UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

February 4, 2015

Mr. Eric A. Larson
Site Vice President
FirstEnergy Nuclear Operating Company
Beaver Valley Power Station
P. O. Box 4
Shippingport, PA 15077-0004

SUBJECT: BEAVER VALLEY POWER STATION – NRC INTEGRATED INSPECTION REPORT 05000334/2014005 AND 05000412/2014005 AND INDEPENDENT SPENT FUEL STORAGE INSTALLATION REPORT NO. 07201043/2014004

Dear Mr. Larson:

On December 31, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Beaver Valley Power Station, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on January 29, 2015, with you and other members of your staff.

The inspection examined 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 inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents two violations of NRC requirements, all of which were of very low safety significance (Green). However, because of the very low safety significance, and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations, consistent with Section 2.3.2.a of the NRC Enforcement Policy. If you contest the non-cited violations in this report, 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 I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Beaver Valley Power Station. In addition, if you disagree with the cross-cutting aspect assigned to any finding, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at Beaver Valley Power Station.

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRCs "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records component of the NRC's Agencywide Documents Access Management System (ADAMS). ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Silas R. Kennedy, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos.: 50-334, 50-412
License Nos.: DPR-66, NPF-73

Enclosure: Inspection Report 05000334/2014005 and 05000412/2014005 and 07201043/2014004, w/Attachment: Supplementary Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.:	50-334, 50-412
License Nos.:	DPR-66, NPF-73
Report No.:	05000334/2014005, 05000412/2014005, and 07201043/2014004
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Beaver Valley Power Station (BVPS), Units 1 and 2
Location:	Shippingport, PA 15077
Dates:	October 1, 2014 to December 31, 2014
Inspectors:	J. Krafty, Senior Resident Inspector B. Reyes, Resident Inspector A. Dugandzic, Reactor Inspector J. Furia, Senior Health Physicist S. Hammann, Senior Health Physicist C. Morell, Storage Safety & Transportation Inspector P. Presby Senior Operations Engineer R. Rolph, Health Physicist J. Trapp, Safety Inspector R. Temps, Senior Safety Inspector
Approved By:	Silas R. Kennedy, Chief Reactor Projects Branch 6 Division of Reactor Projects

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SUMMARY

IR 05000334/2014005, 05000412/2014005, 07201043/2014004; 10/01/2014 – 12/31/2014; Beaver Valley Power Station, Units 1 and 2; Maintenance Risk Assessments and Emergent Work Control, Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified two findings of very low safety significance (Green), which are non-cited violations (NCVs). The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP), dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Aspects Within Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Mitigating Systems

- Green. The inspectors identified an NCV of 10 CFR 50.65(a)(4), "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," for FENOC's failure to implement adequate risk management actions (RMAs) associated with maintenance on the alternate intake structure 'A' bay. Specifically, FENOC did not establish a contingency plan for the maintenance activity as required by FENOC's risk management procedure. FENOC entered the issue into their corrective action program as CR 2015-00267.

  The performance deficiency is more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, FENOC's failure to implement a contingency plan resulted in an increase in the duration of an elevated risk condition and unavailability of equipment relied upon to mitigate the consequences of a loss of the main intake structure. The finding was determined to be of very low safety significance (Green) because the incremental core damage probability (ICDP) for the event was less than 1.0 E-6. The inspectors determined that this finding had a cross-cutting aspect in the Human Performance, Work Management, because the FENOC work process failed to adequately manage the risk commensurate to the work [H.5]. (Section 1R13)

Cornerstone: Occupational/Public Radiation Safety

- Green. The inspectors identified an NCV of 10 CFR 71.5, "Transportation of licensed material," and 49 CFR 172, Subpart I, "Safety and Security Plans." Specifically, FENOC personnel shipped a category 2 radioactive material of concern (RAM-QC) on public highways to a waste processor without adhering to a transportation security plan. FENOC's corrective actions included revising procedure NOP-OP-5201, "Shipment of Radioactive Material – Waste," to reflect the appropriate Department of Transportation requirements for shipment of Category 2 radioactive material. FENOC entered the issue into their corrective action program as CR 2014-17260.

The issue is more than minor because it is associated with the Program and Process attribute of the Public Radiation Safety cornerstone and adversely affected its objective to ensure the safe transport of radioactive material on public highways in accordance with regulations. The finding was determined to be of very low safety significance (Green) because FENOC had an issue involving transportation of radioactive material, but it did not involve: (1) a radiation limit that was exceeded; (2) a breach of package during transport; (3) a certificate of compliance issue; (4) a low level burial ground nonconformance; or (5) a failure to make notifications or provide emergency information. The inspectors determined that the finding did not have a cross-cutting aspect because the issue was not reflective of current plant performance. Specifically, FENOC implemented changes to the radioactive waste shipment procedure that addressed applicable requirements and implemented a formal process for reviewing pending regulatory changes for impacts to FENOC operations and support activities. (Section 2RS8)

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. On October 10, 2014, Operators reduced Unit 1 to 13 percent power to reconnect the unit station service transformers to the main generator. Operators returned Unit 1 to 100 percent power on October 16, 2014, and the unit remained at or near 100 percent power for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power. On October 17, 2014, Operators reduced Unit 2 to 82 percent power to repair main condenser water box leakage. Operators returned Unit 2 to 100 percent power on October 20, 2014, and the unit remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 3 samples)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of FENOC's readiness for the onset of seasonal cold temperatures. The review focused on service and river water systems, Unit 2 emergency diesel generators, and heat tracing for the Unit 1 charging and quench spray systems. The inspectors reviewed the technical specifications, and the corrective action program to determine what temperatures or other seasonal weather could challenge these systems, and to ensure FENOC personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including FENOC's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during cold weather conditions. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

On December 24, 2014, the inspectors evaluated FENOC's readiness during a high wind advisory and subsequent entry into abnormal operating procedure (AOP) 1/2OM-53C.4A.75.1, "Acts of Nature - Tornado or High Winds." The inspectors' efforts focused on review of specific unit actions based on actual environmental conditions and adherence to mitigating procedures. The inspectors performed a walkdown of each

unit's external structures, areas that could potentially impact safety related equipment, and emergency response facilities to verify the adequacy of protection from high winds. The inspectors verified completion of actions required by the AOP.

b. Findings

No findings were identified.

