



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

July 29, 2011

Mr. Dominique Grandemange
Site Manager
AREVA NP, Inc.
2101 Horn Rapids Road
Richland, WA 99354-0130

**SUBJECT: AREVA NP, INC (RICHLAND) – NOTICE OF VIOLATION AND NRC INTEGRATED
INSPECTION REPORT NO. 070-1257/2011-003**

Dear Mr. Grandemange:

The U.S. Nuclear Regulatory Commission (NRC) conducted announced, routine inspections at your Richland, Washington facility. The enclosed report presents the results of the inspections. The purposes of the inspections were to perform routine reviews of the implementation of the effluent control and environmental protection, radioactive waste management, transportation of radioactive material maintenance, operator training, management organization and control, evaluation of emergency exercise, and to follow-up on previously identified issues. These reviews were performed to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. At the conclusion of the inspections, the findings were discussed with members of your staff at exit meetings held on March 31, April 28, and June 9, 2011.

The 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 inspections consisted of facility walk downs; selective examinations of relevant procedures and records; interviews with plant personnel; and plant observations. Throughout the inspections, observations were discussed with your managers and staff.

Based on the results of these inspections, 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. The current Enforcement Policy is included on the NRC's website at (<http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>). The NRC-identified violation was cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it is described in detail in the enclosed inspection report.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration in presenting the corrective actions, the guidance from NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," is available on the NRC website and may be helpful. If you have additional information that you believe the NRC should

consider, you may provide it in your response to the Notice. The NRC review of your response to the Notice will also 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) 997-4629.

Sincerely,

/RA/

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

Docket No. 070-1257
License No. SNM-1227

Enclosures:

1. Notice of Violation
2. NRC Inspection Report w/ attachment

cc w/encls: (See page 3)

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*See previous concurrence

PUBLICLY AVAILABLE NON-PUBLICLY AVAILABLE SENSITIVE NON-SENSITIVE

ADAMS: Yes ACCESSION NUMBER: ML112101677 SUNSI REVIEW COMPLETE FORM 665 ATTACHED

OFFICE	RII:DFFI	RII:DFFI	RII:DFFI	RII:DFFI	NMSS:SFST	RII:DFFI	RIV:DRP	RII:DFFI
SIGNATURE	/RA/	/RA via email/	/RA/	/RA via email/	/RA via email/	/RA/	/RA via email/	/RA/
NAME	RGibson	OLopez	JPelchat	JFoster	RTemp	MToth	RCohen	MThomas
DATE	7/20/2011	7/22/2011	7/20/2011	7/19/2011	7/20/2011	7/25/2011	7/19/2011	7/19/2011
E-MAIL COPY?	YES	YES	NO	YES	YES	NO	YES	NO

cc w/encls:

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Letter to Mr. Dominique Grandemange from Marvin D. Sykes dated July 29, 2011

Subject: ARENA NP, INC (Richland) –NRC INTEGRATED INSPECTION REPORT
NO. 070-1257/2011-003

Distribution w/encls:

M. Thomas, RII
O. López, RII
R. Rodriguez, NMSS
M. Diaz, NMSS
M. Sykes, RII
R. Cohen, RIV
W. Walker, RIV

NOTICE OF VIOLATION

Areva NP, Inc.
Richland, WA

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

During an NRC inspection conducted between April 25 and 28, 2011, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the Violation is listed below:

Safety Condition No. S-1 of Special Nuclear Material (SNM) License No.: SNM-1227 requires that material be used in accordance with the statements, representations, and conditions in the license application dated October 24, 2006, and supplements dated: December 13, 2006 (License Application and RAI Responses); December 10, 2008 (Revised License Renewal Application); e-mail from R.E. Link titled: "Compliance Plan," dated March 5, 2009; June 12, 2008, August 22, 2008, June 5, 2009, July 13, 2009, November 11, 2009, December 4, 2009, February 4, 2010, e-mail and attachment submitted by C.D. Manning on April 16, 2010, April 28, 2010, and July 1, 2010.

Section 11.3.2, Training and Qualification for Positions/Activities Impacting [IROFS] Items Relied on for Safety, of Revised License Renewal Application, dated December 10, 2008, states, in part, that "Employees assigned to positions/activities involving licensed materials shall be appropriately qualified and trained to conduct their job duties in a way that does not adversely impact safety and in particular the availability and reliability of measures designated as IROFS in the ISA Summary. Trainee understanding and command of learning objectives shall be evaluated."

Contrary to the above, from March 2010 through April 28, 2011, the licensee failed to ensure that three employees assigned to positions and activities involving licensed materials were appropriately qualified and trained so as to conduct their job duties in a way that did not adversely impact safety. Specifically, the inspectors identified three employees independently operating the 45 gallon drum to 55 gallon drum transfer and storage workstation in the Blended Low-Enriched Uranium area without having completed the initial qualification evaluation for the station.

This is a Severity Level IV violation (Section 6.2.d).

Pursuant to the provisions of 10 CFR 2.201, AREVA NP, INC. 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 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, and (4) the date when full compliance will be achieved. Your response may reference or include previous 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

Enclosure 1

not be modified, suspended, or revoked, or why such other action 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 violation or its significance, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region II, and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-001.

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, classified, 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 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 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 2.390(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 29th day of July, 2011

U.S. NUCLEAR REGULATORY COMMISSION
REGION II

Docket No.: 70-1257

License No.: SNM-1227

Report No.: 70-1257/2011-003

Licensee: AREVA NP, Inc.

