February 15, 2007

Mr. Cary Alstadt, Plant Manager Westinghouse Electric Company Commercial Nuclear Fuel Division P.O. Drawer R Columbia, SC 29250

SUBJECT: INSPECTION REPORT NO. 70-1151/2006-205 AND NOTICE OF VIOLATION

Dear Mr. Alstadt:

The U.S. Nuclear Regulatory Commission (NRC) conducted a routine and announced criticality safety inspection at your facility in Columbia, South Carolina, from December 18 through 21, 2006. The purpose of the inspection was to determine whether activities involving licensed material were conducted safely and in accordance with NRC requirements. Observations and findings were discussed with your staff throughout the inspection, during an exit meeting held on December 21, 2006, and during a telephonic re-exit meeting held on January 18, 2007.

The inspection, which is described in the enclosure, focused on the most hazardous activities and plant conditions; the most important controls relied on for safety and their analytical basis; and the principal management measures for ensuring controls are capable, available, and reliable to perform their functions relied on for safety. The inspection consisted of analytical basis review, selective review of related procedures and records, examinations of relevant nuclear criticality safety (NCS)-related equipment, interviews with NCS engineers and plant personnel, and facility walkdowns to observe plant conditions and activities related to safety basis assumptions and related NCS controls. Based on the results of this inspection, the NRC is concerned that plant changes affecting NCS-related accident sequences do not have documentation explicitly demonstrating that the performance requirements of 10 CFR 70.61 are met in accordance with your Integrated Safety Analysis (ISA) methodology. During a February 8, 2007, teleconference, your staff committed to modify internal procedures to complete documentation that explicitly demonstrates that the performance requirements of §70.61(b) are met, consistent with your ISA methodology, prior to implementing new or changed criticality safety evaluations.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The violation was evaluated in accordance with the NRC Enforcement Policy included on the NRC's web site at <u>www.nrc.gov</u>; select What We Do, Enforcement, then Enforcement Policy. The violation is being cited in the enclosed Notice of Violation (Notice), and the circumstances surrounding it are described in detail in the subject inspection report. The violation being cited as a Severity Level IV violation is the failure to perform operations in accordance with approved procedures.

C. Alstadt

In accordance with 10 CFR 2.390 of NRC's "Rules of Practice," a copy of this letter and the enclosure will be made publicly available in the public electronic reading room of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <u>http://www.nrc.gov/reading-rm/ADAMS.html.</u>

If you have any questions concerning this report, please contact Natreon Jordan, of my staff, at (301) 415-7648.

Sincerely,

/**RA**/

Melanie A. Galloway, Chief Technical Support Branch Division of Fuel Cycle Safety and Safeguards, NMSS

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

Enclosures:

1. Notice of Violation

2. Inspection Report 70-1151/2006-205

cc w/enclosures: Mr. Marc Rosser Westinghouse Electric Company

cc w/o enclosures: T. Pearce O'Kelley Bureau of Radiological Health South Carolina Department of Health and Environmental Control C. Alstadt

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice of Violation when preparing your response. 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 NRC's "Rules of Practice," a copy of this letter and the enclosure will be made publicly available in the public electronic reading room of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <u>http://www.nrc.gov/reading-rm/ADAMS.html.</u>

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/RA/

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NOTICE OF VIOLATION

Westinghouse Electric Company Columbia, South Carolina

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

During an NRC inspection from December 18 through 21, 2006, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Section 3.4 of the License Application states, in part, that operations to assure safe, compliant activities involving nuclear material will be conducted in accordance with approved procedures.

Licensee operating procedure RA-314, "Implementation of Criticality Safety Evaluations [CSEs]," Revision 2, requires in Section 6.2 that the CSE Implementation Team shall ensure that the implementation of the new or revised CSE (and any changes associated with implementation of the CSE, including any required changes to the facility systems, structures, and components) have been properly addressed."

- 1. Contrary to the above, on and before December 18, 2007, the licensee failed to remove a criticality safety posting from a residue hood, a required change to the system, after completing implementation of Revision 2 of CSE-04-A, "Criticality Safety Evaluation (CSE) for Safe Geometry Dissolver System."
- 2. Contrary to the above, on and before December 18, 2007, the licensee failed to remove a process tank, a required change to the solvent extraction system after completing implementation of Revision 2 of CSE-07-A, "CSE for the Solvent Extraction System."