.3 External Flooding

a. Inspection Scope

On December 30, 2014, the inspectors performed an inspection of the external flood protection measures for Beaver Valley Power Station. The inspectors reviewed technical specifications, procedures, design documents, and Updated Final Safety Analysis Report (UFSAR), Chapter 2, which depicted the design flood levels and protection areas containing safety-related equipment to identify areas that may be affected by external flooding. The inspectors conducted a general site walkdown of all external areas of the plant, including the turbine building, auxiliary building, and the main intake structure to ensure that FENOC erected flood protection measures in accordance with design specifications. The inspectors also reviewed operating procedures for mitigating external flooding during severe weather to determine if FENOC planned or established adequate measures to protect against external flooding events.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns (71111.04 – 2 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- Unit 1 quench spray system following preventative maintenance on the 'B' train quench spray and recirculation spray systems on October 21, 2014
- Unit 2 train boric acid system due to the 'A' boric acid pump being out of service for maintenance on October 28, 2014

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, technical specifications, work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed

whether FENOC's staff had properly identified equipment issues and entered them into the corrective action program for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection

Resident Inspector Quarterly Walkdowns (71111.05Q – 2 samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that FENOC controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Unit 2 718' main steam cable vault pipe tunnel, fire area PT-1 on October 7, 2014
- Unit 2 primary auxiliary building, fire area PA-6 on November 11, 2014

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – 2 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on October 20, 2014, which included a stuck open power-operated relief valve, a faulted steam generator, loss of emergency alternating current (AC) busses, and failure of select components to automatically start as required. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the technical specification action statements entered by the shift manager. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

The inspectors observed and reviewed a power reduction on Unit 1 which included securing of the second main feed pump to opening the main generator output breakers on October 10 and 11, 2014. The inspectors observed pre-job briefings, and reactivity control briefings to verify that the briefings met the criteria specified in station procedure NOP-OP-1002, "Conduct of Operations," Revision 9. Additionally, the inspectors observed operator performance to verify that procedure use, crew communications, reactivity management, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

.3 Licensed Operator Requalification Program (71111.11A – 1 sample)

a. Inspection Scope

On December 23, 2014, one NRC region-based inspector conducted an in-office review of the results of the Beaver Valley Station, Unit 2, licensee-administered annual operating tests and the biennial written exam for the year 2014. The results of the Beaver Valley Station, Unit 1 biennial written exam for the year 2013 were also reviewed. The inspection assessed whether pass rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)." The inspector verified that:

For Unit 2 Annual Operating Test in 2014:

- Individual pass rate on the dynamic simulator test was greater than 80 percent. (Pass rate was 88.3 percent.)
- Individual pass rate on the job performance measures of the operating exam was greater than 80 percent. (Pass rate was 100 percent.)
- More than 80 percent of the individuals passed all portions of the requalification exam. (Pass rate was 88.3 percent.)
- Crew pass rate was greater than 80 percent. (Pass rate was 100 percent.)

For Unit 2 Biennial Written Exam in 2014:

- Individual pass rate on the written examination was greater than 80 percent. (The pass rate was 88 percent.)

For Unit 1 Biennial Written Exam in 2013:

- Individual pass rate on the written examination was greater than 80 percent. (The pass rate was 100 percent.)

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 1 sample)

a. Inspection Scope

The inspectors reviewed the Unit 1 480 Volt Station Service System during the week of November 4, 2014, to assess the effectiveness of maintenance activities on structure system, or component (SSC) performance and reliability. The inspectors reviewed system health reports, corrective action program documents, maintenance work orders, and maintenance rule basis documents to ensure that FENOC was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by FENOC staff was reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that FENOC staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 2 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that FENOC performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that FENOC personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When FENOC performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Yellow risk associated with placing degraded Unit 1 battery charger 1A in service for load testing of battery charger 1B on October 11, 2014
- Planned maintenance in the Unit 1 auxiliary intake structure 'A' bay on October 14, 2014

b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR 50.65(a)(4) for FENOC's failure to implement adequate risk management actions (RMAs) associated with maintenance on the alternate intake structure 'A' bay. Specifically, FENOC did not establish a contingency plan for the maintenance activity as required by FENOC's risk management procedure.

Description. During the week of October 13, 2014, FENOC was performing a silt check and bay cleaning of the alternate intake structure 'A' bay during an elevated risk condition (yellow risk). The alternate intake structure 'A' bay houses two alternate river water pumps for Unit 1 to mitigate the consequences of a loss of the main intake structure due to a postulated barge impact and subsequent explosion.

FENOC was using a submersible pump to clean the alternate intake structure 'A' bay. The submersible pump failed and FENOC deployed a team to repair the pump and rented a backup pump in the event that the repairs were unsuccessful. The inspectors questioned FENOC's RMAs and determined that FENOC did not establish a contingency plan prior to performing the maintenance activity. Repair of the failed submersible pump delayed the maintenance activity for over six hours, thus increasing the duration of an elevated risk condition. FENOC procedure NOP-OP-1007, "Risk Management," requires in part that, "each of the risk management controls of Attachment 4 should be implemented, as feasible, to increase risk awareness and control, reduce the duration of activities and plant conditions associated with elevated risk, and minimize the magnitude of risk increase." Establishing contingency plans is one of the RMAs listed in Attachment 4 of NOP-OP-1007. The inspectors determined that it was reasonable for FENOC to establish a contingency plan for the elevated risk activity in order to minimize the increase in duration of the work due to potential equipment failures. FENOC entered the issue into their corrective action program (CAP) as CR 2015-00267

Analysis. The inspectors determined that failure to implement a contingency plan for the purpose of managing risk pursuant to 10 CFR 50.65(a)(4) was a performance deficiency that was within the capability of FENOC to foresee and correct and should have been prevented. The performance deficiency was more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, FENOC's failure to implement a contingency plan resulted in an increase of the duration of elevated risk condition and unavailability of equipment relied upon to mitigate the consequences of a loss of the main intake structure.

An NRC senior reactor analyst calculated incremental core damage probability (ICDP) of the event to be 8.06 E-10 based on a six-hour exposure time. Using IMC 0609, Appendix K, Flowchart 2, "Assessment of RMAs," issued May 19, 2005, the finding is determined to be of very low safety significance (Green) because the ICDP for the event was less than 1.0 E-6.

