



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

April 28, 2020

Mr. Mike Annacone
Vice President, Columbia Fuel Operations and
Manager, Columbia Plant
Westinghouse Electric Company
5801 Bluff Road
Hopkins, SC 29061

SUBJECT: WESTINGHOUSE ELECTRIC COMPANY – NUCLEAR REGULATORY
COMMISSION INTEGRATED INSPECTION REPORT NUMBER 70-1151/2020-001

Dear Mr. Annacone:

This letter refers to an inspection conducted between January 1 and March 31, 2020, at the Westinghouse Columbia Fuel Fabrication Facility (CFFF) in Hopkins, SC. The purpose of the inspection was to determine whether activities authorized under the license and implementation of programs and procedures in the areas of Safety Operations and Facility Support were conducted safely and in accordance with Nuclear Regulatory Commission (NRC) requirements. The enclosed inspection report presents the results of this inspection. At the conclusion of the inspection, the inspectors discussed the findings with you and members of your staff during an exit meeting held on February 27, 2020.

Based on the results of this inspection, the NRC has determined that no violations of more than minor significance were identified.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of NRC's "Rules of Practice and Procedure," a copy of this letter and enclosure will be made available electronically for public inspection in the NRC Public Document Room.

A copy of this letter and enclosure will also be available from the NRC's Agencywide Documents Access and Management System (ADAMS), which is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions, please contact Tom Vukovsky of my staff at (404) 997-4622.

Sincerely,

/RA/

Eric C. Michel, Chief
Projects Branch 2
Division of Fuel Facility Inspection

Docket No. 70-1151
License No. SNM-1107

Enclosure:
NRC Inspection Report 70-1151/2020-001
w/Supplemental Information

cc: Distribution via LISTSERV®

SUBJECT: WESTINGHOUSE ELECTRIC COMPANY – NUCLEAR REGULATORY
 COMMISSION INTEGRATED INSPECTION REPORT NUMBER 70-1151/2020-001
 dated April 28, 2020

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 ATTACHED

OFFICE	RII:DFFI/PB2	RII:DFFI/PB2	RII:DFFI/PB2	RII:DFFI/PB1	RII:DFFI/PB1	RII:DFFI/PB2	RII:DFFI/PB2
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DATE	4/16/2020	4/16/2020	4/21/2020	3/6/2020	3/20/2020	3/29/2020	3/25/2020
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NAME	E. Michel						
DATE	4/28/2020						

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

INSPECTION REPORT

Docket No.: 70-1151

License No.: SNM-1107

Report No.: 70-1151/2020-001

Licensee: Westinghouse Electric Company

Facility: Columbia Fuel Fabrication Facility

Location: Hopkins, SC 29061

Dates: January 1 through March 31, 2020

Inspectors: P. Glenn, Fuel Facility Project Inspector, (Paragraph A.1)
K. Womack, Fuel Facility Inspector, (Paragraphs A.1)
M. Ruffin, Fuel Facility Inspector, (Paragraphs A.1)
P. Startz, Fuel Facility Inspector, (Paragraphs B.1, C.1.a)
G. Goff, Fuel Facility Inspector, (Paragraph B.2)

Approved by: E. Michel, Chief
Projects Branch 2
Division of Fuel Facility Inspection

Enclosure

EXECUTIVE SUMMARY

Westinghouse Electric Company
Columbia Fuel Fabrication Facility
Nuclear Regulatory Commission Integrated Inspection Report 70-1151/2020-001
January 1 through March 31, 2020

The inspection was conducted by Nuclear Regulatory Commission (NRC) regional inspectors during normal shifts in areas of safety operations and facility support. The inspectors performed a selective examination of license activities that were accomplished by direct observation of safety-significant activities and equipment, tours of the facility, interviews and discussions with licensee personnel, and a review of facility records. No violations of more than minor significance were identified during the inspection.

Safety Operations

- In the area of Fire Protection, no violations of more than minor significance were identified. (Paragraph A.1)

Facility Support

- In the area of Maintenance and Surveillance, no violations of more than minor significance were identified. (Paragraph B.1)
- In the area of Emergency Preparedness, no violations of more than minor significance were identified. (Paragraph B.2)

Other

- VIO 70-1151/2018-004-01, Failure to implement management measures for the Hydrofluoric Acid (HF) Spiking Station #2 was closed. (Paragraph C.1.a)

Attachment:

Key Points of Contact

List of Items Opened, Closed, and Discussed

Inspection Procedures Used

Documents Reviewed

REPORT DETAILS

Summary of Plant Status

The Westinghouse Facility converts uranium hexafluoride (UF₆) into uranium dioxide using a wet conversion process and fabricates fuel assemblies for use in commercial nuclear power reactors. During the inspection period, normal production activities were ongoing.

