UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

July 19, 2010

EA-08-319

Mr. Paul Harden
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 - NRC INTEGRATED INSPECTION REPORT 05000334/2010003 AND 05000412/2010003, EA-08-319

Dear Mr. Harden:

On June 30, 2010, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your Beaver Valley Power Station Units 1 and 2. The enclosed integrated inspection report documents the inspection results, which were discussed on July 7, 2010, 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.

Based on the results of this inspection, no findings were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosures, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room). We appreciate your cooperation. Please contact me at 610-337-5200 if you have any questions regarding this letter.

Sincerely,

Ronald R. Bellamy

Ronald R. Bellamy, Ph.D., Chief
Reactor Projects Branch 6
Division of Reactor Projects

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

Enclosures: Inspection Report 05000334/2010003; 05000412/2010003
w/ Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.	50-334, 50-412
License Nos.	DPR-66, NPF-73
Report Nos.	05000334/2010003 and 05000412/2010003
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Beaver Valley Power Station, Units 1 and 2
Location:	Post Office Box 4 Shippingport, PA 15077
Dates:	April 1, 2010 through June 30, 2010
Inspectors:	D. Werkheiser, Senior Resident Inspector E. Bonney, Resident Inspector S. Barber, Senior Project Engineer S. Chaudhary, Reactor Inspector C. Newport, Project Engineer D. Silk, Senior Operations Engineer
Approved by:	R. Bellamy, Ph.D., Chief Reactor Projects Branch 6 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000334/2010003, IR 05000412/2010003; 04/01/2010 – 06/30/2010; Beaver Valley Power Station, Units 1 & 2; Routine Integrated Report

The report covered a 3-month period of inspection by resident inspectors and regional reactor inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

No findings were identified.

REPORT DETAILS

Summary of Plant Status:

Unit 1 began the inspection period at 100 percent power. On April 16, the unit was down-powered to 82 percent for planned condenser waterbox cleaning and returned to full power on April 29. The unit remained at 100 percent power for the remainder of the inspection period.

Unit 2 operated at 100 percent full power nearly the entire inspection period. On May 22, the unit was reduced in power to 97 percent power for throttle and governor valve testing. The unit was returned to full power the same day.

1. REACTOR SAFETY
Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity [R]

1R01 Adverse Weather Protection (71111.01)

.1 Seasonal Susceptibility

a. Inspection Scope (2 samples – Hot Weather, Offsite and Alternate AC Power System Readiness)

The inspectors reviewed the Beaver Valley Power Station (BVPS) design features and FENOC's implementation of procedures to protect risk significant mitigating systems from adverse weather effects due to summer weather. Two systems listed below were reviewed in detail for hot weather readiness. The inspectors conducted interviews with various station personnel to gain insights into the station's hot weather readiness and reviewed the status of various work orders categorized as warm weather preparation activities. The inspectors reviewed the corrective action program database, operating experience, and the Updated Final Safety Analysis Report (UFSAR), to determine the types of adverse weather conditions to which the site is susceptible, and to verify that the licensee was appropriately identifying and resolving weather-related equipment problems.

- On May 21, Unit 1 System Station Service Transformer and Main Transformer
- On May 24, Unit 2 System Station Service Transformer and Main Transformer

The inspectors also reviewed BVPS design features and FENOC's implementation of procedures to handle issues that could impact offsite and alternating current (AC) power systems. The inspectors reviewed FENOC's procedures and programs which discussed the operation and availability/reliability of offsite and alternate AC power systems during adverse weather. The inspectors verified that communication protocols between the transmission system operator and FENOC existed, and the appropriate information would be conveyed when potential grid stress and disturbances existed. The inspectors also verified that FENOC's procedures contained actions to monitor and maintain the availability/reliability of offsite and onsite power systems prior to and during adverse weather conditions.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdowns (71111.04Q)

a. Inspection Scope (4 samples)

The inspectors performed four partial equipment alignment inspections during conditions of increased safety significance, including when redundant equipment was unavailable during maintenance or adverse conditions. The partial alignment inspections were also completed after equipment was recently returned to service after significant maintenance. The inspectors performed partial walkdowns of the following systems, including associated electrical distribution components and control room panels, to verify the equipment was aligned to perform its intended safety functions:

- On May 5, Unit 2, 'B' train Emergency Diesel Generator during 'A' train system troubleshooting;
- On May 21, Unit 1, 'A' train Component Cooling (Reactor) during 'C' pump post-maintenance testing on the 'B' train;
- On June 8 and June 9, Unit 1, River Water System; and
- On June 21, Unit 2, High Head Safety Injection during the performance of Charging Pump (2CHS-P21A) Lube Oil Temperature Controller Calibration.

b. Findings

No findings were identified.

.2 Complete System Walkdown (71111.04S)

a. Inspection Scope (1 sample)

The inspectors completed a detailed review of the alignment and condition of the Unit 2 (2-1) Emergency Diesel Generator (EDG). The inspectors conducted a walkdown of the mechanical systems to verify that the critical portions, such as fuel oil, starting air, lube oil, jacket water cooling and air intake systems, were correctly aligned in accordance with procedures, and to identify any discrepancies that may have had an effect on operability.