The inspectors determined that this finding had a cross-cutting aspect in Human Performance, Work Management, because the FENOC work process failed to adequately manage the risk commensurate to the work. Specifically, the FENOC work processes did not appropriately incorporate contingency plans when performing maintenance activities in the alternate intake structure 'A' bay on October 14, 2014 [H.5].

Enforcement. 10 CFR 50.65(a)(4) requires, in part, that, "the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities." Contrary to the above, FENOC did not appropriately manage the increase in risk resulting from maintenance activities. Specifically, FENOC failed to implement a contingency plan during an elevated risk condition when performing maintenance in the alternate intake structure 'A' bay on October 14, 2014. Because this finding was of very low safety significance (Green) and was entered into FENOC's corrective action program (CAP) as CR 2015-00267, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. (**NCV 05000334/2014005-01, Failure to Adequately Implement Risk Management Actions)**

1R15 Operability Determinations and Functionality Assessments (71111.15 – 8 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- CR 2014-15436, Unit 2 48 Volt DC power supply to the reactor trip breakers low out of tolerance on October 17, 2014
- CR 2014-15944, Unit 1 'B' quench spray pump suction isolation valve loose yoke bolt on October 21, 2014
- CR 2014-15990, Unit 2 'B' safety injection accumulator in-leakage on October 22, 2014
- CR 2014-15874, Unit 1 potential glycol leakage on 1A main feed regulating valve November 5, 2014
- CR 2014-16599, 2MSS-SOV105E, steam supply isolation valve to the Unit 2 turbine driven auxiliary feed water pump exceeded its limiting closed stroke time on November 6, 2014
- Engineering Evaluation Request 600931138, Evaluate data obtained per MSP-36.51A-E for margin in engineered safety features Time Response Beaver Valley Unit 1 test on November 10, 2014
- CR 2014-17079, Leak in Unit 1 24" river water header supplying the recirculation spray heat exchangers on November 18, 2014
- CR 2014-18292, Leak in Unit 2 four inch service water line in north safeguards room on December 15, 2014

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and UFSAR to

FENOC's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by FENOC. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 3 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- Unit 1 emergency diesel generator header isolation valve breaker replacement on November 5, 2014
- Unit 2 system station service transformer bus 'A' load tap changer repair on November 12, 2014
- Unit 1 'C' river water pump expansion joint replacement and motor maintenance on December 1, 2014

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 4 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied technical specifications, the UFSAR, and FENOC procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- 2OST-1.12B, Safeguards Protection System Train B Safety Injection System Go Test, Revision 49, on October 30, 2014
- 1OST-24.2, Motor Driven Auxiliary Feed Pump Test (1FW-P-3A), Revision 50, on November 17, 2012 (In-service test)
- 2OST-11.2, Low Head Safety Injection Pump (2SIS*P21B) Test, Revision 31, on December 16, 2014
- 1OST-13.7B, 2B Recirculation Spray Pump Flow Test, Revision 12, on December 22, 2014

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 – 1 samples)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine FENOC emergency drill on October 9, 2014, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator, technical support center, and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified by FENOC staff in order to evaluate FENOC's critique and to verify whether the FENOC staff was properly identifying weaknesses and entering them into the corrective action program.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety and Occupational Radiation Safety

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06 1 sample)

a Inspection Scope

During the period November 3-7, 2014, the inspectors reviewed FENOC's performance in treatment, monitoring, and control of effluent releases including adequacy of public dose calculations and projections. The inspectors used the requirements in 10 CFR

Part 20; 10 CFR 50, Appendix I; technical specifications; Offsite Dose Calculation Manual (ODCM); applicable industry standards; and procedures required by technical specifications as criteria for determining compliance.

Inspection Planning

The inspector conducted in-office preparation and review of FENOC submitted effluent and environmental program documents and reviewed associated UFSAR and the ODCM.

Event Report and Effluent Report Reviews

The inspectors reviewed the following:

- Annual radiological effluent and environmental reports for 2012 and 2013 including unexpected trends or abnormal releases
- Reported effluent monitor operability issues

ODCM and UFSAR Reviews

The inspectors reviewed the following:

- UFSAR changes associated with effluent monitoring and control
- Changes to ODCM including technical justifications
- Identification of any contaminated non-radioactive system and associated 10 CFR 50.59 evaluations

Ground Water Protection Initiative

The inspectors reviewed the following:

- Reported groundwater monitoring results and changes to the written program for identifying and controlling contaminated spills/leaks to groundwater
- Changes to the program since last inspection

Procedures, Special Reports, and Other Documents

The inspectors reviewed the following:

- Any Licensee Event Reports (LERs), and special reports related to the effluent program
- Effluent program implementing procedures, including those associated with effluent sampling, effluent monitor set-point determinations, and dose calculations
- Evaluation reports of the effluent monitoring program since the last inspection

Walkdowns and Observations

The inspectors reviewed the following:

- Walked down selected components of the gaseous effluent monitoring systems

- Potential unmonitored release points, building alterations which could impact airborne, or liquid, and effluent controls, and ventilation system leakage
- Effluent release system material condition surveillance records
- Changes to effluent release paths
- Routine processing and discharge of liquid waste
- 10 CFR 50.59, “Changes, Tests, and Experiments,” reviews for changes to effluent release points

Sampling and Analyses

The inspectors reviewed the following:

- Effluent sampling activities with respect to representative sampling
- Effluent discharges made with inoperable effluent radiation monitors
- Use of compensatory effluent sampling
- Results of the inter-laboratory and intra-laboratory comparison program, including hard-to-detect isotopes, to verify the quality of the radioactive effluent sample analyses

Dose Calculations

The inspectors reviewed the following:

- Significant changes in reported dose values compared to the previous radioactive effluent release reports
- Liquid and gaseous waste discharge permits
- Methods used to include hard-to-detect radionuclides in the effluent release reports
- Changes in the methodology for offsite dose calculations since the last inspection
- Meteorological dispersion and deposition factors used in offsite dose calculations
- Latest Land Use Census to verify that changes in land use have been factored into public dose projections and the environmental sampling program
- Dose calculations (monthly, quarterly, annual)
- Records of any abnormal gaseous or liquid discharges
- Discharges made with inoperable effluent radiation monitors

