12-018

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

LICENSING
JAN 31 2012

January 30, 2012

Mr. R. P. Cochrane
Vice-President and General Manager
Babcock and Wilcox
Nuclear Operations Group, Inc.
P. O. Box 785
Lynchburg, VA 24505-0785

SUBJECT: NRC INSPECTION REPORT NO. 70-27/2011-005 AND NOTICE OF VIOLATION

Dear Mr. Cochrane:

This refers to inspections conducted from October 1 through December 31, 2011, at the Babcock and Wilcox Nuclear Operations Group facility in Lynchburg, VA. The purpose of the inspections was to determine whether activities authorized under the license were conducted safely and in accordance with NRC requirements. The enclosed integrated inspection report documents the inspection findings, which were discussed on November 4, November 18, December 16, 2011 and January 4, 2012, with you and other members of your staff.

The inspections consisted of an examination of activities conducted under the license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Areas examined during the inspections included: Safety Operations, Radiological Controls, and Facility Support. Within these areas, the inspections consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Based on the results of this inspection, the NRC has determined that two Severity Level IV violations of NRC requirements occurred. These violations were evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at (http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html).

The violations are cited in the enclosed Notices of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The violations are being cited in the Notices because Violation A was identified by the NRC, and Violation B was considered self revealing and was not identified by the licensee.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. 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.

If you contest the violations, 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: (1) the Regional Administrator, Region II; (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and (3) Mr. Stephen Subosits, the Senior NRC Resident Inspector at the Babcock and Wilcox Nuclear Operation Group facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response, if you choose to provide one, 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.

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.

Should you have any questions concerning this inspection, please contact us.

Sincerely,

/RA/

Manuel G. Crespo, Acting Chief
Fuel Facility Inspection Branch 1
Division of Fuel Facility Inspection

Docket No. 70-27
License No. SNM-42

Enclosures:
1. Notice of Violation
2. NRC Inspection Report No. 70-27/2011-005
   w/ attachment

cc w/encls: (See page 3)

cc w/encls:
Barry L. Cole, Manager
Licensing and Safety Analysis
Babcock and Wilcox
Nuclear Operations Group, Inc.
P.O. Box 785
Lynchburg, VA 24505-0785

Steve Harrison, Acting Director
Division of Radiological Health
Department of Health
109 Governor Street, Room 730
Richmond, VA 23219

Letter to Mr. R. P. Cochrane from Manuel G. Crespo dated January 30, 2012

SUBJECT: NRC INSPECTION REPORT NO. 70-27/2011-005 AND NOTICE OF VIOLATION

Distribution w/encls:
M. Bailey, NMSS
M. Crespo, RII
R. Johnson, NMSS
S. Subosits, RII
J. Pelchat, RII
M. Baker, NMSS
L. Pitts, RII
K. Ramsey, NMSS

NOTICE OF VIOLATION

Babcock and Wilcox Nuclear Operations Group, Inc.
Lynchburg, Virginia

Docket No. 70-27
License No. SNM-42

During NRC inspections conducted from October 1 to December 31, 2011, violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

A. 10 CFR 70.62 (c)(1)(iv), requires that each licensee or applicant shall conduct and maintain an integrated safety analysis, that is of appropriate detail for the complexity of the process, and that identifies: Potential accident sequences caused by process deviations or other events internal to the facility and credible external events, including natural phenomena.

Contrary to the above, prior to December 8, 2011, the licensee failed to conduct an integrated safety analysis that identified all potential accident sequences. Specifically, the licensee integrated safety analysis failed to identify and assess the consequences of a red oil explosion in the Uranium Recovery evaporator system.

This example of failing to identify credible accident sequences in the Integrated Safety Analysis constitutes a Severity Level IV Violation (Section 6.2).

B. Safety Condition S-1 of NRC license SNM-42 authorizes the use of nuclear materials in accordance with Chapters 1 through 11 of the License Application submitted on March 31, 2011, and supplements thereto.

License Application, Section 11.1.3, "Change Control," requires, in part, that "modifications or additions to the facilities, processes, and equipment, used for handling, processing, or storing licensed material, shall be evaluated and approved following an approved procedure before the change is made and the ISA Summary is modified."

License Application, Section 11.8, "Other QA Elements – B&W NOG's Quality System," states, in part, that Quality Work Instruction procedures outline quality measures that are applicable to the entire facility, including implementing the requirements of SNM-42.

Quality Work Instruction 5.1.12, "Change Management" requires, in part, that the originator of a modification determine if a change request is required and initiate a change request for changes to components or systems that are not like-kind replacements.

Contrary to the above, prior to October 23, 2011, the licensee failed to initiate a change request for a change to a system that was not a like-kind replacement. Specifically, the licensee's staff failed to recognize that a non-typical component design feature would impact the drainage capability of the component and was a non-like kind change requiring a change request and the requisite reviews and approvals as required by Quality Work Instruction 5.1.12 prior to implementation of the modification. Subsequent to implementation of the change, a degradation of moderation control occurred to the

component, though poison and spacing controls remained available and in place to ensure that the performance requirements of 10 CFR 70.61(b) were met.

This example of failing to properly approve and evaluate a modification constitutes a Severity Level IV Violation (Section 6.2).

Pursuant to the provisions of 10 CFR 2.201, Babcock and Wilcox Nuclear Operations Group, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector at Babcock and Wilcox Nuclear Operations Group, Inc., 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 for each violation: (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 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 enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html to the extent possible, it should not include any personal privacy, proprietary or safeguards information so that it can be made 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 of receipt.

Dated this 30th day of January, 2012

U. S. NUCLEAR REGULATORY COMMISSION
REGION II

Docket No.:	70-27
License No.:	SNM-42
Report No.:	70-27/2011-005
Licensee:	Babcock and Wilcox
Facility:	Nuclear Operations Group
Location:	Lynchburg, Virginia
Dates:	October 1 through December 31, 2011
Inspectors:	S. Subosits, Senior Resident Inspector O. López, Senior Fuel Facilities Inspector J. Downs, Fire Protection Engineer P. Glenn, Fuel Facilities Inspector C. Rivera, Fuel Facilities Inspector S. Mendez, Fuel Facilities Inspector N. Coovert, Fuel Facilities Inspector N. Peterka, Fuel Facilities Inspector G. Goff, Fuel Facilities Inspector
Approved by:	M. Crespo, Acting Chief Fuel Facility Inspection Branch 1 Division of Fuel Facility Inspection

EXECUTIVE SUMMARY

Babcock and Wilcox
NRC Integrated Inspection Report 70-27/2011-005
October 1 – December 31, 2011

Inspections were conducted by the resident and regional inspectors during normal and off normal shifts in the areas of safety operations, radiological controls, and facility support. The inspectors performed a selective examination of licensee activities which was accomplished by direct observation of safety-significant activities and equipment, tours of the facility, interviews and discussions with licensee personnel, independent verification of safety system status and limiting operation conditions, corrective actions, and a review of facility records.

