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

November 10, 2015

Mr. Eric Larson
Site Vice President
FirstEnergy Nuclear Operating Company
Beaver Valley Power Station
P. O. Box 4, Route 168
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION – INTEGRATED INSPECTION REPORT 05000334/2015003 AND 05000412/2015003

Dear Mr. Larson:

On September 30, 2015, 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 November 5, 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 one finding of very low safety significance (Green). This finding did not involve a violation of NRC requirements. In addition, if you disagree with the cross-cutting aspect assigned to any finding, or a finding not associated with a regulatory requirement in this report, 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 NRC's "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 and 50-412
License Nos. DPR-66 and NPF-73

Enclosure:
Inspection Report 05000334/2015003
and 05000412/2015003
w/Attachment: Supplementary Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.:	50-334 and 50-412
License Nos.:	DPR-66 and NPF-73
Report No.:	05000334/2015003 and 05000412/2015003
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Beaver Valley Power Station, Units 1 and 2
Location:	Shippingport, PA 15077
Dates:	July 1, 2015 to September 30, 2015
Inspectors:	J. Krafty, Senior Resident Inspector B. Reyes, Resident Inspector T. Lamb, Acting Resident Inspector S. Barr, Senior Emergency Preparedness Inspector T. Fish, Senior Operations Engineer T. Hedigan, Operations Engineer D. Kern, Senior Reactor Inspector
Approved By:	Silas R. Kennedy, Chief Reactor Projects Branch 6 Division of Reactor Projects

TABLE OF CONTENTS

SUMMARY

IR 05000334/2015003 and 05000412/2015003; 07/01/2015 – 09/30/2015; Beaver Valley Power Station, Units 1 and 2; Follow-Up of Events and Notices of Enforcement Discretion.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified one finding of very low safety significance (Green), which did not involve a violation of Nuclear Regulatory Commission (NRC) requirements. 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 April 29, 2015. 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 February 4, 2015. 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: Initiating Events

- Green. A self-revealing finding was identified for FENOC's failure to correct a low oil level in the lower motor bearing of the Unit 1 'A' condensate pump in accordance with NOP-LP-2001, "Corrective Action Program." Specifically, FENOC incorrectly cancelled the work order to add oil to the 'A' condensate pump motor and installed a placard on the oil level sight glass with incorrect minimum and maximum oil levels. This led to the motor bearing failure, which caused the pump to trip on overcurrent, and required the operators to insert a manual reactor trip. FENOC entered the issue into their correct action program, condition report (CR) 2015-05256.

  The performance deficiency was more-than-minor because it was associated with the human performance attribute of the Initiating Events cornerstone, and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, NOP-LP-2001, section 4.2.3, states that condition report/correct action owners should ensure that actions are developed to resolve the primary cause identified in the condition report. Instead of correcting the low oil level in the motor, FENOC cancelled the work order to add oil. This subsequently caused the operators to trip the plant when the condensate pump motor bearing overheated and the motor tripped on overcurrent. The inspectors determined that this finding was of very low safety significance (Green) because it did not cause a reactor trip and the loss of mitigation equipment. This finding has a cross-cutting aspect in the area of Human Performance, Consistent Process, because FENOC did not seek input from the appropriate work group (engineering) prior to cancelling the work order to add oil to the condensate pump motor [H.13]. (Section 4OA3)

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at or near 100 percent power for the entire inspection period.

Unit 2 began the inspection period at 100 percent power and operated at or near full power until August 31, 2015, when the unit entered end-of-cycle coastdown operations. On September 25, 2015, operators commenced a shutdown and entered into a planned refueling outage (2R18) and remained shutdown until the end of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04 – 4 samples)

Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- Unit 2 'B' component cooling while the 'A' component cooling pump was out of service for pump overhaul on July 27, 2015
- Unit 2 'A' train of service water while the 'B' train was out of service for scheduled maintenance on July 28, 2015
- Unit 2 'B' train of supplemental leak collection and release system while the 'A' train was out of service for scheduled maintenance on August 14, 2015
- Unit 1 'A' and 'B' motor driven auxiliary feedwater pump trains while the turbine driven auxiliary feedwater pump train was inoperable on August 20, 2015

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 Updated Final Safety Analysis Report (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. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q – 7 samples)

Resident Inspector Quarterly Walkdowns

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 1 control room, fire area CR-1, on July 27, 2015
- Unit 2 cooling tower pump house, fire area CTP-1, on July 27, 2015
- Unit 1 East cable vault, fire area CV-2, on August 4, 2015
- Unit 1/2 alternate intake structure, fire area AIS-1, on August 5, 2015
- Unit 1 pipe tunnel, fire area PT-1, on August 19, 2015
- Unit 2 cable spreading room, fire area SB-3, on September 28, 2015
- Unit 2 reactor containment building, fire area RC-1, on September 29, 2015

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program

.1 Quarterly Review of Licensed Operator Requalification Testing and Training (71111.11Q – 1 sample)

a. Inspection Scope

The inspectors observed licensed operator simulator training on August 20, 2015. The first scenario included a pressurizer pressure transmitter failure, a reactor trip with loss of secondary heat sink, and a faulted steam generator. The second scenario included a loss of vital bus, a loss of coolant accident, and the failure of selected 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. 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 (71111.11Q – 1 sample)

a. Inspection Scope

The inspectors observed the plant shutdown and cooldown of Unit 2 on September 25 and 26, 2015. The inspectors observed use of and compliance with procedures, crew communications, interpretation, diagnosis, and understanding of plant alarms, use of human error prevention techniques, documentation of activities, and management oversight of the evolution to verify that the crew was following procedures and plant expectations for conduct of operations.

b. Findings

No findings were identified.