Groundwater Protection Initiative (GPI) Implementation

The inspectors reviewed the following:

- Groundwater monitoring results
- Changes made to the GPI program
- Anomalous results of groundwater samples
- Leakage or spill events and entries made into the decommissioning files (10 CFR50.75(g))
- On-site contamination events involving contamination of groundwater
- Discharges from onsite surface water bodies

Problem Identification and Resolution

The inspectors evaluated whether problems associated with the effluent monitoring and control program were being identified at an appropriate threshold and were properly addressed for resolution in the licensee corrective action program.

b Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08 – 1 sample)

a. Inspection Scope

During November 17-21, 2014, the inspectors verified the effectiveness of FENOC's programs for processing, handling, storage, and transportation of radioactive material. The inspectors used the requirements of 49 CFR 170-177; 10 CFR 20, 61, and 71; applicable industry standards; and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors conducted an in-office review of the solid radioactive waste system description in the UFSAR, the Process Control Program, and the recent radiological effluent release report for information on the types, amounts, and processing of radioactive waste disposed. The inspectors reviewed the scope of quality assurance audits performed for this area since the last inspection.

Radioactive Material Storage

The inspectors inspected areas where containers of radioactive waste were stored. The inspectors verified that the licensee had established a process for monitoring the impact of long-term storage.

Radioactive Waste System Walk-down

The inspectors walked down areas of the plant, and reviewed:

- accessible portions of liquid and solid radioactive waste processing systems to verify current system alignment and material condition
- radioactive waste processing equipment that was abandoned in place, and reviewed the controls in place to ensure protection of personnel
- changes made to the radioactive waste processing systems since the last inspection
- processes for transferring radioactive waste resin and/or sludge discharges into shipping/disposal containers
- current methods and procedures for dewatering waste

Waste Characterization and Classification

The inspectors identified radioactive waste streams and reviewed radiochemical sample analysis results to support radioactive waste characterization. The inspectors reviewed the use of scaling factors and calculations to account for difficult-to-measure radionuclides.

Shipment Preparation

The inspectors reviewed the records of shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and licensee verification of shipment readiness.

Shipping Records

The inspectors reviewed selected non-excepted package shipment records.

Identification and Resolution of Problems

The inspectors reviewed problems associated with radioactive waste processing, handling, storage, and transportation, and were addressed for resolution in the licensee corrective action program.

b. Findings and Observations

Introduction. The inspectors identified a Green NCV of 10 CFR 71.5, "Transportation of licensed material," and 49 CFR 172, Subpart I, "Safety and Security Plans." Specifically, FENOC personnel shipped a category 2 RAM-QC on public highways to a waste processor without adhering to a transportation security plan. Prior to shipment, FENOC staff failed to recognize that the quantity of radioactive material met the definition RAM-QC.

Description. FENOC staff prepared a liner for shipment to a waste processor. The liner, containing spent resin, was determined to have a total activity of 1300 curies (including 40.9 curies of cobalt (Co-60) as indicated on the Uniform Low-Level Radioactive Waste Manifest (NRC Form 541) which FENOC had generated. The liner was shipped on May 21, 2013. The inspectors reviewed the shipment and determined that the shipment met the definition of category 2 RAM-QC since it contained more than 8.1 curies of Co-60. The liner was shipped without FENOC implementing the required transportation security plan. At the time of the shipment, FENOC's applicable procedure, NOP-OP-5201, "Shipment of Radioactive Material – Waste," did not identify category 2 RAM-QC material.

FENOC's corrective actions included revising procedure NOP-OP-2501, "Shipment of Radioactive Material – Waste," to reflect the appropriate Department of Transportation requirements for shipment of Category 2 radioactive material. Additionally, FENOC implemented a formal process for reviewing pending regulatory changes for impacts to FENOC operations and support activities.

Analysis. The failure to ship the spent resin material as category 2 RAM-QC as required by 49 CFR 172, subpart I, "Safety and Security Plans," was a performance deficiency

that was reasonably within FENOC's ability to foresee and correct, and should have been prevented. The issue is more than minor because it is associated with the program and process attribute of the Public Radiation Safety cornerstone and affected the cornerstone objective to ensure the safe transport of radioactive material on public highways in accordance with regulations. In accordance with IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process," the finding was determined to be of very low safety significance (Green) because FENOC had an issue involving transportation of radioactive material, but it did not involve: (1) a radiation limit that was exceeded; (2) a breach of package during transport; (3) a certificate of compliance issue; (4) a low level burial ground nonconformance; or (5) a failure to make notifications or provide emergency information.

The inspectors determined that the finding did not have a cross-cutting aspect because the issue was not reflective of current plant performance. Specifically, FENOC implemented changes to the radioactive waste shipment procedure that addressed applicable requirements and implemented a formal process for reviewing pending regulatory changes for impacts to FENOC operations and support activities.

Enforcement. 10 CFR 71.5, "Transportation of Licensed Material," requires compliance with the applicable requirements of Department of Transportation regulations in 49 CFR Parts 171 through 180. 49 CFR 172, Subpart I, "Safety and Security Plans," [49 CFR 172.800(b)] requires that known radionuclides in forms listed as category 2 RAM-QC must adhere to a transportation security plan. Contrary to the above, FENOC made a category 2 shipment of radioactive material on May 21, 2013 (Shipment ID B-4247) without implementing the required transportation security plan. FENOC's corrective actions included revising procedure NOP-OP-2501, "Shipment of Radioactive Material – Waste," to reflect the appropriate Department of Transportation requirements for shipment of Category 2 radioactive material. Because this violation was of very low safety significance (Green) and FENOC entered this issue into their CAP as CR 2014-17260, this violation is being treated as an NCV, consistent with Section 2.3.2. of the NRC Enforcement Policy. **(05000334/2014005-02; 05000412/2014005-02, Failure to Properly Ship Category 2 Radioactive Material)**

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index (4 samples)

a. Inspection Scope

The inspectors reviewed FENOC's submittal of the Mitigating Systems Performance Index for the following systems for the period of October 1, 2013, through September 30, 2014:

- Unit 1 Emergency AC Power System
- Unit 2 Emergency AC Power System
- Unit 1 High Pressure Injection System
- Unit 2 High Pressure Injection System

To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors also reviewed FENOC's condition reports, mitigating systems performance index derivation reports, event reports, and system health reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

.2 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (1 sample)

a. Inspection Scope

During December 15 – 18, 2014, the inspector reviewed licensee submittals for the radiological effluent technical specifications/ODCM radiological effluent occurrences performance indicator (PI) for the period from the first quarter 2013 through the fourth quarter 2013. The inspector used PI definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, to determine if the PI data was reported properly during this period.

