



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

November 12, 2008

Mr. Peter P. Sena, III  
Site Vice President  
FirstEnergy Nuclear Operating Company  
Beaver Valley Power Station  
Mail Stop A-BV-SEB1  
P. O. Box 4, Route 168  
Shippingport, PA 15077

**SUBJECT: BEAVER VALLEY POWER STATION - NRC INTEGRATED INSPECTION  
REPORT 05000334/2008004 AND 05000412/2008004**

Dear Mr. Sena:

On September 30, 2008, 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 findings, which were discussed on October 30, 2008, 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, this report documents one (1) self-revealing finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. Additionally, a licensee-identified violation, which was determined to be of very low safety significance, is listed in the report. However, because of the very low safety significance and because the issues have been entered into the corrective action program, the NRC is treating the findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the findings in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Beaver Valley.

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,

**/RA/**

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 05000334/2008004; 05000412/2008004  
w/Attachment: Supplemental Information

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We appreciate your cooperation. Please contact me at 610-337-5200 if you have any questions regarding this letter.

Sincerely,  
**/RA/**  
Ronald R. Bellamy, Ph.D., Chief  
Reactor Projects Branch 6  
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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. 05000334/2008004 and 05000412/2008004

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Beaver Valley Power Station, Units 1 and 2

Location: Post Office Box 4  
Shippingport, PA 15077

Dates: July 1, 2008 through September 30, 2008

Inspectors: D. Werkheiser, Senior Resident Inspector  
D. Spindler, Resident Inspector  
J. Brand, Resident Inspector  
T. Fish, Sr. Operations Engineer  
T. Moslak, Health Physicist  
S. Stewart, Senior Resident Inspector  
K. Young, Senior Reactor Inspector

Approved by: R. Bellamy, Ph.D., Chief  
Reactor Projects Branch 6  
Division of Reactor Projects

Enclosure

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## SUMMARY OF FINDINGS

IR 05000334/2008004, IR 05000412/2008004; 07/01/2008 - 09/30/2008; Beaver Valley Power Station, Units 1 & 2; Problem Identification and Resolution

The report covered a 3-month period of inspection by resident inspectors, regional reactor inspectors, and a regional health physics inspector. One (GREEN) finding was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. 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.

### A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

Green. A self-revealing NCV of TS 5.4.1.(a), "Procedures", was identified in that FENOC failed to properly implement procedures and required actions in planning, tagging, and electrical system operation. A series of procedural use errors in control of maintenance, equipment control and electrical system operation resulted in the inadvertent loss of the 1G 4160VAC (4kV) electrical bus. The licensee remediated the operating crew and communicated station expectations regarding organizational interfaces and procedural compliance. This was also communicated to all station crews, maintenance, and construction services departments.

This finding is more than minor because it is similar to Inspection Manual Chapter (IMC) 0612, Appendix E, example '3b', since the procedural use errors resulted in the loss of the 1G Bus. Traditional enforcement does not apply because the issue did not have an actual safety consequence or the potential for impacting NRC's regulatory function, and was not the result of any willful violation of NRC requirements. In accordance with IMC 609, Attachment 609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low risk significance.

The cause of this finding is related to the cross-cutting area of human performance, in that FENOC's failed to follow station procedures resulting in a loss of the 1G bus [H.4.(b)]. (Section 4OA2.1)

### B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective actions are listed in Section 4OA7 of this report.

Enclosure

## REPORT DETAILS

### Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. The unit remained nearly at 100 percent power for the duration of the inspection period.

Unit 2 began the inspection period at 100 percent power. On September 19, the unit was down-powered to 25 percent for planned replacement of "A" and "C" Main Feedwater Regulating Valve positioners and investigation of a main condenser tube leak and returned to full power on September 22. The unit remained at 100 percent power for the remainder of the inspection period.

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity [R]

#### 1R04 Equipment Alignment (71111.04)

##### .1 Partial System Walkdowns (71111.04Q)

###### a. Inspection Scope (3 samples)

The inspectors performed 3 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 July 16, Unit 2 Emergency Diesel Generator 2-1 and the blackout cross-tie 4kV breakers [ACB-2A2] and [ACB-2D12] in accordance with 2OST-36.7, "Offsite Power Distribution," Rev. 11;
- On July 29, Unit 1 'B' River Water (RW) system train while the 'A' RW train was out of service for planned maintenance; and
- On July 30, Unit 2 No. 2 Emergency Diesel Generator (2-2 EDG) during planned outage of the 2-1 EDG.

###### b. Findings

No findings of significance 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 1 'B' train Quench Spray System during a planned test (1OST-13.10A, 'A' train Chemical Injection System Valve and Pump Operability Check System) affecting the 'A' train on September 19. The inspectors conducted a walkdown of the system to verify that the

critical portions, such as valve positions, switches, and breakers, 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 quench spray 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 of significance were identified.

