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

November 4, 2010

Mr. David Precht
Manager, Columbia Plant
Westinghouse Electric Company
Commercial Nuclear Fuel Division
5801 Bluff Road, Drawer R
Columbia, SC 29250

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT NO. 70-1151/2010-007 AND NOTICE OF VIOLATION

Dear Mr. Precht:

This refers to the inspection conducted on September 27 through September 30, 2010, at the Westinghouse Electric Company (Westinghouse) facility (Inspection Report No. 70-1151/2010-007, enclosed). The purpose of the inspection was to perform a routine review of the implementation of the safety operations and fire protection programs. The review was performed to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. At the conclusion of the inspection, the findings were discussed with you and members of your staff on September 30 and October 28, 2010.

The inspection was an examination of 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 inspection consisted of facility walk downs; selective examinations of relevant procedures and records; examinations of safety-related structures, systems, equipment and components; interviews with plant personnel; and observations of plant conditions and activities in progress. Throughout the inspection, observations were discussed with your managers and staff.

Based on the results of this inspection, the NRC has determined that a Severity Level IV violation of NRC requirements occurred.

The violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html.

The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is being

cited in the Notice because you failed to meet the requirements as specified in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 70 Appendix A.

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence and the date when full compliance was achieved was adequately addressed on the docket in Event Number 45655 dated January 25, 2010, and updated September 30, 2010. Therefore, you are not required to respond to this letter unless the description herein does not accurately reflect your corrective actions or your position. In that case, or if you choose to provide additional information you should follow the instructions specified in the enclosed Notice.

Based on the results of this inspection, the NRC has also determined that an additional Severity Level IV violation of NRC requirements occurred. This violation is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to: (1) the Regional Administrator, Region II; and (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response, if you choose to provide one for cases where a response is not required, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

Sincerely,

/RA by M. Sykes/

Marvin D. Sykes, Chief
Fuel Facility Branch 3
Division of Fuel Facility Inspection

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

Enclosures:
1. Inspection Report No. 70-1151/2010-007
2. Notice of Violation

cc w/encls:
Marc Rosser
Manager
Environment, Health and Safety
Commercial Nuclear Fuel Division
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

Letter to: David Precht from Marvin D. Sykes dated November 4, 2010.

Subject: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT NO. 70-1151/2010-007 AND NOTICE OF VIOLATION

Distribution w/encls:
M. Sykes, RII
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C. Ryder, NMSS
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OFFICE	RII:DFFI	RII:DFFI	RII:DFFI				
SIGNATURE	/RA for OL by CMC/	/RA BY CMC/	/RA by MT/				
NAME	OLopez	CCramer	MThomas				
DATE	10/21/2011	10/21/2011	10/22/2011	11/ /2010	11/ /2010	11/ /2010	11/ /2010
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	70-1151
License No.:	SNM-1107
Report No.:	07001151/2010007
Licensee:	Westinghouse Electric Company
Location:	Columbia, SC
Dates:	September 27 through September 30, 2010
Inspectors:	Omar López, Fuel Facility Inspector Division of Fuel Facility Inspection, Branch 3 Chad Cramer, Fuel Facility Inspector Division of Fuel Facility Inspection, Branch 1
Approved by:	Marvin Sykes, Chief Fuel Facility Branch 3 Division of Fuel Facility Inspection

EXECUTIVE SUMMARY

Westinghouse Electric Company
NRC Inspection Report No. 70-1151/2010-007

The Westinghouse Facility converts uranium hexafluoride into uranium dioxide and fabricates fuel assemblies for use in commercial nuclear power reactors. During the inspection period, normal production activities were ongoing. This routine, announced inspection included a review of the operational safety and fire protection programs. The inspection involved observation of work activities, a review of selected records, and interviews with plant personnel. The inspection identified the following aspects of the license program as outlined below:

Operational Safety

- A violation of NRC requirements was cited for failing to report conditions that were not properly analyzed in the integrated safety analysis within 24 hours of discovery as required by 10 CFR 70 Appendix A (b)(1). (Paragraph 2)

- The licensee had implemented the items relied on for safety (IROFS) that were reviewed, and established adequate management measures to ensure they were able to perform their intended safety function. No significant safety issues were identified. (Paragraph 2)

Fire Protection

- Fire safety controls, including IROFS, were properly implemented and maintained. Process areas, equipment, and material storage areas were operated in accordance with fire safety requirements. However, in one instance a non-cited violation was identified for the failure to ensure that a high consequence accident sequence was highly unlikely as required by 10 CFR 70.61. (Paragraph 3)

Attachment

List of Persons Contacted
List of Items Opened, Closed, and Discussed
Inspection Procedures Used

REPORT DETAILS

1. Summary of Plant Status

This routine, announced inspection included a review of selected aspects of the licensee's programs for operational safety and fire protection. There were no plant upsets or unusual operational occurrences during the onsite inspections.