.3 Licensed Operator Requalification (71111.11B – 1 sample)

a. Inspection Scope

The inspectors performed the following inspection activities of the Unit 2 licensed operator requalification program in accordance with NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and Inspection Procedure Attachment 71111.11, “Licensed Operator Requalification Program and Licensed Operator Performance.”

Examination Results

Requalification examination results (operating test, only) for year 2015 were reviewed to determine if pass/fail rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, “Operator Requalification Human Performance Significance Determination Process (SDP).” The review verified that the failure rate (individual or crew) did not exceed 20 percent.

The overall individual operator failure rate was 12.8 percent.

The overall crew failure rate was 11.1 percent.

Written Examination Quality

The inspectors reviewed a sample of comprehensive written examinations that facility staff previously administered to Unit 2 operators in March and April 2015.

Operating Test Quality

The inspectors reviewed operating test scenarios and job performance measures (JPMs) associated with the on-site examination week.

Licensee Administration of Operating Tests

The inspectors observed facility training staff administer dynamic simulator examinations and JPMs during the week of June 22, 2015. These observations included facility evaluations of crew and individual operator performance during the simulator examinations and individual performance of JPMs.

Exam Security

The inspectors assessed whether facility staff properly safeguarded examination material, and whether test item repetition was excessive.

Remedial Training and Re-examinations

The inspectors reviewed remedial training packages and the associated re-exams for a crew that failed the scenario portion of their 2015 operating test.

Conformance with License Conditions

License reactivation and license proficiency records were reviewed to ensure that 10 *Code of Federal Regulations* (CFR) 55.53 license conditions and applicable program requirements were met. The inspectors also reviewed a sample of records for requalification training attendance, and a sample of medical examinations for compliance with license conditions and NRC regulations.

Simulator Performance

Simulator performance and fidelity were reviewed for conformance to the reference plant control room. A sample of simulator deficiency reports was also reviewed to ensure facility staff addressed identified modeling problems.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors conducted an in-office review of results of licensee-administered 2015 annual operating tests for Unit 1 operators. The inspection assessed whether Pass/Fail rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)". The review verified that the failure rate (individual or crew) did not exceed 20 percent.

- The overall individual failure rate was 2.8 percent.
- The crew failure rate was 0.0 percent.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 4 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below 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, 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.

- Unit 1 spent fuel pool cool and purification system on July 14, 2015
- Unit 1 125 volts direct current control system on July 27, 2015
- Unit 2 residual heat removal system on August 12, 2015
- Unit 2 radiation monitoring system on September 24, 2015

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 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.

- Planned yellow risk for planned deluge test of the Unit 1 ‘1B’ system station service transformer on July 7, 2015
- Unplanned loss of Unit 2 vital bus 2-3 during replacement of temperature instrumentation power supplies on July 28, 2015
- Unit 1 ‘A’ quench spray pump testing and 1-1 emergency diesel generator fuel oil transfer pump testing on August 11, 2015
- Unit 1 turbine driven auxiliary feedwater pump train unplanned inoperability on August 20, 2015
- Unit 2 risk assessment for 2R18 refueling outage on September 24, 2015

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 5 samples)

a. Inspection Scope

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

- Unit 1 ‘1B’ steam generator feed water bypass flow control valve (FCV-1FW-489), stroke time outside of American Society of Mechanical Engineers acceptable range on July 16, 2015
- Unit 1 and 2 operator work-arounds, burdens, and control room deficiencies on July 24, 2015.
- Unit 1 turbine driven auxiliary feedwater pump recirculation valve pressure switch reset out of tolerance on August 20, 2015
- Unit 2 2-2 emergency diesel generator service water flow below the acceptance criteria on August 31, 2015
- Unit 2 reactor coolant system pressure isolation check valve (2SIS*545) exceeded leakage criteria on September 30, 2015

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 – 5 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 2 piping modification to the 'B' train of the boric acid system on July 13, 2015
- Unit 2 'A' component cooling pump overhaul on July 30, 2015
- Unit 1 replacement of the power supply boards for the 'B' delta temperature/average temperature instrument on August 5, 2015
- Unit 2 repair of service water leak in the safeguards building on August 26, 2015
- Unit 2 modification to increase the stroke of 2SVS-PCV101A, 21A steam generator atmospheric dump valve, on September 14, 2015

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 10 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:

- 2MSP-37.04-E, 2P 480 Volt Emergency Bus Degraded Voltage Relays 27-RP200AB and 27-RP200BC Test, Revision 21 on August 4, 2015
- 1OST-30.1B, Auxiliary River Water Pump Test, Revision 46 on August 5, 2015 in-service test (IST)
- 1OST-7.19D, Safety Injection Relay Test (Slave Relay K610) – Train B, Revision 5 on August 7, 2015
- 2MSP-6.12-I, 2RCS-P455, Pressurizer Pressure Loop Protection Channel I Test, Revision 9 on August 12, 2015

