



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

EN55911

October 28, 2022

Annette Pope
Plant Manager
Westinghouse Electric Company
5801 Bluff Road
Hopkins, SC 29061

SUBJECT: WESTINGHOUSE COLUMBIA FUEL FABRICATION FACILITY – INTEGRATED
INSPECTION REPORT 07001151/2022003

Dear Annette Pope:

This letter refers to the Nuclear Regulatory Commission inspection activities conducted from July 1, 2022 to September 30, 2022 for the Westinghouse Columbia Fuel Fabrication Facility. On July 21, 2022 and September 15, 2022 the NRC inspectors discussed the results of these inspections with you. The results of these inspections are documented in the enclosed report.

No violations of more than minor significance were identified during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

A handwritten signature in blue ink, appearing to read "ECM", is located below the word "Sincerely,".

Signed by Michel, Eric
on 10/28/22

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

Docket No. 07001151
License No. SNM-1107

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: WESTINGHOUSE COLUMBIA FUEL FABRICATION FACILITY – INTEGRATED
INSPECTION REPORT 07001151/2022003 Dated October 28, 2022

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number: 07001151

License Number: SNM-1107

Report Number: 07001151/2022003

Enterprise Identifier: I-2022-003-0056

Licensee: Westinghouse Electric Company

Facility: Westinghouse Columbia Fuel Fabrication Facility

Location: Hopkins, SC

Inspection Dates: July 18-21, 2022, and September 12-15, 2022

Inspectors: L. Cooke, Fuel Facility Inspector
G. Goff, Fuel Facilities Inspector
J. Gwo, Systems Performance Analyst (subject matter expert)
J. Rivera Ortiz, Sr. Fuel Facility Project Inspector
T. Sippel, Sr. Fuel Facility Projects
C. Taylor, Sr. Fuel Facility Project Inspector
T. Vukovinsky, Sr. Fuel Facility Project Inspector
N. Peterka, Fuel Facility Inspector

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

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Westinghouse Columbia Fuel Fabrication Facility, in accordance with the fuel cycle facility inspection program. This is the NRC's program for overseeing the safe operation of licensed fuel cycle facilities. Refer to <https://www.nrc.gov/materials/fuel-cycle-fac.html> for more information.

List of Violations

No violations of more than minor significance were identified.

Additional Tracking Items

None.

PLANT STATUS

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

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Inspections were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2600, "Fuel Cycle Facility Operational Safety and Safeguards Inspection Program." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

SAFETY OPERATIONS

IP 88015 - Nuclear Criticality Safety

The inspectors evaluated selected aspects of the licensee's Nuclear Criticality Safety program to verify compliance with selected portions of 10 CFR 70, including 70.61, 70.62, and Appendix A, Chapter 6, "Nuclear Criticality Safety (NCS) Program," of the facility's license application, and applicable licensee procedures.

Criticality Analysis (IP Section 02.01)

The inspectors interviewed licensee staff and reviewed nuclear criticality safety evaluations (CSEs), and associated assumptions and calculations, to verify compliance with 10 CFR 70 and applicable chapters of the license application. Specifically, the inspectors interviewed licensee staff and reviewed the following CSEs:

- CSE-3-H, "Conversion Lines Oil Dryers and Bucket Elevators," Revision (Rev.) 11, including the review of what-if analysis, normal, credible abnormal, and non-credible accident sequences, as well as reviewing the basis for why the licensee screened certain accident sequences as non-credible
- CSE-4-I, "Criticality Safety Evaluation (CSE) for Processing Ash from 55-gallon Drums," Rev. 0, including the review of what-if analysis, normal, credible abnormal, and non-credible accident sequences
- CSE-14-B, "Criticality Safety Evaluation (CSE) for Integral Fuel Burnable Absorber (IFBA) Coaters," Rev. 10, including the review of what-if analysis, normal, credible abnormal, and non-credible accident sequences
- CN-CRI-06-34, "Hot Oil Dryer," Rev. 2, which was reviewed because it contained a variety of calculations and information supporting the licensee's evaluation of criticality accident sequences and IROFS in CSE-3-H
- CN-CRI-07-01, "Conversion Line K-Tron Recycle Feeders," Rev. 1, which was reviewed because it contained a variety of calculations and information

supporting the licensee's evaluation of criticality accident sequences and IROFS in CSE-3-H

Criticality Implementation (IP Section 02.02)

The inspectors selected engineered and administrative controls from the licensee's integrated safety analysis (ISA) summary to verify proper implementation through a review of process and system descriptions, plant walkdowns, and operator and engineer interviews to verify compliance with 10 CFR 70 and applicable chapters of the license application. Specifically, the inspectors interviewed licensee staff and reviewed the following controls, and their management measures, from the CSEs listed above:

- passive engineered geometry control IROFS ADUDRY-102, ADUELV-101, ADUELV-102, ADUDPXV-101, ADUDPXV-102, ADUCOND-101, and ADUKTRN-103 were inspected visually and records of geometry verification (RAF-314-1, "Criticality Safety Evaluation (CSE) Implementation Plan") were reviewed for CSE-3-H
- administrative geometry control IROFS ADUKTRN-101, and NCS Posting CONV08 and operating procedure COP-810910
- administrative mass control IROFS ADUKTRN-102, and NCS Posting CONV08 and operating procedure COP-810910
- administrative moderator control IROFS ADUKTRN-104, and NCS Posting CONV08 and operating procedure COP-810910
- passive engineered mass control IROFS ADULEAK-101, and work order (WO) 114860 that was performed to verify its condition
- administrative moderator control IROFS ADUFIRE-902, and procedure SEPF-009-6, "Command Check Sheet - Fire Response Westinghouse Nuclear Fuel Columbia, SC," Rev. 11, as well as "Westinghouse Emergency Response Organization Site Emergency Plan Refresher Training" and "Columbia Fire Department Westinghouse Tour 2022"
- administrative mass control IROFS ADUELV-901, and operating procedures COP-815415 and COP-812701, and CF-81-015 forms
- WO 84681 and 87183, which implemented inspections of the ADU Dryer

Criticality Operational Oversight (IP Section 02.03)

The inspectors assessed the NCS staff's oversight of plant operators, procedures, and operations of systems involving special nuclear material to verify compliance with 10 CFR 70 and applicable chapters of the license application. Specifically, the inspectors performed the following activities:

- observed a licensee NCS engineer conduct a weekly Facility Walkthrough Assessment (FWA) and reviewed a sample of recent FWA reports
- interviewed ADU Conversion area operators concerning criticality hazards and control methods, including the use/implementation of IROFS ADUELV-901, ADUKTRN-101, ADUKTRN-102, ADUKTRN-104, and ADUFIRE-902

Criticality Incident Response and Corrective Action (IP Section 02.05)

The inspectors reviewed the licensee's corrective action program (CAP) to verify compliance with 10 CFR 70 and applicable chapters of the license application. Specifically, the inspectors reviewed CAP entries and related documents, and/or interviewed licensee staff concerning the following:

- selected NCS-related CAP entries since the last inspection, including IR-2022-3952, IR-2022-4219, and IR-2022-4914
- WO 110773 and IROFS functional check records for IR-2022-3952
 - CF-81-943, "Wastewater Q-Tanks: Safety Significant Interlocks, Alarms and Passive Engineered Controls Functionality Verification Form," dated April 28, 2022
 - CF-81-999, "Scrap Cage: Safety Significant Interlocks Verification Form", dated April 28, 2022
- CAF-007-11, "Reportability Evaluation Form," dated May 10, 2022, for IR-2022-4219

RADIOLOGICAL CONTROLS

IP 88030 - Radiation Protection

The inspectors evaluated selected aspects of the licensee's radiation protection (RP) program and radiological waste (RW) program to verify compliance with [selected portions of 10 CFR 19, 20, 61, and 70, Chapter 5, "Radiation Protection," of the facility's license application, and applicable licensee procedures.

