



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

November 30, 2009

Mr. Cary Alstadt
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. 70-1151/2009-007 AND NOTICE OF VIOLATION**

Dear Mr. Alstadt:

This refers to the inspection conducted on November 2-5, 2009, at the Columbia, SC facility. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with Nuclear Regulatory Commission (NRC) requirements. On November 5, 2009, the inspectors discussed the findings with members of your staff.

This 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. Within these areas the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

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 which is included on the NRC's web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement.html>. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the NRC Form 591FF, SAFETY INSPECTION REPORT, Parts 1 and 3. The violation is being cited in the Notice because the violation was identified by the NRC.

You are required to respond to the violation in this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration and convenience, NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," is available on the NRC's web site at <http://www.nrc.gov/reading-rm/doc-collections/gen-comm/info-notices/1996/in96028.html>. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and 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>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

If you have any questions, please call me at (404) 562-4721.

Sincerely,

/RA/

Daniel W. Rich, Chief
Fuel Facility Inspection Branch 3
Division of Fuel Facility Inspection

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

Enclosures: 1. Notice of Violation
2. NRC Form 591FF Parts 1 and 3

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

Distribution w/encls: (See page 3)

Distribution w/encls:

D. Rich, RII
R. Gibson, RII
P. Habighorst, NMSS
M. Adams, NMSS
PUBLIC

PUBLICLY AVAILABLE NON-PUBLICLY AVAILABLE SENSITIVE NON-SENSITIVE

ADAMS: Yes ACCESSION NUMBER: _____

SUNSI COMPLETE

OFFICE	RII:DFFI	RII:DFFI	RII:DFFI	RII:DFFI	RII:DFFI	RII:DFFI
SIGNATURE	CC 11/13/09	OL 11/13/09	DH 11/13/09	RG 11/27/09		
NAME	C Cramer	O Lopez	D Hartland	R Gibson		
DATE	12/ /2009	12/ /2009	12/ /2009	12/ /2009	12/ /2009	12/ /2009
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES	YES NO

NOTICE OF VIOLATION

Westinghouse Electric Company, L.L.C.
Columbia, South Carolina

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

During an NRC inspection conducted November 2-5, 2009, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

10 CFR 70.61(a) states, in part, that the licensee shall evaluate, in the integrated safety analysis (ISA), its compliance with the performance requirements in paragraphs (b) of this section.

10 CFR 70.61(b) 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.

10 CFR 70.61(e) states, in part, each engineered or administrative control or control system necessary to comply with paragraphs (b) of this section shall be designated as an item relied on for safety (IROFS).

Contrary to the above, on and before November 5, 2009, the licensee failed to evaluate in the ISA whether it was necessary to apply IROFS to reduce the risk of a credible high-consequence event. Specifically, the licensee failed to evaluate whether IROFS were necessary to reduce the risk of a uranium hexafluoride cylinder failure as a result of a fire in the hot oil system.

This is a Severity Level IV violation (Supplement VI).

Pursuant to the provisions of 10 CFR 2.201, Westinghouse Electric Company, L.L.C., is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with a copy to the Regional Administrator, Region II, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should be taken. Where good cause is shown, consideration will be given to extending the response time. If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Enclosure 1

Because 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> to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made publically available without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld, and provide in detail the basis for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

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

Dated this 30th day of November, 2009.

INSPECTION REPORT

1. LICENSEE OR CERTIFICATE HOLDER/LOCATION INSPECTED: Westinghouse Electric Corporation Commercial Nuclear Fuel Division Columbia, SC 29250		2. NRC/REGIONAL OFFICE: U.S. Nuclear Regulatory Commission Region II 61 Forsyth Street, Suite 23T85 Atlanta, GA 30303-8931	
REPORT NO: 2009-007			
3. DOCKET NUMBER: 70-1151	4. LICENSE OR CERTIFICATE NUMBER: SNM-1107	5. DATE(S) OF INSPECTION: November 2, 2009 – November 5, 2009	

LICENSEE OR CERTIFICATE HOLDER:

The inspection was an examination of the activities conducted under your license or certificate as they relate to safety and/or safeguards and to compliance with the Nuclear Regulatory Commission (NRC) rules and regulations and the conditions of your license or certificate. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector. The inspection findings are as follows:

- 1. Based on the inspection findings, no violations were identified.
- 2. Previous violation(s) closed.
- 3. Reported events reviewed
- 4. The violation(s), specifically described to you by the inspector as non-cited violations, are not being cited because they were self-identified, non-repetitive, and corrective action was or is being taken, and the remaining criteria in the NRC Enforcement Policy, to exercise discretion, were satisfied.
Non-Cited Violation(s) was/were discussed involving the following requirement(s) and Corrective Action(s):

- 5. During this inspection, certain of your activities, as described below and/or attached, were in violation of NRC requirements and are being cited. This form is a NOTICE OF VIOLATION, which may be subject to posting in accordance with 10 CFR 19.11.
(Violations and Corrective Actions)

See Attached NOV

LICENSEE OR CERTIFICATE HOLDER STATEMENT OF CORRECTIVE ACTIONS FOR ITEM 5, ABOVE

I hereby state that, within 30 days, the actions described by me to the inspector will be taken to correct the violation(s) identified. This statement of corrective actions is made in accordance with the requirements of 10 CFR 2.201 (corrective steps already taken, corrective steps which will be taken, date when full compliance will be achieved). I understand that no further written response to the NRC will be required, unless specifically requested.