- 2OST-36.1, Emergency Diesel Generator (2EGS*EG2-1) Monthly Test, Revision 71 on August 19, 2015
- 2OST-30.13B, 'B' Train Service Water System Full Flow Test, Revision 36 on August 31, 2015 (IST)
- 2OST-36.02, Emergency Diesel Generator (2EGS*EG2-2) Monthly Test, Revision 71, on September 2, 2015
- 1OST-24.4, Steam Turbine Driven Auxiliary Feed Pump Test (1FW-P-2), Revision 54, on September 4, 2015
- 2OST-24.2, Motor Driven Auxiliary Feed Pump Test (2FWE*P23A) Test, Revision 39, on September 9, 2015
- 2OST-36.3, Emergency Diesel Generator (2EGS*EG2-1) Automatic Test, Revision 41, on September 27, 2015

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation (71114.02 - 1 sample)

a. Inspection Scope

The inspectors assessed the maintenance and testing of the alert and notification system (ANS). During this inspection, the inspectors conducted a review of the Beaver Valley siren and tone alert radio testing and maintenance programs. The inspectors reviewed the associated ANS procedures and the Federal Emergency Management Agency approved ANS Design Report to ensure compliance with design report commitments for system maintenance and testing. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 2. 10 CFR 50.47(b)(5) and the related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System (71114.03 – 1 sample)

a. Inspection Scope

The inspectors conducted a review of the Beaver Valley Emergency Response Organization (ERO) augmentation staffing requirements and the process for notifying and augmenting the ERO. The review was performed to verify the readiness of key FENOC staff to respond to an emergency event and to verify FENOC's ability to activate their emergency response facilities (ERFs) in a timely manner. The inspectors reviewed the Beaver Valley Emergency Plan for ERF activation and ERO staffing requirements, the ERO duty roster, applicable station procedures, augmentation test reports, the most recent drive-in drill reports, and corrective action reports related to this inspection area.

The inspectors also reviewed a sample of ERO responder training records to verify training and qualifications were up to date. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 3. 10 CFR 50.47(b)(2) and related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

1EP5 Maintaining Emergency Preparedness (71114.05 – 1 sample)

a. Inspection Scope

The inspectors reviewed a number of activities to evaluate the efficacy of FENOC's efforts to maintain the Beaver Valley emergency preparedness (EP) program. The inspectors reviewed: memorandums of agreement with offsite agencies; the 10 CFR 50.54(q) Emergency Plan change process and practice; Beaver Valley's maintenance of equipment important to EP; records of evacuation time estimate population evaluation; and provisions for, and implementation of, primary, backup, and alternative emergency response facility maintenance. The inspectors also verified FENOC's compliance at Beaver Valley with NRC EP regulations regarding: emergency action levels for hostile action events; protective actions for on-site personnel during events; emergency declaration timeliness; ERO augmentation and alternate facility capability; evacuation time estimate updates; on-shift ERO staffing analysis; and, ANS back-up means.

The inspectors further evaluated FENOC's ability to maintain Beaver Valley's EP program through their identification and correction of EP weaknesses, by reviewing a sample of drill reports, self-assessments, and 10 CFR 50.54(t) reviews. Also, the inspectors reviewed a sample of EP-related condition reports initiated at Beaver Valley from October 2013 through March 2015. The inspection was conducted in accordance with NRC Inspection Procedure 71114.05. Title 10 CFR 50.47(b) and the related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 1 sample)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine FENOC emergency drill on July 23, 2015 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.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index (6 samples)

a. Inspection Scope

The inspectors reviewed FENOC's submittal of the Mitigating Systems Performance Index for the following systems for the period of July 1, 2014, through June 30, 2015:

- Unit 1 Heat Removal System (Auxiliary Feedwater)
- Unit 2 Heat Removal System (Auxiliary Feedwater)
- Unit 1 Residual Heat Removal Systems (Low Head Safety Injection and Recirculation Spray)
- Unit 2 Residual Heat Removal System (Recirculation Spray)
- Unit 1 Cooling Water System (River Water)
- Unit 2 Cooling Water System (Service Water)

To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7. The inspectors also reviewed FENOC's condition reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

.2 Emergency Preparedness Performance Indicators (3 samples)

a. Inspection Scope

The inspectors reviewed data for the following three Emergency Preparedness Performance Indicators for the period April 1, 2014, through March 31, 2015.

- Drill and Exercise Performance
- Emergency Response Organization Readiness
- ANS Reliability

To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guidelines," Revision 7.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 2 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 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 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by FENOC outside of the corrective action program, such as trend reports, performance indicators, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or corrective action program backlogs. The inspectors also reviewed FENOC's corrective action program database for the first and second quarters of 2015 to assess condition reports written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRC's daily condition report review (Section 4OA2.1). The inspectors reviewed the FENOC performance assessment report for February 1, 2015, through July 31, 2015, conducted under NOBP-LP-2023, "Performance Assessment" and the operations, training, and maintenance departments' integrated performance assessment and trending reports to verify that FENOC personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures. The inspectors also reviewed a sample of cause evaluations completed within the last year to determine if the corrective actions were appropriate and effective.

b. Findings and Observations

No findings were identified.

The inspectors determined that the performance assessment report followed the guidance in procedure NOBP-LP-2023 in that new and closed elevations and escalations for the reporting period were identified as well as elevations and escalations remaining open. Additionally, performance was rated for each of the ten functional areas including examples of improvement in areas as well as identifying areas where gaps exist. The inspectors determined that, in general, FENOC has been identifying adverse trends in the organization. The inspectors noted that FENOC continues to have challenges in plant status control and control of transient combustibles as evidenced by fleet oversight escalations in these areas that have been open since November 2014 and June 2014 respectively.