Radiation Protection Program Implementation (IP Section 02.01)

The inspectors interviewed licensee staff and reviewed other documentation related to the implementation of the RP and RW programs to verify compliance with 10 CFR 20.1101(a), 10 CFR 61.55 and 61.56, and Section 5.1 of the license application. Specifically, the inspectors:

- interviewed the RP manager and radiation safety officer regarding dose trends over the last several years in various process/handling, assembly, and storage areas and what actions the licensee took to keep dose to workers ALARA
- interviewed staff implementing the radioactive waste program to discuss characterization and classification of radioactive waste and shipments to off-site receptors
- observed workers in areas that process or store special nuclear material (SNM) wearing the required personal protective equipment (PPE), wearing the required monitoring equipment such as dosimeters, and conducting work by procedures
- observed contamination surveys and radiation surveys

Radiation Protection Program Review (IP Section 02.02)

The inspectors reviewed the licensee's most recent ALARA report and most recent audit to verify compliance with 10 CFR 20.1101(c), 10 CFR 20.2102, and Sections 5.2.2 - 5.2.7 and 5.2.67 of the license application. Specifically, the inspectors:

- reviewed the Annual Radiation Protection Program Review for 2020
- reviewed Audit Report for the SNM-1107 Radiological Safety Program, 09/08/2021
- reviewed the latest audit report of the RW program
- interviewed the radiation protection manager and radiation safety officer regarding the program and actions taken to keep worker dose ALARA

Radiation Protection and Radioactive Waste Procedures (IP Section 02.03)

The inspectors assessed the licensee's review and implementation of RP-related and RW-related procedures to verify compliance with 10 CFR 70.72 and Section 3.4.1 of the license application that no reduction in the margin of safety resulted from any significant changes to these procedures. Specifically, the inspectors reviewed:

- COP-831001, "Handling, Processing, & Disposing LLRS," Revision 68
- COP-831010, "Shipping Low Level Radioactive Waste," Revision 34
- COP-841000, "Low Level Radioactive Scrap Handling," Revision 30
- RA-219, "ALARA Program," Revision 4
- RA-402, "Radioactive Material Transfers from Mfg. Buildings," Revision 42
- ROP-02-012, "Washing Respiratory Protection Equipment," Revision 19
- ROF-02-012-1, "Respirator Survey and Wash Log," Revision 6
- ROP-02-013, "Inspection and Rebuild of Respiratory Protection Devices," Revision 13
- ROF-02-013-1, "Mask Filter Test Form," Revision 4
- ROP-01-050, "Operation of Quantfit Personnel Respirator Leak Rate Analyzer," Revision 17
- ROP-04-007, "Performing In-vivo Counts," Revision 16
- SYP-218, "Respiratory Protection," Revision 16

Training (IP Section 02.04)

The inspectors interviewed licensee staff and reviewed RP-related training records to verify compliance with 10 CFR 19.12 and Chapters 3 and 5 of the license application. Specifically, the inspectors reviewed documents and interviewed licensee staff concerning the following:

- EHS Tech Current User Training Status
- RAF-125-14, "EHS HP Tech Training Checklist"
- RA-125, "Indoctrination, Training, and Qualification of Regulatory Personnel"
- HP Skills Matrix

Safety-Significant Events (IP Section 02.05)

The inspectors reviewed the licensee's corrective action program (CAP) entries for any safety-significant RP-related and RW-related events to verify compliance with 10 CFR 20.2202 and 20.2203, 10 CFR 70.50, 70.74, Part 70 Appendix A, and Sections 3.7 and 3.8 of the license application. Specifically, the inspectors:

- reviewed and discussed the following corrective action entries:
 - IR-2021-9582
 - IR-2021-12778
 - IR-2021-13327
 - IR-2021-13328
 - IR-2022-490
 - IR-2022-921
- reviewed ROP-05-065, "Personnel Contamination Event Response and Over Checks," Revision 13
- reviewed ROP-07-001, "Health Physics Response to Emergency Events," Revision 14

Radiation Work Permits (IP Section 02.06)

The inspectors interviewed licensee staff and reviewed radiological work permits (RWPs) to verify compliance with Sections 5.2.8 - 5.2.11 of the license application. Specifically, the inspectors:

- reviewed RWP 2021-07, "Remove Fuel Rods from Damaged/Returned Contaminated Fuel Assemblies," 03/23/2021
- reviewed RWP 2022-03, "Cf-252 Sources Moved on Rod Scanners #3 and #4," 04/02/2022

Instrument Calibration (IP Section 02.07)

The inspectors inspected survey instruments and contamination monitors to verify compliance with 10 CFR 20.1501(b) and Section 5.2.59 of the license application. Specifically, the inspectors:

- inspected survey meters/equipment for detecting alpha, beta, gamma, and neutron radiation to verify all were within calibration
- inspected hand and foot monitors and a whole-body contamination monitor to verify all were within calibration
- observed that calibration labels were placed on survey instruments used at step-off pads
- reviewed the following calibration procedures:
 - ROP-01-032, "Source Checks for Radiation Survey/Monitoring Instruments," Revision 23
 - ROP-01-059, "Calibration of the Sirius-4AB and Argos 5 AB Contamination Monitors," Revision 1

Instruments and Equipment (IP Section 02.08)

The inspectors interviewed licensee staff and reviewed the licensee's use of radiation detecting instruments and equipment to verify compliance with 10 CFR 20.1501(a) and Sections 5.2.58 - 5.2.62 of the license application. Specifically, the inspectors observed the readiness and functionality of:

- alpha probes, alpha meters, beta meters, gamma meters, and neutron detectors
- hand and foot monitors for contamination detection upon exiting a controlled area
- personnel contamination monitor (PCM) for contamination detection upon exiting a controlled area
- response/functional checks on survey instruments used at step-off pads

Posting (IP Section 02.09)

The inspectors observed the posting of radiation areas to verify compliance with 10 CFR 20.1901 and 20.1902. Specifically, the inspectors:

- observed the following type of posting: "CAUTION, RADIATION AREA" in areas where special nuclear material and radioactive waste were processed, handled, or stored
- reviewed procedure RA-213, "Radiation Signs," Revision 9

Container Labeling (IP Section 02.10)

The inspectors observed the exemption to the labeling requirement for packages and containers that contain radioactive material to verify compliance with 10 CFR 20.1904 and Sections 5.2.36 and 12.2.2 of the license application. Specifically, the inspectors observed the following:

- a sign bearing the legend, "EVERY CONTAINER OR VESSEL IN THIS AREA MAY CONTAIN RADIOACTIVE MATERIAL," was posted at each entrance to areas for buildings in which radioactive materials are used or stored

Posting of Notices (IP Section 02.11)

The inspectors observed the Posting of Notices to verify compliance with 10 CFR 19.11 and 19.12. Specifically, the inspectors:

- observed NRC Form 3 posted in the cafeteria dining area and on the external bulletin board at Gate 1
- reviewed RA-226, "Performing Prospective Analysis", Revision 6

Access Control (IP Section 02.12)

The inspectors interviewed the RP manager and Radiation Safety Officer and walked down areas where SNM is handled or stored to verify compliance with Chapters 5.2.33 - 5.2.41 of the license application. Specifically, the inspectors:

- confirmed through interviews that there are no high radiation or very high radiation areas on-site
- walked down change rooms and step-off pads to verify access points defined a contaminated and uncontaminated side
- observed step-off pads had postings for the proper PPE and instructions for donning/doffing the PPE

Licensed Material Control (IP Section 02.13)

The inspectors observed the licensee's measures to secure stored material and control and maintain constant surveillance of licensed material not in storage to verify compliance with 10 CFR 20.1801 and 20.1802. Specifically, the inspectors:

- observed locked storage of SNM in vaults
- observed usage and control of source buttons for survey meters located at step-off pads (exits) had source buttons attached via a string and/or stored in a sleeve on the survey meter
- interviewed the RP manager about control and storage of licensed material

Radiation Surveys (IP Section 02.14)

The inspectors interviewed licensee staff reviewed records and procedures of the licensee's external radiation surveys to verify compliance with 10 CFR 20.1501(a). Specifically, the inspectors:

- observed the radiation survey of an incoming shipment of LR-230 containers
- reviewed ROP-05-065, "Radiation Survey of Ventilation Equipment," Rev. 23
- reviewed ROP-05-067, "Radiation Surveys for Radiation Producing Machines - General Plant," Rev. 27
- interviewed the RP manager and Radiation Safety Officer regarding radiation surveys with emphasis on any that had an upward trend
- reviewed gamma survey records pertaining to specific work areas, office areas, the fence line, and the interior of ventilation ductwork (see also the Documents Reviewed section below)

Contamination Control (IP Section 02.15)

The inspectors interviewed licensee staff and observed of the licensee's contamination control measures to verify compliance with 10 CFR 20.1501(a) and Sections 5.2.29 - 5.2.41 of the license application. Specifically, the inspectors:

- reviewed records ROF-05-014-17, "Daily Contamination Surveys of Step Off Pads," Revision 2 (9/6, 9/10, and 9/12 for 2022) for the main entrance to the production area, maintenance area, maintenance electrical areas, and HP remote lab
- reviewed records ROF-05-014-18, "Weekly Contamination Survey of Change Rooms," Revision 3 for the ADU men's change room, IFBA men's change room, URRS and maintenance men's change room, and maintenance fabrication and installation break room

