



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

January 14, 2014

Mr. David Precht
Manager, Columbia Plant
Westinghouse Electric Company
5801 Bluff Road
Hopkins, SC 29061

SUBJECT: WESTINGHOUSE ELECTRIC COMPANY - NUCLEAR REGULATORY
COMMISSION INTEGRATED INSPECTION REPORT 70-1151/2013-005

Dear Mr. Precht:

The Nuclear Regulatory Commission (NRC) conducted announced, routine inspections from October 1 through December 31, 2013 at the Westinghouse Columbia Fuel Fabrication Facility in Hopkins, SC. The purpose of the inspections was to review implementation of programs and procedures for operational safety, fire protection, and permanent plant modifications. The inspections were conducted to determine whether licensed activities were conducted safely and in accordance with NRC requirements. The enclosed report presents the results of the inspections. At the conclusion of the inspections, the results were also discussed with members of your staff at exit meetings on November 7, and November 21, 2013.

During the inspections, the staff examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspections consisted of facility walk-downs; selective examinations of relevant procedures and records; interviews with plant personnel; and plant observations. Throughout the inspections, observations were discussed with your managers and staff. Based on the results of the inspection, no findings of significance were identified.

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

D. Precht

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If you have any questions, please call me at (404) 997-4629

Sincerely,

/RA/

Marvin D. Sykes, Chief
Projects Branch 2
Division of Fuel Facility Inspection

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

Enclosure:
NRC Inspection Report No. 70-1151/2013-005
w/Attachment: Supplemental Information

cc:
Wayne Sepitko
Manager
Environment, Health and Safety
Electronic Mail Distribution

Christine Kneece
Manager
Industrial Safety
Electronic Mail Distribution

Susan E. Jenkins
Assistant Director, Division of Waste Management
Bureau of Land and Waste Management
Department of Health and Environmental Control
Electronic Mail Distribution

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U. S. NUCLEAR REGULATORY COMMISSION
REGION II

Docket No.: 70-1151

License No.: SNM-1107

Report No.: 70-1151/2013-005

Licensee: Westinghouse Electric Company

Facility: Columbia Fuel Fabrication Facility

Location: Hopkins, SC 29061

Dates: October 1 through December 31, 2013

Inspectors: M. Thomas, Senior Fuel Facility Inspector (Section A.1)
D. Hartland, Senior Fuel Facility Inspector (Section A.2)
B. Adkins, Senior Fuel Facility Inspector (Section B.1)
P. Startz, Fuel Facility Inspector (Section B.1)

Approved by: M. Sykes, Chief
Projects Branch 2
Division of Fuel Facility Inspection

Enclosure

EXECUTIVE SUMMARY

Westinghouse Electric Company
Columbia Fuel Fabrication Facility
NRC Integrated Inspection Report 70-1151/2013-005
October 1 through December 31, 2013

Inspections were conducted by NRC regional inspectors during normal shifts in the areas of safety operations, fire protection, and permanent plant modifications. During the inspection period, normal production activities were ongoing. These announced, routine inspections consisted of a selective examination of procedures and representative records, observations of activities, walk-downs of Items Relied on for Safety (IROFS), and interviews with licensee personnel. No safety significant findings were identified.

Operational Safety

- The IROFS selected for review were properly implemented and maintained in order to reliably perform their intended safety function. (Section A.1)

Fire Protection

- The fire protection systems were adequately maintained in accordance with site procedures. No findings of significance were identified with regard to the site's fire protection program. (Section A.2)

Permanent Plant Modifications

- The Plant Modifications program was implemented in accordance with the license application and applicable regulatory requirements. (Paragraph B.1)

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. Operational Safety (Inspection Procedure (IP) 88020)

a. Inspection Scope and Observations

The inspectors interviewed staff and reviewed records associated with the Pelleting and IFBA areas. The inspectors determined that selected Items Relied on for Safety (IROFS) are being adequately implemented and properly communicated as described in the Integrated Safety Analysis (ISA). The inspectors determined that the licensee is operating safely and in compliance with requirements.

The inspectors confirmed that engineered controls reviewed were present and capable of performing their intended safety functions. To complete this confirmation, the inspectors verified the physical presence of passive and active engineered safety controls, evaluated the safety controls to determine their capability and operability, and verified that potential accident scenarios were covered.

The inspectors determined that licensee administrative controls were implemented and communicated. The inspectors reviewed applicable procedures and records and determined that required actions, as identified in the ISA Summary, were correctly transcribed into operating procedures. The inspectors evaluated the procedures' contents with respect to operating limits and operator responses for upset conditions and verified that limits needed to assure safety are adequately described in the procedures.

The inspectors interviewed operators and determined that operators and technicians were adequately implementing the required safety controls. The inspectors observed operator performance and determined that they were adhering to applicable safety procedures. The inspectors reviewed the postings and operator aids applicable to the tasks being observed and determined that these postings and operator aids were current, reflected safety controls, and were used by the operators.