1R05 Fire Protection (71111.05)

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. 17. 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, Normal Switchgear (Fire Area NS-1);
- Unit 1 & 2, Alternate Intake Structure (Fire Area AIS-1);
- Unit 2, Computer Room (Fire Area CB-4);
- Unit 1, Control Room HVAC Equipment Room (Fire Area CR-2); and
- Unit 2, Condensate Polishing Building (Fire Area CP-1).

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope (1 sample)

The inspectors reviewed one sample of flood protection measures for equipment in the Unit 2 North Safeguards Building and its associated Pipe Tunnel Area on September 19. This review was conducted to evaluate FENOC's protection of the enclosed safety-related systems from an internal flooding condition. The inspectors performed a walkdown of the area, reviewed the Updated Final Safety Analysis Report (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 of significance were identified.

1R07 Heat Sink Performance (71111.07)

Annual Sample Review (7111.07A)

a. Inspection Scope (1 sample)

The inspectors reviewed a thermal performance test associated with the Unit 1 'B' Emergency Diesel Generator Jacket Water Heat Exchanger [1EE-E1B] conducted on September 24, 2008, in accordance with 1/2 ADM-2106, "Heat Exchanger Inspection," Rev. 2. 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 component leak test results against applicable acceptance criteria.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope (1 sample)

The inspectors observed Unit 2 licensed operator high-intensity training in the simulator on July 30. 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. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Biennial Review by Regional Specialist (71111.11B)

a. Inspection Scope (1 sample)

The following inspection activities were performed using NUREG 1021, Rev. 9, Supplement 1, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11B, "Licensed Operator Requalification Program".

The inspector reviewed documentation of operating history since the last requalification program inspection. The inspector also discussed facility operating events with the resident staff. Documents reviewed included NRC inspection reports, and licensee condition reports (CRs) that involved human performance issues for licensed operators to ensure that operational events were not indicative of possible training deficiencies.

The inspector reviewed four comprehensive written exams, and the scenarios and job performance measures administered during the week of August 4, 2008 to ensure the quality of these exams met or exceeded the criteria established in the Examination Standards and 10 CFR 55.59. The inspector observed the administration of the operating exams to two crews.

Conformance with Simulator Requirements Specified in 10 CFR 55.46

The inspector observed simulator performance during the conduct of the examinations, and reviewed simulator discrepancy reports to verify facility staff were complying with the requirements of 10 CFR 55.46. The inspector reviewed a sample of simulator tests including transients, steady state, component malfunctions, and core performance tests.

Conformance with operator license conditions was verified by reviewing the following records:

- Seven medical records (five for Unit 1, two for Unit 2). All records were complete, restrictions noted by the doctor were reflected on the individual's license, and physical exams were given within 24 months.
- One license reactivation record. The record indicated the operator conformed to the reactivation requirements of 10 CFR 55.53.

On September 3, 2008, the inspector conducted an in-office review of operator requalification exam results. These results included the annual operating tests and the comprehensive written exams administered in July and August 2008. The inspection assessed whether pass rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Human Performance Significance Determination Process (SDP)." The inspector verified that:

- Crew failure rate on the dynamic simulator was less than 20%. (Failure rate was 0.0%)
- Individual failure rate on the dynamic simulator test was less than or equal to 20%. (Failure rate was 4.7%)
- Individual failure rate on the walkthrough test (Job Performance Measures) was less than or equal to 20%. (Failure rate was 0.0%)
- Individual failure rate on the comprehensive written exam was less than or equal to 20%. (Failure rate was 2.3%)

More than 75% of the individuals passed all portions of the exam (93% of the individuals passed all portions of the exam).

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

Routine Maintenance Effectiveness Inspection (71111.12Q)

a. Inspection Scope (2 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.

- On September 11, the restoration of the Unit 2 Emergency Diesel Generators to Maintenance Rule A2 status was evaluated; and
- On September 12, a review of the failure-to-start of the Unit 1 Standby Diesel-Driven Air Compressor on January 28, 2008 and the associated maintenance rule evaluation documented in CR 08-34465.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope (4 samples)

The inspectors reviewed the scheduling and control of four 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). The inspectors reviewed the planned or emergent work for the following activities:

- On July 16, surveillance testing failure of the Unit 2 Emergency Diesel Generator (2-2 EDG) and impact on planned maintenance and Unit 2 plant risk;
- During the week of July 28, Unit 1 and 2 work-week risk which included motor overhaul and pump work on Unit 1 'A' RW train and Unit 2-1 EDG modification to install air start system piping vent valves per engineering change ECP 06-0176-01;

- On August 20, Unit 1 risk assessment during EDG testing with the 1B station battery charger out of service; and
- On August 24, Unit 2 risk assessment with 'B' Auxiliary Feedwater Pump, 2MSP-24.29 "2FWS-F486 Loop 2 Feedwater Flow Channel IV Control," and failure of 2-5 battery charger and associated temporary alteration installation.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (4 samples)