A. Safety Operations

1. Fire Protection (Triennial) (Inspection Procedure 88054)

a. Inspection Scope

The inspectors reviewed selected aspects of the licensee's fire protection program to determine whether the licensee established an effective program capable of precluding or mitigating the consequences of a fire in accordance with the requirements of 10 CFR 70.61 and commitments in Chapter 8 (Fire Safety Program) of the license application. The inspectors reviewed pre-fire plans in the following areas to verify that any changes made were consistent with the facility fire hazard analysis (FHA):

- UF6 Bay & Hot Oil Room Area
- ADU Conversion/Scrap Recovery/Bulk Blending Room/Maintenance/Powder Storage
- ADU Pelleting Area
- URRS SOLX, Incinerator, and Dissolvers
- UF6 Storage Pad Area & Recycle Area

The inspectors also reviewed pre-fire plans for the previously stated areas to verify the licensee followed the requirements in SYP-311, "Pre-Fire Plans."

The inspectors toured selected plant areas, including pelleting, Integral Fuel Burnable Absorber (IFBA), and Burnable Absorber Expansion System (ERBIA), to verify that flammable materials were stored in marked cabinets and that housekeeping and the control of transient combustible materials were consistent with approved procedures. The inspectors reviewed flammable liquid cabinets, combustible storage areas, waste collection, exit pathways, and flammable gas storage and handling to verify that procedures and requirements, as applicable, were met as required. The inspectors reviewed records, observed a hot work activity, and interviewed staff to verify that the hot work permit program controlled ignition sources and was implemented in accordance with approved procedures.

The inspectors reviewed licensee procedures and toured plant areas containing safety significant equipment and items relied on for safety (IROFS) to assess the material condition of passive fire protection equipment, systems, and features to verify that fire dampers, doors, and penetration seals were being maintained in a condition that would ensure they were available and reliable to perform their safety function as required. The inspectors reviewed inspection and testing work orders (WO) of fire doors, dampers, and barriers to verify that each would perform their intended safety function.

The inspectors walked down sprinkler systems and fire pumps, reviewed water supply calculations, and interviewed licensee personnel to verify the fire suppression systems were maintained as designed and outlined in the FHA.

The inspectors reviewed surveillance and testing records to verify the systems were inspected and tested in accordance with the National Fire Protection Association (NFPA) 25 standard. In addition, the inspectors performed plant walk downs to verify fire hoses, portable extinguishers, fire hydrants, and other manual firefighting equipment were provided at their designated locations and access was unobstructed.

The inspectors observed fire alarm system testing, and reviewed records to verify the fire alarm system was operable and was tested in accordance with the FHA and NFPA 72. The inspectors reviewed the licensee's fire protection system impairment records to verify that compensatory measures had been put in place for out-of-service, degraded, or inoperable fire protection equipment, systems, or features in accordance with licensee procedures.

The inspectors toured plant areas and reviewed the licensee's fire hazard analysis, change configuration procedure, and forms to verify whether the program considered the impact of fire suppression agents and activities on nuclear criticality safety as required. The inspectors also reviewed the FHA and interviewed staff to verify the licensee's fire protection program considered and evaluated hazardous materials that if impacted by fire could present increased radiological and or chemical exposures as required by Chapter 8 of the license application.

The inspectors reviewed required communications systems such as radios to verify that the licensee's program and procedures would ensure that communication equipment would be available and operable for their required performance in fire response activities. Additionally, the inspectors reviewed the FHA to verify the equipment would not be affected by a credible fire in the selected areas reviewed.

The inspectors reviewed fixed emergency lighting to determine whether the equipment was being maintained in accordance with license commitments and procedures. The inspectors reviewed battery-powered backup lighting units to verify that they were provided and maintained at required locations including response and assembly support pathways and areas.

