



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

October 22, 2010

Mr. Charles Perkins
Site Manager
AREVA NP, Inc.
2101 Horn Rapids Road
Richland, WA 99352-0130

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT
NO. 70-1257/2010-007

Dear Mr. Perkins:

This refers to the inspections conducted at your facility in Richland, Washington on March 29 – April 2, 2010, and September 20-24, 2010. The purpose of the inspections were to determine whether activities authorized by the license were conducted safely and in accordance with Nuclear Regulatory Commission (NRC) requirements. At the conclusion of the final inspection on September 24, 2010, the inspector discussed the findings with Robert Link and members of your staff.

These inspections were 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 activities conducted on March 29 through April 2, 2010, included the event follow-up on the HEPA filter events. The inspection activities conducted on September 20 through 24, 2010, involved inspection of the Environmental Protection program and the Training program. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with personnel.

The results of the inspections are documented on the enclosed inspection report. No violations were identified during the inspections of your licensed activities.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

C. Perkins

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Should you have any questions regarding this letter, please contact us.

Sincerely,

/RA/

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

Docket No. 70-1257
License No. SNM-1227

Enclosure: NRC Inspection Report
No. 70-1257/2010-006

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cc w/encl: (Cont'd on page 3)

C. Perkins

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DATE	10/ /2010	10/ /2010	10/ /2010	10/ /2010	10/ /2010	10/ /2010
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U.S. NUCLEAR REGULATORY COMMISSION
REGION II

Docket No.: 70-1257

License No.: SNM-1227

Report No.: 70-1257/2010-007

Licensee: AREVA NP, Inc.

Facility: Richland Facility

Location: 2101 Horn Rapids Road
Richland, Washington

Dates: March 29 through April 2, 2010
September 20 through 24, 2010

Inspector: Jennifer Foster, Fuel Facility Inspector
Robert Prince, Fuel Facility Inspector

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

Enclosure

EXECUTIVE SUMMARY

AREVA NP, Inc.
NRC Inspection Report No. 70-1257/2010-007

Inspections were conducted by the regional inspectors during normal shifts in the areas of effluent control and environmental protection, operator training and retraining, and event follow-up. During the inspection period, normal production activities were ongoing. This routine, announced inspection included field observations of work activities, review of selected records, and interviews with plant personnel.

Effluent Control and Environmental Protection

- The inspectors determined that the environmental protection program was in compliance with regulations, the license, and approved procedures. No issues of safety significance were identified. (Paragraph 2)

Operator Training and Retraining

- The inspectors determined that the training program was in compliance with regulations and the license. No issues of safety significance were identified. (Paragraph 3)

Attachment

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

REPORT DETAILS

1. Summary of Plant Status

The AREVA Richland facility converts uranium hexafluoride (UF₆) into uranium dioxide for the fabrication of low-enriched fuel assemblies used in commercial nuclear power reactors. During the inspection period, normal production activities were ongoing.

2. Effluent Control and Environmental Protection (IP 88045)

a. Inspection Scope and Observations

The inspectors accompanied licensee personnel during the collection of samples of the liquid discharge to the municipal sanitary sewer and determined that the sampling activity was in accordance with approved procedures. The inspectors reviewed a sample of the daily analytical data results of the uranium concentration of the sanitary sewer samples for 2009, and determined that the monthly averages of the sanitary sewer samples were less than the 10 CFR 20 Appendix B Table 3 values. The inspectors reviewed the ALARA report and noted the 2009 liquid discharge rates were consistent with past years and that no adverse trends existed. The inspectors verified that the total quantity of radioactive material released into the sanitary sewer did not exceed one Curie for the year as required by 10 CFR 20.2003.

The inspectors verified that the licensee does not discharge liquid effluents to the environment; including any tributary to the Columbia River. The storm water collected from the site is not discharged off site nor included in the liquid discharge to the municipal sanitary sewer. Due to the arid climate and low levels of rainfall, the storm water collected from the site is discharged directly into the ground via an in-situ discharge pipe. No issues of significance were identified.

The inspectors reviewed the uranium concentration results of the sludge taken from the municipal sanitary sewer. The sludge results for 2009 were below the investigation limits specified in the license. The sampling frequency of the sludge samples decreased in spring 2009 from monthly to quarterly sampling. The largest sampling result in 2009 was 3.26 picocuries per gram (pCi/g) of uranium in sludge; compared to the 30 pCi/g investigation level. The decrease in sampling is not projected to decrease public health and safety. The revised sampling frequency, quarterly, is in accordance with the license.