The inspectors evaluated the technical adequacy of selected immediate operability determinations (IOD), prompt operability determinations (POD), or functionality assessments (FA), to verify that determinations of operability were justified, as appropriate. In addition, the inspectors verified that Technical Specifications (TS) limiting conditions for operation (LCO) requirements and UFSAR design basis requirements were properly addressed. Additional documents reviewed are listed in the Attachment. This inspection activity represents four samples:

- On July 31, issues regarding Unit 2 EDG starting air compressor broken belt and the licensee's IOD of the supported 2-2 EDG as documented in CR 08-44045;
- On August 6, issues regarding Unit 1 condensate leakage near Turbine Driven Auxiliary Feed Pump turbine trip valves and its operability, as documented in CR 08-44374;
- On August 21, Units 1 and 2 issues regarding Turbine Driven Auxiliary Feedwater Pump operability during postulated tornados and possible ventilation failure. Licensee assessment of industry operating experience (OE) from Surry Station documented in CR 08-43941; and
- On September 9, inspectors evaluated the licensee's POD and corrective actions regarding surveillance verification log readings and acceptance criteria for Primary Plant Demineralized Water Storage Tank Level Indicators and associated instrument uncertainties documented in CR 08-43973.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

Temporary Plant Modifications

a. Inspection Scope (1 temporary plant modification sample)

The inspectors reviewed the following temporary modifications (TMOD) based on risk significance. The TMOD and associated 10 CFR 50.59 screening were reviewed against the system design basis documentation, including the UFSAR and the TS. The inspectors verified the TMODs were implemented in accordance with Administrative

(ADM) Procedure, 1/2-ADM-2028, "Temporary Modifications," Rev. 9. Documents reviewed are listed in the Attachment.

- ECP 08-0264, Temporary Modification to repair 2QSS-42, Quench Spray Chemical Addition Pump Section Isolation Valve. This three-piece ball valve was encapsulated and leak sealed to temporarily repair a body to end-piece leak as documented in CR 08-39799.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (5 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 specified, and that operability of the system was restored. In addition, the inspectors evaluated the applicable acceptance criteria to verify consistency with the associated design and licensing bases, as well as TS requirements. The inspectors also verified that conditions adverse to quality were entered into the corrective action program for resolution. The following five maintenance activities and associated PMTs were evaluated:

- On July 3, 1OST-24.4, Rev. 37, "Steam Turbine Driven Auxiliary Feed Pump Test" following lubrication, tightening, and inspection of governor linkage and fastener inspection of Unit 1 Turbine Driven Auxiliary Feedwater Pump and turbine;
- On July 17, 2OST-36.2, Rev. 54 "Emergency Diesel generator [2EGS\*EG2-2] Monthly Test" following repair of oil leak, WO 200329739, CR 08-43312;
- On July 29, 1OST-30.2, Rev. 39, "Reactor Plant River Water Pump 1A Test," after planned maintenance activities;
- On July 30, 2OST-36.1, Rev. 54, "Emergency Diesel Generator [2EGS\*EG2-1] Monthly Test," after planned maintenance activities and installation of air start system piping vent valves per engineering change ECP 06-0176-01; and
- On August 12, 2OST-13.2, Rev. 27, "Quench Spray Pump [2QSS-P21B] Test" following planned maintenance activities.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (5 samples: 2 in-service testing and 3 routine.)

The inspectors observed pre-job test briefings, observed selected test evolutions, and reviewed the following completed Operation Surveillance Test (OST) and Maintenance Surveillance packages (MSP). The reviews verified that the equipment or systems were being tested as required by TS, the UFSAR, and procedural requirements. Documents reviewed are listed in the Attachment. The following five activities were reviewed:

- On July 3, 1OST-24.4, Rev. 37, "Steam Turbine Driven Auxiliary Feed Pump Test [1FW-P-2]," IST;
- On August 12, 2OST-13.2, Rev. 27, "Unit 2 Quench Spray Pump [2QSS-P21B] Test;"
- On August 19, 2OST-24.4, Rev.63, "Steam Driven Auxiliary Feed Pump [2FWE\*P22] Quarterly Test," IST;
- On August 29, 2MSP-24.09-I, Rev. 10, "2FWS-L496 Loop 3 Narrow Range Steam Generator Water Level Channel III Test;" and
- On September 23, 2OST-36.1, Rev. 55, "Emergency Diesel Generator [2EGS\*EG2-1] Monthly Test."

b. Findings

No findings of significance were identified.

## 2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety [OS]

### 2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

a. Inspection Scope (9 samples)

During the period August 25 - 28, 2008, the inspector conducted the following activities to evaluate the operability and accuracy of radiation monitoring instrumentation and the adequacy of the respiratory protection program for issuing self-contained breathing apparatus (SCBA) to emergency response personnel. Implementation of these programs was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and the licensee's procedures.