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

Pursuant to the provisions of 10 CFR 2.201, Westinghouse Electric Company is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with copies to the Chief, Technical Support Branch, Division of Fuel Cycle Safety and Safeguards, NMSS, and 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; (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 Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other actions as may be proper should not 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 to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room (PDR), 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 available to the public 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. If you request withholding of such material, you <u>must</u> specifically identify the portions of your response that you seek to have withheld, and provide in detail the bases 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 2.790(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 15th day of February 2007

U. S. NUCLEAR REGULATORY COMMISSION OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

- Docket No.: 70-1151
- License No.: SNM-1107
- Report No.: 70-1151/2006-205
- Licensee: Westinghouse Electric Company
- Location: Columbia, South Carolina
- Inspection Dates: December 18 21, 2006
- Inspectors: Natreon Jordan, Criticality Safety Inspector Harry Felsher, Criticality Safety Inspector Thomas Marenchin, Criticality Safety Inspector
- Approved by: Melanie A. Galloway, Chief Technical Support Branch Division of Fuel Cycle Safety and Safeguards, NMSS

EXECUTIVE SUMMARY

Westinghouse Electric Company NRC Inspection Report 70-1151/2006-205

Introduction

Staff of the U.S. Nuclear Regulatory Commission (NRC) performed a routine and announced nuclear criticality safety (NCS) inspection of the Westinghouse Electric Company, Columbia, South Carolina (SC), facility from December 18 through 21, 2006. The inspection included an on-site review of the licensee NCS program, NCS evaluations, recent NCS events, and open items. The inspection focused on risk-significant fissile material processing activities and areas including uranium recycle and recovery, solvent extraction, ammonium diuranate (ADU) conversion, pelleting, and integrated fuel burnable absorber (IFBA) and Erbia process areas.

Results

- A Severity Level IV violation with two examples was identified regarding the licensee's failure to perform operations in accordance with approved procedures.
- An unresolved item was identified concerning the licensee's ability to demonstrate that the performance requirements are met subsequent to a change affecting NCS-related accident sequences.
- An unresolved item was identified concerning the licensee's determination of when the event reporting time clock starts.
- An unresolved item was identified concerning licensee practices regarding screening and reporting of previously unanalyzed sequences to the NRC as unanalyzed conditions.
- No safety concerns were identified regarding NCS training and qualification for general workers and fissile material handlers.
- No safety concerns were identified concerning NCS audits and corrective actions.
- No safety concerns were identified concerning identification, corrective action assignment, and tracking of internally-reported, NCS-related deficiencies and events.
- Plant operations involving fissile material were conducted safely and in accordance with written procedures.
- No safety concerns were identified concerning the facility criticality accident alarm system.

REPORT DETAILS

1.0 Summary of Plant Status

Westinghouse Electric Company (WEC) manufactures light water reactor fuel at its Columbia, SC, facility. During the inspection, the plant was operating at full capacity in all manufacturing areas except for Erbia and the incinerator.

2.0 Nuclear Criticality Safety Program (IP 88015, IP 88016)

a. Inspection Scope

The inspectors reviewed selected NCS evaluations to determine that criticality safety of risk-significant operations was assured through engineered and administrative controls with adequate safety margin and preparation and review by qualified staff. The inspectors reviewed selected aspects of the following documents:

- RA-125, "Indoctrination, Training, and Qualification of EH&S [Environment, Health, and Safety] Personnel," Rev. 7, dated April 6, 2006
- RA-301, "Floor Storage of SNM [Special Nuclear Material]," Rev. 18, dated September 15, 2005
- RA-302, "Criticality Signs," Rev. 13, dated December 22, 2005
- RA-303, "Control of Moderating Materials for NCS," Rev. 16, dated August 3, 2006
- RA-304, "Criticality Accident Alarm System," Rev. 10, dated November 10, 2005
- RA-306, "Movable Non-Favorable Geometry (NFG) Containers in the Chemical Area," Rev. 9, dated May 25, 2006
- RA-310, "NCS Independent Technical Reviews," Rev. 10, dated December 22, 2005
- RA-312, "NCS Calc Note Generation, Format, and Content Requirements," Rev. 2, dated March 2, 2006
- RA-313, "Criticality Safety Evaluations (CSEs)," Rev. 3, dated May 25, 2006
- RA-314, "Environment Health & Safety Criticality Procedure--Implementation of Criticality Safety Evaluations," Rev. 2, dated February 2, 2006
- RAF-314-1, "Implementation Checklist for CSEs," Rev. 0, dated February 2, 2006
- RAF-314-1, "Implementation Checklist for CSEs," Rev. 1, dated November 11, 2006
- TA-500, "Columbia Manufacturing Plant Configuration Control," Rev. 19, dated December 14, 2006
- CSE-03-B, "CSE for ADU Conversion Hydrolysis Column, Nitrate Vessel and Precipitator," Rev. 1, dated September 8, 2006
- CSE-04-A, "Criticality Safety Evaluation (CSE) for Safe Geometry Dissolver System," Rev. 2, dated November 2006
- CSE-07-A, "CSE for the Solvent Extraction System," Rev. 2, dated December 8, 2006
- CSE-12-A, "Criticality Safety Evaluation (CSE) for Rod Transfer Caskets," Rev. 0, dated August 21, 2005

- CSE-15-A, "Criticality Safety Evaluation (CSE) for Waste Treatment Tanks T-1148, T-1149, and T-1147," Rev. 1, dated June 7, 2006
- CSE-15-B, "CSE for the Ion Exchange Pilot Plant," Rev. 0, dated September 15, 2006
- COP-811001, "Chemical Operating Procedure Conversion And Scrap Reprocessing Area: Fitzmill," Rev. 38, dated May 22, 2006
- COP-814201, "Chemical Operating Procedure [COP] Conversion And Scrap Reprocessing Area: Sampling, Dispositioning, and Staging of Line Product Materials
- COP-830134, "Chemical Operating Procedure Uranium Recycling & Recovery Area: Fluoride Stripping Dry System," Rev. 17, dated March 11, 2004
- COP-836025, "Chemical Operating Procedure Uranium Recycling & Recovery Area: C-4 Dissolvers Clean Dissolver Startup and Operation," Rev. 26, dated November 13, 2006
- COP-836027, "Chemical Operating Procedure Uranium Recycling & Recovery Area: C-4 Dissolvers Dirty Dissolver Startup and Operation," Rev. 16, dated November 13, 2006
- COP-836038-1, "Chemical Operating Procedure Sketch URRS Area Safety Significant Controls URRS," Rev. 31, dated November 13, 2006
- COP-871160, "Chemical Operating Procedure IFBA Area: Package IFBA Rods for Transport," Rev. 19, dated December 14, 2005
- b. Observations and Findings

Within the selected aspects reviewed, the inspectors determined that CSEs were prepared by qualified NCS engineers, that independent reviews of the evaluations were completed by other qualified NCS engineers, and that appropriate limits on controlled parameters were established and maintained. As discussed below, the inspectors identified two instances where the licensee had implemented revisions to CSEs without following the procedure for implementing new or revised CSEs.

While performing a walkdown with licensee staff to verify that Revision 2 of CSE-04-A was implemented correctly, the inspectors identified a criticality safety posting attached to a residue hood, used as part of the Safe-Geometry Dissolver System. The implementation checklist for CSE-04-A, Revision 2 indicated that the posting had already been removed from the hood. Upon further investigation, the licensee determined that the implementation checklist inadvertently directed licensee staff to remove a posting located in another process area instead of the posting attached to the residue hood. To correct this, the licensee immediately removed the posting from the residue hood and verified that the other posting identified for removal was still in place.

Section 3.4 of the License Application states, in part, that operations to assure safe, compliant activities involving nuclear material will be conducted in accordance with approved procedures.

Licensee operating procedure RA-314, "Implementation of Criticality Safety Evaluations [CSEs]," Revision 2, requires in Section 6.2 that the CSE Implementation Team shall ensure that the implementation of the new or revised CSE (and any changes associated

with implementation of the CSE, including any required changes to the facility systems, structures, and components) have been properly addressed."