The inspectors also reviewed outstanding maintenance work orders to verify that the deficiencies did not significantly affect the 2-1 EDG system function. In addition, the inspectors discussed system health with the system engineer and reviewed the condition report database to verify that equipment alignment problems were being identified and appropriately resolved. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Sample Review (71111.05Q)

a. Inspection Scope (5 samples)

The inspectors reviewed the conditions of the fire areas listed below, to verify compliance with criteria delineated in Administrative Procedure 1/2-ADM-1900, "Fire Protection," Rev. 21. This review included FENOC's control of transient combustibles and ignition sources, material condition of fire protection equipment including fire detection systems, water-based fire suppression systems, gaseous fire suppression systems, manual firefighting equipment and capability, passive fire protection features, and the adequacy of compensatory measures for any fire protection impairments. Documents reviewed are listed in the Attachment:

- Unit 1, Diesel Generator 1 Room (Fire Area DG-1);
- Unit 1, Diesel Generator 2 Room (Fire Area DG-2);
- Unit 2, System Station Service Transformer A (Fire Area TR-4);
- Unit 2, System Station Service Transformer B (Fire Area TR-5); and
- Unit 1, Turbine Building (Fire Area TB-1).

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope (1 sample)

The inspectors reviewed a sample of internal flood protection measures for equipment in the Unit 2 'A'-train service water valve pits (VP-2). This review was conducted to evaluate FENOC's protection of the enclosed safety-related systems from internal flooding condition. The inspectors performed a walkdown of the area, reviewed the UFSAR, related internal flooding evaluations, and other related documents. The inspectors examined the as-found equipment and conditions to ensure that they remained consistent with those indicated in the design basis documentation, flooding mitigation documents, and risk analysis assumptions. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

.1 Annual Resident Sample Review (71111.07A)

a. Inspection Scope (1 sample)

The inspectors reviewed a thermal performance test associated with the Unit 2 'A' Component Cooling (Primary) heat exchanger [2CCP-E21A] conducted on April 7, 2010, in accordance with work order 200366392. The review included an assessment of the testing methodology and verified consistency with Electric Power Research Institute document NP-7552, "Heat Exchanger Performance Monitoring Guidelines," December 1991, and Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." The inspectors reviewed inspection results, related condition reports and leak test results against applicable acceptance criteria.

b. Findings

No findings were identified.

.2 Triennial Regional Sample Review (71111.07T)

a. Inspection Scope (2 samples)

The inspectors verified that processes and programs were adequate to ensure proper heat exchanger performance for the following heat exchangers:

- Unit 1 Component Cooling Water Heat Exchanger
- Unit 1 'A' and 'B' emergency diesel generator (EDG) heat exchangers
- Unit 2 'A', 'B', and 'C' charging pump lube oil coolers
- Unit 2 'A', 'B', and 'C' service water (SW) pump motor coolers

The methods (inspection, cleaning, maintenance, and performance monitoring) used to ensure heat removal capabilities for the selected components were reviewed and compared to commitments made to NRC Generic Letter (GL) 89-13, "Service Water System Problems Affecting Safety-Related Equipment."

The inspection, maintenance methods, and cleaning frequencies were reviewed with the system engineers and the heat exchanger performance engineer to ensure that they were consistent with expected degradation trends. The inspectors reviewed inspection and cleaning records for the last five years to verify that the results were recorded and evaluated to ensure proper heat exchanger operation. The inspectors reviewed design basis values and assumptions (i.e., plugging limits and vendor information) and verified that they were incorporated into the heat exchanger inspection and maintenance procedures. The inspectors reviewed the system engineers' trending of key parameters (temperature, differential pressure, and flow) used to assess heat exchanger performance.

The SW and river water (RW) chemical treatment program was reviewed and discussed with the system engineers to verify that potential biofouling mechanisms had been identified, treatments were conducted as scheduled, and results were monitored for effectiveness. In addition, a sample of condition reports (CRs) related to equipment and programs utilized to ensure heat sink performance was reviewed to verify that identified problems were appropriately resolved. The inspectors conducted a walkthrough inspection and visual examination of the SW and RW systems including the selected

heat exchangers in order to assess material condition and current operational lineup.