2. Operational Safety (88020)

a. Inspection Scope and Observations

The inspectors walked down the vaporization, conversion, fuel manufacturing, solvent extraction, incinerator, specialty fuel, and waste treatment process areas. The inspectors noted that the items relied on for safety (IROFS) reviewed were in place in order to perform their intended safety function. No significant issues were identified.

The inspectors reviewed piping and instrumentation diagrams for waste treatment, solvent extraction, and uranyl nitrate bulk storage areas to ensure that the diagrams reflected the as-found plant layout. No significant issues were identified.

The inspectors reviewed functional test procedures and management measures for selected IROFS. The management measures were applied in accordance with the licensee's requirements to ensure the IROFS were able to perform their intended function.

The inspectors partially reviewed the licensee's extent of condition for Event Number (EN) 45655, unanalyzed condition – overflow of uranium bearing ammoniated waste water. Through this review, the inspectors discovered numerous areas where the licensee found conditions that were not properly analyzed in the Integrated Safety Analysis. However, the licensee did not report these findings within twenty-four hours of discovery as required by 10 CFR 70 Appendix A (b)(1). The licensee did report these conditions to the NRC on September 30, 2010, as an update to the initial event report. Failing to report these findings within 24 hours of discovery is considered a violation of NRC requirements (VIO 70-1151/2010-007-01).

b. Conclusions

A violation of NRC requirements was cited for failing to report conditions that were not properly analyzed in the integrated safety analysis within 24 hours of discovery as required by 10 CFR 70 Appendix A (b)(1).

The inspectors reviewed the implementation of selected IROFS and their management measures to ensure they were able to perform their intended safety function. No significant safety issues were identified.

3. Fire Protection (88055)

a. Inspection Scope and Observations

The process equipment and material storage areas were maintained in accordance with fire safety requirements. The licensee adequately controlled combustible and flammable materials throughout the facility including zirconium fines. No significant safety issues were identified.

The inspectors reviewed the material condition and operational lineup of fire suppression systems. The inspectors verified that sprinklers were not obstructed and that water supply to the systems was readily available. The inspectors also reviewed the inspection, testing, and maintenance (ITM) records for fire suppression systems to verify that the systems were reliable and available. The fire protection systems reviewed included standpipes, fire pumps and water distribution systems, and hydrants. No significant safety issues were identified.

The inspectors verified that portable fire extinguishers were readily available in their correct location and rated for the correct fire scenario. The inspectors noted that portable fire extinguishers were charged to the normal operating zones, and no visible damage was noted.

The inspector reviewed maintenance records and walked down sections of the sprinkler systems and fire barriers. The inspectors also confirmed that fire barriers for the incinerator were in good condition. No significant safety issues were identified.

The inspectors walked down fire barriers designated as IROFS to verify that the barriers were in good condition and penetrations were properly sealed. The inspectors also verified that fire dampers and doors were in proper operating condition. The inspectors verified that an inspection program was in place and being performed to ensure the integrity of fire doors, fire dampers, and through-wall penetration seals was maintained. The inspectors verified that a surveillance program was in place and being performed to verify the operation of fire doors and dampers with passive actuation devices. No significant safety issues were identified.

The inspectors walked down the fire detection system and noted that the detection devices were not obstructed. The inspectors verified that a surveillance program was in

place to verify the operation of the fire alarm system. No significant safety issues were identified.

The inspectors observed an emergency exercise drill conducted on September 28, 2010. The licensee established specific objectives for the drill and reviewed the objectives with players. The inspectors observed the timely activation of the fire brigade, and appropriate control measures and communications in the field. Incident commanders maintained adequate communication to ensure the safety of response personnel. Entries into areas potentially affected by fire and unknown chemicals were performed in accordance with emergency guidelines and procedures. No significant safety issues were identified.

The inspectors walked down and reviewed surveillance records for selected fire safety IROFS for the conversion hot oil system, calciners, and sintering furnaces. The IROFS reviewed included hot oil temperature interlock, natural gas flow orifice, air purge of combustion chamber, UV burner flame sensor, combustion air pressure interlock, and interlocks related to hydrogen and nitrogen gases.

The inspectors followed up with EN 45884, which involved the loss of an IROFS that resulted in failure to meet the performance requirements of 10 CFR 70.61. On April 29, 2010, IROFS ADUHOS-407, Hot Oil System Number 3 Emergency Shutdown, failed a routine preventive maintenance functional test. This IROFS is credited in the Integrated Safety Analysis (ISA) to prevent a release of ammonium diuranate. The licensee determined that this accident sequence could result in a high consequence event. Part 70.61 of Title 10 of the *Code of Federal Regulations* (10 CFR 70.61) states, in part, that the risk of each credible high-consequence event must be limited. Engineered controls, administrative controls, or both, shall be applied to the extent needed to reduce the likelihood of occurrence of the event so that, upon implementation of such controls, the event is highly unlikely. The Westinghouse ISA defines highly unlikely as an accident sequence having an overall likelihood index (OLI) of -4. The failure of IROFS ADUHOS-407 resulted in the OLI for the accident sequence to change from -5 to -3, which did not meet the required OLI for a high consequence accident sequence as required by 10 CFR 70.61 performance requirements.