Contrary to the above, on and before December 18, 2007, the licensee failed to remove a criticality safety posting from a residue hood, a required change to the system, after completing implementation of Revision 2 of CSE-04-A, "Criticality Safety Evaluation (CSE) for Safe Geometry Dissolver System." The licensee's failure to remove the posting in accordance with procedure RA-314 is **Violation (VIO) 70-1151/2006-205-01.**

The inspectors also determined that a process tank, which should have been removed as part of the implementation process for Revision 2 of CSE-07-A, "CSE for the Solvent Extraction System," was still in place in the facility. The licensee immediately corrected the non-compliance by initiating Revision 3 to CSE-07-A, to allow the process tank to remain. The licensee also added this item to its corrective action process (CAP) system. Contrary to operating procedure RA-314, on and before December 18, 2007, the licensee failed to remove a process tank, a required change to the solvent extraction system after completing implementation of Revision 2 of CSE-07-A. The licensee's failure to remove the process tank during the implementation of Revision 2 of CSE-07-A is a second example of **VIO 70-1151/2006-205-01**.

c. Conclusions

A Severity Level IV violation with two examples was identified regarding failure to perform operations in accordance with approved procedures.

3.0 Integrated Safety Analysis and Items Relied on for Safety (IP 88015, IP 88016)

a. Inspection Scope

The inspectors reviewed selected NCS accident sequences to determine whether the licensee is adequately implementing its process for demonstrating compliance with the performance requirements of 10 CFR 70.61. During walkdowns, the inspectors evaluated the effectiveness of selected NCS-related items relied on for safety to assure adequate compliance with the performance requirements of §70.61. The inspectors reviewed the facility Integrated Safety Analysis (ISA) to determine that appropriate criticality safety accident sequences were identified and controlled consistent with approved CSEs. The inspectors reviewed selected aspects of the following documents:

- RA-102, "Environmental Health & Safety Compliance Inspections," Rev. 19, dated April 20, 2006
- RA-104, "Regulatory Review of Configuration Change Authorizations," Rev. 21, dated August 1, 2006
- RA-108, "Safety Significant Controls [SSCs]," Rev. 21, dated October 12, 2006
- "Baseline ISA and ISA Summary Handbook," Rev. 3, dated August 15, 2006
- RA-120-07, "Communicate SSC Information to Shop Floor Personnel," Rev. 2, dated October 13, 2006
- RA-132, "Implementation of ISA," Rev. 0, dated August 17, 2006
- RAF-132-1, "Implementation Checklist for ISAs," Rev. 0, dated August 17, 2006

• "ISA-16: Storage of Uranium Bearing Material," Rev. 0, dated October 16, 2004

b. Observations and Findings

The inspectors reviewed selected change control data packages, CSEs, ISA procedures, and ISA documentation. For new and revised NCS accident sequences in CSEs, the inspectors determined that, although the licensee informed the inspectors that the performance requirements of §70.61(b) were met, the CSEs and change control packages did not contain an explicit demonstration. Licensee staff acknowledged the concern and committed to modify internal procedures to complete documentation that explicitly demonstrates that the performance requirements of §70.61(b) are met prior to implementing new or changed CSEs. For facility changes, the licensee stated that compliance with the performance requirements will also be demonstrated in the annual update to the ISA Summary. The inspectors were concerned that failure to demonstrate that performance requirements are met in change control data packages affecting NCSrelated accident sequences might conflict with regulatory requirements of §70.61. The inspectors did not observe any immediate safety concern. Licensee actions to demonstrate in change control data packages that the performance requirements are met subsequent to changes affecting NCS-related accident sequences will be tracked as Unresolved Item (URI) 70-1151/2006-205-02.

c. Conclusions

An unresolved item was identified concerning the licensee's ability to demonstrate that the performance requirements are met subsequent to a change affecting NCS-related accident sequences.