For the review of the corrective actions associated with the seven cause evaluations, the inspectors determined that, in general, the corrective actions were appropriate. The inspectors noted that in some instances the corrective actions may not have been effective at reducing the occurrence of the issue. The two examples that follow provide illustration. In CR 2014-16248, pressurizer level control left in manual, the cause was lack of operator adherence to standards for control board manipulations, specifically not properly documenting when a component was taken out of the normal system alignment. This was similar to the Unit 1 trip in April 2015 caused by lack of proper documentation of required condensate pump motor oil level. In CR 2014-09260, Unit 2 accumulator fill misposition in May 2014, the cause was not following procedures. This is similar to the trip response to the Unit 1 trip in April 2015 when the control room did not follow the emergency operating procedures rules of usage and inappropriately reverted back to a previous step to emergency borate. The inspectors noted procedure use and adherence is a continuing focus area of the operations department as documented in their integrated performance assessment and trending report.

.3 Annual Sample: Plant Equipment Status Control Performance Deficiencies

a. Inspection Scope

The inspectors performed an in-depth review of FENOC's causal analysis, trend reviews, and corrective actions associated with a group of plant equipment status control deficiencies. Specifically, over the period January 2012 to October 2014, station personnel experienced an increased number of unintentional or unexpected component manipulations which either challenged personal or environmental safety or resulted in unplanned technical specification limiting conditions of operation entries. The majority of the errors were associated with maintenance or operational activities during plant refueling outages. In each case, upon discovery immediate corrective action promptly restored appropriate component control. Station personnel entered each issue into the corrective action program individually for evaluation and corrective action.

In January 2013, FENOC Fleet Oversight issued an Elevation Letter to the Beaver Valley Operations Manager, based on a continued trend of events in 2012, which warranted increased management rigor to enforce plant equipment status control standards. In November 2014, Fleet Oversight issued an Escalation Letter to the Beaver Valley

Director of Site Operations, because station actions were not sufficient to prevent additional events. Some events resulted in unplanned technical specification limiting condition of operation entries, damage to a safety injection pump, loss of automatic pressurizer level control, and a leak of corrosion inhibitor chemicals. Station personnel performed several self-assessments and initiated condition report CR 2014-16653 to identify and resolve the underlying causes.

The inspectors screened the CR database for the period of January 2013 to June 2015 to identify component mispositioning and plant status control-related performance trends. The inspectors selected 10 CRs, including CR 2014-16653, for detailed review. The inspectors independently reviewed equipment clearance and plant status control procedures, tagging and mispositioning event station performance indicators, training lesson plans, and selected records. Additionally the inspectors interviewed station personnel to assess current practices and programs for plant equipment status control. The inspectors discussed plant equipment status control lessons-learned and associated plans for the upcoming 2015 Unit 2 refueling outage with the Operations manager, the Fleet Oversight manager, and the Plant Equipment Status Control station advocate. The inspectors assessed FENOC's problem identification threshold, documentation of the issues, causal analyses, extent-of-condition reviews, compensatory actions, and the prioritization and timeliness of corrective actions to evaluate whether FENOC was appropriately identifying, characterizing, and correcting problems associated with this issue. The inspectors also assessed whether FENOC had identified associated lessons learned and communicated the results to appropriate staff. The inspectors compared the actions taken to the requirements of FENOC's corrective action program and 10 CFR 50, Appendix B.

b. Findings and Observations

No findings were identified.

The inspectors noted that no one was injured due to these errors and no technical specification limiting condition of operation allowed outage times were exceeded. Notwithstanding, FENOC staff determined that knowledge deficiencies across all disciplines and a station culture that has less than adequate awareness of Plant Equipment Status Control program importance and requirements were the underlying causes of the continued increased number of component mispositioning events. Corrective actions to improve plant equipment status control included the following:

- Performed training needs assessments and developed appropriately focused training plans for individual station work groups
- The Operations Manager met individually with each Shift Manager to emphasize the importance of field observations, coaching, and Shift Manager ownership of crew performance related to plant equipment status control
- Effective January 9, 2015, the site established an interim "document in hand" policy for manipulation of equipment. Specifically, manipulation of any plant component now requires the governing document to be in the field
- Established a site-wide and individual department advocates to elevate awareness of plant equipment status control during daily activities

- Completed, or scheduled plant equipment status control training for licensed operators, non-licensed operators, site-wide supervisors, chemists, engineers, radiological health protection technicians, mechanics, electricians, and instrument and control technicians
- Improved Plant Equipment Status Control committee meeting attendance
- Incorporated plant equipment status control as a key focus area of the Operations Department Excellence Plan.

The inspectors determined that FENOC staff adequately evaluated the component mispositioning issues, identified reasonable primary and contributing causes, established and implemented adequate corrective actions, and effectively communicated the results to plant staff. However, the inspectors noted no written guidance or charter had been provided to the station or department plant equipment status control advocates. During staff interviews the inspectors observed two weaknesses. First, some workers were not aware that they had a department advocate. Second, the department advocates did not periodically meet or share lessons-learned. This could limit the value, timeliness, and consistency of the advocate in helping maintain department level awareness of the importance of Plant Equipment Status Control. The inspectors discussed this observation with the Operations Manager, who revised the Operations Department Excellence Plan to address the observations.