Facility: Richland Facility

Location: 2101 Horn Rapids Road
Richland, Washington

Dates: March 28 through 31, 2011
April 25 through 28, 2011
June 6 through 9, 2011

Inspectors: Mary Thomas, Senior Fuel Facility Inspector (Sections 2 and 3)
John Pelchat, Senior Fuel Facility Inspector (Section 5)
Richard Gibson, Senior Fuel Facility Inspector (Section 1)
Omar López, Senior Fuel Facility Inspector (Section 4)
Ronald Cohen, Senior Resident Inspector, Columbia Generating Station
(Section 5)
Robert Temps, Senior Transportation and Storage Safety Inspector,
(Sections 2 and 3)
José Diaz, Material Control and Accounting Inspector (Section 6)
Jennifer Foster, Fuel Facility Inspector (Sections 5 and 7)
Matthew Toth, Fuel Facility Inspector-in-Training, (Section 4)

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

EXECUTIVE SUMMARY

AREVA NP, Inc.
NRC Inspection Report No. 70-1257/2011-003

Inspections were conducted by NRC inspectors during normal shifts in the areas of Effluent Control and Environmental Protection, Radioactive Waste Management, Transportation, Maintenance, Operator Training, Management Organization and Control, Evaluation of Emergency Exercise, and follow-up to previously identified issues. During the inspection period, the plant was shut down for scheduled maintenance and resumed normal production activities upon completion. These routine, announced inspections consisted of a selective examination of procedures and representative records, observations of activities, walkdowns of items relied on for safety (IROFS), and interviews with personnel.

Effluent Control and Environmental Protection

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

Radioactive Waste Management

Radioactive waste activities were performed in accordance with regulatory requirements and procedures.

Transportation of Radioactive Material

Shipments of radioactive materials were prepared and shipped in accordance with applicable regulations and plant procedures. Certificates of compliance were maintained current. Shipping records were properly completed and maintained in accordance with applicable regulations.

Maintenance

The inspectors determined that pre-job briefings, procedures and permits were appropriately used and followed prior to commencement of observed maintenance activities. Completed maintenance and calibration procedures were adequately completed in accordance with management control procedures. A review of selected maintenance items showed proper consideration of IROFS for work packages, including entry into the facility maintenance and work order program database. An administrative review of selected maintenance activities demonstrated appropriate functional testing to ensure each IROFS would perform their intended safety function.

Operator Training

The inspectors determined that the Operator Training program was in compliance with the license, with one exception. The inspectors identified a violation of the license involving the qualification of workers at a work station in the Blended Low-Enriched Uranium area.

Management Organization and Control

The licensee maintained an organizational structure in accordance with license requirements. The licensee maintained plant policies and employees were aware of responsibilities for Operational Safety, Radiation Protection, Fire Safety, Chemical Safety, and Nuclear Criticality Safety. The licensee implemented adequate controls for the establishment, review and issuance of plant procedures. Licensee corrective actions for problems identified were commensurate with the safety significance of the issues and were implemented. Licensee Safety Committees maintained an adequate emphasis on safety discussions and proper follow-up of previously identified issues. The inspectors determined that the licensee was performing quality assurance tests on systems and components important to safety, and that a verification/approval process is used.

Evaluation of Emergency Exercise

No findings of significance were identified with regard to emergency preparedness or the conduct of exercises or drills.

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 (UO₂) for the fabrication of low-enriched fuel assemblies used in commercial nuclear power reactors. During the inspection period, the plant was shut down for annual maintenance and resumed normal production activities upon completion.

2. Effluent Control and Environmental Protection (IP 88045)

a. Inspection Scope and Observations

The inspectors observed the collection and change-out of ambient air filters and radioactive gaseous effluent filters for selected stacks. This activity was conducted in accordance with the applicable procedure and within the required frequency. The inspectors verified the stacks were sampled and analyzed weekly, as described in the license, and verified that the associated rotameters were within calibration. The air sample data from these stacks was provided to the inspectors for review. All airborne effluents released were well within the limits specified in the license and ALARA limits required by 10 CFR 20.1101.

The inspectors observed the collection of liquid effluent (a composite sample), which is discharged to the municipal sanitary sewer, and determined that the sampling activity was conducted in accordance with the applicable procedure and within the required frequency. The inspectors reviewed the daily analytical data results of the uranium concentration of the sanitary sewer samples for January 2010 to May 2011, and determined that the monthly averages of the sanitary sewer samples were less than the Table 3 values of 10 CFR 20 Appendix B. The inspectors verified that the licensee does not discharge liquid effluents to the Columbia River and that the total quantity of radioactive material released into the sanitary sewer did not exceed one curie for the year 2010 as required by 10 CFR 20.2003. No issues of safety significance were identified.

The inspectors reviewed sludge sample results taken from the municipal sanitary sewer which were analyzed for uranium concentration on site. The City of Richland Wastewater Treatment facility provided sludge samples quarterly. The sludge sample results for 2010 and up to the time of this inspection were below the investigation limits specified in the license. In 2010, the highest sludge sample concentration was 2.23 picocuries per gram (pCi/gm), and the highest concentration at the time of the inspection (for 2011) was 1.86 pCi/gm. The inspectors determined from a review of records that the sampling of sludge was in accordance with approved procedures. No issues of safety significance were identified.

The inspectors observed the verification of the differential pressure readings for the primary and final High Efficiency Particulate Air (HEPA) filtration. The results from the readings were under the action levels specified in approved procedures. The inspectors reviewed items relied on for safety (IROFS) preventative maintenance forms and condition reports (CR) for HEPA filtration and determined that they were adequate. No issues of significance were identified.