Safety Operations

- Plant operations were conducted in accordance with approved operating procedures. The items relied on for safety reviewed were properly implemented and maintained in order to perform their intended safety function. (Paragraph A.1)

- Nuclear Criticality Safety postings were complied with by personnel in the field. A violation was identified for when a Change Request that was not completed for a modification implemented on a fuel component in the assembly area which resulted in a degradation of moderation control. (Paragraph A.2)

- Area housekeeping was maintained in accordance with fire safety requirements for special nuclear material processing areas, equipment, and storage areas. Three Unresolved Items were identified during the triennial and annual fire protection inspections of the facility. (Paragraphs A.3 and A.4)

Radiological Controls

- Radiological work activities reviewed were found to be in compliance with 10 CFR Part 20, the license application and internal licensee procedures. (Paragraphs B.1)

Facility Support

- Maintenance surveillance tests were performed and met the acceptance criteria established in the applicable procedures and work instructions. No findings of significance were identified. (Paragraph C.1)

- A review of a sample of corrective action reports verified that the corrective actions were thorough and that extent of condition and effectiveness verifications were being conducted on safety-related corrective actions. A review of audits of licensee programs were thorough and in compliance with the license requirements. A violation of 10 CFR 70.62(c)(1)(iv) was identified for the failure to identify accident sequences in the ISA for a red oil explosion in the Uranium Recovery evaporator system. (Paragraph C.2)

- Operator Training program components were implemented in accordance with the licensee application and internal licensee procedures. (Paragraphs C.3)

- Emergency Preparedness program components were implemented in accordance with the licensee's Emergency Plan and internal licensee emergency preparedness procedures. (Paragraphs C.4)

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

REPORT DETAILS

Summary of Plant Status

Routine fuel manufacturing operations with special nuclear material (SNM) and maintenance activities were conducted in the fuel processing areas and in the Research Test Reactors and Targets (RTRT) facility. Uranium Recovery (UR) operations were conducted in the UR facility. UR and RTRT operations were shutdown during the holiday shutdown week of December 26, 2011.

A. Safety Operations

1. Plant Operations (IP 88135)

a. Inspection Scope and Observations

The inspectors performed daily tours of the facility's manufacturing areas, observed two shift turnover meetings and observed two operational event critique meetings during the inspection period. The inspectors interviewed operators, front-line managers, material control and accounting technicians, and process engineering personnel. The inspectors observed operations in progress in the UR, Filler and RTRT areas throughout the inspection period. The operations that the inspectors observed in these areas were conducted safely and in accordance with the applicable operating procedures. During the inspection period the inspectors interviewed five operators and technicians to verify their knowledge of operations procedures for their work stations. The operators and technicians interviewed demonstrated adequate knowledge of procedures and process equipment associated with their assigned duties.

The inspectors conducted a review of portions of the plant areas listed below and their safety significant controls and systems related to the processing and storage of special nuclear materials (SNM) to verify that the existing configurations of the systems were correct and that the items relied on for safety (IROFS) were available and reliable to perform their function when needed to comply with the performance requirements.

- Low Level Dissolution Process in Uranium Recovery
- RTRT Bay 15 and Bay 16 Processes

To review these systems, the inspectors reviewed portions of the integrated safety analysis (ISA) and the summary Safety Analysis Report (SAR) 15.6 for the UR Low Level Dissolving area and SAR 15.23 for the RTRT Bay 15 and Bay 16 Fuel Process area and reviewed fourteen controls designated as IROFS. During the walk downs, the inspectors verified that the IROFS controls for the two areas were properly implemented in the field by reviewing the system configuration in the field, applicable operating procedures, and nuclear criticality safety (NCS) postings.

b. Conclusion

No violations of NRC requirements identified.

2. Criticality Safety (IP 88135)

a. Inspection Scope and Observations

During daily tours of the Filler area, general shop floor area, RTRT, and the UR area, the inspectors verified that NCS controls and postings were in place, and available to perform their intended functions. The inspectors reviewed a sample of four NCS-related IROFS in the Filler area for implementation in the field and identification on associated NCS postings. During their observations, the inspectors noted that the IROFS were properly implemented and that Filler operations personnel complied with NCS posting requirements in the Filler area.

On October 23, 2011, after removal from a process tank, operations personnel in the Bay 5A assembly area manipulated a SNM-bearing component to a horizontal position and discovered that an aqueous solution had accumulated in the component. It was noted that the poison fixture for the component was in place throughout the event. The operations personnel notified supervision and NCS staff as required by internal reporting requirements. The inspectors attended the operational event critique and reviewed the licensee's NCS concern analysis performed as a result of the event. The inspectors reviewed the applicable NCS posting, and associated IROFS. The inspectors determined from their review of the event and area that the NCS controls for poison and spacing identified in the NCS posting were available throughout the event and though moderation control was degraded, the remaining controls satisfied the performance requirements to ensure a criticality remained highly unlikely. As a result, the event was not reportable under 10 CFR Part 70 Appendix A reporting criteria.