The inspector reviewed FENOC's corrective action report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences that may impact offsite dose. The inspector reviewed gaseous and liquid effluent summary data and the results of associated offsite dose calculations between the first quarter 2013 and the fourth quarter 2013.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 1 sample)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure (IP) 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that FENOC entered issues into the corrective action program at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the corrective action program and periodically attended condition report screening meetings.

b. Findings

No findings were identified.

.2 Annual Sample: Fire Protection Challenges Corrective Actions

a. Inspection Scope

The inspectors performed an in-depth review of FENOC's apparent cause analysis and corrective actions associated with condition report CR-2013-16140, fire protection challenges. Specifically, the condition report documented challenges to fire protection equipment reliability, defensive strategies, and compensatory measures and to timely resolution of fire protection system reliability issues.

The inspectors assessed FENOC's problem identification threshold, cause analyses, and the prioritization and timeliness of FENOC's corrective actions to determine whether FENOC was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of FENOC's corrective action program and 10 CFR 50, Appendix B. In addition, the inspectors interviewed engineering personnel to assess the effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

FENOC determined the apparent cause was the failure of site management to reinforce standards and expectations of the fire protection program. Contributing causes included failure to effectively implement corrective actions and site wide lack of sensitivity to the importance of the fire protection program and systems.

FENOC implemented 13 corrective actions. Three of the corrective actions addressed the apparent cause which included changes to the form used in the management alignment and ownership meeting to highlight the status of fire protection equipment, providing periodic fire protection program updates to the management team, and allocating additional resources to support the fire protection program. The inspectors determined that this has been effective at raising the awareness of and addressing fire protection issues. Although fire protection program improvements have been made, the program is not yet meeting FENOC's expectations. The fire protection program and fire protection system health reports are both rated as yellow. Additionally, one of the corrective actions was to prioritize the items in the Fire Protection Improvement Plan. The inspectors noted that several items in the plan had been completed. The inspectors also noted that many of the items remaining to be completed have had their due dates extended. Some item due dates have been extended more than once. This is an indication that there are still some challenges with timely resolution of fire protection reliability issues.

FENOC also performed four effectiveness reviews. Two of the four reviews were determined to be ineffective (control of transient combustibles and fire brigade drills) and additional effectiveness reviews have been scheduled. FENOC's assessment of transient combustible control is consistent with observations made by the inspectors.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 1 sample)

(Closed) LER 05000334/2014-005-00 and 05000412/2014-005-00: Containment Equipment Hatch Missile Shield Removal Results in Exceeding Technical Specification 3.6.1 Required Completion Times

Between January 2003 and April 2014, FENOC improperly established and implemented procedures to remove the Unit 1 and Unit 2 containment equipment hatch missile barriers while in a Mode in which containment was required to be operable. The most recent occurrence was on April 18, 2014, when FENOC removed the Unit 2 equipment hatch missile barrier in preparation for the unit's refueling outage. The enforcement aspects of this issue were documented in inspection report 05000334/2014003 and 05000412/2014003. The inspectors did not identify any additional findings during the review of the LER. This LER is closed.

4OA5 Other Activities

Preoperational Testing of an Independent Spent Fuel Storage Installation (ISFSI) (IP 60854 and 60854.1), Review of 10 CFR 72.212 (b) Evaluations (IP 60856 and 60856.1)

a. Inspection Scope

The inspectors evaluated FENOC's performance during NRC observed pre-operational dry run activities that were performed in order to fulfill requirements in the Certificate of Compliance (CoC) No. 1004, Amendment 13, Condition 8. The inspectors observed FENOC dry run activities on September 15-18, 2014, and were also on-site September 23-26, 2014, to review the BVPS 10 CFR 72.212 evaluation report.

During the dry run activities, the inspectors observed cask processing activities to determine whether the FENOC staff and contractors had developed the capability to properly process the dry shielded canister (DSC) to be used in storage of spent fuel at the BVPS site. The inspectors observed DSC activities including: blowdown, vacuum drying, helium backfilling, reflooding, welding, hydrogen monitoring, non-destructive examinations, and helium leak testing. The inspectors verified that the required vacuum pressure and helium backfill pressure could be achieved and maintained within the technical specification limits. The inspectors examined the DSC processing equipment and reviewed worker qualification records. During the dry run, the inspectors observed pre-job briefs and verified FENOC utilized adequate radiological controls and discussed relevant examples of operating experience. The inspectors verified that work instructions and procedures appropriately captured the commitments and requirements contained in the UFSAR, CoC, technical specifications, and 10 CFR Part 72.

The inspectors evaluated FENOC's compliance with the requirements of 10 CFR 72.212. The inspectors verified FENOC's written evaluations were in accordance with 10 CFR 72.212(b)(5) and confirmed: (1) the conditions set forth in the CoC had been met prior to use; (2) the ISFSI pad had been designed to support the load of stored casks; and (3) the radiological requirements of 72.104 had been met. The inspectors verified that applicable reactor site parameters, such as fire and explosions, tornadoes, wind-generated missile impacts, seismic qualifications, lightning, flooding and temperature, had been evaluated for acceptability with bounding values specified in the UFSAR and the NRC Safety Evaluation Report. The inspectors also verified that a

50.59 evaluation of the construction and operation of the ISFSI and plant interfaces was performed and that ISFSI related work activities would not require a change in the facility TS or require a license amendment for the facility.

The inspectors reviewed corrective action reports conditions reports associated with preparations for the ISFSI loading campaign to ensure that issues were being properly identified, prioritized, and evaluated commensurate with their safety significance.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On November 21, 2014, the inspectors presented the Occupation Radiation Safety inspection results to C. McFeaters, Director, Site Operations, and other members of the BVPS staff.

On December 18, 2014, the inspectors presented the ISFSI inspection results to B. Sepelak, BVPS Regulatory Compliance.