- The inspector reviewed the operating procedures, calibration reports, and current source activities/dose rate characterizations for the in-service Shepard Model 89-400 calibrator (No. 9109) and the iDC-HF Electronic Dosimeter Calibrator. The inspector reviewed the calibration records for the RadCal Electrometers 2025AC and 2025c and associated ion chambers used in calibrating the Shepard calibrator.
- The inspector reviewed the calibration records for selected survey meters, electronic dosimeters, and contamination monitors including small article monitors (SAM-11), portal contamination monitors (PCM-2 & SPM-906), portable instruments (E-520, RO-2 & RO-20), electronic dosimeters(DMC-2000), and whole body counting systems (FastScan and AccuScan II).
- The inspector observed technicians performing a calibration of portable ion chambers, electronic dosimeters, and a Personnel Contamination Monitor (PCM-2). The inspector confirmed that procedural requirements were met. The inspector also observed a technician perform daily functional checks on the Shepard 89-400 calibrator, located in the main instrument shop.
- The inspector reviewed details of the neutron energy study conducted at the site and the current calibration data for neutron dosimetry that is integrated in the personnel thermoluminescent dosimeter (TLD).

- The inspector reviewed contamination sampling results to characterize hard-to-measure radioisotopes, to determine if the calibration sources were representative of the radioisotopes found in the plant source term. Whole body counting system records and procedures were reviewed to determine if this data was addressed to ensure that hard-to-measure radioisotopes were given proper dosimetric consideration.
- The inspector evaluated the adequacy of the respiratory protection program regarding the maintenance and issuance of self-contained breathing apparatus (SCBA) to emergency response personnel. Training and qualification records were reviewed for control room operators from the operating shifts at each unit and for selected radiation protection technicians who would wear SCBAs in the event of an emergency. The inspector, with the assistance of a respiratory protection technician, functionally tested and inspected six (6) SCBAs, staged for use in the fire brigade room and the controlled area hallway. The inspector verified that the appropriate number of SCBAs were staged, and had been inspected. Maintenance and test records were reviewed for selected SCBAs. The sample results for breathing air, used to refill the SCBA tanks, were reviewed to confirm that air quality met CGA-G-7.1-1997 Grade D standards.
- The inspector reviewed selected Condition Reports (CR), Nuclear Quality Assessment Quarterly reports, audit, and field observation reports to evaluate the licensee's threshold for identifying, evaluating, and resolving problems in implementing the radiation monitoring instrumentation and respiratory protection programs. Included in this review were CR's related to radiation worker and radiation protection technician errors to determine if an observable pattern, traceable to a common cause, was evident.

This review was conducted against the criteria contained in 10 CFR 20, TSs, and the licensee's procedures

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES [OA]**

4OA1 Performance Indicator Verification (71151) (8 samples total)

a. Inspection Scope

The inspectors sampled licensee submittals for Performance Indicators (PI) listed below for both Unit 1 and Unit 2. The inspectors reviewed portions of various logs and reports specified and PI data developed from monthly operating reports, and discussed methods for compiling and reporting the PIs 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 5, were used for each data element. Documents reviewed during this inspection are listed in the Attachment.

.1 Cornerstone: Mitigating Systems (6 samples)Mitigating Systems Performance Index (MSPI) (Units 1 & 2)

The inspectors reviewed portions of the operations logs and raw PI data developed from monthly operating reports, and train / system unavailability data from the 4<sup>th</sup> quarter 2007 through the 3<sup>rd</sup> quarter 2008. Inspectors also reviewed the Consolidated Data Entry MSPI Derivation Reports for availability/reliability and MSPI component risk coefficients for the systems listed below:

- Auxiliary feedwater systems [MS08, 2 samples] -  
Turbine-driven and Motor-driven Auxiliary Feedwater (Units 1 & 2)
- Residual heat removal systems [MS09, 2 samples] -  
Low Head Safety Injection & Recirculation Spray (Units 1 & 2)
- Support cooling water systems [MS10, 2 samples] -  
River Water (Unit 1) & Service Water (Unit 2)

.2 Cornerstone: Occupational Exposure Radiation Safety (1 sample)Occupational Exposure Control Effectiveness [OR01] (Site)

The inspector reviewed implementation of the licensee's Occupational Exposure Control Effectiveness Performance Indicator (PI) Program. Specifically, the inspector reviewed condition reports, and associated documents, for occurrences involving locked high radiation areas, very high radiation areas, and unplanned exposures. This review covered the period from August 2007 through July 2008. This inspection activity represents the completion of one sample relative to this inspection area, completing the annual inspection requirement.