- reviewed RA-201, "Contamination Control," Revision 17
- observed a contamination survey performed on the incoming shipment of LR-230 containers
- discussed contamination surveying with the RP technician performing the surveys

Sealed Sources (IP Section 02.16)

The inspectors observed the licensee's storage and control of NRC-licensed sealed sources to verify compliance with 10 CFR 20.1903(c). Specifically, the inspectors:

- observed the secure storage and proper labeling of sealed sources in the RP lab and in vaults

Occupational Dose Results (IP Section 02.17)

The inspectors reviewed records of the occupational doses assigned to workers to verify compliance with 10 CFR 20.1201 and applicable Section 5.2.52 of the license application. Specifically, the inspectors:

- interviewed the senior health physicist regarding occupational dose records and trends in certain work areas
- reviewed 2021 dose records
- reviewed NRC Form 5 for the workers with the five highest doses

Exposure Controls (IP Section 02.18)

The inspectors interviewed licensee staff and observed the process or engineering controls used keep doses ALARA by controlling the concentration of radioactive material in air or limiting intake to verify compliance with 10 CFR 20.1101(b), 20.1701 and 20.1703 and Sections 5.7.55 - 5.7.57 of the license application. Specifically, the inspectors:

- observed a quantitative fit test for three types of respirators
- walked down/observed hoods and gloveboxes to verify that the required quarterly checks and minimum linear air velocity requirement listed in section 5.2.14 were met
- observed flow meters on fixed air monitors to verify all were within calibration
- walked down a ventilation line for one of the production units to verify containment and flow of exhaust
- observed cleaning activities in the respirator wash facility, reviewed daily logs in that facility, and interviewed workers
- interviewed the RP manager and radiation safety officer regarding areas with the highest exposure potential to workers and actions taken to keep those exposures ALARA

Bioassay Program (IP Section 02.19)

The inspectors interviewed licensee staff and reviewed the bioassay program to verify compliance with 10 CFR 20.1204(b), 20.1703(c)(2) and (4)(i), 20.2103(b)(3), and Sections 5.7.51 and 5.7.56 of the license application. Specifically, the inspectors:

- reviewed RA-204, "Bioassay Program," Revision 15
- reviewed electronic records of the licensee employees on an in-vitro program
- reviewed the daily calibration record for the lung counter (09/13/2022) and verified the sealed sources used for the calibration were U-235 sources, as required
- observed a lung count and reviewed the subsequent analysis report
- interviewed the administrator of the lung counter to verify internal dose tracking

Dosimetry (IP Section 02.21)

The inspectors interviewed licensee staff, observed dosimetry being used, and reviewed electronic versions of dosimetry records to verify compliance with 10 CFR 20.1501(d) and 20.1502(a) and Sections 5.2.42 - 5.2.45 of the license application. Specifically, the inspectors:

- reviewed RA-206, "Personnel Dosimetry Program," Revision 16
- reviewed the certificate stating the dosimeter processor is NVLAP-accredited

Dose Assessment Programmatic Review (IP Section 02.22)

The inspectors interviewed licensee staff and reviewed records and calculations related to the licensee's assessment of the dose to workers to verify compliance with 10 CFR 20.1202, 20.1204, 20.1502(b), 20.2104, 20.2106 and Sections 5.2.46 - 5.2.54 of the license application. Specifically, the inspectors:

- reviewed electronic versions of internal and external dose records from 2021 for randomly selected workers
- interviewed the RP manager and radiation safety officer regarding dose assessment, any increases in worker dose, and the licensee's actions to keep worker dose ALARA

As Low As Reasonably Achievable (ALARA) (IP Section 02.23)

The inspectors interviewed licensee staff and reviewed records related to the implementation of the ALARA program to verify compliance with 10 CFR 20.1101(b) and Sections 5.2.2 - 5.2.7 of the license application. Specifically, the inspectors:

- interviewed the licensee regarding how the Radiation Safety Program is maintaining exposures to radiation and radioactive materials ALARA,
- reviewed RA-219, "ALARA Program," Revision 4
- reviewed RA-219-1, "ALARA Goals," Revision 18
- reviewed the first three quarterly as low as reasonably achievable (ALARA) Committee Meeting minutes for 2021
- reviewed the Annual ALARA Committee Meeting Minutes for 2021

IP 88045 - Effluent Control and Environmental Protection

The inspectors evaluated selected aspects of the licensee's environmental protection program to verify compliance with selected portions of 10 CFR 20, Part 40, Part 61, and Part 70, and the facility's license application.

Program Implementation (IP Section 02.01)

The inspectors reviewed any significant changes to the effluent control and environmental protection program, discussed with the licensee any new unplanned releases or contamination identified, and screened the corrective action program in order to verify the environmental protection program was being implemented in compliance with license requirements. Specifically, the inspectors reviewed the following documents and/or discussed the following areas:

- reviewed the recent license application renewal commitments, specifically Chapter 10, "Environmental Protection" and Chapter 11, "Decommissioning Planning," to verify license commitments were translated into the licensee's environmental protection implementing procedures.
- interviewed licensing staff to identify organization changes, if any, that would be subject to the position-specific requirements in the license application
- CA-007, "Corrective and Preventive Action," Rev. 49, to determine if environmental events, spills or upsets are identified as corrective action program (CAP) items or issues for inclusion into the CAP
- reviewed corrective actions for the following Corrective Action Program items:
 - IR 2022-5876, "Soil Sampling Location 5 (LOC-5) Results"
 - IR 2022-4323, "High High-Level Alarm Activated from V-1087CD to T-104"
 - IR 2022-1734, SA-2022-84, "Environmental Sampling Procedure and Program Assessment Findings"
 - IR 2021-12656, "Quarterly Stormwater Routine Facility Inspection"
 - IR 2021-11608, "Soil Sampling Location 5 (LOC-5) Results"
 - IR 2021-11349, "Audit # EHS-AUDIT-21-16 GEL Labs, Inc."
 - IR 2021-11035, "Procedure Deficiency Discovered in Groundwater Analysis – No Safety Impact"

Procedures (IP Section 02.02)

The inspectors selected a sample set of procedures changed since the last inspection and, if possible, observed the procedures in use to verify that safety-significant changes to procedures in the area of environmental protection were in compliance with license requirements and 10 CFR 20. Specifically, the inspectors completed the following activities:

- reviewed procedure, CA-043, "CFFF ETAPS Document Change Process," Rev. 1
- reviewed revisions as a result of license renewal for the following procedures:
 - ROP-06-001, "NPDES Daily, Weekly and Monthly Effluent Sample Collection," Rev. 57
 - ROP-06-006, "Collection of Routine NRC-Required Environmental Samples," Rev. 40

- ROP-06-007, "Groundwater Well Sampling," Rev. 35,
- ROF-06-007-2, "Low Flow Groundwater Sample Collection Record," Rev. 7
- ROP-06-010, "Quarterly Storm Water Monitoring and Visual Inspection," Rev. 9
- observed collection of environmental samples by environmental technician for the following procedures:
 - ROP-06-001, "NPDES Daily, Weekly and Monthly Effluent Sample Collection," Rev. 57 for collection of liquid effluent prior to discharged from wastewater treatment facility
 - ROP-06-006, "Collection of Routine NRC-Required Environmental Samples," Rev. 40, for weekly surface water locations: Causeway, Gator Pond, Lower Sunset Lake and Spillway

Audits and Quality Assurance (IP Section 02.03)

The inspectors reviewed procedures associated with the conduct of audits and assessments along with completed third-party and self-assessed audits and resulting corrective action entries assessed with the environmental protection program since the last inspection to verify compliance with license application requirements. Specifically, the inspectors completed the following activities:

- reviewed audit procedure RA-106, "Regulatory Component Audits at CFFF," Rev. 42
- reviewed the following audits and schedule:
 - EHS-AUDIT-21-11, "Triennial Audit Report for the SNM-1107 Environmental Protection," dated 8/31/21
 - EHS-AUDIT-22-7, "Formal Compliance Audit," dated 8/11/22
 - 2021 Regulatory Component Audit Status dated 3/14/22
- reviewed approved vendor list of items from the "Environmental Health and Safety Quality Policy Manual," dated 2/28/22
- reviewed audits for the following vendors:
 - EHS-AUDIT-21-16, "Supplier Audit of GEL, Labs LLC," dated 10/18/21, the vendor provides environmental, radiological, and bioassay laboratory analytical services
 - EHS-AUDIT-21-17, "Supplier Audit of Carolina Technical Services Inc.," dated October 26, 2021, the vendor provides surface water, sediment, and fish sample extraction services

Event Review (IP Section 02.04)

The inspectors reviewed the licensee's evaluation of safety-significant events in the area of environmental protection to verify compliance with 10 CFR 20 and license application requirements. Specifically, the inspectors reviewed the following:

- Selected event notifications and conducted interviews with licensee staff to determine if environmental events as defined by the license application and 10 CFR 70.619 (c)(3) were required to be reported for 2020 through 2022.