Corrective actions, implemented since November 2014, had not been in place for sufficient duration for the inspectors to fully assess their effectiveness. Notwithstanding, the inspectors review of station performance indicators, the corrective action database, and the shift operating logs indicated a reduced rate of component mispositioning events from January through June 2015. The inspectors also noted actions implemented to address component clearance and tagging deficiencies helped reduce the number of component mispositioning events in 2015. Furthermore, action to perform an effectiveness review of plant equipment status control corrective actions is scheduled for late 2015, following the Unit 2 refueling outage.

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

(Closed) Licensee Event Report (LER) 05000334/2015-001-00: Manual Reactor Trip and Automatic Auxiliary Feedwater Actuation Due to Condensate Pump Motor Failure

On April 15, 2015, FENOC manually tripped Unit 1's reactor at 85 percent power following a condensate pump trip. Prior to the trip, the unit was performing an emergent power reduction after the identification of a degrading condition on the 'A' condensate pump motor. All control rods fully inserted into the core and the auxiliary feedwater system actuated as designed. The unit was stabilized in Mode 3 with main feedwater in service and auxiliary feedwater secured.

Introduction. A Green self-revealing finding was identified for FENOC's failure to correct a low oil level in the Unit 1 'A' condensate pump lower motor bearing in accordance with NOP-LP-2001, "Corrective Action Program." Specifically, FENOC failed to execute the work order to add oil to the 'A' condensate pump motor and, instead, installed a placard on the oil level sight glass with improper oil level indications. This led to the motor bearing failure, which caused the pump to trip on overcurrent, and required the operators to insert a manual reactor trip.

Description. In November 2013, the Unit 1 'A' condensate motor was replaced due to moisture intrusion. During initial oil filling and motor operation, oil leaked around the motor shaft. After contacting the vendor, FENOC determined that the correct oil level was at the bottom of the oil sight glass. During the forced outage in January 2014, the sight glass was replaced with one that has a lower viewing window and a placard was attached with minimum and maximum oil levels. In May 2014, a notification was written to add oil to the motor because oil level in the lower motor bearing had dropped to the minimum level. The notification was incorrectly closed to an existing outage work order for the motor. A second notification was written in June 2014 to add oil to the motor which was converted into a work order and assigned a priority in accordance with NOP-WM-1003. Three additional notifications were written in July 2014 to add oil to the motor. In August 2014, CR 2014-13579 was written to identify that motor lower bearing oil level was below minimum. In September 2014, the superintendent of work planning took ownership to resolve the issue identified in the condition report and incorrectly determined that oil should not be added until the oil level reaches the bottom of the sight glass. This was based on the assumption that the original sight glass was installed. The existing work order and notifications were cancelled, and a corrective action was initiated to install a new placard on the sight glass to show a minimum oil level at the bottom of the sight glass. In February 2015, the old placard was removed and the new placard was installed.

On April 15, 2015, the control room received a high temperature alarm on the condensate pump lower motor bearing. Operators reported oil misting, smoke, and high vibrations at the motor. Operations commenced an unplanned power reduction to 85 percent power. The motor tripped on overcurrent, causing operations to insert a manual reactor trip in accordance with their loss of feedwater procedure.

The inspectors determined that the corrective actions implemented to resolve CR 2014-13579 were not in accordance with NOP-LP-2001. Section 4.2.3 of NOP-LP-2001 states that condition report/correct action owners should ensure that actions are developed to resolve the primary cause identified in the condition report. The corrective action implemented did not resolve the low oil level in the motor.

Analysis. The inspectors determined that failure to correct the low oil level condition in the 'A' condensate pump motor lower bearing in accordance with NOP-LP-2001, was a performance deficiency that was within the capability of FENOC to foresee and correct, and therefore should have been prevented. The performance deficiency was more-than-minor because it was associated with the human performance attribute of the Initiating Events cornerstone, and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, cancelling the work order to add oil to the motor bearing subsequently caused the operators to trip the plant when the condensate pump motor bearing overheated due to oil starvation and the motor tripped on overcurrent.

In accordance with IMC 0609, Attachment 4, "Initial Characterization of Findings," issued June 19, 2012, and Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, the inspectors determined that this finding was of very low safety significance (Green) because it did not cause a reactor trip and the loss of mitigation equipment.

This finding has a cross-cutting aspect in the area of Human Performance, Consistent Process, because FENOC did not seek input from the appropriate work group (engineering) prior to cancelling the work order to add oil to the condensate pump motor [H.13].

Enforcement. This finding does not involve enforcement action because no violation of a regulatory requirement was identified. FENOC entered this issue into their corrective action program as condition report 2015-05256. Because this finding did not involve a violation and was of very low safety significance (Green), it is identified as a FIN. (**FIN 05000334/2015003-01, Failure to Correct a Low Oil Level in the Condensate Pump Motor**)