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

The inspectors reviewed the 2010 Annual Public Dose Report and determined that the public dose corresponding to the airborne emissions was less than the 10 CFR 20.1101 ALARA constraints on air emissions. The inspectors reviewed the quarterly sampling results for external radiation from the environmental thermoluminescent dosimeters (TLD). The inspectors determined that the average TLD reading per month for 2009 was 4 millirem (mrem), for 2010 was 2 mrem and for the first quarter of 2011 was 6 mrem. The inspectors determined that the annual public dose associated with licensed activities was less than 100 mrem/year as required by 10 CFR 20.1301. The licensee discharged liquid effluents to the city sanitary sewerage and not to the environment.

The inspectors reviewed the 2010 environmental sampling results for soil, air, forage, and groundwater. The inspectors verified that the soil samples were conducted quarterly and were analyzed for uranium, as required by the license. The inspectors observed the collection of soil samples and determined that the samples were collected in accordance with approved procedures. The inspectors determined that the air samples were tested for fluoride in accordance with the license. The forage samples were collected monthly during the growing season and were also sampled for fluoride in accordance with the license. 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. No issues of safety significance were identified.

The inspectors reviewed approved procedures and determined they were in compliance with the license. Also, the inspectors reviewed the semiannual environmental monitoring audit summary and determined that it was in accordance with the license requirements.

b. Conclusions

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

3. **Radioactive Waste Management (IP 88035)**

a. Inspection Scope and Observations

The inspectors reviewed written procedures and observed operators performing tasks related to radioactive waste. The procedures were clearly written and delineated responsibilities related to radioactive waste management. The operators were cognizant of their responsibilities and the requirement to perform tasks in accordance with facility procedures. No issues were identified relating to management controls.

The inspectors reviewed the quality assurance program for radioactive waste management and determined that the licensee was performing audits as specified in the license application. The findings from these audits were appropriately being entered into a corrective action program for resolution.

The inspectors reviewed the licensee's program for classifying low-level radioactive waste. The inspectors looked at the procedures for classifying waste as well as records relating to waste. The inspectors determined that the licensee had an effective program for determining the classification of low-level waste.

The inspectors reviewed the licensee's program for ensuring that the waste form meets the requirements of 10 CFR 61.56. The licensee had adequate procedures in place to ensure that waste was packaged in compliance with the regulations.

The inspectors reviewed the licensee's procedures for labeling waste shipments and tracking radioactive waste. The procedures were adequate to ensure that radioactive waste was properly labeled based on the contents of the shipment, and the procedures specified actions to be taken should the shipments not reach the intended destination in the time specified. No radioactive waste shipments were made during the inspection.

The inspectors reviewed the procedures for placement, inspection, and repackaging of radioactive waste. The licensee had programs in place to ensure that solid waste was being placed in specific storage areas based on the type of waste. The licensee also had requirements for periodic inspection and repackaging of waste, if required. No issues were identified.

The inspectors performed walk-downs of selected licensee radioactive storage areas. The storage areas had adequate postings to ensure that the proper material was being stored in the area and the material was safely stored in accordance with the nuclear criticality safety requirements. The containers were properly labeled to reflect the material within the containers and the containers were generally in good physical condition. The containers were being stored in a manner that provided immediate access for inspections. No issues were identified.

b. Conclusions

Radioactive waste activities were performed in accordance with regulatory requirements and procedures.

4. **Transportation of Radioactive Material (IP 86740)**

a. Inspection Scope and Observations

The inspectors reviewed a number of shipping records involving the shipment and receipt of special nuclear material (SNM) products and waste disposal. The licensee ensured that the appropriate documentation accompanied the packages being shipped. The licensee recorded the required information on the packaging and shipping orders including the transportation index, package activity, labeling, and placards.

The inspectors observed the licensee load a package of material for transport. The personnel loading the packages followed the appropriate procedures. The inspectors also interviewed the radiation protection and transportation personnel to ensure they were knowledgeable of NRC and Department of Transportation (DOT) requirements. The inspectors reviewed the licensee's process for an export to Japan of uranium oxide powder using the TNF-XI packaging design. The licensee uses the TNF-XI package

certified under the French Certificate of Competent Authority F/381/AF-96 (Bc) and revalidated by the U.S. Department of Transportation (DOT) for import/export use only to/from the United States under DOT Competent Authority Certification Certificate USA/0653/AF-96, Revision 4, dated July 23, 2007. The licensee is granted a general license under 10 CFR 71.21, "General license: Use of foreign approved package," to transport, or deliver for transport, licensed material in a package, the design of which has been approved in a foreign national competent authority certificate, that has been revalidated by DOT as meeting the applicable requirements of 49 CFR 171.12.

Certain conditions of 10 CFR 71.21 are required to be met in order to use the general license provision for transport of licensed material. The inspectors verified that the majority of provisions in 71.21 were met by the licensee; however, two non-conformances were noted in the review. The non-conformances constitute a violation of minor significance that is not subject to enforcement action in accordance with the NRC Enforcement Policy.

1. 72.21(d)(1) requires that a licensee have a copy of the drawings referenced in the certificate; the licensee did not. The licensee obtained the required drawings during the inspection.
2. 72.21(d)(2) requires that a licensee comply with the terms and conditions of the certificate and revalidation. The licensee did not comply with the terms and conditions of the certificate and revalidation in that Section 5.a of the DOT revalidation requires that the package shall be prepared for shipment and operated in accordance with the operating procedures approved by the NRC. The NRC approved procedures are contained in Chapter 7.0 "Operating Procedures," in the Safety Analysis Report (SAR) for the NRC certified version of the TNF-XI. Section 7.1.3.2 requires temperature readings and a calculation be performed; however, the licensee's package operating procedures did not contain this action. The licensee stated they would incorporate the requirement into their operating procedure.