The issue was entered into the licensee's corrective action (CA) system as CA201103087 to determine the cause of the event, extent of condition, extent of cause and to identify corrective actions to prevent recurrence. The inspectors reviewed change management documentation associated with the component and noted that prior to the event, engineering personnel had implemented an inadequate design feature which prevented adequate drainage from the component. The change was implemented after approval of Safety Evaluation Request (SER) 10-18 for the developmental component and was considered a like kind change by engineering personnel as some drainage from the component with the design feature installed was possible. However, the feature as implemented was not a like-kind change as it degraded the drainage capacity of the component and resulted in a degradation of moderation control. As a result of being implemented as a like-kind change, the feature was not evaluated by any of the pertinent safety disciplines such as NCS, Industrial Safety or Radiation Protection. License Application, Section 11.1.3, "Change Control," requires, in part, that "modifications or additions to the facilities, processes, and equipment, used for handling, processing, or storing licensed material, shall be evaluated and approved following an approved procedure before the change is made and the ISA Summary is modified." License Application, Section 11.8, "Other QA Elements – B&W NOG's Quality System," states, in part, that Quality Work Instruction procedures outline quality measures that are applicable to the entire facility, including implementing the requirements of SNM-42. Quality Work Instruction (QWI) 5.1.12, "Change Management" requires a change request (CR) with appropriate reviews and approvals for changes which do not qualify as like-kind replacements or repairs. Installation of the component design feature which resulted in a loss of moderation control due to inadequate drainage without an approved

CR was a violation of change management procedure QWI 5.1.12 (VIO 70-27/2011-005-01: Failure to Comply with the Change Management Procedure for a Fuel Component Modification that Resulted in a Degradation of Moderation Control).

b. Conclusion

One Severity Level IV violation was identified for not completing a CR for a modification implemented on a fuel component in the assembly area which resulted in a degradation of moderation control.

3. Fire Protection (IP 88135)

a. Inspection Scope and Observations

During daily plant tours, the inspectors verified that transient combustibles were being adequately controlled and minimized in the UR process area and Filler area. The inspectors conducted fire safety tours for Bay 9A, RTRT shop floor area and portions of the Waste Treatment Operations area. The inspectors reviewed the control of transient combustible material and ignition sources, and fire detection and suppression capabilities in the areas. No regulatory issues were noted in the areas reviewed. The inspectors verified that housekeeping in the areas reviewed was sufficient to minimize the risk of fire.

b. Conclusion

No violations of NRC requirements were identified.

4. Triennial and Annual Fire Protection (IP 88054 / IP 88055)

a. Inspection Scope and Observations

The inspectors performed an annual and triennial fire protection review of the Uranium Recovery, Special Fuels Facility, Acid Treatment of Fuels, and Lynchburg Technology Center (LTC) areas to evaluate the existing fire protection capability from a programmatic design-based and risk-informed perspective. For the areas listed, the inspector reviewed the Materials License, License Number SNM-42, Amendment 11, the SAR sections 15.5 through 15.10, 15.14, 15.16, 15.18, and 15.27, the Emergency Plan, SNM-42, Revision (Rev.) 23, dated June 1, 2011, and the associated area drawings, pre-fire plans, and hydraulic and fire loading calculations. In addition, the inspectors reviewed the applicable National Fire Protection Association (NFPA) codes that the licensee had committed to in the license application and SARs.

The inspectors reviewed programs, procedures, modifications, surveillances, maintenance, functional tests, training, drill exercises, and corrective action reports for the fire protection systems to ensure that designated programs met license requirements and were adequate to preclude or mitigate the consequences of a fire. The inspection included interviews with site personnel and plant walkdowns of the firefighting equipment, including IROFS, located on the site, and specifically in the Uranium Recovery, Special Fuels Facility, Acid Treatment of Fuels, and LTC areas.

The inspectors reviewed the following programs: control of flammable and combustible materials, including hot work permits and associated work activities; material condition, design, and testing of active and passive fire protection, including wet pipe sprinkler system, hose stations, fire detection, and gas detection systems; fire impairments; and emergency operating actions required to mitigate the adverse effects of a fire.

The inspectors reviewed the Fire Hazard Analysis (FHA) for the selected areas and verified that consideration was made for the following: effects of fire on structures, systems, and components (SSCs) and IROFS; effects of suppression activities on process areas; the potential malfunction of an automatic fire protection system; effects of fire spread; the potential for spread of contamination; transient combustibles; offsite fire department and onsite fire brigade response; and life safety considerations.

The inspectors noted that documents referenced in the SARs, as submitted to the NRC on January 28, 2011, concerning fire loading calculations and potential ignition sources were not being maintained up to date. Specifically, the inspectors identified the following ISA documents were not current: 95-00038 from SAR Sections 15.5.4.4 and 15.9.4.4; 95-00057 from SAR Section 15.6.4.4; 95-00058 Rev. 1 from SAR Sections 15.8.4.4 and 15.7.4.4; 95-00169 from SAR Section 15.10.4.4; 96-00340 from SAR Section 15.14.4.4; 96-00418 from SAR Section 15.16.4.4; 97-00002 from SAR Section 15.16.4.4; 97-00125 from SAR Section 15.18.4.4; 97-00126 from SAR Section 15.18.4.4; and 97-00148 from SAR Section 15.14.4.4.. The most recent update to each of the referenced documents corresponds to the first two digits identifying the document, for example 97-00148 was last updated in 1997.

During walk downs associated with the verification of the ISA, the inspectors identified that after the NRC approval of the SAR, the licensee had made process modifications which had increased the fire loading and were not documented or evaluated in the referenced documents listed above. The licensee performed separate individual reviews of the modifications; however there was no documentation of analysis maintained that considered the overall increase in fire loading from the combined effect of multiple modifications within the same fire area. Section 11.1.4 of the SNM-42 License Application, dated March 31, 2011, states, in part, that the ISA Summary and supporting documents that are referenced in the ISA Summary will be maintained up-to-date.

The inspectors discussed the above issue with the licensee and the licensee agreed to validate the current fire loading calculations and assess the associated fire protection systems based upon actual plant fire loading. Unresolved Item 70-27/2011-005-02 was opened to review the licensee's validation of current fire loading calculations and associated fire protection systems as they apply to actual plant fire loading. No other issues of significance were identified during the inspection of the FHAs.

The inspectors reviewed the licensee's pre-fire plans and associated revisions made since the last inspection. The pre-fire plans were reviewed to validate the documentation was consistent with the licensee's FHA and the actual plant configuration. The inspectors noted minor administrative issues with the reviewed pre-fire plans. The inspectors determined that these issues would not affect the fire brigade's ability to fight a fire.

The inspectors also observed the locations of the pre-fire plans. The License Application, Section 7.1.6, states, in part, that copies of the pre-fire plans were

maintained in the Emergency Operations Center (EOC) and the emergency response vehicle. However, the inspectors identified that the licensee did not maintain a copy of the pre-fire plan on the emergency response vehicle due to the sensitivity of the information. The inspectors identified that the licensee had implemented a plan and were exploring other alternatives to ensure responders had a copy accessible while responding to an emergency.

