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

January 27, 2023

EN 56070

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

SUBJECT: WESTINGHOUSE COLUMBIA FUEL FABRICATION FACILITY – INTEGRATED INSPECTION REPORT 07001151/2022004

Dear Annette Pope:

This letter refers to the U.S. Nuclear Regulatory Commission inspection activities conducted during the period from October 1 to December 31, 2022, for the Westinghouse Columbia Fuel Fabrication Facility. On November 17, 2022, the NRC inspectors discussed the results of this inspection with you. The results of this inspection 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,

Signed by Michel, Eric
on 01/27/23

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 07001151/2022004 DATED JANUARY 27, 2023

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OFFICE	RII/DFFI/PB2	RII/DFFI/PB2	RII/DFFI/PB2		
NAME	L. Pitts	T. Vukovinsky	E. Michel		
DATE	1/30/2023	1/25/2023	1/27/2023		

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number:	07001151
License Number:	SNM-1107
Report Number:	07001151/2022004
Enterprise Identifier:	I-2022-004-0056
Licensee:	Westinghouse Electric Company
Facility:	Westinghouse Columbia Fuel Fabrication Facility
Location:	Hopkins, SC
Inspection Dates:	November 14, 2022, to November 17, 2022
Inspectors:	L. Pitts, Sr. Fuel Facility Projects Inspector J. Raudabaugh, Fuel Facility Inspector T. Vukovinsky, Sr. Fuel Facility Project 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

EN 56070, "Criticality Accident Alarm System (CAAS) Inoperable," closed.

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

88020 - Operational Safety

The inspectors evaluated selected aspects of the licensee's operational safety program to verify compliance with selected portions of 10 CFR 70, "Domestic Licensing of Special Nuclear Material," including 70.24, 70.61, 70.62, and Chapter 3, "Management Measures," of the facility's license application, and applicable licensee procedures.

Identification of Safety Controls and Related Programs (IP Section 02.01)

The inspectors selected specific process areas for inspection based on the safety basis information of the facility, the risk/safety significance of the process areas, the description of plant changes submitted to the NRC, and past plant performance documentation. For the process areas of interest, the inspectors selected a sample of accident sequences in nuclear criticality safety and chemical safety based on the information provided in the integrated safety analysis (ISA) summary. The inspectors conducted a general plant tour of each major plant operating area. The process areas and accident sequences selected for review are listed below:

- Bulk Blending
  - CSE-5-A Scenario #1 Bulk Container has High Water Content Because of High Moisture Polypaks
- Integral Fuel Burnable Absorber (IFBA) Area
  - CSE-14-A, Material Handling in the IFBA Area
  - CSE-14-B, IFBA Coaters
  - CSE-14-C, Miscellaneous Operations in the IFBA Area

Review of Safety Controls and Related Programs (IP Section 02.02)

The inspectors reviewed information related to administrative, engineered, and passive safety controls or items relied on for safety (IROFS) for the accident sequences selected above, including the identification of the licensee's assumptions and bounding cases as they apply to each of the selected accident sequences, safety controls, or IROFS. This review was performed to verify that the controls or IROFS were available and reliable to perform their intended safety functions and that the design basis assumptions were reflected in the actual conditions in the field. The specific safety controls selected for review are listed below:

- ADUBB-102, Bulk Blending Dump Hood Interlock Failure, active engineered control (AEC), functional area criticality safety
- ADUBB-106, Fail Properly Record and Enter MM2 Lab Results in Computer System, administrative control (AC), functional area criticality safety
- ADUBB-107, 1st Sampling Process Execution Fails, AC, functional area criticality safety
- ADUBB-119, Outer Roof Structure Fails Allowing Moderation, passive engineered control (PEC), functional area criticality safety
- ADUBB-120, Inner Roof Structure Fails Allowing Moderation, PEC, functional area criticality safety
- ADUBB-121, Failure Structural Integrity of Equipment and Covers, PEC, functional areas criticality safety, and radiation safety
- ADUBB-911, Failure Structural Integrity of tumbler cradle and supports, PEC, functional area criticality safety
- ADUBB-914, Bulk Container in Raised Position Interlock Re-Mill Station #1, AEC, functional area criticality safety
- ADUBB-915, Bulk Container in Raised Position Interlock Re-Mill Station #2, AEC, functional area criticality safety
- IFBA-101, IFBA Pellet Tray Design, PEC, functional area criticality safety
- IFBA-104, Coating Fixture Structure Design, PEC, functional area criticality safety
- IFBA-106, Drying Oven Capture Row Tray Structure Design, PEC, functional area criticality safety
- IFBA-120, IFBA Area Ceiling Integrity, PEC, functional area criticality safety
- IFBA-147, IFBA Area Piping Integrity, PEC, functional area criticality safety
- IFBACTR-110, Coater Cooling System Design, PEC, functional area criticality safety
- IFBACTR-116, Target Rotation or Replacement Procedure, AA, functional area criticality safety
- IFBACTR-117, Shield and Coater Drum Replacement Procedure, AC, functional area criticality safety
- IFBA-MISC-101, Filter Press Plate Peg-and-Hole Features, PEC, functional area criticality safety
- IFBA-MISC-125, Filter Press Plate Peg Inspection, AC, functional area criticality safety