In addition to the above heat exchanger reviews, the Buried Pipe Integrity Program was reviewed for technical adequacy and effective implementation of the procedure for compliance to the approved program. Condition Reports related to Buried Pipes for the last two years were reviewed to assess performance of the system. This review indicated that the Cathodic Protection system has not been maintained and has been abandoned-in-place for past several years. The Cathodic Protection system is not credited in determining the inspection frequency of buried piping and heat exchangers.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope (1 sample)

The inspectors observed one sample of Unit 2 licensed operator simulator training on June 24. The inspectors evaluated licensed operator performance regarding command and control, implementation of normal, annunciator response, abnormal, and emergency operating procedures, communications, technical specification review and compliance, and emergency plan implementation. The inspectors evaluated the licensee training personnel to verify that deficiencies in operator performance were identified, and that conditions adverse to quality were entered into the licensee's corrective action program for resolution. The inspectors reviewed simulator physical fidelity to assure the simulator appropriately modeled the plant control room. The inspectors verified that the training evaluators adequately addressed that the applicable training objectives had been achieved.

b. Findings

No findings were identified.

.2 Biennial Review by Regional Specialist (71111.11B)

a. Inspection Scope (inspection continuing)

The following inspection activities were performed using NUREG 1021, Rev. 9, "Operator Licensing Examination Standards for Power Reactors," Inspection Procedure Attachment 7111111, "Licensed Operator Requalification Program," Appendix A "Checklist for Evaluating Facility Testing Material" and Appendix B "Suggested Interview Topics."

A review was conducted of recent operating history documentation found in inspection reports, licensee event reports, the licensee's corrective action program, and the most recent NRC plant issues matrix (PIM). The inspectors also reviewed specific events from the licensee's corrective action program which indicated possible training

deficiencies, to verify that they had been appropriately addressed. The senior resident inspector was also consulted for insights regarding licensed operator performance. These reviews did not detect any operational events that were indicative of possible training deficiencies.

The content of the operating tests for the weeks of April 26, 2010, May 10, 2010, and May 24, 2010 was reviewed for compliance with the applicable standard. Two written examinations (to be administered later in this requalification cycle) were also reviewed against the applicable standard. Both operating and written examinations were checked for acceptable levels of overlap.

Observations were made of the dynamic simulator examinations and job performance measures (JPMs) administered during the week of May 24. These observations included facility evaluations of crew and individual performance during two dynamic simulator examinations and five JPMs.

The remediation plans for one individual and one crew failure during an operating evaluation were reviewed to assess the effectiveness of the remedial training.

One SRO license reactivation was reviewed to ensure that 10 CFR 55.53 license conditions and applicable program requirements were met.

Operators, instructors and training/operations management were interviewed for feedback on their training program and the quality of training received.

Simulator performance and fidelity were reviewed for conformance to the plant control room.

One crew's medical records were reviewed for compliance with license conditions.

The results of the annual operating tests for year 2010 and the biennial written examination for 2010 were not available at the conclusion of this inspection. These results (as well as the results for Unit 2) will be available in the next calendar quarter. These results will be reviewed to determine whether pass fail rates are consistent with the guidance of NUREG-1021, Revision 9, "Operator Licensing Examination Standards for Power Reactors" and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)."

b. Findings

No findings were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope (3 samples)

The inspectors evaluated Maintenance Rule (MR) implementation for the issues listed below. The inspectors evaluated specific attributes, such as MR scoping, characterization of failed structures, systems, and components (SSCs), MR risk characterization of SSCs, SSC performance criteria and goals, and appropriateness of

corrective actions. The inspectors verified that the issues were addressed as required by 10 CFR 50.65 and the licensee's program for MR implementation. For the selected SSCs, the inspectors evaluated whether performance was properly dispositioned for MR category (a)(1) and (a)(2) performance monitoring. MR System Basis Documents were also reviewed, as appropriate. Documents reviewed are listed in the Attachment.

- CR 10-74713, U1 System 44E (Area Ventilation System), condition monitoring criteria exceeded;
- CR 10-76437, U2 System 36 (Emergency Diesel Generator), maintenance preventable functional failure and condition monitoring evaluation during simultaneous start on May 5; and
- CR 10-77126, U2 System 6 (Power Operated Relief Valve), condition monitoring criteria exceeded.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessment and Emergent Work Control (71111.13)

a. Inspection Scope (5 samples)

The inspectors reviewed the scheduling and control of five activities, and evaluated their effect on overall plant risk. This review was conducted to ensure compliance with applicable criteria contained in 10 CFR 50.65(a)(4). Documents reviewed during the inspection are listed in the Attachment.

- April 5, Unit 1, extended unplanned ventilation testing on 'A' train emergency diesel generator [EDG 1-1];
- April 23, Unit 2, risk assessment regarding emergency service water 'B' pump [2SWE-P21B] transfer during 2B system station service transformer maintenance as documented in CR 10-75905;
- April 26, Unit 2, risk associated with unplanned loss of the 'B' station air compressor;
- April 27, Unit 1, risk assessment due to unavailability of the diesel-power air compressor [1IAC-4] fan during roof ventilator [1VS-F-90] maintenance as documented in CR 10-75964; and
- May 27, Unit 1, review of weekly Maintenance Risk Summary green risk re-assessment for planned, previously assessed Yellow risk, maintenance for emergency switchgear supply fans [1VS-F-55A and 1VS-F-55B].