On December 18, 2014, the inspector presented the public and occupational radiation safety inspection results to T. Steed, Beaver Valley's Director of Performance Improvement, and other members of the BVPS staff.

On January 29, 2015, the inspectors presented the inspection results to Eric Larson, Site Vice President, and other members of the BVPS staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

E. Larson	Site Vice President
C. McFeaters	Director, Site Operations
D. Barth	Radiation Protection Technician
J. Belfiore	Senior Consulting Engineer
M. Benkowski	ISFSI Project Manager
W. Blazier	Reactor Operator
D. Bloom	Engineer, Analysis engineering
G. Cacciani	10 CFR 50.59 Engineer
V. Carnevale	Quality Control Oversight
E. Crosby	Radiation Protection Manager
A. Crotty	Supervisor, System Engineering
J. DiCioccio	System Engineer
A. Doby	Reactor Operator
T. Dometrovich	Licensing Consultant
G. Ebeck	Supervisor, Nuclear Civil/Structural Engineering
K. Frederick	Engineer, Analysis Engineering
B. Furdak	Chemistry Supervisor
S. Gattuso	Senior Reactor Operator
T. Gaydosik	Lead, Fleet Exam Team
R. Gilchrist	Nuclear Unit Supervisor
K. Gillespie	Nuclear Engineer II
J. Gorman	System Engineer
J. Gross	Radiation Protection Technician
D. Gyms	System Engineer
E. Hall	Staff Nuclear Specialist
R. Hayward	Mechanical/Structural Engineer
D. Hoover	Staff Nuclear Engineering Specialist
S. Hovanec	Manager, Plant Engineering
D. Jones	IST Program Engineer
H. Kahl	Nuclear Engineer V
S. Keener	Nuclear Unit Supervisor
R. Kristophel	Shift Manager
E. Loehlein	Manager, Operations
P. Logoyda	Radiation Protection Superintendent
J. Manning	Radiation Protection Supervisor
A. Matty	Radiation Protection Technician
D. McBride	System Engineer
J. Miller	Fire Marshall
R. Miller	Performance Improvement Specialist
K. Mitchell	Nuclear Engineer
R. Novak	RETS/REMP Administrator
D. Price	Supervisor, Mechanical/Structural Engineering
B. Prinkey	Supervisor, Nuclear Supply Systems Engineering
R. Ruby	Radwaste Shipper

D. Salera	Chemistry Superintendent
J. Saunders	Radwaste Supervisor
S. Sawtschenko	Manager, Emergency Response
D. Scheider	Plant Operator
J. Schwer	Nuclear Shift Manager
B. Sepelak	Supervisor, Regulatory Compliance
S. Snodgrass	Reactor Operator
B. Spiesman	Fleet Regulatory Affairs
J. Tolbert	Supervisor, Licensed Operator Requalification Training
H. Trembley	System Engineer
G. Wain	Plant Operator
Z. Warchol	Supervisor, BOP Systems
T. White	Quality Control Oversight
D. Wilson	Component Engineer
T. Winfield	Supervisor, Relays

Areva TN

E. Clendenning	Welder
M. Hunt	PT Inspector
M. Williams	Director of Field Operations

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000334/2014005-01	NCV	Failure to Adequately Implement Risk Management Actions (Section 1R13)
05000334/2014005-02 05000412/2014005-02	NCV	Failure to Properly Ship Category 2 Radioactive Material (Section 2RS8)

Closed

05000334/2014-005-00 05000412/2014-005-00	LER	Containment Equipment Hatch Missile Shield Removal Inadvertently Results in Exceeding Technical Specification 3.6.1 Required Completion Times (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

1/2OST-30.21A, Group 1 Flood Door Seal System Operability Check, Revision 8
1/2OST-30.21B, Group 2 Flood Door Seal System Operability Check, Revision 8
1/2OST-45.1, Extreme Cold Weather Protection Verification, Revision 0
1/2OM-53C.4A.75.1, Acts of Nature - Tornado or High Winds, Revision 16
1/2OM-53C.4A.75.2, Acts of Nature - Flood, Revision 30
1OM-45.3.C.2, Power Supply and Control Switch List Heat Tracing System, Revision 21

1OST-45.11A, Cold Weather Protection Verification – Performed in September and October, Revision 1
1OST-45.11B, Cold Weather Protection Verification – Performed in November, Revision 0
2OST-45.11A, Cold Weather Protection Verification – Performed in September and October, Revision 1
2OST-45.11B, Cold Weather Protection Verification – Performed in November, Revision 0

Condition Reports
2014-03569 2014-10988 2014-13995 2014-15079 2014-15110 2014-15300
2014-16204 2014-16245 2014-16313 2014-16487 2014-16518 2014-16795
2014-17980

Section 1R04: Equipment Alignment

Procedures
1OM-13.1.C, Major Components, Revision 7
1OM-13.3.B.1, Valve List – 1QS, Revision 15
2OM-7.3.B.1, Valve List – 2CHS, Revision 27

Condition Reports
2014-15809 2014-15944

Drawings
RM-0413-001 Containment Depressurization System, Revision 25
10080-RM-0407-002, Valve Oper No Diagram Charging System VCT and Make-up, Revision 19

Section 1R05: Fire Protection

Procedures
2PFP-MSCV-718-Pipe Tunnel Fire Area PT-1, Revision 0

Miscellaneous
BVPS-2, Fire Protection Safe Shutdown Report, Addendum 38
2PFP-AXLB-755, Primary Auxiliary Building, Fire Areas Pa-4, PA-6, and PA-7, Revision 1

Section 1R11: Licensed Operator Requalification Program

Procedures
NOP-OP-1002, Conduct of Operations, Revision 9
NOP-LP-2601, Procedure/Work Instruction Use and Adherence, Revision 5

Section 1R12: Maintenance Effectiveness

Procedures
BVPM-ER-3004, Maintenance Rule Program Supplemental Guidance, Revision 01
NOP-ER-3004, FENOC Maintenance Rule Program, Revision 2
1/2CMP-75-MCB-IE, Testing of Westinghouse and Cutler-Hammer Molder Case Circuit Breakers, Revision 15

Condition Reports
2014-11748 2013-17546 2013-00624 2013-03722 2012-08364 2012-07488
2012-07445 2013-02346 2013-00032 2013-08670 2013-06544 2013-16450
2013-00647