The inspectors reviewed the licensee's corrective action program entries for the past nine months to verify that the licensee was identifying safety significant equipment and IROFS fire protection operability issues, entering them into the corrective action program, and evaluating and correcting them in accordance with Section 3.8 of the license application. The inspectors reviewed the results of internal and external audits of the fire protection program to verify that the licensee conducted periodic audits as required by Section 8.1.10 of the license application. The inspectors interviewed licensee staff to verify that the licensee ensured audit effectiveness.

The inspectors interviewed licensee staff and reviewed records to determine whether the fire protection program's organizational structure was in accordance with the license. The inspectors also reviewed the fire protection organization's structure to verify that the organization met the requires of chapter 2 and 8 of the license application.

The inspectors interviewed select operators and supervisors to verify that the licensee provided fire related IROFS training for specific job functions in addition to general fire safety training as required by procedures and commitments in Chapters 8 and 3 (Conduct of Operations) of the license application.

b. Conclusion

No violations of more than minor significance were identified.

B. Facility Support

1. Maintenance and Surveillance of Safety Controls (Inspection Procedure 88025)

a. Inspection Scope

The inspectors evaluated selected aspects of the licensee's maintenance and surveillance program to verify compliance with selected portions of 10 CFR Part 70, Chapter 3 of the facility's license application, and applicable procedures. Specifically, the inspectors performed document reviews and observed maintenance and surveillance field activities for safety significant controls and related ongoing production project activities to ensure that items relied upon for safety (IROFS) remained reliable and available to perform their safety function when needed as required by regulatory requirements and paragraph 3.2 of the license application.

The inspectors also reviewed the licensee's work control program to verify that maintenance and surveillance activities were conducted in accordance with licensee procedures listed in the Attachment to this report. The licensee's work control program was reviewed to determine if it included pre-job planning, preparation of work orders, and implementation of work practices involving activities conducted within the facility. The inspectors observed a maintenance shift turnover meeting and a pre-job briefing for maintenance activities to determine compliance with the provisions of the work control program. The inspectors reviewed samples of normally scheduled maintenance and surveillance work orders and surveillance test packages (see Attachment to this report) for accuracy and to ensure they challenged and verified operability of IROFS and safety controls.

Inspectors concentrated efforts on licensee preventative maintenance (PM) testing and calibration activities of IROFS related to uranium powder preparations, uranium pellet pressing, and management of swarf powder from pellet grinding operations. The reviews included a sample of the following active and passive IROFS to evaluate their compliance with license conditions. The IROFS were related to the prevention, detection, and alarms designed to limit the accumulation of uranium powder in moderation-controlled area processes and adjacent pellet grinding operations.

- PELPREP-105, MODCON enclosure collection system level probe interlock
- PELPREP-106, Powder lift Drexelbrook level probe interlock
- PELPREP-107, Powder lift Endress-Houser level probe interlock
- PELGRIND-103, Grinder bowl feeder collection pack level probe interlock
- PELPREP-910, Container not in place interlock
- PELPREP-911, Inflatable seal low pressure interlock
- PELPREP-912, Inflatable seal high pressure interlock
- PELPREP-914, Powder lift door interlock shall prevent the lift from operating unless all doors are closed

The inspectors observed several examples of maintenance work activities on systems and processes to verify that work activities were conducted in accordance with the license application, licensee procedure SYP-203, "Isolation of Hazardous Energy," and other work control procedures listed in the Attachment. Specifically, the inspectors

observed the replacement of concrete pedestals that support uranium hexafluoride (UF6) vaporizer vessels. The inspectors reviewed multiple work orders, supporting documents including drawings, pre-job briefings, confined space entry permits, and the lock-out tag-out of various sources of energy and chemicals associated with this project. Additionally, the inspectors reviewed the condition and preparation of the UF6 vaporizer vessels that had been lifted from the below-ground concrete vaults and the associated process piping. Inspectors also inspected the presence of steel armor for protection of the IROFS UF6 shut-off valves mounted to the side of each vaporizer vessel to verify seismic-related IROFS requirements.

The inspectors conducted interviews of maintenance staff and supervisors to verify that select work activities were conducted safely in accordance with license requirements and licensee procedures (see Attachment to this report). The inspectors reviewed work instructions and related drawings to verify completeness and accuracy. The inspectors also reviewed work packages for inclusion of post maintenance test requirements to verify the expected operability of the equipment after completion of work.

The inspectors interviewed a cross section of licensee staff regarding the current training status for maintenance technicians that perform maintenance on safety related equipment including IROFS to verify compliance with the training and qualification requirements for those workers, as required by section 3.4.1 "Training and Qualification Structure" of the license application.

