

July 3, 2007

Mr. Dominique Grandemange, Manager
AREVA NP, Inc.
Mt. Athos Road Facility
1724 Mount Athos Road
P.O. Box 11646
Lynchburg, VA 24506-1646

SUBJECT: INSPECTION REPORT NO. 70-1201/2007-202

Dear Mr. Grandemange:

The U.S. Nuclear Regulatory Commission (NRC) conducted a routine announced criticality safety inspection at the facility in Lynchburg, VA, on June 8, 2007. The purpose of the inspection was to determine whether activities involving licensed materials were conducted safely and in accordance with NRC requirements. An exit meeting was held on June 8, 2007. The inspection observations and findings were discussed with members of your staff.

The inspection, which is described in the enclosure, focused on: (1) the nuclear criticality safety (NCS) program; (2) NCS inspections, audits, and investigations; (3) the facility criticality accident alarm system; and (4) plant operations. The inspection involved review of pertinent documents such as operating procedures and new or revised NCS analyses, facility walkdowns, and interviews with plant personnel. No violations of NRC requirements were identified during this inspection.

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 Agency-Wide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/ADAMS.html>.

If you have any questions concerning this report, please contact Dennis Morey, of my staff, at (301) 492-3112.

Sincerely,

/RA/

Margie Kotzalas, Acting Chief
Technical Support Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

Docket No. 70-1201
License No. SNM-1168

Enclosure: Inspection Report 70-1201/2007-202

cc: Charlie Holman, Manager
Environmental Health, Safety and Licensing

D. Grandemange

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

Docket No.: 70-1201

License No.: SNM-1168

Report No.: 70-1201/2007-202

Licensee: AREVA NP, Inc.

Location: Lynchburg, VA

Inspection Date: June 8, 2007

Inspectors: Dennis Morey, Senior Criticality Safety Inspector
Blake Purnell, Criticality Safety Inspector

Approved by: Margie Kotzalas, Acting Chief
Technical Support Branch
Division of Fuel Cycle Safety and
and Safeguards, NMSS

Enclosure

EXECUTIVE SUMMARY

AREVA NP, Inc. NRC Inspection Report No. 70-1201/2007-202

Introduction

Staff of the U.S. Nuclear Regulatory Commission (NRC) performed a routine and announced nuclear criticality safety (NCS) inspection of the AREVA NP, Inc., Lynchburg, Virginia, facility on June 8, 2007. The inspection focused on risk-significant fissile material processing activities involved in the manufacture of low-enriched light-water reactor fuel. The inspection included an on-site review of licensee programs dealing with new or revised NCS analyses; NCS inspections, audits, and investigations; the criticality accident alarm system; and plant operations. No violations of NRC requirements were identified during the inspection.

Results

- No safety concerns were identified regarding the licensee criticality safety program.
- No safety concerns were identified regarding licensee NCS-related inspections, audits and investigations.
- No safety concerns were identified regarding the licensee criticality accident alarm system.
- No safety concerns were identified during plant walkdowns.

REPORT DETAILS

1.0 Summary of Plant Status

AREVA NP, Inc. (AREVA) manufactures light water reactor fuel bundles and control assemblies at its facility near Lynchburg, VA. The licensee also operates shops involved in the manufacture and refurbishing of in-core instruments. During the inspection, the licensee conducted routine fuel and in-core equipment manufacturing operations.

2.0 Nuclear Criticality Safety Program (88015)

a. Inspection Scope

The inspectors reviewed new and revised NCS analyses to determine whether criticality safety of risk-significant operations was adequately assured. The inspectors reviewed the adequacy of NCS-related items relied on for safety (IROFS). The inspectors reviewed selected aspects of the following documents:

- 32-5037975, "Pellet Loading Room/Vault Criticality Safety Analysis (CSA) for the MAR [Mount Athos Road] Facility," Revision 4, dated September 7, 2006
- 32-5012889, "Fuel Assembly Storage Rack Area Criticality Safety Analysis (CSA) for the MAR Facility," Revision 3, dated June 4, 2007
- 32-5055905, "Criticality Calculations for ISA Evaluations at MAR," Revision 0, dated May 13, 2006
- SL-1100, "Administrative Requirement IROFS Procedure for ISA [Integrated Safety Analysis]," Revision 8, dated June 7, 2007
- MA-307, "Packaging and Storage of UO₂ Material," Revision 17, dated 2007
- SL-1233, "Calibration, Testing and Maintenance of Air Cleaning Systems," Revision 11, dated June 7, 2007

b. Observations and Findings

The inspectors reviewed NCS Approvals, NCS Evaluations, and supporting calculations for new, changed, and other selected operations. Within the selected aspects reviewed, the inspectors determined that the analyses were performed by qualified NCS engineers, that independent reviews of the evaluations were completed by qualified NCS engineers, and that the analyses provided for subcriticality of the systems and operations. The inspectors observed that the analyses contained appropriate limits on controlled parameters for each credible accident sequence leading to inadvertent criticality. Nuclear criticality safety analyses and supporting calculations demonstrated adequate identification and control of NCS hazards to assure operations within subcritical limits. The inspectors did not identify any safety concerns related to NCS controls in approved NCS analysis, approvals, or calculations.

c. Conclusions

No safety concerns were identified regarding the licensee criticality safety program.