Training (IP Section 02.05)

The inspectors reviewed the licensee's training program in the area of environmental protection to verify compliance with license application requirements. Specifically, the inspectors reviewed the following:

- training plans and a sample of qualification records for the following:
 - environmental technician
 - assay operator
 - wastewater operators

Radioactive Liquid Effluents (IP Section 02.06)

The inspectors observed operations, reviewed sample collection and analysis procedures, reviewed radiological effluent monitoring reports and monitoring records, and discussed the radioactive liquid effluent results with licensee staff to verify compliance with aspects of 10 CFR 20.2103 and the license application. Specifically, the inspectors completed the following activities:

- reviewed procedure ROP-06-001, "NPDES Daily, Weekly and Monthly Effluent Sample Collection," Rev. 57
- reviewed procedure ROP-06-006, "Collection of Routine NRC-Required Environmental Samples," Rev. 40
- reviewed procedure MCP-202063, "Daily River Discharge pH Calibration," Rev. 15
- observed daily and weekly liquid effluent collection by environmental technician
- observed calibration of equipment labels used to collect daily and weekly samples
- reviewed two months of monthly batch results from the wastewater treatment facility to determine whether results were within regulatory limits for uranium and technetium-99 liquid effluents.
- reviewed calibration records for in-line gamma spectroscopy monitors located in the main plant building prior to transfer from in-plant final pump out tank to wastewater treatment facility

Municipal Sanitary Sewer (IP Section 02.07)

The inspectors reviewed records related to the release of liquid effluents to sanitary sewers to verify compliance with 10 CFR 20.2003 and the license application. Specifically, the inspectors completed the following activities:

- The licensee does not release liquid effluents to the municipal sanitary sewer; therefore, this chapter does not apply.

Radioactive Airborne Effluents (IP Section 02.08)

The inspectors observed operations, reviewed sample collection and analysis procedures, reviewed radiological effluent monitoring reports and monitoring records, and discussed the radioactive airborne effluent results with licensee staff to verify compliance with aspects of

10 CFR 20.1101, 10 CFR 20.2103, and the license application. Specifically, the inspectors completed the following activities:

- reviewed procedure ROP-06-002, "Roof Effluent Air Sampling and Counting," Rev. 31
- reviewed the concentration calculation for the air roof effluent to determine whether the licensee used the appropriate assumptions for the calculations
- observed an environmental technician collect 24 roof air stack effluent samples for the Plant Main building
- interviewed the environmental lab technicians regarding general work responsibilities, significant changes to the calculation processes, unevaluated release concerns, and the process for reporting elevated stack samples
- observed counting of previous day air samples on the Tennelec and IMATIC measurement system and reviewed the results of daily functional checks for the Tennelec and IMATIC measurement system

Effluent Monitoring (IP Section 02.09)

The inspectors observed operations, reviewed items relied on for safety (IROFS) and associated surveillance packages, and discussed the results with the licensee to verify compliance with Subpart H of 10 CFR 70, the license application, and the integrated safety analysis. Specifically, the inspectors completed the following activities:

- conducted a walkdown of the following IROFS:
 - 901, "Diked Pad for UN Bulk Storage and UN Offloading Areas"
 - 912, "Tank Wall for UN Storage Tanks"
 - 915, "Expanded UN Containment Area for UN Storage Tanks"
 - 905, "Plant-SEP-905, Outfall Valve "C"
- reviewed IROFS 913, "Best Management Practice (BMP) Plan," dated April 2022
- reviewed the following management measures results:
 - "52 Weeks OM85018 SI-SAFETY - UN Pad Inspection," dated May 22, 2022 (IROFS 901)
 - "52 Weeks OM85018 SI-SAFETY - UN Pad Inspection," dated May 17, 2021 (IROFS 901 & 915))
 - "13 Week PM 85001 SI-Safety Sluice Gate Valves," dated 9/7/22 (IROFS Plant-SEP 905)
 - Work Order 790948, "UN Storage Tank Internal Mechanical Integrity Inspection 54 months," dated April 15, 2020 (IROFS 912)
 - Work Order 827956, "UN Bulk Storage Tanks External Mechanical Integrity Inspection 5 year," dated March 25, 2019 (IROFS 912)
- reviewed the following procedures:
 - COP-836016, "UN Tanks Bulk Storage- Emergency Procedures," Rev. 16
 - SEPF-009-28, "Command Check Sheet- Seismic Event," Rev. 2
 - COP-836047, "Uranyl Nitrate Offloading from LR-230 Containers," Rev. 24

Semiannual Effluent Reports (IP Section 02.10)

The inspectors reviewed the licensee's effluent monitoring report to verify compliance with the requirements of 10 CFR 70.59. Specifically, the inspectors completed the following activities:

- Reviewed the Semi-Annual Discharge Reports results for 2020 through 1st half of 2022

Quality Control of Analytical Measurements (IP Section 02.11)

The inspectors observed analytical laboratory operations and reviewed records of sample methods to verify compliance with the quality control requirements in the license application. Specifically, the inspectors completed the following activities:

- reviewed procedure ROP-01-028, "Calibration of Flowmeters," Rev. 13
- reviewed procedure ROP-01-040, "Background and Efficiency Determination and Calibration of the iMATIC Automatic Sample Counters," Rev. 3
- observed daily roof air stack sample count from previous day on Tennelec measurement system, observed daily functional count and checks for Tennelec measurement system
- interviewed environmental technician on daily activities, unplanned event release evaluations and process for reporting elevated air stack samples
- reviewed IMATIC Measurement Control Standard/Background Count Log dated 09/15/22
- reviewed Tennelec Measurement Control Standard/Background Count Log dated 09/15/22
- reviewed approved vendor, "GEL Laboratories, Chain of Custody and Analytical Request," dated 6/1/2021 for soil and vegetation samples
- reviewed calibration record, "Flowmeter Verification for Ambient Air," dated 8/26/22 (Test Meter SN: 12645) for sample locations: Station 1 (Hwy 48); Station 2 (East Side of Plant); Station 3 (Parking Lot); and Station 4 (SW of plant in field)

Public Dose Analysis (IP Section 02.12)

The inspectors reviewed dose assessment records and associated reports to verify compliance with 10 CFR 20.1301, 10 CFR 20.1302, and the reporting requirements of 10 CFR 20.2107. Specifically, the inspectors completed the following activities:

- reviewed procedure RA-413, "NRC Semi-Annual Effluent Discharge Report," Rev. 6
- reviewed and discussed with the licensee the whole body and organ dose calculation assumptions using licensee guidance documents and EPA COMPLY code to determine whether the licensee used appropriate inputs for dose assessment from effluents

Environmental Sampling (IP Section 02.13)

The inspectors reviewed environmental sampling records of surface water, sediment, soil, vegetation, ambient air, groundwater, direct radiation, and/or sanitary sewer sludge, if applicable, to verify compliance with 10 CFR 20.1501 and the license application. Specifically, the inspectors reviewed the following procedures and completed the following activities:

- RA-407, "Sampling Congaree River Surface Water and Fish and Site Sediments," Rev. 13
- ROP-06-006, "Collection of Routine NRC Required Environmental Samples," Rev. 40
- RA-400, "Attachment 1, Effluent Limitations and Monitoring Requirements," Rev. 15
- ROP-06-003, "Ambient Environmental Air Monitoring for Radioactivity," Rev. 17
- ROP-06-007, "Groundwater Well Sampling," Rev. 35
- ROP-06-001, "NPDES Daily, Weekly, and Monthly Effluent Sample Collection," Rev. 57
- reviewed the results for Certificate of Analysis (Gel Laboratories, LLC) dated from January 2022 through July 2022 for the following samples:
 - Wastewater
 - SW Spillway
 - SW Causeway
 - SW Roadway
 - SW Entrance
 - SW Exit
 - Gator Pond
 - Lower Sunset Lake
- reviewed the results from the "2020-2021 Annual Groundwater Monitoring Report," dated September 2021
- "Appendix D, Plume Analytics Technical Memo - AECOM," dated September 27, 2021
- reviewed results of annual fish and sediment samples for 2020 and 2021
- reviewed result of bi-annual soil and vegetation samples for 2020, 2021 and May 2022