The inspectors reviewed the Emergency Plan, Rev. 23, Section 5.2.4.2. and the associated SAR 15.40, for postulated accidents in the LTC area. The inspectors reviewed the worst case accident scenario for the area, along with the described processes and equipment, including filters, which were in place to prevent and/or mitigate the consequences of the accident. The inspectors noted that the equipment was not listed as an IROFS. Part 10 of CFR 70.61(c), under Performance Requirements, states, in part, that the risk of each credible intermediate consequence event must be limited and controls applied such that the event is unlikely. The inspectors reviewed the licensee's analysis for 10 CFR 70.61(c)(1) and (2) for the accident, specifically as it related to the potential acute dose exposure as a result of the accident. The inspectors verified that the licensee's results were less than the limits. However, the inspectors identified that there was no documentation for the licensee's analysis of 10 CFR 70.61(c)(3) for the accident, specifically as it relates to release rates.

The licensee had documented the activity of individual isotopes for the postulated worst case accident scenario, but the licensee had not evaluated the potential activity as it related to the release requirements for 10 CFR 70.61(c)(3). As a result, the inspectors could not verify that the worst case accident scenario in the LTC area was not an intermediate consequence event, as described in 10 CFR 70.61, and whether IROFS were required to prevent or mitigate the consequences of the event. Unresolved Item 70-27/2011-005-03 was opened to review the licensee's analysis of the worst case accident scenario, as documented in the Emergency Plan, Section 5.2.4.2., as it relates to the release limits in 10 CFR 70.61(c)(3).

The inspectors reviewed selected procedures for the control of flammable liquids, pyrophoric materials, combustible metals, and combustible gases; the control of transient combustibles, including ignition source permits and associated work activities. The inspectors performed walk downs of various process areas to verify licensee compliance with control of combustible requirements.

The inspectors reviewed procedures for maintenance of fire barriers, penetration seals, fire doors, and fire dampers. The inspectors walked down selected sections of the facility that utilized passive fire protection features. The inspectors also reviewed smoke detectors and the Facility Alarm System (FAS), a gas detection system. System drawings, calibration records, procedures, and functional test records were reviewed by the inspectors to verify that the controls were adequately located and maintained to perform their intended safety function. The inspectors walked down the systems and verified their mechanisms and maintenance plans were in place to assure compliance with manufacture specifications and the SAR, including Section 15.5.4.4, which states, in part, "smoke detection system that complies with NFPA 72 requirements."

The inspectors performed walk downs of the Central Alarm Station (CAS) and Secondary Alarm Station (SAS). The inspectors observed the location of system components within the stations and observed alarm detection, recording, and the

activation capability of the emergency organization in response to various situations. The inspectors performed interviews with the CAS and SAS personnel and observed them simulate actions to activate the emergency response team.

The inspectors reviewed active engineering controls related to the FAS system. The inspectors also reviewed calibration records and functional test for the interlocks on the furnaces and its associated components to verify the system performed the intended safety function. The inspectors verified the basis for the location of the components on the FAS system. The inspector determined that the records reviewed adequately explained the location of the system components.

The inspectors reviewed the material condition, operational lineup, and design of fire suppression systems equipment relative to the requirements of NFPA 13 "Standard for the Installation of Sprinkler Systems." The inspectors verified that sprinklers were not obstructed, that spacing requirements were met, and that the water supply to each of the systems was readily available. The inspectors also reviewed the inspection, testing, and maintenance requirements of fire suppression systems to verify that the systems were reliable and available and met the requirements specified in NFPA 25 "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems."

The inspectors reviewed the location of portable fire extinguishers to verify compliance with the SAR. Several sections of the SAR, including 15.5.4.4, states, in part, "fire extinguishers that comply with NFPA 10 requirements." In addition, the inspectors reviewed procedures and training records to verify the training of personnel and the expectations regarding the use of the portable fire extinguishers.

The inspectors reviewed the storage locations for portable radio communications and fixed emergency communications to verify they were available, reliable, and adequate for required performance during fire response activities. Functional test records, procedures, and checklists were reviewed by the inspectors to verify the licensee was performing the required testing to ensure operability. Additionally, the inspectors verified the emergency communication equipment would not be affected by a credible fire.

The inspectors reviewed electrical drawings, electrical related procedures and surveillances, and performed walkdowns and interviews with the system engineer and the fire protection supervisor. The inspectors reviewed normal and backup power supplies and associated loss of power contingency actions for fire protection systems. The inspectors observed a weekly surveillance that the licensee performed to verify back up power operability. The inspectors also reviewed potential consequences of cable failures and potential impacts on fire suppression activities.

The inspectors observed the location where emergency vehicles and firefighting equipment were stored and staged for use. The inspectors interviewed some of the emergency response organization members and verified that the individuals were knowledgeable of their duties.

The inspectors reviewed fire brigade training and found the training to be adequate. The inspectors verified that the licensee maintained programs and procedures to ensure fire response capabilities, which included training to adequately prepare the brigade members to perform the assigned duties. The inspectors reviewed the qualification program in which brigade members must meet a minimum set of requirements, including

annual refresher training, in order to participate in the emergency organization. The inspectors also reviewed the past two fire drills, these drills were conducted quarterly for each operating shift. The inspectors observed that the drills were representative and simulated as closely as possible the hazards and conditions of the site. The inspectors identified that lessons learned from the drills were evaluated and documented by the licensee and that required corrective actions had been entered into the licensee's corrective action program. The inspectors determined that the programs reviewed adequately comply with Section 7.1.7 of the License Application SNM-42, which states, in part, that the qualifications, drills, and training provided to the Emergency Team meets the requirements of NFPA 600, "Standard on Industrial Fire Brigades." In addition, the inspectors determined that the licensee was offering an annual opportunity for offsite organizations to participate in a site orientation.