The inspectors noted additional concerns with regard to the export shipments. The concerns constitute a violation of minor significance that is not subject to enforcement action in accordance with the NRC Enforcement Policy.

1. DOT issued Revision 4 of their package revalidation on July 23, 2007. Section 5.a of the revalidation references attached operating instructions for the preparation and operation of the package; however, the operating instructions (Section 7 of the NRC SAR) were not attached. The licensee should have noted this oversight at the time but did not because they failed to verify, upon the issuance of Revision 4, whether the licensee package operating instructions were still in conformance with the Revision 4 operating instructions. This reflects poor attention to detail by licensee personnel. The inspectors requested that the licensee contact DOT to obtain the operating instructions that were not attached to the revalidation.
2. The inspectors noted in a letter from Nuclear Fuel Industries (NFI), dated August 20, 2010, a statement to the effect that NFI attested that the necessary authorizations required for the shipment into the Port of Tokyo, which can be

made by the time of shipment from Areva NP Richland, had been completed and that all necessary procedures required for the importation of the material into the Port of Tokyo would be completed by the time of the importation. The licensee could not definitively explain to the inspectors what authorizations and procedures were being referenced in the NFI letter. The inspectors requested that the licensee contact NFI to determine exactly what authorizations and procedures were being referred to by NFI. The inspectors also requested that once clarification was obtained from NFI, that the licensee contact DOT to verify whether it is acceptable for the licensee to sign the Dangerous Good Declaration with the shipper's certification (required per 49 CFR 172.204) certifying, in essence, that the consignment is in all respects in proper condition for transport according to applicable international and national governmental regulations, with pending authorizations/procedures in Japan.

The inspectors reviewed the training of the transportation staff to ensure they had received the proper training as specified by the license. No issues were identified.

The inspectors reviewed audits of the transportation program and determined the licensee was performing periodic audits of the transportation program as required. The results of the audits were being appropriately addressed in the corrective action program. No issues were identified.

The inspectors concluded that the transportation activities reviewed were conducted in accordance with requirements.

b. Conclusions

Shipments of radioactive materials were prepared and shipped in accordance with applicable regulations and plant procedures. Certificates of compliance were maintained current. Shipping records were properly completed and maintained in accordance with applicable regulations.

5. Maintenance (IP 88025)

a. Inspection Scope and Observations

The inspectors reviewed a sample of completed maintenance documents regarding IROFS and an Engineering Change Notice (ECN). The inspectors observed the conduct of several maintenance evolutions that were scheduled for the week of the inspection. The goal was to review each specific document or task containing a safety component to ensure facility procedures were used to properly identify and control affected IROFS. This included post-maintenance functional testing to ensure the safety component would be able to perform its intended function after maintenance or modifications were concluded. The inspection also included a review of how maintenance items were identified and controlled as IROFS when entered into the applicable maintenance and work order database.

The inspectors reviewed ECN 8536C, "DC Scrubber High Level Switch Replacement in the HF Recovery System for the Dry Conversion", to verify that the licensee properly identified, documented, and controlled affected items relied on for safety. The ECN upgraded switch relays in the HF Recovery System to a more robust model to ensure

reliability. Condition Reports (CRs) 2010-968-FA and 2010-969-FA prompted this change due to a previously failed Preventive Maintenance (PM) work item. The inspectors noted that applicable functional tests were performed successfully. No issues of significance were identified.

The inspectors attended a pre-job brief for maintenance on the UO₂ dumbwaiter, an elevator used to move powder containers between different building levels. The scope of the work was to replace the hoisting motor and brake assembly, the slack cable overload and to perform additional required preventive maintenance items. The briefing was onsite at the equipment location and all required personnel were in attendance. The lead engineer used a maintenance work permit and pre-job briefing checklist. These documents are required to be used by Standard Operating Procedure (SOP) 40791, "Maintenance Work Permit and Pre-Job Briefing," version 8.0, and Form 40791B, "Pre-Job Briefing Checklist Form," version 2.0. The brief was interactive and discussions concerning radiation safety aspects ended with several unanswered questions. Commencement of work was temporarily delayed pending an additional brief with the appropriate radiation safety personnel. Maintenance commenced after completion of this brief.

The inspectors reviewed randomly selected completed maintenance activities involving IROFS. Additionally, the review included a specific examination of completed criticality alarm maintenance documents. The main focus of the review was to ensure that PM periodicity was met and that the data results met the acceptance criteria. The inspectors confirmed that the licensee complied with maintenance activities requirements as specified in Section 11.2.2 of the license application. The inspectors also reviewed the Management Control Procedure (MCP) for PM items; MCP-30383, "Preventive Maintenance" and MCP-30325 "Instrument Repetitive Maintenance." The inspectors determined that these controlling documents met the license requirements and no issues were identified.

The inspectors performed an implementation review of SOP-40920, version 4.0, "Items Relied on for Safety (IROFS) and Equipment Essential to Safety". An interview was conducted with an instrument technician regarding initiation of maintenance that may involve IROFS. The inspectors were interested in how personnel were able to identify IROFS against non-IROFS and how documentation, reporting and applicable post-maintenance functional tests were controlled and identified.