The inspectors reviewed the results of internal and external audits of the licensee's compliance program, including EHS-AUDIT-19-3 completed on March 6, 2019, for compliance with auditing requirements described in paragraph 3.6.1 "Audits and Assessments Program Structure" of the license application.

Inspectors also reviewed the licensee's corrective action program (CAP) to verify that performance issues relating to the maintenance and surveillance of IROFS were entered into the CAP or the similar "Redbook" incident reporting database as required by section 3.7 "Incident Investigations" and section 3.8 "Corrective Action Process" of the license application.

b. Conclusion

No violations of more than minor significance were identified.

2. Emergency Preparedness (Inspection Procedure 88050)

a. Inspection Scope and Observations

The inspectors reviewed the licensee's Emergency Preparedness program to verify compliance with 10 CFR 70, the condition of the license (S-2 of SNM-1107), Chapter 9 of the license application, and the Site Emergency Plan.

The inspectors interviewed licensee staff and reviewed documentation revisions to verify that changes to the Emergency Preparedness (EP) program did not decrease the effectiveness of the Site Emergency Plan (SEP). The inspectors also reviewed changes made to the EP program to verify they met the current license condition and to determine whether the licensee had a system for reviewing and updating the SEP and the implementing procedures on a required frequency.

The inspectors observed the storage of emergency response documentation and equipment in Conference Room 200, the Emergency Response Facility, the Pavilion, the Gate 1 Guard Station (HP Emergency Cabinet), and the Entry Control Point to verify that this documentation and equipment were maintained as required. Specifically, the inspectors verified that the documentation was current, and that emergency response equipment was within calibration.

The inspectors reviewed the SEP to verify that firefighting precautions for nuclear criticality safety (NCS) were included in emergency responses and coordinated with off-site agencies. The inspectors also reviewed documents to verify reentry and recovery actions to areas following an emergency event/evacuation are governed in accordance with procedure and the SEP. The inspectors also reviewed procedures (listed in the Attachment) and walked down the emergency evacuation routes and assembly areas/muster locations to determine compliance with the SEP.

The inspectors reviewed training records and interviewed licensee staff regarding emergency preparedness training in the past year to verify the licensee provided training for designated emergency response personnel in accordance with the SEP. The inspectors also reviewed training topics and records for fire brigade members to verify that the training complied with the SEP.

The inspectors reviewed the letters of agreements memorandums of understanding (MOUs) with the off-site agencies to verify that the organizations designated in the SEP had up-to-date agreements as required. The inspectors reviewed records to verify that the licensee invited the off-site organizations for exercises and drill participation as described in the SEP. The inspectors verified that this training included special firefighting instructions, orientation tours, and refresher training. The inspectors interviewed off-site response personnel at the Columbia Fire Department Station 23 and Prisma Health-Midlands to verify these organizations understood their role as per the MOUs. The inspectors also reviewed records of quarterly communication checks to verify compliance with the SEP.

The inspectors reviewed documentation of events that have occurred since the last EP inspection that required the implementation of the Emergency Plan to verify that problems or deficiencies associated with the Emergency Plan or implementing procedures were corrected. The inspectors reviewed corrective action entries (listed in the attachment) from the most recent biennial exercise to verify that findings and recommendations were addressed in the licensee's CAP.

The inspectors also reviewed a chemical area safety significant control sketch to verify that the licensee complied with the EPA's Emergency Planning and Community Right-to-Know Act of 1986 as required the SEP.

b. Conclusion

No violations of more than minor significance were identified.

C. Other Areas

1. Follow-up on Previously Identified Issues (Inspection Procedure 92702)

- a. [CLOSED] VIO 70-1151/2018-004-01, Failure to implement management measures for the Hydrofluoric Acid (HF) Spiking Station #2 (Inspection Report 2018-004, ML18278A197).

In a follow-up to the inspection discussion in Inspection Report 2019-005 (ML20028D930), the inspectors verified that the licensee developed and implemented periodic work orders that listed inspection procedures for evaluating the performance of the floor coating in the dike area of spiking station #2 and for the integrity of the structural frame, PMs 81295 and 81296, respectively.