The inspectors reviewed the licensee's corrective action program, including procedures, corrective action database, investigation reports, and audits, as they relate to fire protection systems and programs, to verify the licensee was adequately identifying and correcting safety controls or IROFS fire protection issues. The inspectors reviewed selected corrective action reports and determined that the licensee was identifying and reporting issues at an appropriate threshold. The inspectors also interviewed the corrective action program supervisor and the fire protection supervisor. The inspectors reviewed four 2010 and 2011 quarterly safety audits and vertical slice audits for selected IROFS and determined that the licensee was in compliance with the quarterly audit requirement as stated in License Application, Section 11.5.1.6., "Chemical and Fire Safety Audits." The inspectors determined that programmatically, the licensee was utilizing their corrective action program to identify and resolve issues related to fire protection systems and programs.

During the review of the licensee's corrective actions, the inspectors noted a corrective action report that identified a 2011 chemical safety event in the chemical treatment area (CA201102128) that resulted in the building evacuation due to strong acid fumes. The inspectors discussed the event with the licensee and reviewed the ISA to determine if all credible chemical and fire safety accident sequences had been evaluated in the ISA.

The inspectors identified that there was no documentation in the licensee's analysis of 10 CFR 70.61 to determine if the potential for an explosion or a chemical exposure was credible due to the chemical process in the chemical treatment area. The inspectors noted that the licensee had performed a safety evaluation on the potential for an explosion in the chemical treatment area. The inspectors found that the licensee did not evaluate the worst case explosion since the evaluation assumed that nuclear criticality safety IROFS were in place to prevent overtreatment. In addition, the licensee did not consider others type of acid treatment that could generate larger explosions in the area.

As a result, the inspectors could not verify that a potential explosion or chemical exposure in the chemical treatment and surrounding areas could not result in a high or intermediate consequence event, as described in 10 CFR 70.61, and if IROFS were required to mitigate the consequences of the event. Unresolved Item 70-27/2011-005-04 was opened to review the licensee's analysis of the potential for an explosion and a chemical exposure in the chemical treatment area, and if applicable, the determination of the level of consequences that exist for the potential accident sequence(s) in the chemical treatment area and the surrounding areas with licensed material, and if IROFS were needed to minimize the consequences of the event(s).

b. Conclusions

Three Unresolved Items were identified during the triennial and annual fire protection inspections of the facility. No other findings of significance were identified.

B. Radiological Controls

1. Radiation Protection (IP 88135)

a. Inspection Scope and Observations

During tours of radiologically controlled areas, the inspectors verified workers complied with radiation protection (RP) procedures. The inspectors observed plant personnel as they removed protective clothing at controlled area step-off pads. The inspectors also observed plant employees as they performed exit monitoring and noted that Radiation Protection was notified when an individual exiting the Filler area could not clear the hand and foot monitor. The inspectors observed the RP technician's response to the situation. The RP Technician verified the individual was not contaminated by performing additional frisking surveys as required by RP procedure, RP-02-06.

The inspectors reviewed two Radiological Work Permits (RWPs) concerning work activities for the UR controlled area. The RWPs contained appropriate instructions and were posted in the work areas for employees' review and observation. Workers utilizing the RWP areas signed onto the RWP, verifying their knowledge of the entry requirements. The inspectors noted that plant workers properly wore dosimetry, used protective clothing in accordance with the applicable RWPs, used appropriate contamination control techniques and performed tasks in accordance with the RWP guidance.

b. Conclusion

No violations of NRC requirements were identified.

C. Facility Support

1. Maintenance/Surveillance (IP 88135)

a. Inspection Scope and Observations

The inspectors reviewed and observed two functional tests to verify that the systems, structures, and components involved in the tests satisfied the requirements described in the applicable licensee procedures and work orders (WOs). The inspectors verified that the tests demonstrated that the safety systems and components were capable of performing their intended safety functions.

The inspectors reviewed the results for twelve functional tests performed in the UR area to verify that the safety controls or IROFS involved in these surveillance tests satisfied the requirements described in the applicable portions of the ISA. The tests results met the identified acceptance criteria and demonstrated that the IROFS were capable of performing their intended safety functions.

b. Conclusion

No violations of NRC requirements were identified.

2. Management Organization and Controls (IP 88005 and IP 88135)

a. Inspection Scope and Observations

The inspectors reviewed a sample of items entered into the licensee's CA program. The inspectors reviewed forty two corrective actions in the licensee's CA system to ensure that items with impacts on safety were identified, investigated as necessary and tracked to closure. The inspectors verified that issues affecting safety were properly identified, and reviewed for apparent causes, and that corrective actions to prevent recurrence were identified and tracked to completion in accordance with licensee's CA program implementing procedure.

The inspectors reviewed management organization changes since the last inspection. Significant management changes included a new Uranium Processing and Research Reactor (UPRR) department manager and a new Environmental Protection and Industrial Safety section manager. Both managers were promoted from within the company. The inspectors interviewed the new managers and determined that they were knowledgeable of their functions, responsibilities, and recognized their authority for safety of operations in their respective areas.

The inspectors reviewed the licensee's internal audit program to determine if the program was in compliance with licensee procedures and license application requirements. The inspectors reviewed six audits and based on their review concluded that the internal audits reviewed were thorough, and that the corrective actions identified for the audits addressed the issues identified by the auditors.

In Inspection Report 70-27/2011-04, the inspectors verified that SAR 15.9 was revised to specify that a red oil explosion in the UR system was not a credible accident sequence. The revision to the SAR 15.9 was done under CR 1032904, "Add Test for Red Oil to the SAR Details for the Main Extraction and Drum Dryer." The inspectors reviewed the licensee's basis for a red oil explosion not being a credible accident sequence and determined that the licensee used a combination of engineered and administrative controls to ensure that the normal operating parameters pertinent to red oil formation (e.g. temperature, acid concentration, organic concentration, and steam pressure) were not exceeded during operation of the system. The licensee acknowledged the observations and opened corrective action CA201102627 to reassess the conclusion that red oil formation in the UR evaporator system was not credible based on a combination of engineered and administrative controls. Unresolved Item (URI) 70-27/2011-004-01 was opened to review of the licensee's reassessment of the conclusion that a red oil accident is not credible in the UR process. The inspectors reviewed the licensee's technical work documentation which reassessed the potential for red oil formation and determined that the licensee had sufficient IROFS controls in place for other accident sequences that were available and reliable to meet performance requirements in 10 CFR 70.61 for this accident sequence. The inspectors also noted that the licensee identified three new accident sequences with existing and new IROFS controls relative to red oil formation in the UR evaporator system. These changes to the ISA were being implemented by change request (CR)-1037438. Based on the

licensee's re-assessment of the potential for red oil formation in the UR evaporator system, URI 70-27/2011-004-01 is considered closed. However, the failure to initially identify a red oil explosion as potential credible accident sequence in the ISA is a violation of 10 CFR 70.62 (c)(iv) which requires in part that licensee conduct and maintain an ISA that identifies potential accident sequences caused by process deviations or other events internal to the facility. The failure to identify and evaluate a red oil explosion as a potential accident sequence is Violation (VIO) 70-27/2011-005-05: Failure to Identify a Potential Credible Accident Sequence in the ISA for a Red Oil Explosion in Uranium Recovery.

b. Conclusion

One Severity Level IV violation of 10 CFR 70.62(c)(1)(iv) was identified for the failure to identify accident sequences in the ISA for a red oil explosion in the UR evaporator system.