3.0 Nuclear Criticality Safety Inspections, Audits, and Investigations (88015)

a. Inspection Scope

The inspectors reviewed the most recent licensee internal NCS audit. The inspectors reviewed selected aspects of the following document:

- CE06-47, "2006 Mount Athos Road Annual Nuclear Criticality Safety Audit," dated October 3, 2006

b. Observations and Findings

The inspectors observed that the NCS audits conducted in the previous year covered: (1) review for open NCS issues related to inspections and audits, training, Safety Review Board requests, or operational change requests; (2) inspection of plant operations for compliance with the license, procedures, and postings; (3) a nuclear criticality safety program review; and (4) review of the quality of standard work instructions. The audit had several administrative recommendations but no findings related to safety of operations.

c. Conclusions

No safety concerns were identified regarding licensee NCS-related inspections, audits and investigations.

4.0 Criticality Accident Alarm System (88015)

a. Inspection Scope

Inspectors reviewed the licensee analytical basis for adequate implementation of the criticality accident alarm system (CAAS). The inspectors interviewed the responsible licensee engineering and maintenance staff regarding system function.

b. Observations and Findings

The inspectors reviewed licensee criticality alarm detector circuit logic to determine that the system would sound an alarm in accordance with license requirements.

c. Conclusions

No safety concerns were identified regarding the licensee criticality accident alarm system.

5.0 Plant Activities (88015)

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. The inspectors discussed the activities with NCS staff during the walkdowns.

b. Observations and Findings

The inspectors walked down the shipping and receiving areas, the pellet storage vault, the pellet loading room, the rod loading and bundle assembly areas, and fuel bundle storage areas. The inspectors determined that plant activities were conducted safely and in accordance with printed NCS postings and administrative requirements in applicable CSAs.

c. Conclusions

No safety concerns were identified during plant walkdowns.

6.0 Open Items

IFI 70-1201/2006-202-01

During a walkdown of the pellet loading room, the inspectors noted that there was an unfavorable geometry trash can situated next to a table on which loose pellets were removed from packaging and prepared for loading into rods. The trash can was partly filled with plastic sheeting and cardboard boxes used to transport pellets, among other items. During the course of the facility walkdown, the trash can was moved from this location to an area adjacent to another table in the pellet loading room, and appeared to be routinely moved about. The staff questioned whether the presence of this trash can challenged the NCS basis for the pellet loading room. The inspectors determined that there was a very low likelihood of achieving a critical configuration if multiple boxes of pellets spilled into the trash can. The licensee agreed to place this issue into the facility's corrective action program. During the current inspection, the inspectors determined that the licensee had analyzed the trash can scenario in the pellet room analysis and determined that criticality in the trash cans due to inadvertent spilling of pellet boxes was highly unlikely. The inspectors noted that the pellet room trash cans now have lids with access slots that automatically close. This item is closed.

IFI 70-1201/2006-202-02

During a previous inspection, the inspectors noted that the posting for the fuel bundle storage racks specified that, if polyethylene sheathing was used around fuel assemblies, the bottoms must be left open or cut-out windows employed (made of low-grade paper that would degrade if wet), and that polyethylene covers “should” be placed on top of the assemblies. During the attempt to verify that all plastic-sheathed assemblies had both polyethylene covers and either open bottoms or cut-out windows, the licensee indicated that the statement regarding polyethylene covers was not a “requirement,” since the posting contained the word “should.” The inspectors were concerned that the inclusion of optional controls on NCS postings could dilute their effectiveness. The licensee agreed to place this issue into the facility’s corrective action program. During the current inspection, the inspectors observed that the “should” statement had been removed from the fuel bundle storage rack NCS posting. This item is closed.

7.0 Exit Meeting

The inspectors presented the inspection scope and results to members of the licensee’s management and staff during an exit meeting on June 8, 2007. The licensee acknowledged and understood the findings as presented.

SUPPLEMENTAL INFORMATION

1.0 List of Items Opened, Closed, and Discussed

Items Opened

None.

Items Closed

IFI 70-1201/2006-202-01 Tracks licensee actions to adequately address, in NCS analyses, the scenario of spilling multiple boxes of loose pellets into an unfavorable geometry trash can.

IFI 70-1201/2006-202-02 Tracks licensee actions to clarify wording on NCS postings.

Items Discussed

None.

2.0 Inspection Procedures Used

IP 88015	Headquarters Nuclear Criticality Safety Program
IP 88016	Nuclear Criticality Safety Evaluations and Analyses
IP 88017	Criticality Accident Alarms

3.0 Key Points of Contact

AREVA NP, Inc.

D. Grandemange	AREVA, MAR Site Manager
C. Holman	AREVA, Manager, Environmental Health and Safety
B. O'Donnell	AREVA, Criticality Safety Engineer

NRC

D. Morey	Senior Criticality Safety Inspector, NRC HQ
B. Purnell	Criticality Safety Inspector, NRC HQ

All attended the exit meeting on June 8, 2007.

4.0 List of Acronyms and Abbreviations

ADAMS	Agency-Wide Document Access and Management System
AREVA	AREVA NP, Inc. (Licensee)
CAAS	criticality accident alarm system
CSA	Criticality Safety Analysis
IFI	inspector follow-up item
IP	inspection procedure
IROFS	item relied on for safety
ISA	Integrated Safety Analysis
MAR	Mount Athos Road
NCS	nuclear criticality safety