Implementation of Safety Controls (IP Section 02.03)

For the selected safety controls listed above, the inspectors reviewed management measures to verify proper implementation in accordance with 10 CFR 70 and chapter 3 of the license application. This review was performed to verify that selected safety controls or IROFS were present, available, and reliable to perform their safety function and that the design basis assumptions were reflected in the actual conditions in the field. The inspectors conducted the following activities to verify the implementation of selected safety controls:

- walkdowns performed to verify implementation of IROFS detailed above
- observed maintenance staff performing inspections associated with IROFS ADUBB-901

- interviewed maintenance staff assigned to perform inspections to verify they were knowledgeable of the requirements associated with their assigned inspections

Safety Control Support Programs (IP Section 02.04)

The inspectors assessed additional management measures that support the availability and reliability of the selected safety controls to verify these were implemented in accordance with 10 CFR 70 and chapter 3 of the license application. Additionally, the inspectors followed-up on event notification (EN) 56070, "Criticality Accident Alarm System (CAAS) Inoperable." Specifically, the inspectors conducted the following:

- reviewed preventative maintenances (PMs) and procedures for testing, inspection, and repair of bulk containers for IROFS ADUBB-901
- reviewed PMs for testing and inspection associated with IROFS ADUBB-119, ADUBB-120, ADUBB-121, ADUBB-911, ADUBB-914, and ADUBB-915
- reviewed failure and degradation records for IROFS in IFBA and bulk blending
- reviewed corrective action program entries for IFBA and bulk blending
- reviewed the Environmental Health and Safety Formal Compliance Audit Report (EHS-AUDIT-22-7)
- reviewed training documents for two welders and interviewed one welder assigned to perform the inspections associated with ROFS ADUBB-901
- observed activities related to bulk blending operations
- walkdowns and interviews performed to review EN 56070, "Criticality Accident Alarm System (CAAS) Inoperable"

INSPECTION RESULTS

Minor Violation	88020
Minor Violation: An event follow-up inspection was conducted from November 14 to 17, 2022, for EN 56070 (ML22277A460). The event resulted in the reported loss or degradation of the CAAS due to a circuit breaker tripping. Power was subsequently restored to the detectors approximately 90 minutes later. Further investigation determined that power was also lost to seven CAAS horns and one strobe light. In the unlikely event of a criticality anywhere in the plant, the emergency response is to evacuate the entire plant. Therefore, since a portion of the horn system was unavailable all special nuclear material (SNM) movements should have been suspended in the plant within an hour. It was not recognized until completion of the extent of condition review that the horn loop was out of service for approximately 90 minutes due to this incident. Screening: The inspectors determined the violation was minor. Per NRC IMC 0616, “Fuel Cycle Safety and Safeguards Inspection Reports,” Appendix B, “Minor/More-than-Minor Examples,” this issue aligns closely with example 2k. This issue is considered minor because the failure occurred for an insignificant duration (e.g., less than or equal to 8 hours). Enforcement: The licensee took immediate corrective actions to suspend SNM movements at the UF6 cylinder storage pad and to verify that no personnel were in the affected area at the time. Power was subsequently restored to the detectors approximately 90 minutes later. Additionally, corrective actions were put in place to determine reason for power loss and to move the power supply to an alternate power source.	

This failure to comply with the Emergency Plan Section 5.1.1, “Onsite Protective Actions,” and license application Chapter 6.1.8, “CAAS,” constitutes a minor violation that is not subject to enforcement action in accordance with the NRC Enforcement Policy. EN 56070 is closed.