3. Operator Training / Retraining (IP 88010)

a. Inspection Scope and Observations

The inspectors interviewed several operators in the facility. The operators demonstrated adequate knowledge of the procedures and training requirements for the work stations. The inspectors discussed training requirements and expectations with two front line supervisors and reviewed training qualification records for a total of eleven operators in the Filler, RTRT, UR and acid treatment process areas of the plant. The inspectors found from the record review that the operators were trained on the applicable NCS controls and procedures for their work area. The inspectors verified from the record review and interviews with operators that a combination of on-the-job training and written examinations were utilized to test an individual's ability to competently perform tasks that involved operations with SNM. Based on the inspectors review of operator training program materials and records, Inspector Follow-up Item (IFI) 70-27/2010-004-02 is considered closed.

The inspector discussed the development of training programs with the licensee's recently appointed division training section manager. Establishment of this position, and section represented a major change in training programs since the last inspection, although it should be noted that this position is not required by the license application. The organization was established in response to a number of quality and manufacturing issues related to training inadequacies that occurred in the latter part of 2010. The training organization was in an emerging stage of development and as a result the inspectors were not able to determine its impact on operator training and retraining programs.

b. Conclusion

No violations of NRC requirements were identified.

4. Emergency Preparedness (IP 88050 and IP 88135)

a. Inspection Scope and Observations

Inspectors evaluated the Emergency Plan (EP), Emergency Plan Implementing Procedures (EPIPs), management and response organizations, emergency facilities and equipment, agreements with local offsite support organizations, and changes to the licensee's program since the last emergency preparedness inspection in order to determine whether the licensee's emergency preparedness program is being maintained in a state of operational readiness; is properly coordinated with offsite support agencies; and whether the licensee conducts an independent internal audit.

During the inspection the inspectors conducted several field activities that included the following:

- facility tour noting field deployed emergency equipment, evacuation routes, and signs/postings;
- walk-down of an emergency equipment cabinet located in the security gatehouse and in the main radiation control office;
- walk-downs of the primary Emergency Operations Center (EOC) and Alternate Emergency Operations Center (AEOC);
- walk-down of the main, on-site assembly area;
- walk-down of the Central Alarm Station and Secondary Alarm Station; and
- walk-down of the onsite fire pump house and Station One.

These field activities included conducting interviews of various staff members responsible for implementing portions of the EP and EPIPs.

Specifically, the inspectors examined the emergency equipment cabinets and confirmed that the required equipment and quantity was present, in adequate condition, and, if applicable, within calibration. Furthermore, the inspectors noted that operability checks and source checks were conducted on radiological survey instruments. The inspectors also verified that the EOC and AEOC were equipped with the tools, devices, instrumentation, and documentation as required by the EP and EPIPs. The inspectors performed an independent operability test of a random sample of emergency phones in each location. Each test was successful and the emergency offsite response agency telephone roster was maintained. The licensee opened commitment number 37983 to evaluate the emergency equipment storage location at the laundry and determined whether to clarify the facility as a centralized location for protective clothing.

The inspectors observed the on-site emergency assembly area and noted that the area was accessible via designated paths for egress. In addition, the inspectors verified that proper demarcation for specific divisions, groups, sections, etc., was present as required by procedure. All signage was legible. The inspectors were also markings and signage denoting various evacuation routes for plant employees and visitors to use for access to the assembly area.

The inspectors reviewed revisions to the EP and EPIPs for the calendar year to identify if there were any negative impacts on the EP. None were identified although it was noted that in a few instances there were inconsistencies with the revision log and body of the EP. As a result, the licensee took measures to record and rectify any inconsistencies for

incorporation into a future revision of the EP. These inconsistencies did not constitute any significant safety issues. Furthermore, the inspectors confirmed that the EPIPs were reviewed at the proper frequency and examined the change packages for the EP and a random sample of EPIPs to verify that the any changes were evaluated in accordance with approved procedures.

The inspectors reviewed quarterly drill documentation for the first three quarters of calendar year 2011. The drill for the second quarter was the licensee's required biennial drill. All drill scenarios were unique and exercised the organization, at a maximum, to the level of alert. The inspectors confirmed that areas for improvement identified during critiques were entered into the corrective actions program and tracked according to procedure. As applicable, these corrective actions were presented to the Emergency Preparedness Committee. Furthermore, based on a random sample, all shifts participated in drills and all members of the emergency organization were being exercised. It was noted during the biennial drill that all drill evaluators did not submit a critique evaluation form. In response, the licensee opened a corrective action (CA201103626) to ensure that drill leaders identify evaluators and controllers and that critique forms are tracked. The inspectors also noted that the licensee included and coordinated with the local offsite support agencies in onsite drills.

During the inspection, the inspectors reviewed the licensee's training program and emergency staffing to verify that both the Emergency Management and Emergency Response Organizations were being trained in accordance with the EP and approved procedures. The licensee opened a Commitment (COM 37959) to clarify in writing the requirements for initial team training and for being an active team member. The inspectors determined that the licensee maintained both an Emergency Management and Emergency Response Organization trained to respond to and manage emergencies as prescribed by the EP. The licensee maintained staffing for both organizations and designated position representatives for the Emergency Response Organization on a weekly basis which include daily check-in requirements. Furthermore, the inspectors verified that the licensee conducted training for the local offsite support agencies as outlined in the EP and maintained current agreement letters with each agency.

The inspectors verified that the licensee had a formal independent audit program that evaluated their emergency preparedness program at the required frequency. The licensee opened commitment number 37973 to evaluate and clarify the areas that the routine audit would review during each review period.