Title	Printed Name	Signature	Date
LICENSEE/CERTIFICATE HOLDER REPRESENTATIVE			
NRC INSPECTOR	López, Cramer, Hartland	/RA/	11/30/09

INSPECTION REPORT

1. LICENSEE OR CERTIFICATE HOLDER/LOCATION INSPECTED: Westinghouse Electric Corporation Commercial Nuclear Fuel Division Columbia, SC 29250		2. NRC/REGIONAL OFFICE: U.S. Nuclear Regulatory Commission Region II 61 Forsyth Street, Suite 23T85 Atlanta, GA 30303-8931	
REPORT NO: 2009-007			
3. DOCKET NUMBER: 70-1151	4. LICENSE OR CERTIFICATE HOLDER NUMBER: SNM-1107	5. DATE(S) OF INSPECTION: November 2, 2009 – November 5, 2009	
6. INSPECTOR(S): O. López, C. Cramer, D. Hartland			
7. INSPECTION PROCEDURES USED: 88055, 88020, 88050			

EXECUTIVE SUMMARY

Summary of Plant Status

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 fire protection, operations, and emergency preparedness. 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 licensee program as outlined below:

Plant Operations

- The inspectors walked down the vaporization, conversion, fuel manufacturing, solvent extraction, incinerator, and Erbia process areas. The inspectors noted that items relied on for safety (IROFS) were in place in these areas to perform their intended safety function. No significant issues were identified.
- The inspectors reviewed piping and instrumentation diagrams for hydrolysis, vaporization, pellet stripping, and solvent extraction to ensure that the diagrams reflected the as-found plant layout. No significant issues were identified.
- The inspectors reviewed functional test procedures and results for the following IROFS: ADUVAP-101, ADUVAP-907, ADUHYD-105, ADUHYD-902, ADUHYD-903, and ADUHYD-909. The functional tests were performed in accordance with the licensee's required frequency and adequately tested the safety function of the IROFS.
- The inspectors observed the licensee staff perform a functional test and calibration of a pressure sensor in the hydrolysis area. The licensee staff followed the applicable procedures, and no issues were identified. The inspectors also observed the licensee's staff simulate a functional test for ADUHYD-909. The staff members were aware of the required valve manipulations and other requirements needed to perform the functional test. No significant issues were identified.
- The inspectors reviewed the corrective actions that the licensee implemented in response to Violation 2009-004-01, failure to implement management measures to ensure IROFS were available and reliable to perform their intended function. The licensee performed a review of the low level radioactive waste area and updated the criticality safety evaluations for this area. Also, the licensee implemented management

EXECUTIVE SUMMARY (Continued)

measures in a procedure for the IROFS in question to ensure the IROFS would perform their safety function. The inspectors determined that the licensee had performed an adequate analysis and update to the procedures to incorporate management measures. This violation is considered closed.

- The licensee's actions in response to Event Notification (EN) 43814, fissile mass limit violated in chemical process development lab, were reviewed and determined to be adequate, as documented in NRC Inspection Report 70-1151/2007-204. EN 43814 is considered closed.
- While reviewing operations in the pellet stripping area, the inspectors questioned the licensee about a possible accident scenario that was not in the Integrated Safety Analysis (ISA) or the ISA Summary. The scenario the inspectors brought forward was the possible hydrogen accumulation in the acid stripping hood. The reaction that the pellets underwent released hydrogen gas and, without proper ventilation, could have led to a hydrogen gas explosion. The licensee was not able to provide the inspectors with any data proving that this accident scenario was not credible. The licensee was in the process of evaluating this particular accident scenario to determine if it was credible and if IROFS were required to prevent and/or mitigate the scenario. The inspectors' review of the licensee's completed evaluation is an unresolved item (URI 70-1151/2009-007-01).