The licensee entered the event in their corrective action program; and conducted a root cause analysis which included identification of casual factors, corrective actions, an extent of condition review, and an extent of cause review. The licensee determined that a breaker actuator mechanism failure caused IROFS ADUHOS-407 to fail. The licensee has taken the following corrective actions:

- IROFS ADUHOS-407 was repaired, functionally tested, and restored to operable status on May 2, 2010.

- The licensee evaluated the scenarios for which this control was designated as an IROFS to determine if additional controls could be designated as IROFS. An additional passive engineered control, ADUHOS-907, Hot Oil System 3 and 4 Structural Integrity, was put in place with the necessary management measures established and performed to confirm the operability of the newly designated IROFS.
- Existing IROFS ADUHOS-906, Fire Rated Barrier of the Hot Oil Room, and ADUFIRE-901/902, Fire Prevention and Fire Fighting, contributions for meeting the performance requirements for this scenario were recognized.
- Additional active engineered control interlocks, which were Safety Significant Controls (SSCs), were designated as IROFS for the scenarios. These new IROFS are ADUHOS-901, Hot Oil System Number 3 High Oil Temperature Shutoff and ADUHOS-908, Backup High Oil Temperature Shutoff. SSCs ADUHOS-902, Hot Oil System Number 4 High Oil Temperature Shutoff, and ADUHOS-909, Backup High Oil Temperature Shutoff, were designated as IROFS.

As a result of the extent of condition/cause reviews, the licensee entered and will tracked to completion the following actions:

- Evaluate upgrading the hot oil system #3 to replace the breaker with a new style breaker equipped with an electrical contact to provide a more robust fail-safe design, where loss of contactor voltage would result directly in opening the breaker to shut down the hot oil system.
- Evaluate active engineered IROFS utilizing electrical devices currently identified for potential upgrades should a similar condition exist where a non fail safe design exists and compliance with the performance requirements could be challenged should a similar failure occur. Depending on what if any other systems are identified, either additional IROFS will be designated, or an engineering modification to provide a more robust fail-safe design will be installed.

The failure to ensure that a high consequence accident sequence was highly unlikely as required by 10 CFR 70.61 was considered a violation of NRC requirements, NCV 70-1151/2010-007-02. This non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section 2.3.2 of the NRC Enforcement Policy.

b. Conclusions

Fire safety controls, including items relied on for safety, were properly implemented and maintained. Process areas, equipment, and material storage areas were operated in

accordance with fire safety requirements. A non-cited violation was identified for the failure to ensure that a high consequence accident sequence was highly unlikely.

ATTACHMENT

1. Partial List of Persons Contacted

C. Alstadt, Acting Vice President U.S. Fuel Operations
G. Couture, EHS L&RP Manager
D. Precht, Acting Plant Manager
M. Rosser, EHS Manager

Other licensee employees contacted included engineers, operators, supervisors, technicians, and maintenance personnel.

2. List of Items Opened, Closed, and Discussed

Item Number	Status	Description
VIO 70-1151/2010-007-01	Opened/ Closed	Failure to report unanalyzed conditions in the ISA within 24 hours of discovery
NCV 70-1151/2010-007-02	Opened/ Closed	Failure to meet the performance requirements of 10 CFR 70.61

3. Inspection Procedures Used

IP 88020	Operational Safety
IP 88055	Annual Fire Protection

NOTICE OF VIOLATION

Westinghouse Electric Company
Columbia, SC

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

During an NRC inspection conducted on September 27 – September 30, 2010, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

> 10 CFR 70 Appendix A (b)(1) states, events to be reported to the NRC Operations Center within 24 hours of discovery, supplemented with the information in 10 CFR 70.50(c)(1) as it becomes available followed by a written report within 30 days, any event or condition that results in the facility being in a state that was not analyzed, was improperly analyzed, or is different from that analyzed in the Integrated Safety Analysis, and which results in failure to meet the performance requirements of 10 CFR 70.61.
>
> Contrary to the above, prior to September 30, 2010, the licensee failed to report to the NRC Operations Center, within 24 hours of discovery, conditions that resulted in the facility being is a state that was improperly analyzed in the Integrated Safety Analysis and which resulted in the failure to meet the performance requirements. Specifically, the licensee failed to report within 24 hours of discovery that the Conversion Area, Solvent Extraction, and UN Bulk Storage had accident scenarios determined to be of intermediate or high consequence, which were previously improperly analyzed as low consequence events.

This is a Severity Level IV violation (Section 6.2)

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance was achieved, is already adequately addressed on the docket in Event Number 45655, dated January 25, 2010, and updated September 30, 2010. However, you are required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a “Reply to a Notice of Violation,” and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region II, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

If you choose to respond, your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC’s document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. Therefore, to

the extent possible, the response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days of receipt.

Dated this 4th day of November, 2010