Through interviews and document reviews, the inspectors verified that the licensee conducted periodic surveillance testing as required by the ISA Summary for the selected safety controls.

The inspectors reviewed the licensee corrective action program entries for the Pelleting and IFBA areas since the last operational safety inspection and determined that deviations from procedures and unforeseen process changes affecting nuclear criticality, chemical, radiological, or fire safety were documented, investigated promptly, and corrective actions initiated/completed.

b. Conclusion

No findings of significance were identified.

2. Fire Protection (IP 88055)

a. Inspection Scope and Observations

The inspectors reviewed licensee procedures and toured plant areas containing safety controls and items relied on for safety (IROFS) to assess the material condition of fire protection equipment, systems, and features. The inspectors verified that flammable materials were stored in marked cabinets as specified in approved procedures and that housekeeping and the control of combustible materials were adequate and consistent with the approved procedures. The inspectors verified that the cutting, welding, and hot work program was implemented in accordance with approved procedures.

The inspectors observed weekly testing of fire water pumps, reviewed records, and interviewed licensee personnel to verify that the observed fire protection systems were maintained in an adequate state of readiness and had been properly tested to verify their ability to perform their safety function. The inspectors determined 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. Also, the inspectors determined that fire hoses and portable extinguishers were provided at their designated locations and access was unobstructed.

The inspectors reviewed the licensee's corrective action program (CAP) entries since the last fire protection inspection and determined that the licensee was identifying safety control or IROFS fire protection operability problems at an appropriate threshold and entering them into the CAP. Also, the inspectors evaluated the corrective actions associated with a sample of the CAP program entries and determined that the completed corrective actions were adequate.

The inspectors noted that the Emergency Response Team fire brigade members received adequate training and participated in drills at the appropriate frequency. The inspectors also verified that the offsite fire support organizations were offered an opportunity for site orientation.

b. Conclusion

No findings of significance were identified.

B. Facility Support

1. Permanent Plant Modifications (IP 88070)

a. Inspection Scope and Observations

The inspectors interviewed managers, supervisors, and staff to verify that the licensee had established an effective configuration management system to evaluate, implement, and track permanent plant modifications (PPMs) which could affect safety.

The inspectors verified that the licensee's work control program had provisions to ensure the adequate pre-job planning and preparation of PPM design packages. The configuration management system had adequate provisions to ensure that PPMs did not degrade the performance capabilities of IROFS or other safety controls that are part of the safety design basis.

The inspectors verified that the licensee addressed the impacts of modifications to the ISA Summary, and other safety program information developed in accordance with 10 CFR 70.62. The inspectors also verified that the reviewed PPMs were in compliance with the requirements of 10 CFR 70.72.

The inspectors reviewed PPM design packages since the last PPM inspection to ensure the as-built design installations were in conformance with the design drawings. The inspectors conducted walk downs to verify that field installations matched as-built design drawings. The inspectors verified that applicable post installation and testing requirements were adequately identified and performed prior to implementation of PPM design packages. Completed modifications were adequately reviewed prior to implementation and before returning affected equipment to service.

The inspectors verified that the PPMs involving IROFS were adequately designed and implemented, and that assumptions were validated with the actual configuration and operation of the modified processes. The inspectors also verified that the licensee had implemented management measures to assure that modified IROFS were available, and reliable to perform their intended safety function when needed.

The inspectors reviewed the licensee's problem identification and resolution program to verify that issues relating to the preparation and installation of permanent plant modifications were entered into the corrective action program and the adequacy of corrective actions.

b. Conclusion

No findings of significance were identified.

C. 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 November 7 and 21, 2013, with you and your staff. No dissenting comments were received from the licensee. Proprietary information was discussed, but not included in this report.

SUPPLEMENTAL INFORMATION

1. KEY POINTS OF CONTACT

<u>Name</u>	<u>Title</u>
P. Bartman	ESHQA Lead
A. Batten	I&C Engineer
D. Baustert	Pelleting Area Manager
G. Byrd	Licensing Engineer, ES&H
B. Faris	ISA Engineer
V. Lowe	I&C Engineer
C. Miller	NCS Engineer
N. Parr	Licensing Manager, ES&H
D. Precht	Plant Manager
W. Sepitko	Environmental, Health, and Safety Manager
J. Watkins	Manager Regulatory Programs

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

2. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

None

3. INSPECTION PROCEDURES USED

IP 88020 Operational Safety
IP 88055 Fire Protection
IP 88070 Permanent Plant Modifications

4. DOCUMENTS REVIEWED

Records:

Change Control Form (CCF)-10390, 3rd IROF for ADU Line 5 Autoclave System
Change Control Form (CCF)-12124, Install a criticality horn in the hot oil room
CCF-12174, Hot Oil Room Criticality Alarm Horn, dated February 15, 2012
Dwg. No. 338F01P101, Line 5 Vaporization V-501A P&ID, Sheet 02, Revision (Rev.) C3
Dwg. No. 338F02P101, Line 5 Hydrolysis Column V-502 P&ID, Sheet 01, Rev. C3
Dwg., P&ID, No. 325F01P101, Rev C1, hydrogen supply pressure switch.
Dwg. No. 325F11EL02, Rev C1, Pellet Line 5B, electrical controls.
Dwg. No. 338A01LS38, Rev C1, Hydrogen flow to calciner.
Dwg. No. 338A01LS39, Rev C2, PIC-509D Calciner Pressure Control.
MCP-202037, GA-6M Criticality Alarm Calibration & SSC Verification, Rev. 26, dated August 1, 2013

Attachment

MCP-203355, Verification of Instrumented Safety Function ADUHYD-105, ADUHYD-106:
 V-X02 Recirculation Flow Low
 MCP-636869/OM81204, Annual Verification of safety significant interlocks, alarms, and
 passive engineered controls, ADU Line 4
 MCP-599268/OM81205, Annual Verification of safety significant interlocks, alarms, and
 passive engineered controls, ADU Line 5
 MCP-613786/OM81201, Annual Verification of safety significant interlocks, alarms, and
 passive engineered controls, ADU Line 1
 MCP-617603/OM81203, Annual Verification of safety significant interlocks, alarms, and
 passive engineered controls, ADU Line 3
 MCP-630513/OM81202, Annual Verification of safety significant interlocks, alarms, and
 passive engineered controls, ADU Line 2
 MCP-203321, Rev 4, Verification of interlocks ADUCAL-907
 MCP-203330, Rev 5, Verification of interlocks ADUSCR-903
 MCP-203332, Rev 6, Verification of interlocks ADUSCR-902, V-x12 LLL
 MCP- 203328, Rev 3, Verification of interlocks ADUCAL-901
 PSEoc-000216, ADU Line 5 Autoclave SIS, August 22, 2011
 PSEoc-0000469, Qualification Plan for Changes to the Line 5 Safety Instrumented
 System (SIS) for Third IROFS Implementation, dated September 9, 2011
 PSEoc-0000470, Qualification Report for Line 5 Safety Instrumented System (SIS) for
 Third IROFS Modifications, dated March 21, 2012
 PSEDoc-0000563, Independent Technical Review Report, install independent nitrogen
 pressure switches and new temperature controllers on sintering furnaces
 PSEDoc-0000602, Third IROFS piping SSC impacts for Line 5 Autoclave Data Package
 CCF 10390, Rev 0
 PSEoc-0000654, Hot Oil Room Criticality Alarm Horn Independent Technical Review,
 Rev. 0
 PSEDoc-0000565, CCF 11473, SOLX area, V-717 level alarms, Rev 0
 PSEDoc-0000682, CCSU Line 5 Phase 4 Experion Upgrades, Rev 0
 PSEDoc-0000707, Steam condensate conductivity sensor system conversion, Rev 0
 PSEDoc-0000714, ADUVAP-910 Modifications, convert PLC steam condensate
 conductivity to hardwired interlock, Rev 0
 RA-108-4, Safety Significant Control Sketch, Rev. 31, dated October 25, 2013
 Schematic 504F03EL01, Criticality Alarm Schematics, Sheet 18, Rev. 11
 Schematic 504F03EL01, Criticality Protection Conduit Plan 1st Floor, Rev. 26
 Sketch 815417-3, Wet End Safety Significant Controls, Rev. 53, dated September 5,
 2013
 Sketch 815417-4, ADU Dryer through Calciner Safety Significant Rev. 44
 Sketch 815417-5, Scrubber and Powder Discharge Systems Safety Significant Controls,
 Rev. 26
 WO 579303, Annual PM – Crit Horn Sound Check, dated March 3, 2012

Procedures:

COP-810201, (chemical operating procedure) Hydrolysis Operation, Rev. 37
 QA-006, Computer Software Quality Assurance, Rev. 37
 QA-007, Programmable Logic Controller Software Quality Assurance, Rev. 23, dated
 December 23, 2012
 TA-500, Columbia Manufacturing Plant Configuration Control, Rev. 27
 RA-104, Regulatory Review of Configuration Control Change Authority, Rev. 25
 RA-108, Safety Significant Controls, Rev. 32

RA-120-8, Regulatory Policy – Application of Quality Assurance (QA) Program Criteria,
Rev. 3, dated November 7, 2013

RA-125, Indoctrination, Training and Qualification of EH&S Personnel, Rev. 19, dated
March 21, 2013

Condition Reports Written as a Result of the Inspection:

CAPs#13-326-C011

Condition Reports Review:

13-225-C005, 13-262-C007, 13-283-C010, 13-281-C010, 13-302-C002, 13-315-C021,
13-213-C001, 13-221-C020, 13-218-C001, 13-178-C004, 13-217-C002, 13-256-C007,
13-203-C033, 13-225-C013, 13-290-C001, 13-248-C004, 13-221-C009

Other Documents:

LTR-EHS-12-72, Subject: Common Cause Failure Evaluation for Non-Criticality IROFS,
dated August, 9, 2012

Training Records for NCS Engineers