4.0 Nuclear Criticality Safety Training and Qualification (IP 88015)

a. Inspection Scope

The inspectors reviewed the content of NCS training for general workers and for fissile material handlers to determine the effectiveness of the licensee's NCS training for both categories of workers. The inspectors reviewed selected aspects of the following documents:

- RA-125, "Indoctrination, Training, and Qualification of EH&S Personnel," Rev. 7, dated April 6, 2006
- RA-302, "Criticality Signs," Rev. 13, dated December 22, 2005
- RAF-314-1, "Implementation Checklist for CSEs," Rev. 0, dated February 2, 2006

b. Observations and Findings

The inspectors determined that NCS personnel are required to meet training requirements according to the procedure "Indoctrination, Training, and Qualification of EH&S Personnel." The licensee has an online system called Electronic Training and Procedure

System (ETAPS) that allows all plant workers to access training modules and know what tasks they are qualified to perform at any given time.

The inspectors determined that, through ETAPS, all supervisors have the ability to track the training status of licensee staff and prevent the performance of tasks if staff are not qualified. The inspectors determined that the licensee uses the "Implementation Checklist for CSEs" to indicate if additional training is required for a specific area before a new or revised CSE is implemented.

c. Conclusions

No safety concerns were identified regarding NCS training and qualification for general workers and fissile material handlers.

5.0 Nuclear Criticality Safety Inspections, Audits, and Investigations (IP 88015)

a. Inspection Scope

The inspectors reviewed results of the most recent NCS quarterly audits to assure that appropriate issues were identified and resolved. The inspectors reviewed selected aspects of the following documents:

- RA-106, "Internal Program Audits, Formal Compliance Inspection Audits, and Supplier Audits," Rev. 13, dated February 2, 2006
- LTR-EHS-06, "2006 EH&S Program and Formal Compliance Audit," Rev. 9, dated November 8, 2006
- LTR-EHS-06-292, "Chemical Area Formal Compliance Inspection," Rev. 0, dated October 20, 2006
- CAPS-06-296-C007, "Pellet Area ADU Bulk Enclosure Inspection Checklist," dated October 20, 2006
- CAPS-RCA-06-178-C005, "Incinerator Flameport Blower Filter Fire," Rev. 0, dated August 31, 2006

b. Observations and Findings

The inspectors reviewed licensee quarterly audit reports and interviewed NCS staff. The inspectors reviewed procedures and discussed the audit findings with the licensee's NCS staff. The inspectors determined that the licensee NCS audits were conducted in accordance with written procedures. The inspectors noted that the audits were performed by NCS engineers who: (1) reviewed open NCS issues from previous audits; (2) reviewed the adequacy of control implementation; (3) reviewed plant operations for compliance with license requirements, procedures, and postings; and (4) examined equipment and operations to determine that past evaluations remained adequate. The inspectors had no concerns regarding the identification, assignment, and tracking of corrective actions. No safety concerns were identified.

c. Conclusions

No safety concerns were identified concerning NCS audits and corrective actions.

6.0 Nuclear Criticality Safety Event Review and Follow-Up (IP 88015, IP 88016, IP 88017)

a. Inspection Scope

The inspectors reviewed the licensee response to internally-reported events. The inspectors reviewed the progress of investigations and interviewed licensee staff regarding immediate-and long-term corrective actions. The inspectors reviewed selected aspects of the following documents:

- CA-007, "Corrective and Preventive Action," Rev. 19, dated February 16, 2006
- CA-008, "Preventive Actions," Rev. 2, dated June 22, 2006
- WEC-14.4, "Westinghouse Corrective Actions Process [CAP]," Rev. 5, dated June 30, 2006
- WEC-14.6, "Preventive Action," Rev. 2, dated December 15, 2005
- RA-107, "Corrective Action Process for Regulatory Events," Rev. 15, November 2, 2006
- RA-121, "Redbook Internal Reporting System," Rev. 3, dated August 22, 2006
- CAPS-05-252, "Analysis of Configuration Control Issues"
- Redbook #8956, "[Safety-Significant Control] SSC ADUVAP-910E Found in Failed State and Not Tripped"
- CAPS-06-156, "During Scheduled Maintenance Shutdown, Annual Inspection Performed"
- b. Observations and Findings