.3 Cornerstone: Public Radiation Safety (1 sample)Radiological Environmental Technical Specifications (RETS)/ Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences [PR01] (Site)

The inspector reviewed relevant effluent release reports for the period August 2007 through July 2008, for issues related to the public radiation safety performance indicator, which measures radiological effluent release occurrences that exceed 1.5 mrem/qtr whole body or 5.0 mrem/qtr organ dose for liquid effluents; 5 mrad/qtr gamma air dose, 10 mrad/qtr beta air dose, and 7.5 mrad/qtr for organ dose for gaseous effluents. This inspection activity represents the completion of one sample relative to this inspection area, completing the annual inspection requirement.

The inspector reviewed the following documents to ensure the licensee met all requirements of the performance indicator:

- Monthly projected dose assessment results due to radioactive liquid and gaseous effluent releases;
- Quarterly projected dose assessment results due to radioactive liquid and gaseous effluent releases; and
- Dose assessment procedures.

b. Findings

No findings of significance were identified.



#### 4OA2 Problem Identification and Resolution (71152) (4 samples 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

Introduction. A self-revealing NCV of TS 5.4.1.(a), "Procedures", was identified in that FENOC failed to properly implement procedures and required actions in planning, tagging, and electrical system operation. A series of procedural use errors in control of maintenance, equipment control and electrical system operation resulted in the inadvertent loss of the 1G 4160VAC (4kV) electrical bus.

Description. On Jun 12, 2008, during the restoration of the Emergency Response Facility (ERF) transformer 3B, operators did not verify the normal supply breaker was closed in accordance with procedure 1/2OM-58E.4.C, Revision 10, "ERFS Transformer 3B Startup," before the alternate supply breaker was opened. This caused the 1G 4kV bus to lose power, resulting in a partial loss of power to the ERF, Unit 2 station air system, and Unit 1 radiation monitors.

On June 12, 2008, the '3B' ERF transformer was removed from service for planned maintenance. To de-energize this transformer, the offsite power to the 1C and 1D 4kV buses were powered from the Unit Station Service Transformer (USST) 1B and the 1G 4kV bus was cross-tied to the No.1 138kV bus through the 1H 4kV bus. Unit 1 entered a planned 72 hour TS 3.8.1, as required. After the transformer maintenance was completed, the transformer was returned to the operations department for restoration. During the turnover of the work package from maintenance to operations, the Unit Supervisor (US) was informed that Duquesne Light Company (DLC) required additional testing of the 3B ERF transformer not detailed in the work package. The testing required the 3B ERF transformer to be energized through the normal supply breaker. The US contacted personnel after normal working hours to obtain sufficient details to prepare the transformer for the DLC testing.

NM-WM-1001, Revision 10, "Order Planning Process," requires detailed work scope be provided. This is to be translated into Protective Tagging Clearances and Operational Impact, including associated risk. The Unit Supervisor did not have sufficient detail or the required planning as required by this procedure because the DLC testing was not covered by the work order or addressed through protective tagging.

Based on discussions and scope of work, the US decided to partially release the protective tagging clearance to allow DLC to perform the required transformer testing. NOP-OP-1001, Revision 9, "Clearance/Tagging Program" does not have a provision to perform a partial release of protective tags. The acceptable methods allowed by

procedure are Temporary Lifts or Clearance Revisions to accomplish a partial protective tagging release.

The US briefed the operators that the transformer would be restored using procedure 1/2OM-58E.4.C, Revision 10, "ERFS Transformer 3B Startup" after DLC testing was complete and all clearances removed. There was no briefing on the use of the correct procedure to return the 1G bus to the appropriate lineup, 1/2OM-58E.4.F, Revision 5, "Manual Hot Bus Transfer of ERFS 4KV Busses."

The plant operators proceeded to restore the transformer as directed. When the operators reached the step in 1/2OM-58E.4.C to close the 138KV Bus 2 supply to the 3B transformer, the operators recalled that this breaker was closed during DLC testing and concluded without verification that the breaker was still closed. The supply breaker to the 3B was actually open and had been reopened at the completion of the DLC testing. Operators proceeded with the tagout restoration and when the cross tie breaker from the 1H bus was opened, the 1G bus inadvertently de-energized.

The cascading procedure errors that occurred that led to the loss of the 1G bus were incomplete details in the work package as required by NM-WM-1001, the partial release of the protective tagout to perform the testing was not allowed by NOP-OP-1001, and failure to follow the transformer restoration required by 1/2OM-58E.4.C by ensuring closed the normal supply breaker to transformer 3B.

Corrective actions included a Section Human Performance Success Clock reset, Operations Management to conduct discussions with operators on the event and reinforce expectations, Construction Services and Operations Work Management planners to review the event and applicable procedures with emphasis on organizational interface and individual responsibilities, and to incorporate switch yard maintenance activities in Readiness Review meetings.