4OA5 Other Activities

Institute of Nuclear Power Operations (INPO) Report Review

a. Inspection Scope

The inspectors reviewed the report for the INPO plant assessment of Beaver Valley Power Station conducted in March 2015. The inspectors also reviewed the final report for the INPO accreditation team evaluation of the operations technical training programs conducted in September 2014. The inspectors reviewed these reports to determine whether INPO identified any significant safety issues that required further NRC follow-up.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On November 6, 2015, the inspectors presented the inspection results to Mr. Eric Larson, Site Vice President, and other members of the Beaver Valley Power Station 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
T. Beaver	Maintenance Training Supervisor
A. Brunner	System Engineer
F. Etzel	Analytical Methods Consulting Engineer
C. Etzel-Hardman	Design Engineer
R. Ferrie	Electrical Maintenance Supervisor
K. Gillespie	Radiation Monitoring System Engineer
M. Gorham	125 VDC Control System Engineer
D. Gratta	Nuclear Engineering Specialist
D. Jones	IST Engineer
R. Kurkiewicz	Manager, Fleet Oversight
J. Lebda	Radiation Protection Specialist
E. Loehlein	Manager, Operations
J. Lutz	Defense-in-Depth Coordinator
C. Makowka	Maintenance Planning & Support Engineer
M. Manoleras	Director, Site Engineering
E. McFarland	Simulator Supervisor
J. Miller	Fire Marshall
S. Milosh	Beaver Valley Plant Status Control Advocate & U1 Shift Manager
K. Mitchell	System Engineer
G. Pelka	Training Supervisor
T. Ponticel	System Engineer
A. Ray	Supervisor, Maintenance Support
D. Ronnenberg	Manager, Training
S. Sawtschenko	Manager, Emergency Preparedness
B. Sepelak	Supervisor, Regulatory Compliance
R. Snowden	Nuclear Specialist
H. Szklinski	Emergency Response Specialist
E. Thomas	Licensing Supervisor
J. Tolbert	Licensed Operator Training Supervisor
H. Tremblay	Auxiliary Feedwater System Engineer
D. Wacker	Licensing Engineer
D. Wilson	Air Operated Valve Program Engineer

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000334/2015003-01	FIN	Failure to Correct a Low Oil Level in the Condensate Pump Motor (Section 4OA3)

Closed

05000334/2015-001-00	LER	Manual Reactor Trip and Automatic Auxiliary Feedwater Actuation Due to Condensate Pump Motor Failure.(Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedures
1OM-24.3.B.1, Valve List – 1FW, Revision 21
1OM-24.3.C, Power Supply and Control Switch List, Revision 13
2OM-15.3.B.1, Valve List – 2CCP, Revision 20
2OM-15.3.C, Power Supply and Control Switch List, Revision 11
2OM-16.3.B.1, Valve List – 2HVS, Revision 7
2OM-16.3.C, Power Supply and Control Switch List, Revision 6
2OM-30.3.B.1, Valve List – 2SWS, Revision 45
2OM-30.3.C, Power Supply and Control Switch List, Revision 15

Condition Reports
2015-10025 2015-10089

Drawings
RM-0424-002, Valve Oper No Diagram Feedwater System, Revision 19

Section 1R05: Fire Protection

Miscellaneous
1-PFP-SFGB-722, Safeguards Area, Fire Area PT-1, Revision 0
1-PFP-SFGB-735, East Cable Vault, Fire Area CV-2, Revision 1
1-PFP-SRVB-735, Control Room & Computer Room Fire Area CR-1, Revision 1
2-PFP-CTP, Unit 2 Cooling Tower Pump House, Revision 1
2PFP-RCBX-692, Unit 2 Reactor Containment Building, Revision 1
2PFP-SRVB-745, Cable Spreading Room, Revision 3
BVPS-1 Updated Fire Protection Appendix R Review, Revision 31
BVPS-2 Fire Protection Safe Shutdown Report, Addendum 38

Section 1R11: Licensed Operator Requalification Program

Procedures
1/2-ADM-1351, Licensed Operator Continuing Training Program, Revision 12
1/2-ADM-1362, Security Provisions for Licensed Operator Examinations, Revision 12
NOP-TR-1010, Licensed Operator Requalification Exam Development, Revision 2

Job Performance Measures
2CR-024 2CR-514 2CR-537 2PL-052 2PL-061

Comprehensive Written Exams (Previously administered)
2015U2C3E1 2015U2C3E4 2015U2C3E5

Simulator Scenarios
2DRLS-E-1.001 2DRLS-FR-S.1.004 2DRLS-E-3.014 2DRLS-FR-H.1.008

Simulator Testing
2SBT-2015-2DRLS-FR-S.1.004, Revision 2
2SBT-2015-2DRLS-E-1.001, Revision 1

Condition Reports
2014-11123 2014-12722 2014-16719 2015-04481

Miscellaneous
1DRLS-E-1.007, Licensed Operator Training Simulator Scenario, Revision 3
1DRLS-FR-H.1.010, Licensed Operator Training Simulator Scenario, Revision 0
2015 LOR Annual Operating Exam Sample Plan

Section 1R12: Maintenance Effectiveness

Condition Reports
2012-10747 2013-04461 2013-08600 2013-16707 2014-07088 2014-07968
2014-09544 2014-10103 2014-10680 2014-10694 2014-11397 2015-00599
2015-01928 2015-02673 2015-06365

Miscellaneous
Maintenance Rule System Basis Document, Unit 1 System 20, Fuel Pool Cooling and Purification System Revision 5
Maintenance Rule System Basis Document, Unit 1 System 39, 125 VDC Control System, Revision 3
Maintenance Rule System Basis Document, Unit 2 System 10, Residual Heat Removal, Revision 4
Maintenance Rule System Basis Document, Unit 2 System 43, Radiation Monitoring, Revision 3
Unit 1 125 VDC Distribution System Health Report, 2014-2
Unit 1 Spent Fuel Pool Cool and Purification System Health Report, 2014-2
Unit 1 System 39 Maintenance Rule Monthly Monitoring Report
Unit 1 System 39 System Monitoring Plan
Unit 2 Residual Heat Removal System Health Report, 2014-2