Internal Reporting

The inspectors determined that the licensee has two internal electronic systems for reporting incidents and tracking corrective actions: Redbook and CAP. Any worker at the plant can enter an item into the Redbook system, which is a plant-wide system for tracking any non-conforming item, including non-safety related issues. Only certain people at the plant can enter an item into the CAP system, which is a world-wide WEC system for items important to safety, regulatory products, or other high-level issues. The plant has many locations where workers without access to the CAP system can provide written requests to have an item entered into the CAP system. All Redbook and CAP items go to EH&S for review to determine how the licensee should respond to the item. As part of that review, EH&S may determine that a Redbook item should be a CAP item. If so, a CAP item will be opened and the Redbook item will be closed. Redbook and CAP use different e-mail systems to notify users of new items under their responsibility. The CAP system is an electronic database that allows appropriate users to input items, track the status of items, change responsibility for items, link the items to work products, update the status of items, review items, approve items, and closeout items. The licensee intends to develop a long-term solution to modify the CAP system so that Redbook items can be entered into the CAP system directly.

Through the use of Redbook and the CAP system, the licensee maintains a database of all corrective actions for items related to NCS (i.e., events, conditions), assigns corrective actions for all items identified, and performs trending analysis to identify recurrence of similar items. The inspectors determined that the licensee was taking appropriate actions to identify and track NCS Redbook and CAP corrective actions.

Event Reporting

As part of the event review and followup, the inspectors reviewed licensee event reportability determination criteria and practices. The inspectors reviewed licensee procedure RA-107, "Corrective Action Process for Regulatory Events," and interviewed licensee staff to determine whether the licensee was complying with license application requirements for event reporting.

The inspectors determined that the licensee process for event reporting to the NRC Operations Center is the following: (a) someone identifies an incident; (b) that person contacts the Emergency Coordinator; (c) the Emergency Coordinator contacts the appropriate safety function manager; (d) the safety function manager goes to the incident location; (e) the safety function manager gathers information at the incident location; (f) the safety function manager may request samples to be taken for analysis; (g) the safety function manager discusses the gathered information with his or her safety function staff; and (h) based on the information gathered from the incident, including any sample/ analysis information and safety function staff input, the safety function manager makes an event classification and the event time clock starts.

Based on the description in the license application, the event time clock starts when a qualified Emergency Coordinator classifies the event or a cognizant Regulatory Function Engineer makes the initial "eyes on assessment," which NRC expects would be shortly after the Regulatory Function Engineer arrives at the event location. Based on the differences between the description of what the licensee does and the description in the license application, the inspectors determined that the licensee's determination of when the event time clock starts may not be consistent with the description in the license application or procedure. The inspectors did not identify any late event reports.

The inspectors were concerned that the licensee practice of starting the event reporting time clock subsequent to reviews and discussion with multiple staff might conflict with license requirements and result in late event reports. Licensee determination of when the event reporting time clock starts will be tracked as **URI 70-1151/2006-205-03**.

Previously Unanalyzed Accident Sequences

The inspectors reviewed four CSEs that the licensee had revised and implemented since the last inspection. The inspectors determined that in one of the CSEs, the licensee had added NCS controls to previously unanalyzed accident sequences starting with Revision 0. The inspectors also determined that Revisions 0, 1, and 2 of the Solvent Extraction System CSE (i.e., CSE-07-A) discussed 4 NCS accident sequences that were not in the previous version of the Solvent Extraction CSE. The new accident sequences in

CSE-07-A involved a loss of confinement, external leaks, increased U-235 concentration, and violation of hand-carried item spacing.

The inspectors observed that the licensee does not report as an unanalyzed condition previously unanalyzed accident sequences that are identified when revising CSEs. The inspectors were concerned that the NRC may not adequately recognize and respond to risk-significant events if the licensee does not screen previously unanalyzed accident sequences for reportability. Licensee practices regarding screening and reporting of previously unanalyzed sequences to the NRC as unanalyzed conditions will be tracked as **URI 70-1151/2006-205-04**.

c. Conclusions

No safety concerns were identified concerning identification, corrective action assignment, and tracking of internally-reported, NCS-related deficiencies and events.

An unresolved item was identified concerning the licensee's determination of when the event reporting time clock starts.

An unresolved item was identified concerning licensee practices regarding screening and reporting of previously unanalyzed sequences to the NRC as unanalyzed conditions.