The instrument technician referenced SOP-40920 as the procedure utilized to perform proper assessments regarding maintenance on IROFS components and/or systems. The technician described when entering items into the maintenance and work order database the system would automatically alert the user whether the work order was associated with an IROFS. The technician was also aware of the corrective action process (for reporting problems) and knew that Environmental, Health, Safety and Licensing (EHS&L) was ultimately responsible for the evaluation of effects on IROFS.

The inspectors performed a tour of the dry conversion process (DCP) area and the UO₂ building. No safety significant items were found during these walk-downs. During the tour, the inspectors verified that IROFS were present and calibrated. The inspectors also observed a calciner tube ultrasound inspection in DCP. The technician was using appropriate procedures and notified immediate supervision when the ultrasound

equipment was not providing an expected response. An engineer discovered an equipment malfunction with the ultrasound device and maintenance was completed after a different piece of equipment was provided. No issues of significance were identified.

b. Conclusions

The inspectors determined that pre-job briefings, procedures and permits were appropriately used and followed prior to commencement of observed maintenance activities. Completed maintenance and calibration procedures were adequately completed in accordance with management control procedures. A review of selected maintenance items showed proper consideration of IROFS for work packages, including entry into the facility maintenance and work order program database. An administrative review of selected maintenance activities demonstrated appropriate functional testing to ensure each IROFS would perform their intended safety function.

6. **Operator Training (IP 88010)**

a. Inspection Scope and Observations

The inspectors reviewed the Operator Training Program and evaluated the program against Sections 11.3.1 and 11.3.2 of license application SNM-1227. The inspectors focused their review on both the Conversion area due to safety significance and the Rod and Bundle area as the facility has experienced growth in this area.

Changes to the Training Program—The inspectors interviewed the licensee on changes to the training program since the last training inspection. The inspectors determined that the licensee had arranged for training requirements to be assessed for all employees at the front security gate at the entrance to the facility. The security computer system ensured that all employees were current in their Site Access training and Quality Management training as the system maintained the ability to restrict access to the plant. The security computer system also ensured that the employees, who were required to take Radiation Worker, Criticality Worker, and Criticality for Managers and Engineers training classes for their job duties, were current. The inspectors determined that the change to the training program supported safety.

Training Program Procedures—The inspectors reviewed the procedure, “Fuels Training,” 1723-01 Rev. 4, and determined that overall implementation of the training and qualification program for employees conducting activities relied on for safety were governed by a formal procedure. The inspectors determined that the procedure was in compliance with the license application.

Observations of Managers, Supervisors, and Operators –The inspectors discussed and observed training with selected staff in a variety of positions. The inspectors observed on-the-job training for the Rod Assay workstation in the Rod and Bundle area. The training involved a qualified on-the-job training instructor providing instruction and guidance to an unqualified operator. The inspectors noted that the training activity addressed skills identified on the required skills checklist evaluation. The inspectors observed a qualified on-the-job training instructor conduct a tour of the pellet press workstation. The inspectors determined that on-the-job training requirements for

activities relied on for safety were implemented and position training was conducted as required by the license application.

Examinations – The inspectors reviewed lesson plans and an examination pertaining to the Rod and Bundle curriculum. The inspectors verified that key points from the lesson plan were incorporated in the examination. The inspectors determined that trainee understanding and command of learning objectives were evaluated as required by the license application.

Instructions to Workers – The inspectors reviewed the training roster for the training class, Radiological Worker Safety Refresher Training, for operator completion. The inspectors verified that the individuals identified as incomplete in an internal self assessment had become current in the class or noted that the requirement for the individual was no longer applicable. From the sample reviewed, the inspectors determined that employees routinely working with licensed materials received periodic refresher training as part of the facility's continuing program in safety awareness as required by the license application.

Compliance with License Requirements – The inspectors verified a sample of training curriculum with a supervisor and operator in the Conversion area. From these interviews, the inspectors determined that the procedures and requirements listed for each training curriculum were appropriate and current. The curricula verified were the Material Handling and Downloading workstation, UNH Powder Dissolver workstation, Dry Conversion Powder Prep workstation, and the Pellet Pressing Basic workstation. From the sample reviewed, the inspectors determined that training and qualification requirements for job functions were maintained to ensure consistency with current systems, procedures, and policies as required by the license application.

The inspectors reviewed the training records of six operators selected from uranium conversion and recovery operations. The inspectors reviewed the training items for which the operators were past due and interviewed the applicable supervisors on the operators' job responsibilities. The inspectors verified that operators were either in training, on leave, or had not worked at a workstation in which their qualification had expired. The inspectors determined that training records were current and that operator training and qualification were adequate with one exception detailed below. The inspectors determined, by the record review, that training records were maintained to allow the verification of the training and qualification status of individuals potentially impacting the safety of licensed material operations as required by the license application.

The inspectors reviewed two self assessments on the training program which were issued since the last training inspection. The inspectors reviewed Training and Qualification Audit Report; Rev. 1 and Radiological Safety Training Audit,

E12-03-19 Rev. 4. The inspectors determined that the effectiveness of the training and qualification program for positions impacting IROFS were adequately assessed on a periodic basis as required by the license application.

b. Findings

Introduction: The inspectors identified a Severity Level IV violation of Section 11.3.2 of the license application for the failure to ensure that three employees assigned to positions and activities involving licensed materials were appropriately qualified and trained so as to conduct their job duties in a way that did not adversely impact safety. Specifically, the inspectors identified three employees independently operating the 45 gallon drum to 55 gallon drum transfer and storage workstation in the Blended Low-Enriched Uranium (BLEU) area without having completed the initial qualification evaluation for the station.