Minimizing Facility and Environmental Contamination and Facilitating Decommissioning (IP Section 02.14)

The inspectors reviewed decommissioning records to verify compliance with 10 CFR 70.25(g) and 10 CFR 20.1406. Specifically, the inspectors reviewed the following procedures and records:

- procedure RA-433, "Environmental Remediation, Rev. 2
- procedure RA-434, "Environmental Data Management," Rev. 2
- procedure RA-435, "Conceptual Site Model Development," Rev. 1
- procedure ROS-06-007-1, "Groundwater Wells and Sampling Parameters," Rev. 2
- procedure ROP-06-007, "Groundwater Well Sampling," Rev. 35

- "2022 CFFF Environmental Priorities and Risks," Rev. 64 to determine whether licensee maintains records important to decommissioning
- RA-137, "Decommissioning Record Keeping," Rev.1 to determine whether licensee maintains records important to decommissioning
- "Spills Location DWG No. 601F03CV01," dated 4/23/19 to determine whether licensee maintains records important to decommissioning
- "Westinghouse CFFF Spill Tracking Sheet," dated 10/26/2021, to determine whether licensee provides description of spills and identifies contamination of concern, residual activity, mitigation actions, wells, groundwater impact
- "Remedial Investigation Report, Appendix Y, Conceptual Site Model-AECOM," Rev. 4 to determine whether licensee is aware, and tracks known spills, spread of contamination (residual and subsurface) in and around the facility, has established an early leakage detection system, and utilizes appropriate inputs and outputs for ongoing remediation and decommissioning efforts
- "Conceptual Site Model Revision Log," Rev. 4

Radioactive Waste Classification, Characterization, and Storage (IP Section 02.15)

The inspectors reviewed documentation and records of facility activities and observed posting and labeling of storage areas and containers to verify compliance with the requirements of 10 CFR 61.55 and the license application. Specifically, the inspectors conducted the following activities:

reviewed procedures that described the process for waste classification and characterization, and waste storage:

- COP- 841000, "Low Level Radioactive Scrap Handling," Rev. 30
- COP- 831001, "Handling, Processing and Disposing Low Level Radioactive Scrap (LLRS)," Rev. 68
- COP- 831010, "Shipping Low Level Radioactive Waste," Rev. 34
- WS-53455-0-248, "Waste Manifest," US Ecology, solid uranium oxide, pond sediment dated 8/23/21
- ISEU100009-266, "Waste Manifest," Specialty Transport, solid uranium oxide, debris, compacted filter media dated 8/2/22
- conducted walkdowns of the following areas: low-level waste storage facility, uranium recovery and recycle services (URRS), solvent extraction, and UF6 Bay areas to observe the physical condition of waste containers, stacking of waste containers, labeling of the waste containers and segregation of waste in these areas

Effluent Treatment (IP Section 02.17)

The inspectors conducted walkdowns and observations and reviewed records of onsite waste treatment facilities and airborne effluent scrubbers and filters to verify compliance with the license application. Specifically, the inspectors completed the following activities:

- conducted a walkdown of the wastewater treatment facility and observed daily operations and batch sampling points for liquid effluents

- reviewed two months of monthly batch results from the wastewater treatment facility to determine whether results were within regulatory limits for uranium and technetium-99 liquid effluents.
- reviewed calibration records for in-line gamma spectroscopy monitors located in the main plant building prior to transfer from in-plant final pump out tank to wastewater treatment facility
- reviewed effluent records to determine whether the licensee took appropriate actions if ALARA goals and investigational levels were exceeded per license application commitments
- reviewed procedure COP-831205, "Filling, Sampling and Discharging T-1140, North and South Lagoons," Rev. 48
- reviewed the following ventilation inspection records for S-1030 Ventilation Ducts in the Main Plant building:
 - "52 Week Ventilation Duct Integrity (CONV-1008 - 1008 Scrubber Ventilation System) Ammonia Fume Scrubber," dated 4/12/22
 - "8 Week HEPA Filter House Inspection (CONV-1030 - 1030 Scrubber Ventilation System) FL-1030B Filter House," dated 8/23/22
 - "13 Week Gamma Survey of Ventilation System (CONV-1008 Scrubber Ventilation System) Ammonia Fume Scrubber," dated 9/11/22
 - Work Order 99530, "S-1030 Ventilation Ducts Requiring Inspection (SSC-VENT-S1030-111)," dated 3/22/22

FACILITY SUPPORT

IP 88070 - Permanent Plant Modifications

The inspectors conducted a review to verify the licensee had established and implemented a configuration management system to evaluate, implement, and track changes to the facility in accordance with the applicable requirements in 10 CFR 70.72 and the license application, Chapter 3, "Conduct of Operations." The inspectors' review also verified the licensee had established management measures for changes to the facility in accordance with 10 CFR 70, Subpart H and the license application, and those modifications involving new processes, if any, met the requirements in 10 CFR 70.64.

Sample Selection (IP Section 02.01)

The inspectors reviewed licensing documents, changes the licensee determined did not require pre-NRC approval under 10 CFR 70.72, and changes that affected the ISA Summary to select plant changes/modifications to review. The inspectors selected the following plant modifications, identified as Configuration Control Forms (CCFs), to assess whether the licensee conducted evaluations according to their established configuration management system.

- CCF 19041, Replace Existing SBG-3 and SBG-4 with New Diesel Generators SBG-3 and SBG-4 (ISA-03 ADU Conversion)
- CCF 20257, Increase P1081 Pump from 1.0 GPM to 3.0-6.0 GPM (ISA-07 Solvent Extraction)
- CCF 20322, Replace Obsolete V-1085 Transfer Line Valves (ISA-07 Solvent Extraction)

- CCF 20335, Replacement of SOLX Solvent Flow Transmitter FT-1491 (ISA-07 Solvent Extraction)
- CCF 20381, Waterglass Undersized Vacuum Breaks T1160B & T1160C WT-121 & WT-139 (ISA-15 URRS Wastewater Treatment System)
- CCF 21045, SOLX Piping Modifications V1484 & V1081 (ISA-07 Solvent Extraction)
- CCF 21176 H2 Maximum Flow Shut Off Valve Bypass Piping (ISA-01 Plant Ventilation System)
- CCF 21235, URRS SOLX P1081 Pump Option for Low and High GPM Pump Flow Rate (ISA-07 Solvent Extraction)
- CCF 21306, Uranyl Nitrate Piping Degradation (ISA-11 Scrap Uranium Processing)
- CCF-D-22043-0, Conversion Piping Upgrade - SOLX Line Material Specification Change (ISA-07 Solvent Extraction)

Facility Change/Modification Process (IP Section 02.02)

The inspectors reviewed the selected modifications listed in Section 02.01 above to verify the licensee implemented a configuration management system in accordance with 10 CFR 70.72 and the conditions of the license. Specifically, the inspectors conducted the inspections activities listed below:

- reviewed the following procedures to verify the configuration management system was documented in written procedures and the procedures addressed the aspects in 10 CFR 70.72(a):
 - TA-500, Columbia Manufacturing Plant Configuration Control, Rev. 41
 - RA-104, Regulatory Review of Configuration Change Authorization, Rev. 32 and 33
- interviewed licensee staff; reviewed technical and regulatory evaluations, and performed walk-downs of the modifications selected in Section 02.01 above to verify the licensee provided valid technical bases to support the determination of whether an amendment to the license was required based on the criteria in 10 CFR 70.72(c)
- reviewed facility documentation associated with the selected plant modifications to verify the affected documents were updated promptly in accordance with 10 CFR 70.72(e) or the timeframe outlined in the license
- reviewed configuration management system records to verify the licensee submitted a summary with facility changes and revised ISA Summary pages to the NRC in accordance with 10 CFR 70.72(d)

Management Measures (IP Section 02.03)

For the selected modifications, the inspectors reviewed the management measures established for affected IROFS to verify the management measures ensured the IROFS were available and reliable to perform their intended function as required by 10 CFR 70.61 and the conditions of the license. Specifically, the inspectors conducted the inspection activities listed below:

- reviewed management measures established for IROFS SBG-401, SBG-402, SBG-901, and SBG-902 as a result of CCF 19041