7.0 Plant Operations (IP 88015, IP 88016, IP 88017)

a. Inspection Scope

The inspectors performed plant walkdowns to review activities in progress and to determine whether risk-significant fissile material operations were being conducted safely and in accordance with regulatory requirements.

b. Observations and Findings

The inspectors interviewed operators, NCS engineers, and process engineers both before and during walkdowns. The inspectors performed walkdowns of all areas, including Erbia, ADU, and IFBA fuel fabrication, uranium recovery, and rod and assembly loading. The inspectors verified that controls identified in CSEs were installed or implemented and were adequate to ensure safety. The inspectors verified the adequacy of management measures for assuring the continued availability, reliability, and capability of safetysignificant controls relied upon by the licensee for controlling criticality risks to acceptable levels. The cognizant NCS engineers were knowledgeable and had good interfaces with operators on the process floors.

c. Conclusions

Plant operations involving fissile material were conducted safely and in accordance with written procedures.

8.0 Criticality Alarm Systems (IP 88017)

a. Inspection Scope

The inspectors reviewed documentation of criticality accident alarm detector coverage, interviewed engineering and maintenance staff, and performed facility walkdowns to determine the adequacy of the licensee criticality alarm system. The inspectors reviewed selected aspects of the following documents:

- RA-125, "Criticality Accident Alarm System," Rev. 10, dated November 11, 2005
- MCP-202037, "GA-6M Criticality Alarm Calibration," Rev. 14, dated March 23, 2006
- NSA-TR-06-02, "Westinghouse Criticality Detector Coverage Report, Part 1," Rev. 0, dated April 2006
- NSA-TR-06-06, "Westinghouse Criticality Detector Coverage Report, Part 2," Rev. 1, dated May 2006

b. Observations and Findings

The inspectors verified that the licensee's placement of criticality accident alarm detectors has been established in accordance with the criteria described in 10 CFR 70.24. The inspectors reviewed criticality accident alarm system placement calculations to determine the adequacy of models, assumptions, and results and visually inspected detector configuration. The inspectors verified detector placement. The inspectors notified the licensee that the procedure RA-125, "Criticality Accident Alarm System," for criticality alarms referenced a different version of the American National Standards Institute/American Nuclear Society-8.3, "Criticality Accident Alarm System," than was committed to in the license application. The inspectors did not identify any safety concern related to this administrative deficiency. Licensee staff immediately initiated actions to revise the procedure to match the version of the standard.

c. Conclusions

No safety concerns were identified concerning the facility criticality accident alarm system.

9.0 Open Item Review

IFI 70-1151/2006-203-01

This item tracks the licensee's corrective actions for the incinerator blower fire. The fire occurred when a pressure increase in the incinerator caused hot off-gas to penetrate the flame blower and ignite the flame blower filter. The licensee attributed the pressure increase to an automatic quench sump discharge high contamination level cut-off. The licensee had completed a root cause analysis of the incinerator blower fire and had entered 21 corrective actions into the CAP system for tracking. At the time of the inspection, 10 of the 21 corrective actions had been completed. The licensee is continuing efforts to close out the remaining CAP system items. This item remains open.

IFI 70-1151/2006-202-02

This item tracks completion and implementation of the new floor storage CSE. During a previous inspection, the licensee had committed to draft a new floor storage CSE to clarify the spacing requirements for favorable geometry process containers. During the current inspection, the inspectors noted that the new CSE was complete and was expected to be implemented early in 2007. This item remains open.

IFI 70-1151/2006-202-03

This item tracks completion and implementation of the new clean-up and decontamination CSE. During a previous inspection, the licensee had committed to draft a new cleaning and decontamination CSE to clarify the spacing requirements related to containers such as mop buckets. During this inspection, the inspectors noted that the new CSE was complete and was expected to be implemented early in 2007. This item remains open.

IFI 70-1151/2006-201-01

This item tracks analysis and testing of the automated moisture sampler along with incorporation of any required changes to the accident sequence in the ISA. The licensee indicated that the system is in place in one ADU line, has been tested, passed quality control, and is approved for use. The licensee expects automated samplers to be in place in all the ADU lines by the end of September 2007. The licensee continues to use observers. This item remains open.

IFI 70-1151/2005-202-02

This item tracks long-term improvement of the criticality alarm system, including correction of current audibility problems. During a previous inspection, the licensee had proactively implemented a compensatory measure to address the audibility problem consisting of announcing criticality alarms on the public address system. During this inspection, the inspectors noted that the updated criticality alarm test procedures were expected to be completed by April 2007. This item remains open.