The inspectors observed the licensee's quarterly emergency preparedness drill on the afternoon of December 8, 2011. The drill scenario involved a simulated diesel fuel spill at the LTC that resulted in a hazardous material spill to the ground and environment from the unloading vehicle and an incapacitating injury to the unloading vehicle driver. The inspectors observed the emergency management organization's response from the EOC. The inspectors determined that the overall response of emergency management team personnel to the simulated event was carried out in accordance with the emergency preparedness procedures. The critique of the EOC response identified appropriate opportunities for improvement in emergency response.

b. Conclusion

No violations of NRC requirements were identified.

D. Special Topics

Follow-up on Previously Identified Issues

1. Event Notification 44325: Train Derailment Transporting Waste from BWXT

The licensee was notified on June 27, 2008 about a train derailment in Atchison, Kansas. Among the derailed train cars were three cars containing dried sludge from the dredging of a BWXT Final Effluent Pond classified as Low Specific Activity One (LSA-1). There was no release or damage to the waste material packaging. Each of the three rail cars contained approximately 3000 cubic feet (9000 cubic feet total) with a total radiological content of approximately 60 millicuries Uranium per car (180 millicuries total). The cars did not tip over and were placed back on the train tracks. Following satisfactory results of a safety inspection of the cars, the waste continued on to its final destination at the Energy Solutions facility in Clive, Utah.

BWXT did not issue a press release at the time of this event, but notified the NRC under the Concurrent Report requirement for press releases in Appendix A of 10 CFR 70 based on the potential for public or media interest in the event. This item is considered closed.

2. Event Notification 45053: Concurrent Report – Virginia Department of Environmental Quality

On May 10, 2009 while pumping sanitary sludge from the sanitary sludge holding tank to a Waste Treatment Facility filter press, a leak was discovered on the discharge side of an air-operated diaphragm pump. The Waste Treatment operator shut down the pump and isolated the sanitary sludge holding tank in response to the leak. Licensee management was notified and Waste Treatment personnel initiated efforts to contain the spill with gravel, dikes and absorbent pads. Most of the liquid was contained and pumped back into the sanitary waste treatment system. The licensee estimated a maximum of twenty gallons of sanitary waste drained into the Final Effluent Pond #1. The licensee noted that none of the liquid had been released into the James River. The licensee notified the Virginia Department of Environmental Quality on May 11, 2009 verbally and by electronic mail because the spill was an unanticipated bypass of a wastewater treatment system per the licensee's Virginia Pollutant Discharge Eliminations Systems permit. Although the leak did not involve licensed material, the NRC was notified of Event Notification 45053 in accordance with the twenty four hour Concurrent Report requirement for notifications to other government agencies in Appendix A of 10 CFR 70.

The leak was the result of degraded polyvinyl chloride schedule 80 piping on the discharge side of the air-actuated diaphragm pump for the sanitary sludge holding tank. The Senior Resident Inspector reviewed the licensee's immediate actions described above and the long term corrective action identified in CA200901404. The inspectors considered the replacement of the affected pipe fittings with stainless steel and additional bracings for support appropriate steps to prevent a recurrence of the leak. This item is considered closed.

E. Exit Meeting Summary

On November 4, November 18, December 16, 2011 and January 4, 2012, the inspectors presented the inspection results to R. Cochrane and other members of his staff. No dissenting comments were received from the licensee. The inspectors confirmed that proprietary information was examined and discussed but not included in the report.

SUPPLEMENTAL INFORMATION

1. LIST OF PERSONS CONTACTED

R. Cochrane, Vice-President and General Manager
J. Burch, Manager, Operations
B. Cole, Manager, Licensing & Safety Analysis
K. Conway, Manager, Radiation Protection
B. Dilling, Emergency Preparedness Officer
D. Faidley, Manager, Nuclear Criticality Safety
J. Manning, Manager, Engineering
L. Morrell, Manager, Environmental Protection and Industrial Safety
S. Nagley, Manager, Uranium Processing and Research Reactors
D. Spangler, Manager, Nuclear Safety and Licensing
B. Stratton, Supervisor, Radiation Protection
D. Ward, Manager, Environment, Safety, Health and Safeguards
J. VanDebogart, Manager, Division Training
C. Yates, Manager, Uranium Processing Operations

Other licensee employees contacted included engineers, operators and technicians.

2. LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Item Number	Status	Description
70-27/2011-005-01	Opened	VIO - Failure to Comply with Change Management Procedure for a Fuel Component Modification that Resulted in a Degradation of Moderation Control (Paragraph A.2)
70-27/2011-005-02	Opened	URI - Failure to the Assess Impact to the Fire Safety Basis from Multiple Modifications within the Same Fire Area (Paragraph A.4)
70-27/2011-005-03	Opened	URI - Failure to Document an Analysis, Relative to Release Limits in 10 CFR 70.61(c)(3), for the Worst Case Accident Scenario at the LTC Area (Paragraph A.4)
70-27/2011-005-04	Opened	URI - Failure to Conduct an Analysis of the Potential for an Explosion and Chemical Exposure in the Chemical Treatment Area, and Identify the Need for IROFS to Minimize the Consequences of an Event in the Chemical Treatment Area and Surrounding Areas with Licensed Material (Paragraph A.4)

70-27/2011-005-05	Opened	VIO - Failure to Identify a Potential Credible Accident Sequence in the ISA for a Red Oil Explosion in Uranium Recovery (Paragraph C.2)
70-27/2010-004-02	Closed	IFI – Discrepancy with License Application Section 11.3.1 and Qualification Acceptance Criteria Implemented for Operator Training (Paragraph C.3)
70-27/2011-004-01	Closed	URI - Review of the licensee's Reassessment of the "Incredible Conclusion" for a Red Oil Accident in the Recovery Process (Paragraph C.2)
EN 44325	Closed	LER – Train Derailment Transporting Waste from BWXT (Paragraph D.1)
EN 45053	Closed	LER – Concurrent Report – Virginia Department of Environmental Quality (Paragraph D.2)

3. INSPECTION PROCEDURES USED

IP 88005	Management Organization and Controls
IP 88010	Operator Training / Retraining
IP 88050	Emergency Preparedness
IP 88054	Fire Protection (Annual)
IP 88055	Fire Protection (Triennial)
IP 88135	Resident Inspection Program for Category I Fuel Cycle Facilities