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (6 samples)

The inspectors evaluated the technical adequacy of the following selected immediate operability determinations (IOD), prompt operability determinations (POD), and functionality assessments (FA), to verify that determinations of operability were justified. In addition, the inspectors verified that technical specification (TS) limiting conditions for operation (LCO) requirements and UFSAR design basis requirements were properly addressed. In addition, the inspectors reviewed compensatory measures implemented to ensure the measures worked and were adequately controlled. Documents reviewed are listed in the Attachment.

- On April 5, Unit 1, 1-1 EDG crankcase pressure switch actuation and related ventilation louver gap issues documented in CR 10-74881 and 10-74998;
- On April 26, Unit 1, 10 CFR 21 notification (EN#45875) regarding EMD jacket water pump impeller orientation as documented in CR 10-76002;
- On May 5 - 7, Unit 2, 2-1 EDG slower time to voltage issue during simultaneous dual start testing (2BVT-1.36.2) as documented in CR 10-76437;
- On May 31, Unit 1, B Charging Pump outer bearing oil leak documented in CR 10-76978;
- On June 11, Unit 2, Emergency Diesel Generator 2-1 analysis of fuel pump failures documented in CR 10-78100; and
- On June 16, Unit 2, Replacement of C Incore Detector due to instrument failure during flux mapping as documented in CR 10-78095.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (6 samples)

The inspectors reviewed the following activities to determine whether the post-maintenance tests (PMT) adequately demonstrated that the safety-related function of the equipment was satisfied given the scope of the work, and that operability of the system was restored. In addition, the inspectors evaluated the applicable acceptance criteria to verify consistency with the design and licensing bases, as well as TS requirements. The inspectors witnessed the test or reviewed test data to verify results adequately demonstrated restoration of affected safety functions. The inspectors also verified that conditions adverse to quality were entered into the corrective action program for resolution. Documents reviewed during the inspection are listed in the Attachment.

- On April 6, Unit 1, 1MSP-36.68-1, following crankcase pressure switch replacement;
- On April 8, Unit 1, WO 200412175 after 1-1 Emergency Diesel Generator room intake damper adjustments;
- On May 18, Unit 1, 1CAL-6-T408D following reinstallation and wiring of the steam dump control system signal comparator;
- On May 21, Unit 1, 1OST-15.3 (WO 200371054), 1CC-P-1C pump test and check valve (1CCR-6) reverse-flow check valve test (WO 200274642) after valve replacement;

- On May 31, Unit 1, 1OST-7.5 following repair of a 'B' charging pump outboard bearing oil leak; and
- On June 10, Unit 1, 1MSP-2.04-I, following an unplanned power range nuclear instrument (N-42) power supply replacement.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (6 samples: 1 leak rate, 2 in-service testing and 3 routine)

The inspectors witnessed the performance of or reviewed test data for the six following Operation Surveillance Test (OST) and Maintenance Surveillance (MSP) packages. The reviews verified that the equipment or systems were being tested as required by TS, the UFSAR, and procedural requirements. The inspectors also verified that the licensee established proper test conditions, that no equipment pre-conditioning activities occurred, and that acceptance criteria were met.

- On April 28, 1OST-36.22A, Rev. 9, "Diesel Gen. No. 1 Simulated Undervoltage Start Signal" (IST);
- On May 5, 2BVT-1-36.2, Rev. 4, " EDG Simultaneous Start Test" (R);
- On May 3, 1RST-3.1, Rev. 8, "Incore Moveable Detector Normalization" (R);
- On May 3, 1RST-3.2, Rev. 11, "Incore Flux Mapping" (R);
- On June 9, 2OST-6.2A, Rev. 28, "Operating Surveillance Test, Computer Generated Reactor Coolant System, Water Inventory Balance" (LRT); and
- On June 14, 1OST-24.3, Rev. 41, "□ Motor Driven Auxiliary Feed Pump Test" (IST).

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope (1 sample)

The inspectors observed an emergency preparedness mini-drill and Unit 2 licensed-operator simulator evaluation on June 24. Senior licensed-operator performance regarding event classifications and notifications were specifically evaluated. The inspectors evaluated the simulator-based scenario that involved multiple, safety-related component failures and plant conditions that would have warranted emergency plan activation, emergency facility activation, and escalation to the event classification of Alert. The licensee planned to credit this evolution toward Emergency Preparedness Drill/Exercise Performance (DEP) Indicators, therefore, the inspectors reviewed the applicable event notifications and classifications to determine whether they were appropriately credited, and properly evaluated consistent with Nuclear Energy Institute (NEI) 99-02, Rev. 6, "Regulatory Assessment Performance Indicator Guideline." The inspectors reviewed licensee evaluator worksheets regarding the performance indicator

acceptability, and reviewed other crew and operator evaluations to ensure adverse conditions were appropriately entered into the Corrective Action Program. Other documents utilized in this inspection include the following:

- 1/2-ADM-1111, Rev. 4, "NRC EPP Performance Indicator Instructions;"
- 1/2-ADM-1111.F01, Rev. 3, "Emergency Preparedness Performance Indicators Classifications/Notifications/PARS;"
- EPP-I-1a/b, Rev. 14, "Recognition and Classification of Emergency Conditions;"
- 1/2-EPP-I-2, Rev. 35, "Unusual Event;"
- 1/2-EPP-I-3, Rev. 33, "Alert;"
- 1/2-EPP-I-4, Rev. 33, "Site Area Emergency;" and
- 1/2-EPP-I-5, Rev. 34, "General Emergency."

b. Findings

No findings were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope (6 samples total)

The inspectors sampled licensee submittals for Performance Indicators (PI) listed below for both Unit 1 and Unit 2 to verify accuracy of the data recorded from July 2009 through June 2010. The inspectors reviewed Licensee Event Reports, condition reports, portions of various plant operating logs and reports, and PI data developed from monthly operating reports. Methods for compiling and reporting the PIs were discussed with cognizant engineering and licensing personnel. To verify the accuracy of the PI data reported during this period, PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 6, were used for each data element.

Cornerstone: Mitigating Systems (2 samples)

- Unit 1 and Unit 2 Safety System Functional Failure [MS05];

Cornerstone: Barrier Integrity (4 samples)

- Unit 1 and Unit 2 Reactor Coolant System Activity [BI01]
- Unit 1 and Unit 2 Reactor Coolant System Leak Rate [BI02]

b. Findings

No findings were identified.

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

.1 Daily Review of Problem Identification and Resolution

a Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into FENOC's corrective action program. This review was accomplished by reviewing summary lists of each CR, attending screening meetings, and accessing FENOC's computerized CR database.

b. Findings

No findings were identified.

.2 Annual Sample: Review of The Operator Workaround (OWA) Program

a. Inspection Scope (1 sample)

The inspectors reviewed the cumulative effects of the existing operator workarounds, the list of operator burdens, existing operator aids and disabled alarms, and the list of open main control room deficiencies. This review was performed to identify any effect on emergency operating procedure operator actions, and any impact on possible initiating events and mitigating systems. The inspectors evaluated whether station personnel had identified, assessed, and reviewed OWAs as specified in Beaver Valley administrative procedure BVBP-OPS-0002, "Operator WorkArounds, Operator Burdens, and Control Room Deficiencies" Rev. 11.

The inspector reviewed BVPS's process to identify, prioritize and resolve main control room distractions to minimize operator burdens. The inspector reviewed the system used to track these operator workarounds and burdens and recent licensee self assessments of the program. The inspectors reviewed the corrective report database. The inspector toured the control room, and discussed the following items with the operators to ensure the items were being addressed on a schedule consistent with their relative safety significance:

- Burden 200286133, "B System Station Service Transformer Oil Leakage." Impact is increased monitoring requirements for operators.
- Burden 200369748, "Isolation of Hot Water Heating System Temperature Control Valve." Impact is operator monitoring and manual operation is required.
- Burden 200337316, "Pressurizer heaters trip when taking Steam Dump Mode selector to reset." Impact is additional operator actions may be required.
- Burden 600454502, "1QS-186 Torqued to 75 ft-lbs." Impact is additional monitoring is required.
- Burdens 600600513 and 600596535, "1WT-P-30A and 30B high vibrations." Impact is additional action required by operators.

b. Findings, Assessment, and Observations

No findings were identified. During the inspection, FENOC tracked only three operator burdens at each unit. The inspectors verified that quarterly aggregate impact assessments were performed as expected by the program. The licensee assessed that

the aggregate impact of the burdens were minimal and would not adversely affect the operators' ability to promptly and appropriately respond to an event. The inspectors also noted that the program had recently been turned over to a new owner within the operations department.

4OA3 Followup of Events and Notices of Enforcement Discretion (71153 - 2 samples total)

The inspectors performed two event followup inspection activities. Documents reviewed for this inspection activity are listed in the Supplemental Information attached to this report.

.1 Plant Event Review

a. Inspection Scope (1 sample)

For the plant event below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors reviewed FENOC's follow-up actions related to the events to assure that appropriate corrective actions were implemented commensurate with their safety significance. Documents reviewed during the inspection are listed in the Attachment.

- Unit 2: On April 26, during a planned maintenance outage of the 'A' station air compressor, the 'B' station air compressor failed to continue to load. The loss of the 'B' station air compressor resulted in the lowering of system header pressure. The standby diesel-powered air compressor started as designed and maintained system air pressure, preventing an adverse secondary plant response. Operators referenced the Loss of Station Air abnormal operating procedure and took appropriate actions in an attempt to restart the 'B' air compressor and expedited restoration of the 'A' air compressor. This issue was documented in CR 10-75910.

b. Findings

No findings were identified.

.2 Review of Licensee Event Reports (LERs) (1 sample)

(Closed) LER 05000412/2009-002-00. Unacceptable Indications Identified During Reactor Vessel Head Inspection.