Analysis, This finding is more than minor because it is similar to Inspection Manual Chapter (IMC) 0612, Appendix E, example 3b, since the procedural use errors resulted in the loss of the 1G 4kV bus. Traditional enforcement does not apply because the issue did not have an actual safety consequence or the potential for impacting NRC's regulatory function, and was not the result of any willful violation of NRC requirements.

In accordance with IMC 0609, Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low risk significance (Green). The finding was determined to be of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not represent a loss of system safety function or loss of a single train for greater than its allowed technical specification time, and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. Because this finding is of very low safety significance and has been entered into FENOC's corrective action program, the violation is being treated as a non-cited violation (NCV).

The cause of this finding is related to the cross-cutting area of human performance, in that FENOC failed to follow station procedures resulting in a loss of the 1G 4kV bus [H.4.(b)].

Enforcement. Technical Specification 5.4.1.(a), "Procedures", requires that written procedures be implemented as recommended in Appendix 'A' of Regulatory Guide 1.33, including Control of Maintenance, Equipment Control and Operation of the Electrical System. Contrary to this requirement, on June 12, 2008, FENOC failed to properly implement procedures and required actions in planning, tagging, and electrical system operation which resulted in a loss of the 1G 4kV electrical bus. Because this deficiency is considered to be of very low significance (Green), and was entered into the corrective action program (CR-08-41733), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000334/2008004-01, Procedure Use Errors Result in Loss of an Electrical Bus)**

.2 Semi-Annual Trend Review (71152)

a. Inspection Scope (1 sample)

The inspectors reviewed site trending results that were complete and available for the time frame January through June 2008, to determine if trending was appropriately identified and evaluated by FENOC. This review covered FENOC's trending program, as well as other programs such as self-assessments, quality assurance reports, activity tracking reports, and other program reports that provide useful information, to verify that existing trends were appropriately captured and scoped by applicable departments, consistent with the inspectors' assessment from the daily CR and inspection module reviews, and not indicative of a more significant safety concern. Additionally, the inspectors verified the performance of site trending against NOP-LP-2001, Rev. 18, "Corrective Action Program," and NOBP-LP-2018, Rev. 03, "Integrated Performance Assessment /Trending."

b. Findings

No findings of significance were identified.

.3 Annual Sample Review (71152)

Review of Emergency Diesel Generator K1 Relay Issues (1 sample)

a. Inspection Scope

The inspectors selected condition reports (CR) 07-28237, 07-28510, and 07-29477 as a problem identification and resolution (PI&R) sample for a detailed follow-up review. CR 07-28237 documented the failure of Unit 2's EDG 2-2 to flash the generator field due to a K1 relay failure during a surveillance test on October 10, 2007. CR 07-28510 documented that a new K1 relay was found defective during a quality control (QC) inspection on the Unit 1 EDG 1-2 on October 13, 2007. CR 07-29477 documented identification of an over heated wire connection found on the Unit 2 rectifier selector switch (S1) for EDG 2-2.

The inspector assessed FENOC's problem identification threshold, cause analyses, extent of condition reviews, operability determinations, and the prioritization and timeliness of corrective actions to determine whether FENOC was appropriately identifying, characterizing, and correcting problems associated with these issues and whether the planned or completed corrective actions were appropriate to prevent

recurrence. Additionally, the inspectors interviewed cognizant plant personnel regarding the identified issues. Specific documents reviewed are listed in the attachment to this report.

b. Findings and Observations

No findings of significance were identified. The inspectors determined that FENOC properly implemented their corrective action process regarding the initial discovery of the above issues. The CR packages were complete and included cause evaluations, operability determinations, extent of condition reviews, corrective actions and planned corrective actions. Additionally, the elements of the CR packages were detailed and thorough. Corrective actions were timely and appropriate to prevent recurrence of the above issues. Corrective actions addressed immediate equipment concerns as well as improvements to procurement requirements and specifications for future component purchases. The inspectors determined that corrective actions included replacement of the Unit 2 K1 relays during refueling outage 2R13 (May 2008) with new style relays. Unit 1 K1 relays are scheduled to be replaced during the next refueling outage. Temporary modifications are in place for Unit 1 to ensure operability of the current K1 relays until their replacement. Also, the inspectors reviewed recent completed EDG surveillances and noted no subsequent K1 relay failures. The inspectors determined that adequate tracking mechanisms are in place to ensure all corrective actions will be completed.

Review of Radiation Monitoring Systems Reliability Issues (1 sample)

a. Inspection Scope

As a result of the licensee identifying declining reliability trends, increased maintenance, and obsolescence for various instruments comprising the licensee's radiation monitoring system, the inspector reviewed the licensee's actions taken to address these issues. The licensee generated CR 08-32745 to address the declining health indicator for the radiation monitors and the need for additional management review and actions.