The inspectors also noted that the licensee implemented a two-part corrective action to ensure improved compliance with Interim Compensatory Measures (ICM) used throughout the production facility. The first part of the corrective action includes a new ICM verification log (draft Form CF-81-101, Revision 0) that is designed to verify that assigned compensatory measures are in place. The second part of the corrective action includes an auto-generated operational maintenance (OM) form that requires the submission of the new ICM log/form as an overcheck. The licensee's maintenance management system (MMS) software will automatically generate the form (OM81865), track completed ICM forms entered into the MMS, and will alert personnel to any late and or missing OM81865 forms that are not submitted or entered into the MMS on time.

The inspectors verified that corrective actions taken by the licensee detailed in their reply to the Notice of Violation in letter dated November 2, 2018 (ML18306A273) were adequate. This item is considered closed.

D. Exit Meeting

The inspection scope and results were presented to members of the licensee's staff at various meetings throughout the inspection period and were summarized on February 27, 2020, to M. Annacone and staff. Proprietary information was discussed but not included in the report.

SUPPLEMENTAL INFORMATION

1. KEY POINTS OF CONTACT

<u>Name</u>	<u>Title</u>
G. Adams	Corporate Fire Protection Engineer
S. Armstrong	Engineering Manager
R. Bates	Maintenance Supervisor
K. Black	Incident Commander
G. Byrd	Licensing Engineer
S. Carver	EP & Fire Brigade Manager
M. Galager	Engineering
S. Higgins	Incident Commander
R.A. Marscher	Business Support Associate for the EOC
D. Parente	Design/Plant Mod Engineer
L. Wiedel	Health Physics Technician
J. Williams	Fire Protection Engineer

Other licensee employees contacted included engineers, technicians, production staff, and office personnel.

2. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

70-1151/2018-004-01 VIO	Failure to implement management measures for Hydrofluoric Acid (HF) Spiking Station #2 (Section C.1.a)
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3. INSPECTION PROCEDURES (IP) USED

88025, Maintenance and Surveillance of Safety Controls
88050, Emergency Preparedness
88054, Fire Protection (Triennial)
92702, Follow-up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, Confirmatory Orders, And Alternative Dispute Resolution Confirmatory Orders

4. DOCUMENTS REVIEWED

Records:

2019, SEPF-004-10, Monthly Inspection of Emergency Radios and Telephones (June – December)
2019, SEPF-004-12, AED Check List, December only
2019, SEPF-004-13, Inspections of First Responder O₂ Bags (Check List), December only
2019, SEPF-004-14, Suggested Minimum Contents Inventory List for Trauma Bags (Check List), December only
2019, SEPF-004-16, Hose House Equipment Check List, December only
2019, SEPF-004-17, First Responder/Brush Truck Inventory Sheet, December only
2019, SEPF-004-19, Fire Engine Inventory Sheet Compartment Layout, December only
2019, SEPF-004-2, Emergency Response Van Inventory Sheet (December only)