IFI 70-1151/2005-202-03

This item tracks revision of the criticality alarm system audibility test procedure. During a previous inspection, the licensee had committed to update the criticality alarm test procedures to include a means to test the operability of individual horns on a regular basis. During this inspection, the inspectors noted that the updated criticality alarm test procedures were expected to be completed by April 2007. This item remains open.

10.0 Exit Meeting

The inspectors presented the inspection scope and results to members of the licensee's management and staff during an exit meeting on December 21, 2006, and a re-exit telephone conference was held on January 18, 2007. On both occasions, the licensee acknowledged and understood the findings as presented.

SUPPLEMENTARY INFORMATION

1.0 List of Items Opened, Closed, and Discussed

Items Opened	
VIO 70-1151/2006-205-01	Tracks the licensee's failure to perform operations in accordance with approved procedures. (Section 2.0)
URI 70-1151/2006-205-02	Tracks the licensee's ability to demonstrate that the performance requirements are met subsequent to a change affecting NCS-related accident sequences. (Section 3.0)
URI 70-1151/2006-205-03	Tracks the licensee's determination of when the event reporting time clock starts. (Section 6.0)
URI 70-1151/2006-205-04	Tracks the licensee's practices regarding screening and reporting of previously unanalyzed sequences to the NRC as unanalyzed conditions. (Section 6.0)
Items Closed	
None	
Items Discussed	
IFI 70-1151/2006-203-01	Tracks licensee's corrective actions for the incinerator blower fire.
IFI 70-1151/2006-202-02	Tracks completion and implementation of the new floor storage CSE.
IFI 70-1151/2006-202-03	Tracks completion and implementation of the new clean- up and decontamination CSE.
IFI 70-1151/2006-201-01	Tracks analysis and testing of the automated moisture sampler along with incorporation of any required changes to the accident sequence in the ISA.
IFI 70-1151/2005-202-02	Tracks long-term improvement of the criticality alarm system, including correction of current audibility problems.
IFI 70-1151/2005-202-03	Tracks revision of the criticality alarm system audibility test procedure.

Attachment

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2.0 Inspection Procedures Used

IP 88015	Nuclear Criticality Safety Program
IP 88016	Nuclear Criticality Safety Evaluations and Analyses
IP 88017	Criticality Alarm Systems

3.0 Partial List of Persons Contacted

Westinghouse Electric Company

C. Alstadt	Plant Manager
R. Winiarski	NCS Manager
D. Graham	NCS Technician
M. Rosser	EH&S Manager
G. Couture	EH&S Engineer

<u>NRC</u>

N. Jordan	Criticality Safety Inspector, NRC HQ
H. Felsher	Criticality Safety Inspector, NRC HQ
T. Marenchin	Criticality Safety Inspector, NRC HQ
* M. Galloway	Chief, Technical Support Branch, NRC HQ
* P. Habighorst	Chief, Fuel Manufacturing Branch, NRC HQ

All attended the exit meeting on December 21, 2006 (* by teleconference).

Westinghouse Electric Company

Plant Manager
NCS Manager
EH&S Manager
EH&S Engineer
Manager, QA & Licensing

NRC

N. Jordan	Criticality Safety Inspector, NRC HQ
H. Felsher	Criticality Safety Inspector, NRC HQ
T. Marenchin	Criticality Safety Inspector, NRC HQ
Y. Faraz	Acting Chief, Technical Support Branch, NRC HQ
D. Morey	Senior Criticality Safety Inspector, NRC HQ

All Attended the re-exit by teleconference on January 18, 2007.

4.0 List of Acronyms

Agencywide Documents Access and Management System
ammonium diuranate
corrective action process (WEC-wide computer program)
Code of Federal Regulations
criticality safety evaluation
environment, health, and safety
Electronic Training and Procedure System (computer program)
integral fuel burnable absorber
inspector follow-up item
inspection procedure
integrated safety analysis
nuclear criticality safety
Office of Nuclear Material Safety and Safeguards
public document room
safety-significant control
unresolved item
violation
Westinghouse Electric Company (licensee)