge of glove boxes, cells and conditions within both. Unexpected conditions such as a necessity for size reduction may be encountered. Equipment may be difficult to remove due to configurations such as being welded in place versus bolted in place, and new tooling may be needed. The schedule may be impacted while determining and implementing the resolution.	Moderate	Accept	Moderate
PFF-010	MAR has been measured/assayed multiple times over the years with significant margin of error. The enhanced characterization is intended to improve accuracy of MAR measurement. There is a risk that an acceptable, accurate measurement cannot be achieved. If this occurs, then it will be difficult to prove success.	High	Mitigate	Low
PFF-011	As deactivation progresses, characterization results will be substantiated. There is a possibility that the Project Team will find a "pocket" of Pu-238 that was not accounted for in the Safety Basis.	Moderate	Accept	Moderate
PFF-013	Operations personnel are assigned to the deactivation project. Support personnel (e.g., mechanics, riggers, and trainers) are available but shared with other Site projects/operations. Competition for resources may occur due to priorities. Should this occur, then the schedule would be delayed due to unavailability of support personnel.	Moderate	Mitigate	Low
PFF-014	During process operations, a serious flaw/defect in the cells/glove boxes may be found that forces the Project Team to make a repair before proceeding with decontamination and/or material removal.	Moderate	Accept	Moderate
PFF-017	A deviation request will be submitted for the 1S Manual requirement regarding allowable grams Pu-238 per waste container. The deviation may not be approved. If this occurs, then the number of TRU containers needed for waste disposal will significantly increase.	Low	Accept	Low
PFF-021	The project depends on manipulators and other components in the warehouse to be available and operable. There is a risk the component will not be a readily available in operable condition as anticipated due to deterioration, shelf life limitations, etc. This would delay their installation and subsequent decontamination/material removal.	Moderate	Accept	Moderate

PFF-022	Deactivation tasks are performed under approved standard processes/ procedures for dealing with radioactive materials. There is a risk of an accidental contamination event where personal contamination and/or the assigned protection factor of respiratory equipment is exceeded. Should this happen, then downtime for investigation/cause resolution will occur.	Moderate	Accept	Moderate
PFF-025	Deactivation tasks are performed under approved standard processes/ procedures for dealing with radioactive materials. There is a risk of inadvertent loss of containment due to a broken cell or glove box window or panel. Should this occur, then downtime for causal analysis, problem resolution and cleanup will occur.	Low	Accept	Low

Listing of Other Risks Considered by the Project Team

Risks & Opportunities (R&Os)		**Disposition**
Identifier	**Description**	
PFF-008	The project is not geared to large scale D&R of the PuFF Facility or to the deactivation of other process areas (e.g., ABL, PEF and OML). There is some potential that the overall objective (worker mitigated dose is less than 100 rem) will not be met via the deactivation of just the PuFF Facility using reasonable means/methods. If this occurs, then it will require more extensive planning and control procedures than anticipated. This would effectively stop the project pending the receipt of additional funding & revision of all documents beginning with the Safety Basis.	Deleted, BCP Required (see Note 3 at beginning of table)
PFF-012	The decontamination process depends on timely success of all elements. There is a risk hold that MAR may be too difficult to get to or that strongly adhered material won't come off as anticipated	Combined with PFF-009
PFF-015	Component weights after disassembly are not known. There is a risk components are found to be heavier than the manipulator load limit. The result is down time to modify manipulators.	Avoided, project includes upgrades to manipulators
PFF-016	A post deactivation Safety Basis reflects the final deactivated condition of the facility. There is risk that at that time there may be a lack of Engineering resources to prepare the needed documentation.	Combined with PFF-001
PFF-019	Manipulators on this project are either repaired or replaced. Spares that have been in storage may not work properly. The schedule may be impacted while suitable parts are found.	Combined with PFF-021
PFF-020	DOE approves the final Safety Basis to support implementation. Approval of the final Safety Basis and issuance of a Safety Evaluation Report may be delayed. Then, close out of the deactivation project is delayed.	Combined with PFF-002
PFF-023	Components' weights after disassembly are not known. There is a risk that components are found to be heavier than the manipulator load limit. The result is down time to modify manipulators.	Combined with PFF-015 and avoided
PFF-024	Deactivation tasks are performed under approved standard processes/ procedures for dealing with radioactive materials. There is a risk of inadvertent spread of contamination in these types of operations. Should this occur, then downtime for causal analysis, problem resolution and cleanup will occur.	Combined with PFF-006