The LER discussed the basic cause of the head indications during 2R14 (October 2009) and that the cause is a known issue in the industry No new issues were identified. The inspectors reviewed the LER and no findings of significance were identified and no violation of NRC requirements occurred. This LER is closed.

4OA5 Other

.1 EA-08-319, Followup of Traditional Enforcement Actions (92702)

a. Inspection Scope

By letter dated January 20, 2009 (05000334-412/2008008, ML090220632), the NRC issued a violation to FENOC related to the security program. The licensee documented the issue in CR 08-35373.

The inspectors reviewed the licensee's corrective actions concerning the violation in accordance with the requirements of inspection procedure 92702, Rev 1/10/08. Per the letter issued by the NRC (ML090220632), credit was given to the licensee for the immediate corrective actions. The inspectors reviewed the intial CR and interviewed security access and regulatory affairs personnel.

b. Observations and Findings

Concerning corrective actions, the inspectors determined the licensee's response and corrective actions were timely and appropriate since no further actions were needed after the initial response. The inspector did identify deficiencies in the implementation of select processes and corrective action documentation but not to the extent that appropriate actions could not be verified. Based on the document reviews, observations, and interviews, the inspectors concluded that adequate corrective actions were implemented for the documented violation.

.2 Review of Licensee Inspection of Unit 1 Containment Liner on May 7

a. Inspection Scope

On May 6, the inspectors reviewed the licensee's plan to conduct two of eight non-random ("smart") samples to ultrasonically measure the liner thickness of the Unit 1 containment liner. The two areas selected were located near the personnel airlock door. The selection was based on previously agreed criteria. The measurements were obtained by qualified personnel using an approved procedure (NDE-UT-308). Minimum wall thickness criteria and actions were established. On May 7 measurements were recorded. The lowest measured wall thickness point at the two non-random areas was 0.406 inches. Design nominal wall thickness is 0.375 inches. All points at the two areas were assessed to be satisfactory.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Triennial Heat Sink

The inspector presented the inspection results of 1R07T to Mr. Raymond Lieb, Director or Site Operations, and other members of FENOC staff, at the conclusion of the inspection on April 29. No proprietary information is presented in this report.

.2 Unit 1 LORT Biennial

The inspector presented the inspection results of 1R11B to Mr. Paul Harden, Site Vice President, and other members of FENOC staff, at the conclusion of the inspection on May 28. No proprietary information is presented in this report.

.3 Quarterly Inspection Report Exit

On July 7, the inspectors presented the normal baseline inspection results to Mr. Paul Harden, Site Vice President, and other members of the licensee staff. The inspectors confirmed that proprietary information was not retained at the conclusion of the inspection period.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

B. Boyle	System Supervisor
T. DiLeo	Reactor Engineer
N. Dipetra	Security, Fleet
A. Ellis	Security, Access
W. Etzel	PRA Engineer
P. Harden	Site Vice President
S. Keener	System Engineer
R. Kuhn	Engineer
G. Lauck	System Engineer
R. Lieb	Director, Site Operations
J. Lutz	Shift Manager
C. Mancuso	Manager, Design Engineering
J. Mauck	Senior Nuclear Specialist
J. Miller	Site Fire Marshall
J. Meyers	River Water System Engineer (System 30)
C. O'Neil	Reactor Engineer
R. Palonis	PRA Engineer
P. Pauvlinch	Superintendent, Construction Services
D. Price	Supervisor, Nuclear Engineering
M. Ressler	Supervisor, Engineering Analysis
B. Sepelak	Supervisor, Regulatory Compliance
B. Tuite	Manager, Regulatory Compliance

Other Personnel

L. Ryan	Inspector, Pennsylvania Department of Radiation Protection

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000412/2009002-00	LER Unacceptable Indications Identified During Reactor Vessel Head Inspection. (Section 4OA3)

Attachment

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
1/2OM-53C.4A.35.1, Rev. 4, "Degraded Grid"
NOP-OP-1003, Rev. 0, "Grid Reliability Protocol"
NOP-OP-1007, Rev. 5, "Risk Determination"
NOP-WM-2001, Rev. 9, "Work Management Scheduling/Assessment/Season Readiness Process

Conditions Reports
07-22346 08-36578 09-56066 10-77131 10-75915 09-60106

Section 1R04: Equipment Alignment

Procedures
2OM-36.6.B.1, Rev. 7, "Valve List-2EDG"
2OM-36.6.B.2, Rev. 15, "Valve List-2EGA"
2OM-36.6.B.3, Rev. 10, "Valve List-2EGF"
2OM-36.6.B.4, Rev. 9, "Valve List-2EGO"
2OM-36.6.B.5, Rev. 11, "Valve List-2EGS"
2OM-36.3.D.1, Rev. 1, "Diesel Generator 2-1, 2-2, Startup Checkoff List"
2OM-7.4.A, Rev. 23, "Placing A Charging Pump In Standby Or In Service"
1OM.30.3.A, Rev. 8, "System Component Arrangement"
1OM.30.3.B.1, Rev. 39, "Valve List – 1RW"
1OM.30.3.C, Rev. 17, "Power Supply and Control Switch List"