2019, SEPF-004-3, Fire Engine Inventory Sheet Compartment Layout (June – December)
 2019, SEPF-004-6, S.C.B.A. Inspection, December only
 2019, SEPF-004-7, Rescue Jump Bag Checklist (December only)
 2019, SEPF-004-1, HAZMAT/Special Ops Truck Inventory Records (June – December)
 2020, SEPF-004-1, HAZMAT/Special Ops Truck Inventory Records (January & February)
 2020, SEPF-004-3, Fire Engine W1 Inventory Records (January & February)
 CAF-300-01, Trainee/Meeting Attendance Roster, EOC Initial Training, August 26, 2019
 Confined Space Permit, Vaporizer Bay, Conversion Trench CN2 & CN3, Piping installation, supports work order 876397/876393, effective February 26, 2020 8:00am
 EHS-AUDIT-17-4, Fire Protection Program Audit Report, dated April 20, 2017
 EHS-AUDIT-19-3, Formal Compliance Audit, dated 3-5-19
 FHA-13-001, Fire Hazards Analysis for Columbia Fuel Fabrication Facility, Rev. 2
 Fire Watchman Training Records (Various Employees)
 HWP-2020-0230, Hot Work Permit, dated 2-26-2020
 MOUs: Westinghouse and PRISMA Health-Midlands (medical treatment for radioactively contaminate patients), 05/15/2019
 OM82000, Master, SI-Safety, Safety Significant Controls, Pellet, June 6, 2019
 Pre-job briefing CAF-060-02, Conversion UF6 Trench CN2 & CN3, 2/26/2020
 RA-104, Regulatory Review of Configuration Change Authorization, dated 10-28-18
 ROF-07-001-2, Check List for Health Physics Response To Contaminated Injury/III Victim, Revision 7
 ROF-07-001-9, EHS Operations Emergency Equipment – HP Lab, Revision 2
 SEPF-013-01, Post Incident Analysis (PIA), Revision 5
 Sketch 829013-1, Sketch: Pellet Area Safety Significant Control, Revision 75
 SYP-306-5, Fire Protection Impairment Form, Rev. 1, dated 10-12-17
 Westinghouse and Columbia Fire Department, 05/21/2018
 Westinghouse and National Nuclear Security Administration, 02/23/2018
 Westinghouse and Richland County Sheriff's Department, 07/17/2017
 Westinghouse and SCDHEC, SCEMD, 05/16/2019
 Westinghouse & Richland County Emergency Services Department, 04/26/2018
 WO765550, PM20149, dated 4-27-17
 WO786120, PM20021, dated 2-13-18
 WO801811, PM20149, dated 4-25-18
 WO811524, PM20013, dated 7-25-18
 WO826960, PM20013, dated 12-19-18
 WO826991, PM20195, dated 3-11-19
 WO828399, PM20236, dated 4-15-19
 WO832646, PM20143, dated 2-13-19
 WO835029, PM20014, dated 5-29-19
 WO836028, PM20236, dated 3-22-19
 WO838498, PM20236, dated 4-22-19
 WO839825, PM20149, dated 4-18-19
 WO839889, PM20236, dated 4-18-19
 WO839890, PM20236, dated 4-20-19
 WO839891, PM20236, dated 4-18-19
 WO841660, PM20236, dated 5-8-19
 WO844050, PM20012, dated 8-14-19
 WO844905, PM20013, dated 9-11-19

WO850903, PM20229, dated 9-8-19
 WO854183, PM20002, dated 10-24-19
 WO861342, PM20189, dated 12-19-19
 WO862287, PM20910, dated 11-26-19
 WO865802, PM20215, dated 2-6-20
 WO865803, PM20215, dated 2-6-20
 WO865804, PM20215, dated 2-6-20
 WO865808, PM20258, dated 12-16-19
 WO871100, PM20009, dated 2-3-20
 WO871147, PM20511, dated 2-10-2020
 WO871948, PM20011, dated 2-11-20
 WO872226, PM20916, dated 2-24-20
 WO874347, PM20081, dated 2-24-20
 WO874348, PM20081, dated 2-24-20
 WO874515, PM20254, dated 2-24-20
 WO874516, PM20254, dated 2-24-20
 Work Order 832733, SSC, SC0110, Moisture Sampler Sensor Test, March 3, 2019
 Work Order 851028, SSC, C0109 Tag C109, Calciner Front End
 Seal, September 9, 2019
 Work Order 876270, Install new vaporizer piers, 201B, 201C, 301A, 301B, CCF20074
 Work Order 876397, Steam Chest 0301B Installation, VAP0301B
 Work Order 840328, IROFS/SSC-ADUSCR-107, Scrubber Tank Thickness
 Inspection, June 4, 2019
 Work Order 876393, Steam Chest 201B Installation, VAP0201B

Procedures:

COP-822516, Pellet Area Fire Watch, Rev. 4, dated November 3, 2005
 COP-874085, IFBA Watchman, Rev. 2, dated February 14, 2018
 MCP-108000, Preventive Maintenance, Revision 23
 MCP-108103, Maintenance Work Order Handling, Revision 34
 MCP-108103, Maintenance Work Order Handling, Revision 43
 MCP-202046, Pressure and Differential Pressure Transmitters, Generic, Revision 7
 MCP-202058, Limit/Trip/Interlock/Alarm Switches, Generic, Revision 3
 PM20002, Safety – Sprinkler System – 52 Week PM, dated September 10, 2018
 PM20009 Safety – Sprinkler System – 4 Week PM, dated January 13, 2020
 PM20010 Safety – Sprinkler System – 13 Week PM, dated September 10, 2018
 PM20012 Safety – Fire Extinguisher Maintenance – 52 Week PM, dated August 17, 2018
 PM20013, Fire Extinguisher Systems, Inergen and Kitchen Hood Ansul 102 Wet
 System, Data Center – 26 Week PM, dated March 28, 2018
 PM20014 Fire Hose Check – 52 Week PM, dated August 17, 2018
 PM20020 Sprinkler System Riser Gauges - 260 Week PM, dated August 20, 2018
 PM20021 Fire Hose Check – 156 Week PM, dated February 14, 2018
 PM20027 Fire Protection Loop Flow Test – 260 Week PM, dated May 17, 2018
 PM20081 Fire Pump – Weekly PM, dated June 28, 2018
 PM20082 Safety – Fire Pump 1 – 52 Week PM, dated November 21, 2019
 PM20083 Safety – Fire Pump 2 – 52 Week PM, dated November 20, 2019
 PM20084 Fire Pump House Check Valve – 260 Week PM, dated May 9, 2019
 PM20143, Door Closer-Holder with Smoke Detector Inspection: One – 52 Week PM,
 dated May 9, 2019
 PM20149, Door Closer-Holder with Smoke Detector Inspection: Two – 52 Week PM,
 dated May 9, 2019