- reviewed management measures for IROFS CHEM-407-H associated with CCF 21176
- reviewed condition reports to determine whether the licensee identified configuration management, post modification testing, and/or plant modification issues and corrected the condition in accordance with the requirements in the license application
- reviewed the audit records listed below related to the configuration management system and interviewed licensee staff to verify the scope and frequency of audits, as well as corrective actions for audit findings, were conducted in accordance with the license application and facility procedures.
 - EHS-AUDIT-21-14, Regulatory Component Audit for Configuration Management, Audits and Assessments; Record Keeping and Reporting, 11/16/2021
 - RA-106, Regulatory Component Audits at the Columbia Fuel Fabrication Facility, Rev. 42
 - Corrective Action Program entries for audit findings: IR-2021-12497, IR-2021-12492, and IR-12498

License application Changes (IP Section 02.04)

For the selected modifications, the inspectors interviewed licensee staff and reviewed applicable chapters of the license application to verify the licensee evaluated license application changes and conducted NRC pre-approval screenings in accordance with the license requirements. Specifically, the inspectors conducted the inspection activities listed below:

- reviewed the license application changes submitted to the NRC on January 26, 2021, (ADAMS Accession Number ML21026A323) to verify the licensee followed their approved change process
- reviewed changes to the license application as a result of the plant modifications listed in Section 02.01 of this inspection report

New Processes at Existing Facilities (IP Section 02.05)

The inspectors interviewed licensee staff and conducted walk-downs to determine whether new fabrication processes were installed since the last NRC inspection in this area. The licensee had not implemented any new facility processes at the time of the inspection. Therefore, the inspectors' review did not include evaluations of whether the licensee addressed the baseline design criteria and defense-in-depth as stipulated in 10 CFR 70.64.

Records Retention (IP Section 02.06)

The inspectors reviewed the configuration management system application and a sample of plant documents impacted by the selected modifications to verify the licensee-maintained records of facility changes in accordance with the license requirements and 10 CFR 70.72. The documents selected for review are listed in the "Documents Reviewed" section of this inspection report and included the following categories:

- operating procedures
- system drawings

- ISA Summary
- license application
- fire hazard analysis
- criticality safety evaluations
- records management procedure

INSPECTION RESULTS

Minor Violation	88015
<p>Minor Violation: An event follow-up inspection was conducted from May 31 to June 1, 2022, for EN55911. The event resulted in the reported loss or degradation of IROFS in the Waterglass system which caused a failure to meet the performance requirements of 10 CFR 70.61. Details can be found in inspection report 70-1151/2022-002 (ML22200A247). The inspectors reviewed the 60-day report (ML22203A142).</p> <p>Screening: The inspectors determined the violation was minor. Per NRC Manual Chapter 0616, "Fuel Cycle Safety and Safeguards Inspection Reports," Appendix B, "Minor/More-than-Minor Examples", this issue aligns closely with example 1a. This issue is considered minor because the failure to complete CF-83-213 and the transfer of uranium bearing material did not adversely affect the overall concentration in T-1160.</p> <p>Enforcement: The licensee took immediate corrective actions to restore compliance by shutting down the system and performing the required samples to verify the tanks were below criticality safety limits. Additionally, the licensee has taken the following corrective actions:</p> <ul style="list-style-type: none"> • The associated procedure COP-835024 has been revised to specify that the V-1170 tanks shall be isolated, and the valves locked when the tanks are sampled to preclude the addition of uranium into the tank and invalidate the sample results until the time of transfer. • ISA-15, "Wastewater Treatment System" and associated calculation note CNSB- 09-06 have been updated to justify multiple failures of WT-165, WT-166, WT-171, WT-172, WT-175 and WT-176 before the performance requirements would be exceeded. The controls on system inputs limit the uranium content such that more than 3 consecutive failures of the IROFS would have to occur before the uranium content in T-1160B would approach the conservatively calculated limits, even when considering maximum possible uranium concentrations. <p>This failure to comply with Safety Condition S-1 of the Westinghouse Materials License and license application Section 3.4.1, "Procedure Structure," constitutes a minor violation that is not subject to enforcement action in accordance with the "NRC Enforcement Policy." EN55911 is closed.</p>	

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On September 15, 2022, the inspectors presented the integrated inspection results to Annette Pope and other members of the licensee staff.
- On July 21, 2022, the inspectors presented the NCS and plant modification inspection results to Annette Pope and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
88015	Corrective Action Documents	IR-2022-3952, IR-2022-4219, IR-2022-4914	NCS related CAP entries	
	Engineering Evaluation	CN-CRI-06-34	Hot Oil Dryer	Rev. 2
		CN-CRI-07-01	Conversion Line K-Tron Recycle Feeders	Rev. 1
		CN-SB-09-10	Conversion Lines Oil Dryers and Bucket Elevators Criticality Accident Potential	Rev. 2
		CSE-14-B	Criticality Safety Evaluation (CSE) for Integral Fuel Burnable Absorber (IFBA) Coaters	Rev. 10
		CSE-3-H	Conversion Lines Oil Dryers and Bucket Elevators	Rev. 11
		CSE-4-I	Criticality Safety Evaluation (CSE) for Processing Ash from 55-gallon Drums	Rev. 0
	Miscellaneous		Columbia Fire Department Westinghouse Tour 2022	
			Westinghouse Emergency Response Organization Site Emergency Plan Refresher Training	
		CN-CRI-20-003	NCS Manual	Rev. 5
		CONV08	Criticality Requirements Stratblender K-tron Feed Hood	Rev. 2
		RAF-314-1	Criticality Safety Evaluation (CSE) Implementation Plan, for CSE-3-H	06/04/2009
	Operability Evaluations	CF-81-943	Wastewater Q-Tanks: Safety Significant Interlocks, Alarms and Passive Engineered Controls Functionality Verification Form	04/28/2022
		CF-81-999	Scrap Cage: Safety Significant Interlocks Verification Form	04/28/2022
	Procedures	CF-81-015	Conversion Field Data Checklist for Conversion Line	Rev. 75
		COP-810910	Feeding Dry Material Via the K-Tron Feeder	Rev. 29
		COP-812701	EL-x27 Powder Elevator	Rev. 5
		COP-815415	Inspection of Non-Favorable Geometry Enclosures	Rev. 5
		RA-313	Criticality Safety Evaluations (CSEs)	Rev. 16
		SEPF-009-6	Command Check Sheet - Fire Response Westinghouse Nuclear Fuel Columbia, SC	Rev. 11
	Self-Assessments	RAF-316-1	Nuclear Criticality Safety Checklist for NCS Facility Walkthrough Assessments,	07/12/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Conversion – Chief Operations and Various Containers	
		RAF-316-1	Nuclear Criticality Safety Checklist for NCS Facility Walkthrough Assessments, Outside URRS	07/12/2022
		RAF-316-1	Nuclear Criticality Safety Checklist for NCS Facility Walkthrough Assessments, SOLX Operator	07/12/2022
		RAF-316-1	Nuclear Criticality Safety Checklist for NCS Facility Walkthrough Assessments, Conversion – Conversion Operations and Various Containers	07/12/2022
		RAF-316-1	Nuclear Criticality Safety Checklist for NCS Facility Walkthrough Assessments, Conversion – Scrap Cage Operations and Various Containers	07/12/2022
	Work Orders	110773	Description: Work Order verifying IROFS functionality	
		114860	PM20430 SI-SAFETY, CONVERSION ROOFINSPECTION - 52 WEEK PM	06/03/2022
		84681	52 Weeks PM81472 ADU Dryer - 52 Week PM	07/08/2022
		87183	2 Years PM81473 ADU Dryer - 104 Week PM	07/19/2022
88030	Corrective Action Documents	IR 2021-13327	Increasing Trend Identified in Number of Routine In-Vivo Results Exceeding MDA	12/09/2021
		IR 2021-13328	Increasing Trend in EDEX	12/09/2021
		IR-2021-1044	RB: Alert Limit Exceeded for Chapter CL3-004, on Conversion Lin 3 Torit Ductwork	01/29/2021
		IR-2021-12778	Respirator Facility Employees Expired or Have Never Been Qualified on EHS-NSQT-002, Nuclear Safety Qualification Training Oral Review Board	11/24/2021
		IR-2021-9582	Int OR Audit – Audit # EHS-AUDIT-21-10, SNM-1107 Radiological Safety Program, EHS Operations Non-conformances	09/02/2021
		IR-2022-4352	Unable to send dose information to REIRS in accordance with the requirements of 10 CFR 20.2206(c)	05/10/2022
		IR-2022-4661	NRC Operational Safety inspection exited with a Minor	05/20/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Violation for failure to provide NRC Form 5/Dose Information to REIRS by the April 30th deadline per 10 CFR 20.2206(c)	
		IR-2022-490	SA-2022-32 Training Record issues identified during EHS training record Self Assessment Review .	01/20/2022
	Miscellaneous		Chart of URRS Waste Streams	
			CY2000 ALARA Goal Exceedance. Individual, Collective, and Average TEDE (10 highest TEDEs)	
			Uniform Straight Bill of Lading (LR-230)	09/02/2022
			Flowcharts of Combustible/Non-Combustible Trash and Low Level Radioactive Waste Shipments	
			In Vivo Log Analysis (records)	August - September 2022
			Radiation Safety Organizational Chart	
			HP Skills Matrix	09/15/2022
			EHS Current User Training Status for three individuals	09/15/2022
		#33920	In Vivo Analysis Report	09/13/2022
		20220915142552	Radioactive Shipment Smear Results	09/15/2022
		831001-1	Drum Concentration Limits for Shipment	Revision 0
		843002-3	Movable Non-Favorable Geometry (NFG) Container List	Revision 19
		CF-83-111	URRS ChAMPS Material Designations	Revision 28
		EHS-Audit-19-2	Regulatory Component Audit of Thermo Fisher Scientific Process Instruments	06/06/2019
		NRC Form 5 Equivalent	Occupational Exposure Record for A Monitoring Period (for five workers)	01/01/2021 - 12/31/2021
		RAF-125-14	EHS, Operations, HP Technician, Radiation Protection Training Checklist	Rev. 6
		ROF-05-028-1	Work Restriction Form	08/24/2020
		ROF-05-046-1	Inventory and Leak Test of Sealed Sources	01/06/2022 and 07/01/2022
		ROF-05-062-6	Ventilation Survey Follow-Up Form (February and April 2021)	Revision 5
	Procedures	COP-831001	Handling, Processing, & Disposing LLRS	Revision 68