The inspector reviewed radiation monitoring system (System No. 43) quarterly health reports, relevant Latent Issues Review Reports, self-assessment of equipment failures report, action plans to improve equipment reliability, and related condition reports. Additionally, an inspector attended the Plant Health Committee meeting, held on September 30, 2008, that addressed management authorizing actions to improve radiation monitoring system reliability.

The inspector interviewed cognizant managers, system engineers, and control room operators regarding radiation monitoring system performance issues, and walked down selected instrumentation to verify equipment operability and assess instrument material condition.

b. Findings and Observations

No findings of significance were identified. The inspectors determined that problems with radiation monitoring equipment were identified in a timely manner, in that condition reports were conservatively generated, and compensatory actions were appropriately implemented. Additionally, the causes of component failures and spurious alarms have been appropriately evaluated, and corrective actions have been developed,

commensurate with the system significance of the individual instrument. Plant radiological conditions and effluent release pathways were being properly monitored through the use of in-place instrumentation and sampling programs. A well defined strategy has been developed to correct repetitive component failures and spurious alarms. This strategy includes upgrading components of selected monitors, replacing obsolete instruments with current technology, and abandonment of unnecessary monitors/channels.

Issue Followup of 2FWE-P23B Water Intrusion into Oil System (1 sample)

a. Inspection Scope

The inspectors selected CR 07-12720 and 07-12672 as a PI&R sample for detailed follow-up. CR 07-12672 documented Unit 2 'B' motor-driven auxiliary feedwater (MDAFW) pump outboard seal leak-off drain being plugged, the potential of water in the oil, and pump inoperability. CR 07-12720 documents five gallons of water subsequently discovered in the pump oil reservoir. An operator discovered the condition by identifying a high lube oil reservoir level during rounds on January 15, 2007.

The inspector assessed FENOC's problem identification threshold, root cause analysis, extent of condition review, operability determination, and the prioritization and timeliness of corrective actions to determine whether FENOC was appropriately identifying, characterizing, and correcting related issues associated with this event. The inspector reviewed completed corrective actions and their effectiveness in preventing recurrence. Additionally, the inspectors interviewed cognizant plant personnel regarding the identified issues.

b. Findings and Observations

No findings of significance were identified. The inspectors determined that FENOC properly implemented the corrective action process regarding initial discovery and subsequent investigation. The CRs and root cause were complete and of sufficient detail. They included cause evaluations, operability determinations, extent of condition reviews, immediate and planned corrective actions. Corrective actions were timely and appropriate to prevent recurrence of the above issues. Corrective actions addressed immediate equipment concerns as well as improvements to procedures and the training of personnel. The licensee determined the cause to be a valve out of position due to improper procedure use. This caused boric acid, intended for the Unit 2 steam generators, to accumulate and plug a seal leak-off drain, resulting in water intrusion into the Unit 2 'B' MDAFW pump oil reservoir. The inspectors determined that appropriate immediate corrective actions were taken for the water intrusion event and the assessment of boric acid impact on the system condition. Long-term corrective actions include changes to chemical addition procedures, training on use of human error prevention tools, and improvements to the leak-off drainage system. The inspectors determined that adequate tracking mechanisms are in place to ensure all corrective actions will be completed.

40A3 Followup of Events and Notices of Enforcement Discretion (71153) (2 samples total)

.1 Event Followup (1 sample)

Loss of Emergency Sirens Due to Power Outages Caused by High Winds – Sept. 15

Inspectors observed station response to 55 of 119 alert notification sirens being inoperable due to loss of power resulting from high winds. The high winds were a result of remnants of Hurricane Ike passing through the surrounding 10 mile emergency planning zone of the station. High winds did not adversely affect plant operation. Inspectors verified that appropriate compensatory actions (backup route alerting) were implemented and that a prompt recovery plan was developed. Inspectors reviewed station procedures, emergency action levels and reporting requirements and determined appropriate actions were taken. The licensee reported this event (EN# 44487) to the NRC on September 15, 2008 under 10 CFR 50.72(b)(3)(xiii). All sirens were returned to service.

b. Findings

No findings of significance were identified.

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

(Closed) LER 05000412/2008-001-00. Unplanned Actuation of the Auxiliary Feedwater System During Plant Startup

On May 24, 2008, Unit 2 experienced an unplanned Engineered Safety Feature P14 actuation due to high steam generator water level during a plant startup, resulting in an automatic start of two auxiliary feedwater system pumps. This is an expected, but unplanned response to a P14 actuation. This event is reportable under 10CFR50.73 (a)(2)(iv)(A) as a condition that resulted in actuation of the emergency feedwater system.

Since the condition was valid and the auxiliary feedwater system is considered an emergency feedwater system that does not normally run, this event is reportable. The most probable cause of the high level and P14 actuation was inadequate steam generator level control using the bypass regulating valve at low power and the main turbine unlatched. The NRC reviewed this event and issued a Green NCV (NCV 05000412/2008003-04, Failure to Properly Implement Abnormal Operating Procedure during Plant Startup) in NRC inspection report 05000334 & 412 / 2008003. The inspectors reviewed this LER and no additional findings were identified. This LER is closed.