Work Orders
200075648 200380641

Miscellaneous
Maintenance Rule System Basis Document, Unit 1 System 37, Revision 4
Unit 1 480 Volt Station Service System Health Report 1st Half 2013-1
Unit 1 480 Volt Station Service System Health Report 1st Half 2013-2
Unit 1 480 Volt Station Service System Health Report 1st Half 2014-1

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
NOP-OP-1007 Risk Management, Revision 19
1OM-39.4, 125V DC Control System Startup, Revision 8
1OST-39.6, 125 VDC Control System Operating Surveillance Test Station Battery Check, Revision 6
1/2-ADM-0804 On-Line Risk Assessment and Management, Revision 12

Condition Reports
2007-17486 2014-15696

Maintenance Orders/Work Orders
200618032

Section 1R15: Operability Determinations and Functionality Assessments

Procedures
1MSP-36.51A-E, 1N 480 Volt Emergency Bus Degraded Voltage Relays 27-RN2100AB and 27-RN2100BC Calibration, Revision 16
NOP-LP-4003, Evaluation of Changes, Tests and Experiments, Revision 7
NOP-OP-1009, Operability Determinations and Functionality Assessments, Revision 4
1OST-47.3M, Containment Isolation and ASME Test – Work Week 9, Revision 20
NOP-OP-1009, Operability Determinations and Functionality Assessments, Revision 4

Condition Reports
2009-59019 2013-01643 2014-16054 2014-15990 2014-15944 2014-16602
2014-16618 2014-16652 2014-16878 2014-16958 2014-15874

Maintenance Orders/Work Orders
200535757 200620643

Miscellaneous
211-N-265, Flood Analysis Outside Containment, Revision 6

Section 1R19: Post-Maintenance Testing

Procedures
NOP-CC-2007, Part/Component Equivalent Replacement Packages, Revision 3
1OST-30.6A, Reactor Plant River Water Pump 1C Test on Train A Header, Revision 35
1OST-36.1, Diesel Generator No. 1 Monthly Test, Revision 61
1/2CMP-75-Expansion Joint-1M, Inspection and Replacement of Rubber Expansion Joints, Revision 6
1/2RCP-96-PC, Calibration of Westinghouse and McGraw Edison Load Tap Changer (LTC) Voltage Regulating Relays, Revision 5
2OST-36.7, Offsite to Onsite Power Distribution System Breaker Alignment Verification, Revision 18

Condition Reports
2014-16902 2014-18142

Maintenance Orders/Work Orders
200520018 200520078 200621378

Miscellaneous
Part/Component Equivalent Replacement Package 000988, REJ-1RW-6C Replacement with New Dimensions, Revision 0

Section 1R22: Surveillance Testing

Procedures
1OST-13.7B, 2B Recirculation Spray Pump Flow Test, Revision 12
2OST-11.2, Low Head Safety Injection Pump (2SIS*P21B) Test, Revision 31

Work Orders
200519658 200519661 200537566 200582204 200541118

Section 1EP6: Drill Evaluation

Procedures
A5-735A, Emergency Preparedness Plan, Revision 29

Condition Reports
2014-15536

Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment

Procedures
1/2-ADM-1640, “Control of the Offsite Dose Calculation Manual,” Revision 7
1/2-ENV-05.04, “Radioactive Waste Discharge Authorization – Liquid,” Revision 7
1/2-ENV-05.05, “Radioactive Waste Discharge Authorization – Gas,” Revision 4
1-HPP-3.06.003, “Unit 1 Gaseous Waste Tank Sampling,” Revision 3
1/2-HPP-3.06.001, “Liquid Waste Holdup Tank Sampling,” Revision 9
2-HPP-3.06.004, “Unit 2 Gaseous Waste Tank Sampling,” Revision 4
2-HPP-4.02.040, “Weekly DRMS Change-Out,” Revision 1

Abnormal Release Packages
RWDA-L-2-JUN-13-02, RWDA-L-2-JUN-13-03

Other
14-01373, Regulatory Applicability Determination, 11/6/2014
Five-Year Update of Groundwater Flow Characteristics Report, Environmental Resources Management, April 28, 2014
Proposal for Tritium Age Dating Analysis, Environmental Resources Management, May 7, 2014
Proposal for Groundwater Protection Program Technical Support, Environmental Resources Management, November 14, 2014

Section 2RS8: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

Procedures:
1/2OM-18.4A.C, Use and Handling of High Integrity Containers, Revision 7
1OM-18.4.AF, Dewatering High Integrity Containers, Revision 3
1OM-18.4.AG, Transferring Spent Resin From Resin Waste Hold Tank to a High Integrity Container Using Resin Metering Pump, Revision 5
1OM-18.4.AH, Resin Transfer From Any Group I Ion Exchanger to a Liner/Shipping Container, Revision 9
1OM-18.4.AI, Resin Transfer From Any Group II Ion Exchanger to a Liner/Shipping Container, Revision 7
1OM-18.4.AJ, Rev 4, Resin Transfer From Any Group III Ion Exchanger to a Liner/Shipping Container
1OM-18.4.AO, Transferring Resin Waste Hold Tank to a HIC – Vendor Procedure Support, Revision 4
1OM-18.4.A, Flushing Resin From Any Group I Ion Exchanger to 1SW-TK-2, Revision 6
2OM-18.4A, Flushing Any Group I Ion Exchanger Resin to the Spent Resin Holding Tank, Revision 5
2OM-18.4.AAB, Local Spent Resin Hold Tank High Level, Revision 2
2OM-18.4.AC, Transfer of Resins From 55-Gallon Drums to the HIC at Unit 2 WHB Truck Bay, Revision 1
2OM-18.4.D, Flushing Any Group I Ion Exchanger Resin to a High Integrity Container, Revision 5
2OM-18.4.Y, Dewatering Shipping Containers (HIC) , Revision 7
2OM-18.4.Z, Transferring Spent Resin Hold Tank to a HIC Using a Portable Pump, Revision 1
2OM-18.4.F, Flushing Any Group III Ion Exchanger Resin to a High Integrity Container, Revision 2
1/2-HPP-3.07.014, Sampling of Volumetric Materials and Miscellaneous Media for Radioactivity Evaluation, Revision 2
NOP-OP-5201, Shipment of Radioactive Material – Waste, Revision 5
1/2-PCP-1.01, Process Control Program, Revision 5
Beaver Valley Business Practice (BVBP)-RP-0011, Seavan Management for the Onsite Storage of Radioactive Material, Revision 6
BVBP-RP-002, Temporary On-Site Storage of Radioactive Waste, Revision 2
10CFR50.59 Screen # 12-04251, Installation of New Demineralizers in Solid Waste Building