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		COP-831010	Shipping Low Level Radioactive Waste	Revision 34
		COP-841000	Low Level Radioactive Scrap Handling	Revision 30
		RA-125	Indoctrination, Training, and Qualification of Regulatory Component Personnel	Rev. 26
		RA-201	Contamination Control	Revision 17
		RA-203	General HP Rules and Recommendations	Revision 33
		RA-204	Bioassay Program	Revision 15
		RA-206	Personnel Dosimetry Program	Revision 16
		RA-207	Radiation Work Permit	Revision 23
		RA-213	Radiation Signs	Revision 9
		RA-219	ALARA Program	Revision 4
		RA-219-1	ALARA Goals	Revision 18
		RA-226	Performing Prospective Analysis	Revision 6
		RA-402	Radioactive Material Transfers from Mfg. Buildings	Revision 42
		RAF-207-1	Radiation Work Permit - Job Description, Pre-Job Review, Working Conditions, and Required PPE	Revision 18
		RAF-207-2	Radiation Work Permit - Personnel Qualifications	Revision 9
		RAF-207-3	Radiation Work Permit - Approved Personnel	Revision 1
		ROF-02-012-1	Respirator Survey and Wash Log	Revision 6
		ROF-02-013-1	Mask Filter Test Form	Revision 4
		ROP-01-032	Source Checks for Radiation Survey/Monitoring Instruments	Revision 23
		ROP-01-036	HEPA Filter System Leak Test	Revision 19
		ROP-01-050	Operation of Quantifit Personnel Respirator Leak Rate Analyzer	Revision 17
		ROP-01-059	Calibration of the Sirius-4AB and Argos 5 AB Contamination Monitors	Revision 1
		ROP-02-008	Surveys of Incoming and Outgoing Shipments of Radioactive Materials	Revision 33
		ROP-02-010	Surveillance of Uranium Shipments from Outside Sources	Revision 24
		ROP-02-012	Washing Respiratory Protection Equipment	Revision 19
		ROP-02-012-1	Respirator Survey and Wash Log	Revision 6
		ROP-02-013	Inspection and Rebuild of Respiratory Protection Devices	Revision 13
		ROP-02-013-1	Mask Filter Test Form	Revision 4

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		ROP-03-001	Personnel Dosimetry System	Revision 22
		ROP-03-002	Personnel Exposure System - Guide	Revision 7
		ROP-03-003	Collecting Dosimetry Badges	Revision 0
		ROP-04-007	Performing In-vivo Counts	Revision 16
		ROP-05-002	Performing Smear Surveys	Revision 17
		ROP-05-014	Performing Contamination Surveys of the Westinghouse Facility	Revision 34
		ROP-05-028	Employee Work Restrictions	Revision 23
		ROP-05-060	Ventilation Velocity Checks	Revision 16
		ROP-05-062	Radiation Survey of Ventilation Equipment	Revision 23
		ROP-05-065	Personnel Contamination Event Response and Over Checks	Revision 13
		ROP-05-067	Radiation Surveys for Radiation Producing Machines - General Plant	Revision 27
		ROP-05-069	Quarterly Air Sampling of In-plant Recirculating Ventilation Systems	Revision 11
		ROP-07-001	Health Physics Response to Emergency Events	Revision 14
		SYP-218	Respiratory Protection	Revision 16
	Radiation Surveys	ROF-02-008-1	Surveys of Incoming Shipments of Radioactive Materials	09/15/2022
		ROF-05-014-17	Daily Contamination Surveys of Step Off Pads 09/06/22 - 09/10/22, 09/12/22	Rev. 2
		ROF-05-014-18	Weekly Contamination Survey of Change Rooms 08/18/22	Rev. 3
		ROF-05-062-10	Quarterly - S-7159 Survey (Calendar Year 2021)	Revision 1
		ROF-05-062-11	Quarterly - S-958 Survey (Calendar Year 2021)	Revision 1
		ROF-05-062-12	Ventilation Systems Equipment Radiation Survey Quarterly - FL-973 Survey (Calendar Year 2021)	Revision 1
		ROF-05-062-13	Monthly - Conversion Torit Survey (January - December 2021)	Revision 1
		ROF-05-062-14	Monthly - Pellet Torit Survey (January - December 2021)	Revision 0
		ROF-05-062-3	Ventilation System Radiation Survey Action Reports (Calendar Year 2021)	Revision 20
		ROF-05-062-4	Ventilation Systems Equipment - Quarterly Radiation Surveys (Calendar Year 2021)	Revision 22
		ROF-05-062-7	Monthly - S-1030 Survey (January - December 2021)	Revision 1

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		ROF-05-062-8	Ventilation Systems Equipment Radiation Survey Monthly - S-2A/2B Survey (January - December 2021)	Revision 2
		ROF-05-062-9	Quarterly - S-1008 Survey (Calendar Year 2021)	Revision 0
		ROF-05-067-10	Mechanical Area Gamma Survey	First three calendar quarters of 2022
		ROF-05-067-11	Outside Area Gamma Survey	First three quarters of 2022
		ROF-05-067-12	Quarterly Perimeter Fence Gamma Survey	First three quarters of 2022
		ROF-05-067-15	Office Area 1 Gamma Survey	First three quarters of 2022
		ROF-05-067-16	Office Area 2 Gamma Survey	First three quarters of 2022
		ROF-05-067-17	Development & Met Labs Gamma Survey	First three quarters of 2022
		ROF-05-067-7	ERBIA Area Gamma Survey	First three quarters of 2022
		ROF-05-067-8	Chemical Area Gamma Survey	First three quarters of 2022
		ROF-05-067-9	Quarterly IFBA Gamma Survey	First three quarters of 2022
	Radiation Work Permits (RWPs)	2021-07	Remove Fuel Rods from Damaged/Returned Contaminated Fuel Assemblies	03/23/2021
		2022-003	Cf-252 Source Moves on Rod Scanners #3 and #4	04/02/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Self-Assessments	EHS-AUDIT-21-10	Audit Report for the SNM-1107 Radiological Safety Program	09/08/2021
		EHS-AUDIT-21-11	Audit Report for the SNM-1107 Environmental Protection Program (contains radiological waste chapter)	August 31, 2021
88045	Calibration Records		Tennelec Measurement Control Standard/Background Count Log	9/15/22
			IMATIC Measurement Control Standard/Background Count Log	9/15/2022
		RY-S-1160A1	Gamma Monitor A1, Q-Tanks to Waterglass	04/20/2022
		RY-S-1160A2	Gamma Monitor A2, Q-Tanks to Waterglass	04/20/2022
		RY-S-1160A3	Gamma Monitor A3, Q-Tanks to Waterglass	04/20/2022
	Corrective Action Documents	2022-1734, SA-2022-84	Environmental Sampling Procedure and Program Assessment Findings	
		IR 2021-11035	Procedure Deficiency Discovered in Groundwater Analysis – No Safety Impact	
		IR 2021-11349	Audit # EHS-AUDIT-21-16 GEL Labs, Inc.	
		IR 2021-12656	Quarterly Stormwater Routine Facility Inspection	
		IR 2022-4332	High High Level Alarm Activated from V-1087CD to T-1041	
		IR 2022-5876	Soil Sampling Location 5 (LOC-5) Results	
	Drawings	600F02REF01 (Plant Grounds)	RAF-137-1, Decommissioning Recordkeeping 10 CFR 70.25(g)(3) Required List of Areas	
		601F03CV01	Spills Location	04/23/2019
	Miscellaneous		Westinghouse CFFF Spill Tracking Sheet	10/26/2021
			52 Week Ventilation Duct Integrity Inspection (CONV-1008 - 1008 Scrubber Ventilation System) Ammonia Fume Scrubber	04/12/2022
			8 Week HEPA Filter House Inspection (CONV-1030 - 1030 Scrubber Ventilation System) FL-1030B Filter House	08/23/2022
			13 Week Gamma Survey of Ventilation System (CONV-1008 Scrubber Ventilation System) Ammonia Fume Scrubber	09/11/2022
			Westinghouse 2020-2021 Annual Groundwater Monitoring Report	11/03/2021
			Remedial Investigation Report, Appendix Y, Conceptual Site Model- AECOM,	Rev. 4