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
1/2-ADM-0822, Beaver Valley Substation Access Vehicle Administration and Work Controls, Revision 3
1OST-13.1, Quench Spray Pump [1QS-P-1A] Test, Revision 40
1OST-33.10H, 1B Service Station Transformer and ERFS Transformer 3B Deluge Test, Revision 8

Condition Reports
2015-09144 2015-10136 2015-11051

Work Orders
200523444 200649271

Miscellaneous
2R18 Pre-Outage Defense-in-Depth Report, Revision 1
Beaver Valley Unit 1 Weekly Maintenance Risk Summary for the Week of July 27, 2015, Revision 0
Beaver Valley Unit 1 Weekly Maintenance Risk Summary for the Week of August 10, 2015, Revision 0

Section 1R15: Operability Determinations and Functionality Assessments

Procedures
1OM-24.1.D, Steam Generator Feed System, Revision 6
1OM-53C.4.1.34.1, Loss of Station Instrument Air, Revision 19
2OST-11.16, Leakage Testing RCS Pressure Isolation Valves, Revision 24
NOBP-OP-0012, Operator Work-Arounds, Control Room Deficiencies and Operations Aggregate Assessment, Revision 04

Condition Reports
2008-42087 2015-08609 2015-09681 2015-11066 2015-11473 2015-12901

Miscellaneous
8700-DMC-1293, Determination of the Valve Total Required Thrust, Actuator Capability and Margin Assessment for AOV's TV-1CC-103A1, B1, C1, Revision 4
Unit 1 and 2 control room deficiencies database

Section 1R19: Post-Maintenance Testing

Procedures
1/2CMP-75-Freeze Seal-1M, Freeze Sealing of Piping, Revision 19
1MSP-6.39-I, T-RC422 Delta T Tavg Protection Instrument Channel II Calibration, Revision 33
2-CMP-I-21-001, Kerry Fail-Closed Actuator Overhaul, Revision 1
2OST-15.1, Primary Component Cooling Water Pump [2CCP*P21A] Test, Revision 54
2OST-47.3M, Containment Penetration and ASME Valve Test – Work Week 8, Revision 33

Condition Reports
2015-10398

Maintenance Orders/Work Orders
200520701 200573876 200591498 200609837 200623111 200625314 200629181

Miscellaneous
ECP 13-0624-004, FLEX Mod – Add a 3x2" Sockolet connection and piping to hose connections between 2CHS-TK21B and suction of 2CHS-P22B, Revision 5

Section 1R22: Surveillance Testing

Condition Reports
2015-12218

Section 1EP2: Alert and Notification System Evaluation

Procedures
1/2-ADM-1107, Alert and Notification System (Sirens) Maintenance and Testing, Revision 13

Miscellaneous
2014 Siren Maintenance Schedule
ANS Test Results Documentation Quarters 1, 2, and 3, 2015
Supplement to the Beaver Valley Station Emergency Warning Notification System Design Report, FEMA Approval letter dated May 22, 2003
Supplement to the Beaver Valley Station Emergency Warning Notification System Design Report, FEMA Approval letter dated August 31, 2006
Supplement to the Beaver Valley Station Emergency Warning Notification System Design Report, FEMA Approval letter dated June 13, 2011

Section 1EP3: Emergency Response Organization Staffing and Augmentation System

Procedures
1/2-ADM-1101, Emergency Response Organization Administration, Revision 19
1/2-EPP-IP-1.1, Notifications, Revision 51
1/2-EPP-IP-1.7, Emergency Response Organization (ERO) Teams, Revision 24

Miscellaneous
2015 Weekly Emergency Beeper Notification System Test Reports
BVPS Emergency Preparedness Plan, Section 5, Emergency Organization, Revision 29
BVPS Emergency Preparedness Plan, Section 6, Emergency Measures, Revision 31
BVPS Emergency Preparedness Plan, Section 7, Emergency Facilities and Equipment, Revision 28
BVPS Emergency Preparedness Plan, Section 8, Maintaining Preparedness, Revision 23
BVPS ERO Call List, dated June 29, 2015
SN-SA-2013-0218, 2013 Unannounced ERO Drive-In Drill Self-Assessment

Section 1EP5: Maintenance of Emergency Preparedness

Audits & Self Assessments
MS-C-13-11-24, Fleet Oversight Audit Report, Emergency Preparedness
MS-C-14-11-24, Fleet Oversight Audit Report, Emergency Preparedness
PA-BV-13-03-3T13, Emergency Preparedness, QA Assessment
PA-BV-14-01-3T13, Emergency Preparedness, QA Assessment
PA-BV-14-02-3T13, Emergency Preparedness, QA Assessment
PA-BV-14-03-3T13, Emergency Preparedness, QA Assessment

Condition Reports

2013-18770	2014-04178	2014-04205	2014-04213	2014-14428	2014-17061
2014-17233	2015-00717	2015-02707	2015-02814	2015-02816	2015-03076

Procedures
BVRM-EP-5003, Equipment Important to Emergency Response, Revision 11

Miscellaneous
Beaver Valley Nuclear Power Station Emergency Plan, Revision 44
BVPS March 2, 2014, Unusual Event Report, dated March 14, 2014
BVPS November 5, 2013, Unusual Event Report, dated November 26, 2013
KLD TR-495, BVPS Development of Evacuation Time Estimates, Revision 2
KLD TR-572, BVPS 2013 Population Update Analysis, Revision 0
KLD TR-661, BVPS 2014 Population Update Analysis, Revision 0