PM20189, SI- Safety, Fire Alarm System, SSC Alarms Only – 13 Week PM, dated April 9, 2019

PM20195 Fire Alarm System, Chemical Area and Map Line – 52 Week PM, dated October 23, 2017

PM20197 Fire Alarm System, Mechanical Area – 52 Week PM, dated October 30, 2017

PM20199 Fire Alarm System, Roof and Outside Areas – 52 Week PM, dated December 31, 2019

PM20201 Fire Alarm Systems – 26 Week PM, dated March 28, 2018

PM20203 Fire Alarm Systems – 26 Week PM, dated April 21, 2017

PM20214 Safety – Fire Pump -156 Week PM, dated August 20, 2018

PM20215 Fire Alarm, Pull Station – Check – Weekly PM, dated December 21, 2019

PM20216 Main Drain Test – 52 Week PM, dated September 10, 2018

PM20217 Fire Alarm, Sound Check – 52 Week PM, dated May 21, 2019

PM20218 Fire Alarm, Sound Check – 52 Week PM, dated May 21, 2019

PM20219 Fire Alarm, Sound Check – 52 Week PM, dated May 21, 2019

PM20220 Fire Alarm, Sound Check – 52 Week PM, dated May 21, 2019

PM20221 Fire Alarm, Sound Check – 52 Week PM, dated May 21, 2019

PM20227, Safety – Ground Strap Check, 260 Week PM

PM20237 Riser Water Bell Alarm Test – 13 Week PM, dated January 20, 2020

PM20245 Fire Water Tank #1 & #2 Internal Inspection – 260 Week PM, dated May 8, 2018

PM20254 Fire Water Tank Inspection – Weekly PM, dated June 3, 2019

PM20255 Fire Water Tank Inspection – 4 Week PM, dated June 3, 2019

PM20256 Fire Water Tank Inspection – 52 Week PM, dated June 3, 2019

PM20791 Sprinkler System Inspection – 52 Week PM, dated May 9, 2019

PM20910 Annual Hydrant Flow Test – 52 Week PM, dated August 5, 2019

PM20911 Fire Sprinkler Head Testing – 520 Week PM, dated August 5, 2019

PM20912 Water Based and Dry System Fire Control Riser valve — Week PM, dated January 13, 2020

PM20915, Fire Door(s) without Holders – 52 Week PM

PM20916 Quarterly Water – Based and Dry Inspection Sprinkler Inspection – 13 Week PM, dated January 13, 2020

PM81295, HF Spiking Station #2 Coated Secondary Containment Inspection – 26 Week PM

PM81296, HF Spiking Station #2 Support Frame Inspection – 52 Week PM

QA-004, Equipment and Process Qualifications and/or Verifications, Revision 41

RA-106, Regulatory Component Audits at the Columbia Fuel Fabrication Facility, Revision 39

RA-108, Safety Significant Controls, Revision 40

RA-123, Qualification of Regulatory Component Audit Personnel, Revision 10

SEP-001, Emergency Response Organization (ERO), Revision 8

SEP-002, Classification, Revision 6

SEP-004, Emergency Equipment and Supplies, Revision 14

SEP-005, Evacuation, Emergency Shelter, Accountability and General Response, Revision 11

SEP-009, Emergency Response Organization Check Sheets, Revision 17

SYP-112, Hydrogen & Natural Gas Safety, Rev. 0, dated February 27, 2018

SYP-203, Isolation of Hazardous Energy, Revision 27

SYP-207, Cutting Welding, and Hot Work, Rev. 36, dated November 27, 2019

SYP-300, Housekeeping, Rev 28, dated December 5, 2019

SYP-303, Portable Fire Extinguisher Inspection and Maintenance, Rev. 12, dated August 1, 2018