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			52 Weeks OM85018 SI-SAFETY - UN Pad Inspection	5/22/2022
			52 Weeks OM85018 SI-SAFETY - UN Pad Inspection	5/17/2021
		RA-137	Decommissioning Record Keeping	Rev. 1
	Procedures	CA-043	CFFF ETAPS Document Change Process	Rev. 1
		COP- 831001	Handling, Processing and Disposing Low Level Radioactive Scrap (LLRS,	Rev. 68
		COP- 841000	Low Level Radioactive Scrap Handling	Rev. 30
		COP-831205	Filling, Sampling and Discharging T-1140, North and South Lagoons	Rev. 48
		COP-836016	UN Tanks Bulk Storage- Emergency Procedures	Rev. 16
		COP-836047	Uranyl Nitrate Offloading from LR-230 Containers	Rev. 24
		RA-106	Regulatory Component Audits at CFFF	Rev. 42
		RA-400	Attachment 1, Effluent Limitations and Monitoring Requirements	Rev. 15
		RA-407	Sampling Congaree River Surface Water and Fish and Site Sediments	Rev. 13
		RA-413	NRC Semi-Annual Effluent Discharge Report	Rev. 6
		RA-433	Environmental Remediation	Rev. 2
		RA-434	Environmental Data Management	Rev. 2
		RA-435	Conceptual Site Model Development	Rev. 1
		ROF-06-007-2	Low Flow Groundwater Sample Collection Record	Rev. 7
		ROP-06-001	NPDES Daily, Weekly and Monthly Effluent Sample Collection	Rev. 57
		ROP-06-002	Roof Effluent Air Sampling and Counting	Rev 31
		ROP-06-003	Ambient Environmental Air Monitoring for Radioactivity	Rev. 17
		ROP-06-006	Collection of Routine NRC-Required Environmental Samples	Rev. 40
		ROP-06-007	Groundwater Well Sampling	Rev. 35
		ROP-06-010	Quarterly Storm Water Monitoring and Visual Inspection	Rev. 9
		ROS-06-007-1	Groundwater Wells and Sampling Parameters	Rev. 2
		SEPF-009-28	Command Check Sheet- Seismic Event	Rev. 2
	Self-Assessments	EHS-AUDIT-21-11	Audit Report for the SNM-1107 Environmental Protection	8/31/21
		EHS-AUDIT-21-	Supplier Audit of GEL,, Labs LLC	10/18/21

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		16		
		EHS-AUDIT-21-17	Supplier Audit of Carolina Technical Services Inc.	10/26/2021
		EHS-AUDIT-22-7	Formal Compliance Audit	8/11/22
	Shipping Records	ISEU100009-266	Waste Manifest Specialty Transport	08/02/2022
		S-53455-0-248	Waste Manifest, US Ecology	08/23/2021
	Work Orders	790948	UN Storage Tank Internal Mechanical Integrity Inspection 54 months	1/23/2020
		827956	UN Bulk Storage Tanks External Mechanical Integrity Inspection 5 year	3/25/2019
		99530	S-1030 Ventilation Ducts Requiring Inspection (SSC-VENT-S1030-111	03/22/2022
88070	Corrective Action Documents	IR-2021-13347	Failure to Follow TA-500 Configuration Control and SYP-223	12/10/2021
		IR-2022-4811	Evaluation of Changes Affecting Current 304L SS Processes	5/25/2022
	Corrective Action Documents Resulting from Inspection	IR-2022-6455	Hydrogen Excess Flow Valve Bypass Valve Not Locked per MCP-203530	7/20/2022
	Drawings	301F01PI01, Sheet 2	SOLX I Feed Tanks	Rev. 36
		301F01PI01, Sheet 2	SOLX I Feed Tanks	Rev. C1
		301F01PI01, Sheet 3	Solvent Extraction I	Rev. C1
		301F01PI01, Sheet 3	Solvent Extraction I	Rev. C1
		301F01PI01, Sheet 3	Solvent Extraction I	Rev. C1
		301F01PI02, Sheet 1	Solvent Extraction II	Rev. C1
		301F01PI02, Sheet 1	Solvent Extraction II	Rev. C1
		301F02PI01, Sheet 1	UN Product Concentrator System I & II	Rev. C2

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		301F02PI01, Sheet 1	UN Product Concentrator System I & II	Rev. C1
		301F02PI01, Sheet 1	UN Product Concentrator System I & II	Rev. C2
		301F02PI02, Sheet 2	UNH Product Holding Tank V-1487A	Rev. 21
		333F08PI01, Sheet 1	Liquid Waste Storage Columns	Rev. 42
		620F02PI01, Sheet 2	Waterglass Feed / Storage Tanks P&ID	Rev. 42
		620F05EQ01, Sheet 1	Fume Hood, Ammonia Vent System	05
		620F05PI01, Sheet 1	Ammonia Scrubber Process Vent System Ammonia Fume Vent Piping from Outside Tanks	Rev. 10
		620F05PP03, Sheet 1	Waterglass Ammonia Scrubber Ventilation Plan, Pipe Rack	Rev. 02
		N/A	First Floor Area Designations IFBA and ERBIA	Rev. P1
	Engineering Evaluations		Integrated Safety Analysis Summary - Columbia Fuel Fabrication Facility	Rev. 16
		CSE-7-A	Criticality Safety evaluation for the Solvent Extraction System	Rev. 14
		CSE-99-M	Criticality Safety Evaluation for the CFFF Design Basis Seismic Event	Rev. 4
		FHA-13-001	Fire Hazards Analysis, Appendix Yard-01, UF6 Storage Pad	Rev. 2
		FHA-13-001, Appendices CHEM-02 and CHEM-12	Fire Hazard Analysis for Columbia Fuel Fabrication Facility	Rev. 1
	Miscellaneous	LTR-RAC-22-04	Westinghouse 10 CFR 70.72 Facility Change Report	01/27/2022
		PM21018	Preventive Maintenance - Concrete Barriers for SBG Fuel Tanks	Completed on 8/30/2021
		PM21026	Preventive Maintenance - Visual Mechanical Integrity Inspection on Double Walled Fuel Oil Tank	Completed on 4/6/2022
	Procedures	CA-004	Records Management	Rev. 24
		COP-830110	SOLX & Product Concentrator System 1 - Startup &	Rev. 45

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Operation	
		COP-830111	SOLX & Product Concentrator System 2 - Startup & Operation	Rev. 34
		MCP-202245	Standby Generator Fuel Filling	Rev. 2
		MCP-203530	Hydrogen Excess Flow Valve Bypass Management	Rev. 0
		QA-006	Computer Software Quality Assurance	Rev. 52
		QA-007	Programmable Logic Controller Software Quality Assurance	Rev. 24
		QAF-006-01	Software Verification and Validation Decision	Rev. 22
		RA-106	Regulatory Component Audits at the Columbia Fuel Fabrication Facility	Rev. 42
		TA-500-10	Configuration Management Risk Assessment Board Meeting	Rev. 4