Fire Protection

- The inspectors reviewed selected fire safety systems including IROFS for the calciner, sintering furnaces, and the incinerator. The inspectors determined that they were maintained properly.
- 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. The inspectors observed and discussed with operations personnel the handling of zirconium fines. No safety problems were observed.
- The inspectors reviewed maintenance records and walked down selected components of the fire detection system and noted that they were maintained properly. The reviewed components included the fire alarm central station, smoke detectors, and heat detectors.
- 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 the pre-fire plan for the chemical area. No safety problems were identified.
- The inspectors reviewed corrective actions for previously identified violation VIO 70-1151/2007-04-02, failure to train and qualify a contractor on fire watch duties. The immediate corrective actions implemented by the licensee included training of affected contractors on the appropriate hot work permit and fire watch procedures. The affected contractors and licensee maintenance personnel were also provided with hands-on fire extinguisher training. The licensee cleaned the area under the polypak lift enclosures in the pelleting area to remove the hidden combustible debris that had accumulated in the inaccessible areas. To prevent recurrence of similar events, the licensee modified the polypak lift enclosure configuration to prevent the accumulation of combustible debris through improved access for housekeeping. The inspectors reviewed and verified implementation of the corrective actions. The inspectors did not identify significant safety issues. This violation is considered closed.

EXECUTIVE SUMMARY (Continued)

- The inspector reviewed maintenance records and walked down sections of the sprinkler systems and fire barriers. The inspector confirmed that the sprinklers were not obstructed and that the water supply to the system was readily available with correct valve positioning and pumping capacity. The inspectors also confirmed that fire barriers for the incinerator were in good condition. No significant issues were identified.
- The inspectors reviewed the ISA to verify that credible fire related scenarios were identified. The inspectors reviewed accident sequences that involved the hot oil system and the handling/storage of uranium hexafluoride (UF₆) cylinders. The ISA for the hot oil system focused on the hot oil room, the hot oil equipment, process lines to and from the ADU dryers, the supporting instrumentation, and the buildings and structures which interfaced between the hot oil room and the ADU dryer areas. The inspectors noted that the ISA only considered two accident sequences: a leak of hot oil in the ADU conversion area and structural failure resulting in a loss of hot oil into the hot oil room. The licensee determined these accident sequences would not exceed the 10 CFR 70.61 performance requirements. Therefore, the licensee did not credit IROFS to reduce the likelihood of occurrence of these accident sequences.

However, the licensee did not consider that a fire within the hot oil system could affect the safety of UF₆ cylinders stored in the bay area and cylinders in transit to be processed in the vaporizers. The inspectors noted that a fire could overheat a UF₆ cylinder and cause a structural failure of the cylinder. The inspectors reviewed the ISA for accident sequences involving UF₆ cylinders during the vaporization process. The licensee determined that a release due to cylinder valve failure, cylinder structural failure, or pigtail failure could result in a high consequence event as defined in 10 CFR 70.61.

As noted in 10 CFR 70.61(a), (b), and (e), the licensee shall evaluate, in the ISA, its compliance with the performance requirements, and apply engineered controls and/or administrative controls to the extent needed to reduce the likelihood of occurrence and/or the consequences of each credible high-consequence event.

The failure to evaluate in the ISA whether it was necessary to apply IROFS to reduce the risk of a uranium hexafluoride cylinder failure as a result of a fire in the hot oil system was considered a violation of NRC requirements (VIO 70-1151/2009-07-02).

Emergency Preparedness

- The Emergency Plan (EP) implementing procedures adequately implemented the EP.
- Emergency response training was adequate and personnel interviewed were knowledgeable of their responsibilities.
- Based on interviews and records reviewed, the interface with offsite support groups was properly maintained.
- The licensee conducted exercises in accordance with the requirements of the EP. The performance of periodic drills using realistic scenarios provided sufficient challenges to maintain the appropriate performance level of the response organization.
- Based on the observation of equipment operability checks and the review of documentation for equipment maintenance and calibration, the inspector determined that the reliability of selected equipment was adequate and the equipment was maintained in a state of operational readiness.

EXECUTIVE SUMMARY (Continued)

- Independent audits of the program were properly conducted, and areas identified during the audit for improvement were appropriately communicated to management.

Exit Meeting Summary

The inspection scope and results were summarized on Thursday, November 5, 2009, with Cary Alstadt and members of his staff. The inspectors asked the licensee staff whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

Key Points of Contact

<u>Name</u>	<u>Title</u>
C. Alstadt	Manager, Columbia Site
M. Rosser	Manager, Environment, Health and Safety
G. Couture	Manager, Licensing & Regulatory Program, EH&S
D. Precht	Manager, Operations

List of Items Opened, Closed, Discussed

<u>Item Number</u>	<u>Status</u>	<u>Description</u>
NOV 70-1151/2009-004-01	Closed	Failure to implement management measures to ensure that IROFS were available and reliable to perform their intended safety function.
EN 43814	Closed	Fissile mass limit violated in chemical process development laboratory.
URI 70-1151/2009-007-01	Opened	Inspectors' review of the licensee's evaluation of an accident scenario to determine if hydrogen accumulation and subsequent explosion in the acid stripper area was credible and if IROFS were required to prevent and/or mitigate the scenario.
NOV 70-1151/2007-004-02	Closed	Failure to train and qualify a contractor on fire watch duties.
NOV 70-1151/2009-007-02	Opened	Failure to evaluate the need for IROFS related to the hot oil system.