EXIT MEETINGS AND DEBRIEFS

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

- On November 17, 2022, the inspectors presented the integrated inspection results to Annette Pope and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
88020	Drawings	348F03PI09,01	Bulk Blending Process Flow	Rev. 3
		500F00CR02	Criticality Badge and Criticality Alarm Zones (Outside)	Rev. 03
		500F00CR02	Criticality Badge and Detector Locations and Coverage	Rev. 17
		510F08EL05	Electrical Emergency Panel Schedules	Rev. 78
		510F08EL05	Plant Utilities	Rev. 78 and 79
		510F08EL05	Electrical Emergency Panel Schedules	Rev. 79
		510F16EL03	Single Line Standby Generator-3	Rev. 44
		605F00PI0S	IFBA / Facilities ROD LINE Piping & Instrumentation Drawing (P&ID)	Rev. 12
		802F01PI01	COATER 1 (PK-7066) P&I D	Rev. 05
		802F03P101,02	Pellet Coating #3	Rev. 4
		802F03PI01	COATER 3 (PK-7068) P&I D	Rev. 04
		802F05P101,02	Pellet Coating #5	Rev. 8
		802F05PI01	COATER 5 (PK-7069) P&I D	Rev.08
		805F02PI02	VACUUM OVEN P&I D	Rev. 02
		807F04EQ02	FILTER PRESS (FP-7092) POLY PLATE MODIFICATIONS	Rev. 01
		807F04PI01	IFBA Facility / MOP Water	Rev. 25
		VACUUM OVEN P&ID FURNACE #1	805F01PI02	Rev. 02
	Engineering Evaluations	CSE-14-A	Material Handling (Pellet Receipt through Collating or Pre-stacking) in the Integral Fuel Burnable Absorber (IFBA) Area	Rev. 17
		CSE-14-B	Integral Fuel Burnable Absorber (IFBA) Coaters	Rev. 10
		CSE-14-C	Miscellaneous Operations in the Integral Fuel Burnable Absorber (IFBA) Area	Rev. 16
		CSE-5-A	Ammonium Diuranate (ADU) Bulk Blending System	Rev. 2
	Miscellaneous	CF-10-009	Continuity Log for Certified Welders	12/14/2008
		ISA 05	ADU Bulk Blending System	Rev. 17
		ISA 14	IFBA Processing	Rev. 16
	Procedures	CF-10-009	Qual Training Record - Certified Welders	Rev. 3

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CF-81-113	SAFETY SIGNIFICANT INTERLOCKS FUNCTIONALITY VERIFICATION	Rev. 4
		CF-96-016	IFBA Cassette H2 Sample Blend	Rev. 5
		COCL-PO4	DETERMINATION OF WATER BY COULOMETRIC	Rev. 37
		COP-811001	Fitzmill	Rev. 61
		COP-811002	Automatic Sampler	Rev. 5
		COP-814201	Re-sampling of Line Product Materials	Rev. 38
		COP-814760	Functional Verification of Safety Significant Controls - ADU Dump Hood	Rev. 4
		COP-816019	Operation of the Automatic UO2 Powder Sampler	Rev. 8
		MCP-108151	ADU Bulk Blending Container Inspection and Repair	Rev. 5
		PM20321	HEPA FILTER HOUSE INSPECTION CHECKLIST	11/16/2022
		RA-304	Criticality Accident Alarm System	Rev. 17
	Self-Assessments	EHS-AUDIT-22-7	Formal Compliance Audit Report	08/11/2022
	Work Orders	146345	HEPA FILTER HOUSE INSOECTION - 13 WEEK	11/16/2022
		Dispatch 101979	Safety Inspection of Moderation Control Barriers	04/07/2022
		Dispatch 146083	Bulk Container Inspection	11/14/2022
		Dispatch 146207	Bulk Container 55 Inspection	11/15/2022
		Dispatch 146483	Bulk Container #17 Dispatch	11/14/2022
		OEM83106	CFF - Dispatch #113282	06/01/2022
		OM81217	Safety Interlock - ADU Dump Hood	04/29/2022
		PM 81070 Checklist	Bulk Container Inspection Checklists for Bulk Containers 04, 17 and 55	11/15/2022
		PM20321	HEPA Filter House Inspection	11/16/2022
		PM81070	Bulk Container Inspection	11/17/2022