Condition Reports
09-69086 07-22944 07-29548 10-77057 10-76884 10-77180

Other
1PFP-INTS-705, Pump Cubicles Fire Area IS-1, 2, 3, 4
UFSAR, Rev. 19, Section 9.9, "River Water System"

Section 1R05: Fire Protection

Condition Reports
04-01388 04-04194 09-62993 05-06681 05-04063 06-02800
06-06389 10-07136 10-76932 10-77136 10-76408 10-75097
10-75016

Other
RTL #A9.210X, Rev.1, "Unit 1 1-1 and 1-2 Diesel Generator"
Pre-Fire Plan Diesel Generator 2 Room
Pre-Fire Plan Diesel Generator 1 Room
Unit 1 Pre Fire Plan
1/2 ADM-1900, Rev. 21, "Fire Protection Program"

10080-B-085, Rev. 1, "Fire Hazard Analysis"
Unit 1 Operating Logs, dated 5/16/2010 and 5/21/2010

Section 1R06: Flood Protection

Procedures
1/2OM-53C.4a.75.2, Rev. 24, "Acts of Nature – Flood"
2BVT1.33.7, Rev. 2, "Flood Seals Visual Inspection"

Section 1R07: Heat Sink Performance

Procedures
1/2-ADM-2106, Form 1, for 2CCP-E21A, dated 4/7/10

Drawings
RM-0430-001, 002, 003, 004, 005; Rev. 30, P&ID River Water System
RM-0430-001, 001A, 002, 003; Valve Op. No. Diagram, Service Water Supply & Distribution

Condition Reports

10-74987	09-61081	08-39153	09-58249	09-66321	09-66607
08-42898	09-53445	08-45433	09-62995	07-30178	07-31002
08-44878	09-52089	09-54434	09-56092	09-56095	09-58271
09-58830	09-58949	09-59309	09-63047	09-63672	09-65890
10-70689	08-49383	08-37550	09-56580	09-58079	09-61081
10-72374	08-35358	08-37135	08-37549	08-41418	08-44446
08-44454	08-44750	08-49290	08-37272	08-37427	08-37441
08-38016	08-38017	08-38583	08-42087	08-42156	09-64974
09-64976	08-34988	10-71652	10-72032	10-71970	10-71602
10-70176	10-69803	09-60425	09-59962	09-59781	09-59678
09-59585	09-59391	09-55502	09-54122	09-54120	09-52676
08-44311	08-34016	08-33479	07-31646	09-64171	08-43273
08-38012	08-37598	08-37289	08-38265	10-72954	08-42597
08-44774	08-49484	09-63268	09-66352		

Section 1R11: Licensed Operator Requalification Program

Procedures
ANSI/ANS-3.5-1985, "Nuclear Power Plant Simulators for Use in Operator Training and Examination"
ANSI/ANS-3.4-1983, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power"
1/2-ADM-1351, Rev. 10, "Licensed Operator Continuing Training Program"
1/2-ADM-1357, Rev. 8, "Conduct of Simulator Training"
1/2-ADM-1360, Rev. 7, "Licensed Operator Tracking"
1/2-ADM-1362, Rev. 9, "Security Provisions for Licensed Operator Examination"
BVBP-TR-0008, Rev 7, "Licensed Operator Requalification Exam Development & Administration"
NOP-TR-1001, "FENOC Conduct of Training"
SQT-3.2 "Simulator Instrumentation Accuracy Verification"

SQT-4.44 "Tref Failures"
SQT-5.1 "Manual Reactor Trip"
SQT-5.5 "Partial Loss of Reactor Coolant flow Test"

Condition Reports
CR 09-54005 CR 09-57981 CR 09-60454 CR 09-60761 CR 09-61125 CR 09-62863
CR 09-67705 CR 09-68214 CR 09-69235 CR 10-69617 CR 10-70837 CR 10-72666
CR 10-73191

Section 1R12: Maintenance Rule Implementation

Drawings
Unit 1 System 44E Air Ventilation Drawings, various.

Procedures
NOP-ER-3004-03, Rev. 0, "Maintenance (a)(1) Evaluation Form"

Other
10-74713, U1 System 44E MR (a)(1) evaluation

Condition Reports
10-72766-01 10-74713

Section 1R13: Maintenance Risk Assessment and Emergent Work Control

Procedures
2OST-30.1B, "Standby Service Water Pump Test"

Work Orders
200297596 (Ventilator 1VS-F-90 maintenance)
200336681 (Air Compressor 1IA-C-4 maintenance)