Description: Through training record reviews and management interviews, the inspectors identified that an operator was working independently at a work station for which he was not fully qualified. Upon further evaluation, the licensee determined that a total of three operators were working at the same workstation, as qualified operators, without full qualification.

Three operators worked the '45 gallon to 55 gallon powder transfer and storage' workstation in the BLEU area as qualified operators despite not having completed the required workstation curriculum; including written exams and skills evaluations. The three operators, and their first line supervisors, were operating under the assumption that the workstation was included in the BLEU Powder Preparation qualification, in the Dry Conversion Powder Preparation qualification, or that their qualification for this workstation was completed. The operators were qualified operators in at least one of these other work areas.

The qualification curriculum for the '45 gallon to 55 gallon powder transfer and storage' workstation in the BLEU area included a procedure for transferring uranium powder, Downloading Powder from 45 to 55-Gallon Drums, SOP-40840 Version 8.0, which was not included in the other workstation curriculums. The SOP-40840 Version 8.0 procedure included operating instructions for two administrative IROFS which provided instruction for the verification of drum lid tamper proof seal and actions in case the tamper proof seal was broken. The tamper proof seals were used as a criticality moderation control. The three operators had reviewed and signed off on the procedure, however had not been tested on the contents in a manner consistent with workstation qualification. The three operators had also received training in a separate Tamper Safing Device training. The licensee interviewed the operators on their knowledge of the system and applicable administrative IROFS. The licensee determined that the operators understood the correct information and that a degradation of IROFS had not occurred.

The three operators who operated the 45 gallon to 55 gallon powder transfer and storage workstation independently, despite not having received initial qualification, were operating outside of the licensee training program. The Fuels Training procedure, 1723-01 Rev. 4, Section 7.8, described the workstation qualification process and

designated that only after completing all of the required readings, on-the-job trainings, exams, and skill demonstrations, that the employees were qualified for that workstation. The procedure stated that until those items were completed, the employees may not work independently at that workstation. The licensee entered the failure to maintain qualified operators for this workstation in the corrective action program as an NRC inspector identified condition report, 2011-3213. In addition, one of the operators was working as an On-The-Job Instructor despite his unqualified status. The licensee entered this concern as an NRC inspector identified condition report, 2011-3596.

Analysis: The inspectors determined that the three individuals had not been tested or qualified on the affected workstation which included operating instructions for two administrative IROFS which served as criticality moderation controls. The training program failed to ensure that qualified operators were assigned to safety-significant positions. The inspectors determined that the two administrative IROFS were not degraded due to the unqualified status of the operators.

Enforcement: Section 11.3.2, Training and Qualification for Positions/Activities Impacting IROFS, of Revised License Renewal Application, dated December 10, 2008, states, in part that "Employees assigned to positions/activities involving licensed materials shall be appropriately qualified and trained so as to conduct their job duties in a way that does not adversely impact safety and in particular the availability and reliability of measures designated as IROFS in the ISA Summary. Trainee understanding and command of learning objectives shall be evaluated." Upon discovery of the noncompliance, the licensee limited the unqualified operators from independent operation of the affected workstation and opened two condition reports; 2011-3213 and 2011-3596. The inspectors determined that the licensee had been out of compliance since March 2010. The potential for a safety consequence existed; however safety was not negatively affected by the unqualified operator status as the administrative IROFS were not degraded. This Severity Level IV violation will be tracked as NOV 70-1257/2011003-001.

c. Conclusions

The inspectors determined that the Operator Training program was in compliance with the license, with one exception. The inspectors identified a violation of the license involving the qualification of workers at a work station in the Blended Low-Enriched Uranium area.

7. **Management Organization and Control (IP 88005)**

a. Inspection Scope and Observations

Organization Structure – The inspectors reviewed changes in personnel significant to the License Application requirements that occurred since the previous review of NRC IP 88005, Management Organization & Controls. Based on those changes, the inspectors reviewed the qualifications of one individual and determined that the changes were done in accordance with the License Application.

Management and Administrative Practices for Operational Safety, Radiation Protection, Fire Protection, Chemical Safety, and Nuclear Criticality Safety – The inspectors reviewed plant policies and determined that established policies described employees' responsibilities for Operational Safety, Radiation Protection, Fire Safety, Chemical Safety, and Nuclear Criticality Safety. Based on interviews with licensee employees, the inspectors determined that in general, employees were aware of their responsibilities regarding Operational Safety, Radiation Protection, Fire Safety, Chemical Safety, and Nuclear Criticality Safety.

Procedure Controls – The inspectors verified that procedures used for Operational Safety, Radiation Protection, Fire Safety, Chemical Safety, and Nuclear Criticality Safety were approved in accordance with licensee's procedures and that the approvals involved all departments or areas responsible for their implementation. The inspectors also noted that procedures used were reviewed periodically. The inspectors observed a portion of the workflow process used by the licensee to control the review and approval process of procedures under development or periodic review.

Problem Identification and Incident Investigation – The inspectors reviewed the licensee's corrective actions program procedure, selected entries in the database system (WebCAP), and verified that employees were identifying issues. The inspectors attended a corrective actions review meeting and noted that licensee staff used the meeting to review returning, incomplete, and rescreening of issues. Based on the meeting discussions, the inspectors determined that licensee staff applied an adequate level of importance to the issues discussed and assigned follow-up of the issues to the proper groups within their organization. The inspectors interviewed licensee staff responsible for reviewing identified issues for initial screening, assignment for resolution, and final review prior to closure. Based on closed issues reviewed and interviews with licensee staff, the inspectors determined that corrective actions implemented were commensurate with the safety significance of the issues.