Condition Reports
2014-05360 2013-18327 2013-08877 2013-12630 2013-19498 2013-17253 2013-10732

EnergySolutions
DOT/NRC Radioactive Waste Packaging, Transportation and Disposal Dangerous Goods regulations (IATA) Load securing for radioactive Materials
NUPIC Audit #23769, Erwin ResinSolutions
NUPIC Audit #23201, EnergySolutions

GEL Laboratories 10CFR Part 50/61 certificates of Analysis for
U-1 DAW; U-1 Liquid Waste Resin
U-1 Primary Filters
U-1 Primary resin
U-2 DAW; U-2 Liquid Waste Resin
U-2 Primary Filters; U-2 Primary resin

Beaver Valley Self-Assessment Reports
SN-SA-13-0205, Radwaste Shipment
SN-SA-14-0654, Radwaste Shipment

Miscellaneous
USNRC Quality Assurance Program Approval #0275, Revision 10
FENOC Fleet Oversight Audit Report MS-C-13-08-03

Section 4OA1: Performance Indicator Verification

Condition Reports
2013-14499 2013-14653 2013-15561 2013-16937 2013-17070 2013-19558
2014-03890 2014-05255 2014-07793 2014-07834 2014-08765 2014-08948

Miscellaneous
BVRM-RAS-0001, Unit 1 Mitigating System Performance Index Basis Document, Revision 7
BVRM-RAS-0002, Unit 2 Mitigating System Performance Index Basis Document, Revision 9
Unit 1 Chemical and Volume Control System Health Report 2013-2 and 2014-1
Unit 2 Chemical and Volume Control System Health Report 2013-2 and 2014-1
Unit 1 Emergency Diesel Generators System Health Report 2013-2 and 2014-1
Unit 2 Emergency Diesel Generators System Health Report 2013-2 and 2014-1

Section 4OA2: Problem Identification and Resolution

Procedures
NOP-LP-2001, Corrective Action Program, Revision 35
NOP-LP-2011, FENOC Cause Analysis, Revision 16
1OM-52.4.B, Load Following, Revision 49

Condition Reports
2013-16140 2014-13572 2014-16360

Miscellaneous
Fire Protection Action Plan, Revision 1
Fire Protection Program Health Report 2014-1
Unit 1 Fire Protection System Health Report 2014-1
Unit 2 Fire Protection System Health Report 2014-1

Section 4OA5: Preoperational Testing of an Independent Spent Fuel Storage Installation

Procedures
1OM-70.4.D, “Dry Shielded Canister Preparations for Fuel Loading,” Revision 0
1OM.70.4.E, “Transfer Cask Handling for Fuel Loading,” Revision 0
1OM.70.4.F, “Dry Shielded Canister Processing,” Revision 0
1OM-70.4.G, “Dry Shielded Canister Insertion into HSM-H,” Revision 0
1OM-70.4.H, “Dry Shielded Canister Extraction from HSM-H,” Revision 0
1OM-70.4.I, “Dry Shielded Canister Removal of Field Closure Welds,” Revision 0
1OM-70.4.J, “Transfer Cask Handling for Fuel Unloading,” Revision 0
1OM-70.4.L, “Safe Configuration Guidance for ISFSI Equipment Malfunctions,” Revision 0
1PFP-DCNM-735, Decon Building Fire Area FB-1 Pre Fire Plan, Revision 1
ITLS Procedure 37PTH PT, Liquid Dye Penetrant Examination Procedure, Revision 0
NOP-MS-4001, Warehousing, Revision 9
NOP-LP-2018, Quality Control Inspection and Modification Activities, Revision 9
NUHOMS 37PTH LT , Helium Leak Test Procedure, Revision 1
SPM 9.5, NUHOMS 37PTH DSC Closure Procedure, Revision 0
TN P8-P8-GT1, Procedure Qualification Record, Revision 1
WPS-TN P8-P8-GT1, Welding Procedure Specification, Revision 1

Condition Reports
2014-14864 2014-14881 2014-14939 2014-15105 2014-17962 2014-18003

Calculations
Calculation 1/2-DMC-3804, “Fire Hazards Evaluation for the Beaver Valley Independent Spent Fuel Storage Installation and Haul Path,” Revision 1
Calculation 1/2-DMC-3805, “Explosion Hazards Evaluation for the Beaver Valley Independent Spent Fuel Storage Installation and Haul Path,” Revision 0

Miscellaneous
BVPS Independent Spent Fuel Storage Installation (ISFSI) 10 CFR 72.212 Evaluations Report, Revision 0 dated 9/18/14
BVPS Independent Spent Fuel Storage Installation (ISFSI) 10 CFR 72.212 Evaluations Report, Revision 0 dated 10/9/14
DIN 009; Risk Management Program Documentation, Midland Terminal, DCP Midstream; dated May 3, 2007
Form SPM 9.1a-1, Welding Procedure Specification
Form SPM 9.1b-2, Welding Operator Performance Qualification
ITLS, Certificate of Qualification and Certification Summary

LIST OF ACRONYMS

AC	alternating current
ADAMS	Agencywide Documents Access and Management System
AOP	abnormal operating procedures
BVPS	Beaver Valley Power Station
CAP	corrective action program
CFR	Code of Federal Regulations
CoC	Certificate of Compliance
DSC	Dry Shielded Canister
FENOC	FirstEnergy Nuclear Operating Company
GPI	groundwater protection initiative
ICDP	incremental core damage probability
ISFSI	Independent Spent Fuel Storage Installation
IMC	Inspection Manual Chapter
IP	Inspection Procedure
LER	licensee event report
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	offsite dose calculation manual
PI	performance indicator
QA	quality assurance
RAM-QC	radioactive material quantity of concern
RMA	risk management actions
SDP	Significance Determination Process
SSC	structure, system, or component
UFSAR	Updated Final Safety Analysis Report