SYP-305, Fire Watch Safety, Rev. 10, dated January 24, 2019
SYP-306, CFFF Fire / Criticality System Impairment, Rev. 17, dated March 28, 2019
SYP-311, Pre-Fire Plans, Rev. 9, dated May 23, 2019
TA-500, Columbia Manufacturing Plant Configuration Control, Revision 38
WM-001, Work Management Process, Revision 1
WM-002, Deficiency Identification and Reporting, Revision 38

Incident Reports Written as a Result of the Inspection:

IR-2020-2870, Documented Comments/Items Identified by NRC during
IP 88054 Inspection, Originated February 27, 2020
IR-2020-2879, Documented Comments/Items Identified by NRC during
IP 88054 Inspection, Originated February 27, 2020
IR-2020-2793, Documented Comments/Items Identified by NRC during
IP 88050 Inspection, Originated February 25, 2020

Incident Reports and Redbooks Reviewed:

IR-2019-11027
IR-2019-17958
IR-2019-5119
IR-2019-7983
IR-2019-7994
RB 75016
RB 75369
RB 75475
RB 75486
RB 75501
RB 75512
RB 75562
RB 75568
RB 75593

Other Documents:

Annual Fire Pump Capacity Test Data, dated November 12, 2019
Audit EHS-AUDIT-19-3, Formal Compliance, ADU/Conversion (ISA 3), February 2,
2019 to March 2019
Building Pre-Plan: ADU Conversion/ Scrap Recovery/ Bulk Blending Room/
Maintenance / Powder Storage
Building Pre-Plan: ADU Pelletting Area
Building Pre-Plan: Fire Pump House 1
Building Pre-Plan: Fire Pump House 2
Building Pre-Plan: Product Development Test Lab
Building Pre-Plan: UF6 Bay & Hot Oil Room Area
Building Pre-Plan: UF6 Storage Pad Area & Recycle Area
Building Pre-Plan: UF6 Storage Pad Expansion
Building Pre-Plan: URRS SOLX, Incinerator, & Dissolvers
CF-87-011, IFBA Watchman Checklist, Rev. 2, dated 03-23-17
Columbia Fire Department Westinghouse Tour (PowerPoint), undated

Drawing 335F01P101, Sheet 1, P&ID ADU Line #2, UF6 Vaporization, Revision 18
Drawing 336F01P101, Sheet 3, P&ID ADU Line #3, UF6 Vaporization, Revision 15
DWG 613F01AR01
Dwg No 500F03AR01, Rev 9

DWG 510F05EL03: Battery Powered Emergency Lighting Chemical Area, Rev. 6

Electrical Panel Schedule Loading Tables: Outside Emergency Lights (Sheet 623)
Rev.17

Electrical Panel Schedule Loading Tables: Chemical Area Emergency Units and
Lights (Sheet 623) Rev.17

Emergency Operations Center Refresher Training, TRN-095

EOC Initial Training PowerPoint slides, 2019

FHA-13-001 (Appendix CHEM-07), Fire Hazard Analysis: Erbia Process Area, Rev. 0

FHA-13-001 (Appendix CHEM-02), Fire Hazard Analysis: ADU Process Area, Rev. 0

FHA-13-001, Fire Hazard Analysis, Rev. 2

Fire Watch and Hot Work Permits Training Presentation

General Fire Protection (Section 4 and 6) and Housekeeping (Section 8) Training

Off-Site Training Packages for Columbia Fire Department and SCDHEC (PowerPoint),
2020

Pre-Fire Plans

Pump 1 Flow Test Data (2019)

Pump 2 Flow Test Data (2019)

RA-108-04, General – Entire Chemical Area Safety Significant Control
Sketch (Excerpt), Rev. 55, dated 2-6-2020

ROF-07-001-2, Checklist for Health Physics Response to Contaminated Injury/Ill Victim
Site Emergency Plan, Revision 20, January 20, 2020

SYF-207-1, Hot Work Permit, Rev. 7, dated 7-18-19

SYF-300-2, Housekeeping Inspection, Rev. 0, dated 6-6-18

Westinghouse Emergency Response Organization Charts

Westinghouse Internal Assessment Report WEC-17-165 Revision 0