Plant Safety Committees – The inspectors verified that the licensee's safety committees were formally appointed and chartered; that their membership was adequate and in accordance with the License, industry, or State practices. The inspectors determined that the licensee was holding safety discussions for three committees, (1) the Site Safety Focus Team, (2) the Health and Safety Council, and (3) the ALARA Committee. The inspectors reviewed a sample of the minutes of the Site Safety Focus Team for meetings since the previous NRC IP 88005 review. The inspectors noted an adequate emphasis on safety discussions and proper follow-up of previously identified issues.

Quality Assurance Programs – The inspectors reviewed the licensee's policies and procedures regarding Quality Assurance (QA). The inspectors examined QA records and interviewed licensee staff to determine that the licensee was performing tests on systems and components important to safety, and that a verification/approval process was used.

b. Conclusions

The licensee maintained an organizational structure that meets the License Application requirements. The licensee maintained plant policies and employees were aware of responsibilities for Operational Safety, Radiation Protection, Fire Safety, Chemical Safety, and Nuclear Criticality Safety. The licensee implemented adequate controls for the establishment, review and issuance of plant procedures. Licensee corrective actions for problems identified were commensurate with the safety significance of the issues and were implemented. Licensee Safety Committees maintained an adequate emphasis on safety discussions and proper follow-up of previously identified issues. The inspectors determined that the licensee was performing quality assurance tests on systems and components important to safety, and that a verification/approval process is used.

8. Evaluation of Emergency Exercise (IP 88051)

a. Inspection Scope and Observations

The inspectors observed and evaluated the licensee's graded biennial exercise. The inspectors reviewed the exercise scenario and discussed the exercise objectives with licensee personnel before the exercise. The inspectors also walked down the plant to assess the effectiveness of the visual aids used during the course of the exercise, and to verify that the licensee had not pre-staged equipment or personnel in anticipation of the exercise. The inspectors directly observed licensee activities in the emergency operations center (EOC) and at the scene of the simulated event. The inspectors further observed the participant critique and the controller debrief conducted shortly after the termination of the exercise.

The inspectors interviewed individuals who would be responsible for classifying and making the required notifications outside of normal business hours. The inspectors also reviewed the classification and notification procedures that would be used by Interim Plant Emergency Directors after hours to determine the appropriate emergency classification and communication requirements. The inspectors determined that the Interim Plant Emergency Directors' classification and notification procedures were consistent with the Plant Emergency Directors classification and notification procedures and that the interviewed individuals had a working knowledge of the procedures.

The inspectors reviewed the scenario and determined that while the simulated event did not involve licensed materials, the exercise would challenge the equivalent processes, procedures, personnel and equipment for the licensee and for the responding off-site agencies. The inspectors found that the scenario was credible, technically correct, and sufficiently complex to require the licensee's emergency response organization to react to the event. The scenario also led to a simulated offsite release so as to test communications between the licensee and off-site agencies. The inspectors review of licensee records and interview of the licensee's Emergency Preparedness Coordinator indicated that the last time the licensee exercised with a similar scenario was in October 1997 and determined that a sufficient amount of time had elapsed.

The exercise commenced on April 27, 2011 at 8:33 a.m. (all times in this portion of the report are Pacific Daylight Savings Time). The simulated event was initiated by sodium hydroxide inadvertently delivered to a bulk nitric acid storage tank. The scenario

postulated that the mixing of these incompatible materials would result in a large, simulated explosion that would destroy the bulk nitric acid storage tank, and its released contents combined with sand on the ground would create a plume of nitric oxide compounds that the simulated weather would carry toward the north plant boundary.

The inspectors observed that by 8:43 am, the licensee's Plant Emergency Response Management Team (PERMT) had fully staffed and activated the onsite EOC. Individual team members were observed signing a large roster and donning vests for their designated positions, obtaining their individual procedures, and beginning their assigned tasks. The inspectors further observed that PERMT members began their work in a prompt fashion on their own initiative with little or no guidance.

Simultaneously, the Plant Emergency Director appropriately characterized the simulated event as a Site Area Emergency-Hazardous Materials (Haz-Mat) Level 3, based on apparent plant conditions that included an apparent chemical release that would likely go off-site. The Haz-Mat event classification was appropriately made in accordance to a chemical hazard event characterization protocol used by facilities in the State of Washington and was in accordance with the approved Emergency Plan. A Haz-Mat Level 3 event would result in protective actions similar to those taken in the event of a Site Area Emergency based on radiological considerations.

The PERMT promptly identified appropriate protective actions that included:

- sheltering licensee employees in place in the plant's cafeteria;
- recommending that the county order the emergency planning zones surrounding the plant and north of the plant be directed to shelter in place; and;
- closure of the public road that paralleled the north plant boundary.

Observation by the inspectors, review of communication records, and statements by the Benton County EOC representative indicated that the PERMT initiated timely notification of its protective action recommendations to Benton County and the State of Washington. The licensee also notified surrounding facilities and the NRC of the simulated event within the time constraints specified in the approved Emergency Plan.

Throughout the scenario, the PERMT monitored plant and accident conditions to ensure that protective action recommendations were appropriate based on simulated plant conditions. Emergency Operation Center personnel also consulted with local law enforcement officials to evaluate the possibility of sabotage. In general, the quality of communications in the EOC was adequate to ensure that the PERMT had sufficient information to track and evaluate the event.