4. DOCUMENTS REVIEWED

Number	Title
	Emergency Plan, Revision 23
EPR-01-01	Emergency Plant Evacuation, Revision 17
EPR-01-02	Activation of the Emergency Organization by an Unannounced Sounding of the Emergency Team Assembly Alarm, Revision 7
EPR-01-03	Activation of the Emergency Organization After an Unannounced Howler Sounding, Revision 8
EPR-01-04	Notification of Emergency Coordinators for Non-EOC Activated Emergency Events, Revision 5
EPR-03-20	Hazardous Materials Remediation, Revision 6
EPR-03-21	Disposal of Hazardous Material Generated Due to Emergencies, Revision 6
EPR-06-01	Emergency Organization, Revision 12
EPR-06-02	Mt. Athos Site Emergency Plan Distribution, Revision 11
EPR-06-03	Emergency Management Training, Revision 10

DOCUMENTS REVIEWED (continued)

Number	Title
EPR-06-04	Emergency Drills, Revision 14
EPR-06-05	nspection of Emergency Operations Center, Revision 23
EPR-06-06	Annual Emergency Plan Review, Revision 6
EPR-06-07	Plant Evacuation Drill, Revision 4
EPR-06-08	Emergency Response Training, Revision 7
HS-FP-004	Monthly Inspection of Self Contained Breathing Apparatus and Cylinders, Revision 15
HS-ET-001	Emergency Team Training, Revision 009
HS-ET-012	Appendix A, Emergency Team Attendance Sheets, Revision 2
HS-IH-008	Calibration of Portable Air Sampling Meters, Revision 1
HIS-2011-020	IH&S Technical Work Record – Emergency Preparedness Inspections File, (EOC readiness checklists for January – October 2011)
HIS-2010-035	IH&S Technical Work Record – Emergency Preparedness Inspections File, (EOC readiness checklists for January – December 2010)
RP-02-05	Inspection and Maintenance of Radiological Emergency Equipment, Form 1 and Form 7, Revision 8
QWI 2.2.1	Quality Work Instruction 2.2.1, "Preparation of Quality System Procedures, Instructions, and Other Documents", Revision 14
QWI 14.1.1	Quality Work Instruction 14.1.1, "Preventive/Corrective Action System", Revision 23, QWI 5.1.12 Quality Work Instruction for "Change Management," Rev. 22
QWI 5.1.7	Quality Work Instruction for "Safety Evaluation Requests," Rev. 26
SAR 15.6	Safety Analysis Report – 15.6 (Classified)
SAR 15.23	Safety Analysis Report – 15.23
SAR 15.37	Safety Analysis Report – 15.37
RWP 11-0066	Radiological Work Permit 11-0066
RWP 11-0070	Radiological Work Permit 11-0070
RWP 11-0072	Radiological Work Permit 11-0072
SER 10-018	Safety Evaluation Request 10-018
SER 10-039	Safety Evaluation Request 10-039
SER 10-053	Safety Evaluation Request 10-053
SER 10-054	Safety Evaluation Request 10-054
NCS 15-37-017	NCS Posting 15-37-017
CR 1032904	Change Request, "Add Test for Red Oil Review to the SAR Details for the Main Extraction and Drum Dryer"
CR-1037438	Change Request, "Revise SAR 15.9 to Incorporate Red Oil Formation"
HS-OP-004	Quarterly Audit of Combustibles, Rev. 14
SAP MP #2919	Monthly Combustible Inspection
HS-03-05	Control of Flammable and Combustible Liquids, Rev. 5
HS-03-06	Combustible Metals and Pyrophoric Materials
HS-03-07	Control of Systems & Equipment for Fire Protection, Rev. 3

DOCUMENTS REVIEWED (continued)

Number	Title
HS-03-04	Electrical Appliance Control, Rev. 7
HS-03-10	Control of Fire Protection System Impairments, Rev. 12
HS-03-08	Employee Fire Response and Firefighting, Rev. 4HS-2011-058 ET Training- Emergency Team Training- Rad/Nuc Safety, 4/30/2011
HS-2011-064	Emergency Team Training, 5/14/2011
HS-2011-041	Drills, 3/17/2011
HS-ET-001	Attachment 2, Emergency Team Training- Hazard Analysis Training
EP-06-06-01	Emergency Change Form, Rev. 00
HP-FP-006	Portable Fire Extinguishers Inspection, Rev. 09
BWXT-FAS-002	Equipment Lay Out (Ground Floor), 07/06/07
97-0012-00	PHA-9, 06/05/97
MS-037	SFF Checklist, Rev. 51
MEM-CRF 97-00045-00	Fire Safety Analysis – Historical Data Review for PHA-9 (CRF – "Wet-Side" Processing), 03/13/97
MEM-CRF 97-00126-00	Fire Safety Analysis Ignition sources for PHA-10 Process Area (CRF "Dry-End"), 05/15/97
97-00125-00	Fire Loading Calculations for Fire Area 13A-5, 05/16/97
MEM-CRF 97-00124-00	Fire Historical Data Review for PHA-10 (CRF – Dry End Process)
MEM-RTR 99-00045-00	Disposition for Corrective Action CA-1998-00411, CA-1998-00412, and CA-1998-00413, 02/15/99

Corrective Actions Reports Reviewed

BWX_2028923	CA200901404	CA201102545
CA201102613	CA201102624	CA201102645
CA201102651	CA201102726	CA201102756
CA201102764	CA201102773	CA201102774
CA201102809	CA201102837	CA201102861
CA201102909	CA201102948	CA201102950
CA201102960	CA201102983	CA201103022
CA201103069	CA201103070	CA201103076
CA201103084	CA201103087	CA201103235
CA201103236	CA201103245	CA201103268
CA201103293	CA201103295	CA201103296
CA201103302	CA201103329	CA201103339
CA201103358	CA201103372	CA201103382
CA201103383	CA201103385	CA201103386
CA201103387	CA201103391	CA201103406
CA201103408	CA201103410	CA201103416
CA201103430	CA201103458	CA201103496
CA201103502	CA201103505	CA201103525
CA201103616	CA201103619	CA201103623
CA201103645	CA201103646	CA201103648
CA201103654	CA201102128	

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