Condition Reports
10-75905 10-70175 10-69850 04-03672 02-00601

Other
BVPS Clearance 1WO7-44F-VS-004, Operator Actions Attachment
BVPS Clearance 1W03-44F-VS-002, (1VS-F-90 clearance)
BVPS Clearance 1W01-34-IA-002, (1IA-C-4 clearance)
ECP 02-0541-03 (ventilation upgrade to 1IA-C-4 cooling)
Unit 1 Weekly Maintenance Risk Summary, Rev. 0
Unit 1 Weekly Maintenance Risk Summary, Rev. 1
Unit 1 Weekly Maintenance Risk Summary, Rev. 2

Section 1R15: Operability Evaluations

Drawings
EMD Water Pump p/n 8324589 LH and RH rotation figures, 10CFR21-0100, Rev. 0 Engine Systems Inc. dated April 26, 2010

Calculations
Fire Protection Program Change Evaluation, 10-01621, Rev. 0

Procedures
1OST-7.5, Rev. 38, "Centrifugal Charging Pump Test [1CH-P-1B]"
2BVT-1.36.2, Issue 1, Rev. 4, "EDG Simultanous Start Test"
2RST-3.1, Rev. 7, "Incore Moveable Detector Normalization"

Work Orders
200415003 200416474 200539228 600608995 600609640

Condition Reports
971893 04-02889 06-6291 09-61284 09-67437 09-67435
10-75097 10-75016 10-74998 10-75449 10-75097 10-76002
10-76437 10-76566

Other
10CFR21 Event Notification 45875, dated April 27, 2010
10CFR50.59 Screen, 10-01621, Unit 1
Operator Logs, dated 4/8/2010, 5/31/2010, 6/2/2010
Problem Solving Plan, CR 10-76437
Signal Waveform profile for dual EDG start, dated 5/6/2010
Test Log, RTL#A9.760H, Rev. 0 dated 6/17/2010
TSSR 3.8.1.15

Section 1R19: Post-Maintenance Testing

Procedures
1MSP-36.68-I, PS-1EE-360A, No. 1 EDG Crankcase Pressure Switch Replacment
1OM-36.4.AFA, Rev. 2, Local Crankcase Presure Test
1OST-7.5, Rev. 38, Centrifugal Charging Pump Test [1CH-P-1B]
1OST-7.6, Rev. 38, Centrifugal Charging Pump Test [1CH-P-1C]
2BVT-1.36.2, Issue 1, Rev. 4, "EDG Simultanous Start Test"
1/2RCP-1A-PC, Issue 4 Rev. 8, Calibration of Auxilary Relays
2RCP-92B-PC, Issue 4 Rev. 2, Calibration of Emergency Diesel Generator Speed Sensing Relays

Condition Reports
10-74881 10-75097 10-75016 10-74998 10-76978 10-76437
10-75449 10-77180

Other
ECP 06-0042-000, Replace the Unit 2 Emergeceny Diesel Generator Tachometer Signal Generator
Operator Logs, dated 5/19/2010

Section 1R22: Surveillance Testing

Procedures
1RST-3.1, Rev. 8, "Incore Moveable Normalization"
1RST-3.2, Rev. 11, "Incore Moveable Flux Mopping"
1OST-24.3, Rev. 41, "Motor Driven Auxiliary Feed Pump Test"
2OST-6.2A, Rev. 28, "Operating Surveillance Test, Computer Generated Reactor Coolant System, Water Inventory Balance"

Condition Reports
04-02007 04-02008 05-05866 06-02255 06-09991 04-32053
08-50757 09-54742

Other
Beaver Valley Units 1 and 2 Technical Specifications
Unit Operating Logs, dated 4/28/2010, 5/3/2010
Beacon data file, dated 5/3/2010
Work Order 200369289

Section 4OA3: Event Response

Condition Reports
10-75910 10-78838 10-78918

Work Orders
200338153 200414210

Procedures
BV2 AOP-2.34.1, Loss of Station Air
BV1 & BV2 EALs

Section 4OA5: Other

Condition Reports
08-35373 10-76038 10-76110 10-76108*

Other
BV1 Containment Liner non-random exam plan, dated 5/6/2010
BV1 Containment Liner thickness result scenerios, dated May 2010
BV1 Containment Liner non-random exam results, dated 5/7/2010

LIST OF ACRONYMS

ADM	Administrative Procedure
BCO	Basis for Continued Operations
BVPS	Beaver Valley Power Station
CFR	Code of Federal Regulations
CR	Condition Report(s)
EDG	Emergency Diesel Generator
FA	Functionality Assessments
FENOC	First Energy Nuclear Operating Company
GL	Generic Letter
IMC	Inspection Manual Chapter
IOD	Immediate Operability Determination
IP	Inspection Procedure
ISI	Inservice Inspection
LCO	Limiting Conditions for Operations
LER	Licensee Event Report
MSP	Maintenance Surveillance Package
NRC	Nuclear Regulatory Commission
OD	Operability Determinations
OST	Operations Surveillance Test
PI	Performance Indicator
PI&R	Problem Identification and Resolution
POD	Prompt Operability Determination
PMT	Post Maintenance Testing
RW	River Water
SW	Service Water
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report