The inspectors observed the laboratory sample preparation for detection of uranium in the liquid discharge sample. The inspectors verified that the licensee effectively used quality control methods as described in approved procedures. The inspectors verified that the licensee maintained criterion for accepting and rejecting a measurement result. No issues of significance were identified.

The inspectors accompanied licensee staff during the collection of airborne effluent stack samples and determined that the sampling was conducted in accordance with approved procedures and that the rotameters were within calibration. The inspectors verified that the stacks were continuously sampled and analyzed weekly as described in the license. The inspectors reviewed the weekly airborne effluent data since the last environmental inspection and determined that all results were below the action limit.

The inspectors reviewed the ALARA report and noted that the 2009 air effluents had increased since 2008; but remained below regulatory limits.

The inspectors verified the differential pressure for the primary HEPA filters and the final HEPA filters were under the action levels specified in approved procedures for randomly selected stacks. The inspectors reviewed IROFS preventative maintenance forms and determined that they were adequate. No findings of significance were identified.

The inspectors reviewed the semiannual effluent reports for 2009 and the first half of 2010. The inspectors determined that the reports contained the total type and quantity of radioactive material released to the environment and was in accordance with 10 CFR 70.59.

The inspectors reviewed the 2009 Annual Public Dose Report and determined that the public dose corresponding to the airborne emissions was less than the 10 CFR 20.1101 ALARA constraint on air emissions. The inspectors reviewed the quarterly sampling results for external radiation, and compared the sum of the maximum quarterly fence line TLD values and confirmed that it was less than 50 mrem per year. The licensee does not discharge liquid effluents to the environment. The inspectors determined that the annual public dose associated with licensed activities was less than 100 mrem/ year; the limit specified in 10 CFR 20.1301.

The inspectors reviewed environmental sampling results for soil, air, forage, and groundwater. The inspectors verified that the 2009 soil samples were conducted quarterly and were analyzed for uranium as required by the license. The inspectors determined that the air samples were sampled for fluoride in accordance with the license. The forage samples were collected monthly during the growing season and were sampled for fluoride. The inspectors reviewed groundwater sampling results and determined that the samples were collected and analyzed semiannually for gross alpha and beta as required by the license. The inspectors reviewed groundwater trending data for the 2004 through current timeframe and did not identify an increasing trends. No issues of significance were identified.

The inspectors reviewed approved procedures and determined they were in compliance with the license. The inspectors reviewed the quarterly compliance audits issued since the last environmental inspection and determined the audits were in accordance with the license requirements.

b. Conclusions

The inspectors determined that the environmental protection program was in compliance with regulations, the license, and approved procedures. No issues of safety significance were identified.

3. Operator Training and Retraining (IP 88020)

a. Inspection Scope and Observations

The inspectors reviewed general health and safety training including the video for first time visitors to the site. The inspectors reviewed the Radiological Safety Worker Training instructor guide and verified that the criteria listed in 10 CFR 19.12, Instructions to Workers, were included.

The inspectors reviewed the training procedures and verified that the overall implementation of the training and qualification program was governed by a formal procedure as required by the license. The inspectors reviewed the training records tracking system and verified that records were created and maintained in order to verify the training and qualification status of individuals handling licensed material as required by the license.

The inspectors observed the classroom instruction of the Nuclear Criticality Safety (NCS) Training for New Fissile Workers and hands-on training of the Self-Contained Breathing Apparatus (SCBA) equipment for the Emergency Response Team. The inspectors determined that the trainings was conducted at an appropriate level and adequately engaged the students. The inspectors interviewed students and determined that they were knowledgeable of the material.

The inspectors reviewed training documentation including Criticality Control Key Custodian for Conversion and the UF₆ Cylinder Wash Station. The inspector reviewed the examinations and the skill evaluations and determined that they were adequate.

The inspectors interviewed the staff regarding changes in the plant and the effects on the training department. The training staff discussed the training course they were developing for the new carbon dioxide (CO₂) process and the implementation of the PWR Bundle Assembly. The inspectors observed the licensee training personnel conduct a workstation observation for the development and revision of an on-the-job instructor guide for PWR Cage Fabrication. The inspectors reviewed the documentation associated with the draft instructor guide and did not identify any issues of significance.

The inspectors reviewed a sample of training records. The inspectors randomly selected one newly trained individual and one re-trained individual from the following areas; Conversion, Scrap Recovery, Bundle Assembly, Ceramics, and Health and Safety Technicians. The inspectors determined that all individuals were qualified in the areas in which they were working.

b. Conclusions

The inspectors determined that the training program was in compliance with regulations and the license. No issues of safety significance were identified.