Section 1EP6: Drill Evaluation

Procedures
1/2-EPP-IP-2.6, Environmental Assessment and Dose Projection Controlling Procedure, Revision 30
1/2-EPP-IP-2.6.13, BVPS MIDAS Dose Assessment Software, Revision 3

Condition Reports
2015-09993 2015-10113 2015-10114

Section 4OA1: Performance Indicator Verification

Procedures
1/2-ADM-1111, NRC EPP Performance Indicator Instructions, Revision 11

Condition Reports
2014-08273 2014-12144 2014-12593 2014-13286 2014-18292 2015-00395
2015-01082 2015-05057 2015-07158 2015-07271 2015-07282 2015-09612
2015-10184

Miscellaneous
ANS Reliability PI data, April 2014 – March 2015
BVRM-RAS-0001, Mitigating System Performance Index Basis Document Unit 1, Revision 7
BVRM-RAS-0002, Mitigating System Performance Index Basis Document Unit 2, Revision 9
DEP PI Data, April 2014 – March 2015
ERO Drill Participation PI data, April 2014 – March 2015
Unit 1 Auxiliary Feedwater System Health Report, 2014-2
Unit 1 Containment Depressurization System Health Report, 2014-2
Unit 1 River Water System Health Report, 2014-2
Unit 1 Safety Injection System Health Report, 2014-2
Unit 2 Auxiliary Feedwater System Health Report, 2014-2
Unit 2 Containment Depressurization System Health Report, 2014-2
Unit 2 Safety Injection System Health Report, 2014-2
Unit 2 Service Water System Health Report, 2014-2

Section 4OA2: Problem Identification and Resolution

Procedures
1/2OM-48.1.D, Operations Shift Rules of Practice, Revision 7
1/2OM-48.1.K, Operations Skill-of-the-Craft Activities, Revision 3
1/2OM-48.2.C, Adherence and Familiarization to Operating Procedures, Revision 20
Fleet Oversight Performance Assessment Report, February 1, 2015 through July 31, 2015
NOBP-OP-004, Plant Status Control and Clearance Events, Revision 4

NOBP-OP-1014, Plant Status Control, Revision 4
NOP-LP-2001, Corrective Action Program, Revision 36
NOP-LP-2023, Conduct of Fleet Oversight, Revision 14
NOP-LP-2601, Procedure/Work Instruction Use and Adherence, Revision 5
NOP-OP-1001, Clearance/Tagging Program, Revision 21
NOP-OP-1002, Conduct of Operations, Revision 10
NOP-OP-1010, Operational Decision-Making, Revision 5

Condition Reports

2013-00810	2013-00987	2014-00177	2014-00490	2014-07156	2014-09256
2014-09260	2014-09736	2014-10656	2014-10891	2014-13240	2014-15589
2014-16248	2014-16569	2014-16653	2014-16944	2014-17470	2015-10700
2015-10778					

Audits / Self-Assessments:
1/2OST-48.9, Unit 1 Clearance Program Review dated July 12, 2015
1/2OST-48.9, Unit 2 Clearance Program Review dated June 16, 2015
SN-BN-2015-0014, Plant Status Control Best Practices Benchmark Snapshot Assessment
SN-S/A-2012-0265, Beaver Valley 2012 Annual Snapshot S/A on Clearance Process, Procedure, and Practices
SN-S/A-2014-0359, Beaver Valley 2013 Annual Snapshot S/A on Clearance Process, Procedure, and Practices
SN-S/A-2015-0011, Beaver Valley 2014 Annual Snapshot S/A on Clearance Process, Procedure, and Practices

Miscellaneous
Beaver Valley Unit 1 & 2 Clearance Process Key Performance Index, January 2011 to June 2015
Beaver Valley Unit 1 & 2 Component Mispositioning Key Performance Index, January 2011 to June 2015
BV-IP-SA-2015-0020, Training Section 2015 1st Quarter IPAT
BV-IP-SA-2015-0021, Operations Section 2015 1st Quarter IPAT
BV-IP-SA-2015-0023, Maintenance Section 2015 1st Quarter IPAT
FENOC Letter BVOV-13-0002, Long Term Trend in Plant Status Control Events dated January 21, 2013
FENOC Letter FLOV-ES-BV-14-09, Fleet Oversight Escalation of Beaver Valley Long Term Trend in Plant Status Control Events – CR 2014-16653 dated November 6, 2014
Plant Status Control and Clearance Review Committee Quarterly Meeting Agenda dated February 16, 2015

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion

Condition Reports
2014-13579 2015-05256

Miscellaneous
NOBP-TR-1122, Operating Crew Performance Critique, Revision 1
NOP-WM-1003, Nuclear Maintenance Notification Initiation, Screening, and Minor Deficiency Monitoring Process, Revision 7

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ANS	Alert and Notification System
BVPS	Beaver Valley Power Station
CFR	Code of Federal Regulations
CR	Condition Report
EP	Emergency Preparedness
ERF	Emergency Response Facility
ERO	Emergency Response Organization
FENOC	FirstEnergy Nuclear Operating Company
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
IST	inservice test
JPM	job performance measures
LER	licensee event report
NRC	Nuclear Regulatory Commission
SDP	Significance Determination Process
SSC	structure, system, or component
UFSAR	Updated Final Safety Analysis Report