The Plant Emergency Response Team (PERT) was led by an Incident Commander (IC) that was trained and qualified in leading emergency field operations. The inspectors observed that members of the PERT had begun to assemble at the designated assembly area within five minutes of the onset of the event. The inspectors also observed that the designated Incident Commander arrived at the assembly point about 10 – 11 minutes after the onset of the simulated event. The inspectors further observed that PERT members preparing for an entry to rescue simulated victims were donning their protective clothing and self-contained breathing apparatus alone without assistance. Field activities carried out by the PERT in response to the exercise scenario were adequate.

Immediately after the termination of the exercise, the licensee conducted a critique in which both members of the PERMT and PERT actively participated and provided comments on those aspects of the response that worked well as well as those aspects that needed improvement. Members of the licensee's emergency preparedness staff facilitated the critique and documented the comments. The inspectors determined that the critique held by the licensee was adequate. The inspectors verified that deficiencies identified in previous exercises and drills, including the previous NRC-graded exercise, were documented in the licensee's corrective action program and that those issues were appropriately characterized and tracked until corrective actions were implemented.

b. Conclusions

No findings of significance were identified with regard to emergency preparedness or the conduct of exercises or drills.

9. Follow-up on Previously Identified Issues

(Closed) Inspector Follow-up Item 2008001-01: Classification and Notification Matrix did not align with Classifying an Emergency. The inspectors reviewed the procedures for Interim Plant Emergency Directors to assist them in the classification of an event, and provide guidance regarding making the required notifications. The inspectors compared these procedures against those used by the PERMT Plant Emergency Directors and determined that classification and notification guidance was consistent and appropriate. This item is now closed.

(Closed) Inspector Follow-up Item 2008001-02: Provide more hands-on training for Interim Plant Emergency Directors. The inspectors determined that the interviewed individuals that might serve as Interim Plant Emergency Directors had a working knowledge of the appropriate procedures. This item is now closed.

10. Exit Meeting Summary

The management organization and control and maintenance and surveillance inspection scope and results were summarized on March 31, 2011 with Ronald Land and members of your staff. The emergency preparedness and operator training inspection scope and results were summarized on April 28, 2011 with Dominique Grandemange and members of your staff. The environmental, radiation waste, and transportation inspection scope and results were summarized on June 9, 2011 with Robert Link and members of your staff. The licensee acknowledged the inspection findings. Proprietary information was discussed but not included in the report.

ATTACHMENT

1. LIST OF PERSONS CONTACTED

Licensee

D. Grandemange, Acting Site Manager
R. Link, Environmental, Health, Safety, and Licensing Manager
T. Tate, Safety, Security & Emergency Preparedness
J. Diest, Emergency Preparedness Manager
L. Hope, Training Manager
B. Ball, Conversion Supervisor
C. Manning, Nuclear Criticality Safety Manager
L. Maas, Licensing Manager
V. Gallacher, Uranium Conversion and Recovery Manager
R. Kimura, Engineering Manager
L. Stevens, Operations Manager
J. Veysey, Maintenance Manager

2. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Item Number</u>	<u>Status</u>	<u>Description</u>
IFI 70- 1257/2008001-01	Closed	Classification and Notification Matrix did not align with Classifying an Emergency.
IFI 70- 1257/2008001-02	Closed	Provide more hands-on training for Interim Plant Emergency Directors
NOV 70- 1257/2011003-001	Opened	The failure of three operators to complete initial qualification, including written exams and skills demonstrations, prior to independently working in the 45 gallon to 55 gallon transfer and storage workstation.

3. INSPECTION PROCEDURES USED

IP 86704	Transportation of Radioactive Material
IP 88005	Management Organization and Control
IP 88010	Operator Training and Retraining
IP 88025	Maintenance and Surveillance
IP 88035	Radioactive Waste Management
IP 88045	Effluent Control and Environmental Protection
IP 88051	Evaluation of Emergency Exercise

4. LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System	MCP	Management Control Procedure
ALARA	As Low As Reasonably Achievable	mrem	Millirem
BLEU	Blended Low-Enriched Uranium	NOV	Notice of Violation
CFR	Code of Federal Regulations	NRC	Nuclear Regulatory Commission
CR	Condition Report	pCi/gm	picocuries/gram
DCP	Dry Conversion Process	PERMT	Plant Emergency Response Management Team
DOT	Department of Transportation	PERT	Plant Emergency Response Team
ECN	Engineering Change Notice	PM	Preventative Maintenance
EHS&L	Environmental Safety Health and Licensing	QA	Quality Assurance
EOC	Emergency Operations Center	SAR	Safety Analysis Report
Haz-Mat	Hazardous Materials	SNM	Special Nuclear Material
HEPA	High Efficiency Particulate Air	SOP	Standard Operating Procedure
IC	Incident Commander	TLD	Thermoluminescent Dosimeter
IFI	Inspector Follow-up Item	UF ₆	Uranium Hexafluoride
IP	Inspection Procedure	UO ₂	Uranium Oxide
IRM	Instrument Repetitive Maintenance	VIO	Violation
IROFS	Items Relied on for Safety	WebCAP	Web-based Corrective Action Program
ISA	Integrated Safety Analysis		

5. DOCUMENTS REVIEWED

Fuels Training, 1723-01 Rev. 4
 Training and Qualification Audit Report, Rev. 1
 Radiological Safety Training Audit, E12-03-19
 Richland Operations Emergency Guideline SOP-40505 Version 6.0
 Downloading Powder from 45 to 55-Gallon Drums, SOP-40840 Version 8.0
 Condition Reports: 2011-3213 and 2011-3596