4. Open Items Review

Closed Licensee Event Report (LER) 2009-003-0: HEPA filters damaged due to chemical degradation. On October 1, 2009 the licensee reported that the primary and secondary HEPA filters servicing the ammonium diuranate (ADU) area in the K-32A facility showed visible signs of deterioration resulting in cracks in the filters, NRC Event Number (EN) 45402.

Licensee event report number 2009-003-0 determined that the event involved the long-term chemical degradation of the HEPA filters. The cause of the chemical degradation was due to high chemical airborne concentrations present when the dryer was shutdown. The dryer eliminates moisture in the process stream to minimize the presence of corrosive chemicals.

The inspectors discussed details of the event with licensee personnel and performed field observations. The inspectors reviewed proposed corrective actions in order to prevent recurrence of the events. Based on discussions with licensee personnel, review of documentation, and field observations, the inspectors found that the proposed corrective actions had been implemented. The licensee implemented changes to operational procedures to require the shutdown of Tank 222 (the source of the chemicals) before the dryer is cooled down. This item is closed.

Closed Licensee Event Report 2009-004-0: Degradation of HEPA filter due to fire and excessive heat in the scrubber unit. On October 2, 2009, the licensee reported that a high heat event in the HEPA housing in the K-50 facility and packed column scrubber servicing the Solid Waste Uranium Recovery (SWUR) area, NRC EN 45407. Licensee event report number 2009-004-0 documented the results of the licensee's investigation. The licensee discovered that a fire started in the incinerator and travelled to the venturi scrubber. The fire caused the bottom end of the packed column scrubber to melt and hot debris fell onto the HEPA filters located downstream from the scrubber unit causing the HEPA filter to catch fire.

The inspectors discussed details of the event with licensee personnel and performed field observations. The inspectors reviewed proposed corrective actions in order to prevent recurrence of the events. Based on discussions with licensee personnel, review of documentation, and field observations, the inspectors found that the proposed corrective actions had been implemented. The licensee installed an interlock to de-energize the re-heater in the packed scrubber column when cooling water is not provided to the scrubber. This interlock was designed to prevent over-heating of the scrubber in the future. This will prevent the introduction of high corrosive chemical concentrations to the process stream to minimize chemical degradation of the HEPA filters. The inspectors reviewed also airborne effluent data for the period when the K-50 HEPA filters were damaged. The licensee conservatively estimated the total release of uranium over this period to be 3×10^3 microcuries (μCi), based on a release

concentration of 2.5×10^{-13} microcuries/milliliter ($\mu\text{Ci/ml}$). This concentration was below administrative action levels and less than regulatory effluent release limits. The inspectors determined that there was no impact on the health and safety of the public. This item is closed.

Additionally, the licensee implemented quarterly inspections of the HEPA units in both facilities. The purpose of these inspections is to confirm the physical integrity of the filters. Prior to these events, change-out of the HEPA filters was based primarily on differential pressure readings.

5. Exit Meeting Summary

The final inspection scope and results were summarized on September 24, 2010, with Robert Link and members of your staff.

ATTACHMENT

1. LIST OF PERSONS CONTACTED

Licensee

R. Link, Environmental, Health, Safety, and Licensing Manager
T. Tate, Safety, Security & Emergency Preparedness
R. Burklin, Health Physics
J. Perriman, Liquid Effluents
L. Hope, Training Manager
W. Beckus, Training Instructor
L. Smith, Training Instructor

2. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Item Number</u>	<u>Status</u>	<u>Description</u>
LER 2009-003-0	Closed	HEPA filters damaged due to chemical degradation.
LER 2009-004-0	Closed	Degradation of HEPA filter due to fire and excessive heat in the scrubber unit.

3. INSPECTION PROCEDURES USED

IP 88045 Effluent Control and Environmental Protection
IP 88020 Operator Training and Retraining

4. DOCUMENTS REVIEWED

<u>Number</u>	<u>Title</u>
SOP 40031, Ver. 7.0	Waste Effluent Monitoring and Sampling
SOP 40032, Ver. 6.0	Radioactive Gaseous Effluent Sampling
SOP 40039, Ver. 4.0	Richland WWTF Sludge Sampling
SOP 40035, Ver. 4.0	Forage Sampling
SOP 40821, Ver. 9.0	Instruction Manual HEPA and Prefilter Change-outs
SOP 40256, Ver. 11.0	ARF Ion Exchange System
1723-01, Rev. 004	Fuels Training
1726-01, Rev. 001	Fuels America Training Records
E05-01-012, Ver. 1.0	The ALARA Report – January 1, 2009 through December 31, 2009