4OA5 Other

.1 Units 1 and 2 Extended Power Uprate (EPU) Closeout (IP 71004)

a. Inspection Scope

On July 19, 2006, the NRC approved the Beaver Valley license amendment regarding an 8-percent EPU to Unit 1 and Unit 2 (ADAMS ML061720248, ML062020066) and issued the associated Safety Evaluation (ADAMS ML061720376). The inspectors have observed and reviewed selected activities throughout the phased EPU implementation between both units. The inspectors have determined, based on a sample review of these activities and comparison of records and tests with the current licensing documents, that licensee commitments have been met regarding the Unit 1 and Unit 2 EPU and that each unit has fully implemented the EPU within its approved

implementation timeline. Documents reviewed and a consolidated list of EPU-related inspection reports are listed in the Attachment. This completes the 8-percent EPU inspection.

b. Findings

No findings of significance were identified.

.2 Licensee Contract Expiration (IP 92709)

a. Inspection Scope

The Inspectors implemented inspection activities to evaluate the adequacy of licensee strike contingency plans in preparation for the International Brotherhood of Electrical Workers (IBEW) contract expiration at midnight September 30, 2008. The IBEW represents over 400 hundred personnel onsite, including operators, maintenance, and radiation protection personnel. The inspectors reviewed the licensee's plan regarding qualified personnel for safe operation of the station, security, and conformance with existing regulation and TSs.

b. Findings

No findings of significance were identified.

.3 Independent Effectiveness Assessment of the Training Required by the NRC's August 15, 2007 Confirmatory Order EA-07-199

a. Inspection Scope

On August 15, 2007, the NRC issued Confirmatory Order EA-07-199 (Order) that formalized commitments made by FENOC. Their commitments were documented in FENOC's July 16, 2007 letter, responding to the NRC's May 14, 2007 Demand for Information (DFI).

The Order required, in part, that the licensee conduct regulatory sensitivity training for selected FENOC and non-FENOC employees to ensure those employees identified and communicate information that has the potential for regulatory impact at any FENOC nuclear site or within the nuclear industry to the NRC. This requirement was inspected and documented in IR 05000346/2007005. Inspection report IR05000346/2007005 also lists all required Order actions.

As part of the NRC's ongoing activities to monitor the licensee's implementation of the Order, the inspector interviewed ten individuals who had received the training in November 2007 to determine how effective the training had been in delivering its message. The inspector posed four questions to each individual: 1. What did you take away from the training? 2. Has it changed your daily work activities? 3. Do you have any specific examples? 4. Has the training changed how you interact with your peers?

In addition, to determine if the licensee was following its Business Practice, the inspector reviewed the assessment forms generated when an issue was brought to FENOC's Regulatory Affairs group for evaluation.

b. Findings and Observations

Based on the documentation reviews and observations, the inspectors concluded that:

The training was effective at instilling within the FirstEnergy management an enhanced awareness/sensitivity to issues and the need to ensure that any issues that could potentially impact Davis-Besse, Perry, or Beaver Valley are promptly brought to FENOC's attention. Each of the ten individuals interviewed indicated that they were much more sensitive to ensuring all potentially affected organizations or individuals are aware of issues and ongoing activities, with specific emphasis in those issues potentially affecting the nuclear facilities. Each individual indicated that asking who else needs to be aware of an issue has become a standard practice in day to day activities. While there were few examples of specific issues actually being brought to Regulatory Affairs' attention, individuals identified numerous items where they or others had raised the questions of who else needs to be aware of the issue. All individuals indicated that it has become an expected practice during peer meeting/interactions to question the extent to which potentially impacted organizations have been informed of issues.

Issues raised to the Regulatory Affairs organization are appropriately reviewed for applicability to the nuclear facilities. Further, in a proactive move, the Regulatory Affairs organization has implemented a practice of attending meetings where issues that could affect other nuclear facilities would likely arise.

These results are being documented in inspection reports for Davis-Besse (05000346/2008004), Perry (05000440/2008004) and Beaver Valley (05000334 and 05000412/2008004)

No findings of significance were identified.

4OA6 Management Meetings

.1 Licensed Operator Regualification

The inspector presented the inspection results of 1R11.2 to members of licensee management at the conclusion of the inspection on August 7, 2008. The licensee acknowledged the conclusions and observations presented. No proprietary information is presented in this report.

.2 Radiation Monitoring Instrumentation and Protective Equipment

The inspector presented the inspection results of 2S03 to Mr. Kevin Ostrowski, Director of Site Operations, and other members of FENOC staff, at the conclusion of the inspection on August 28, 2008. The licensee acknowledged the conclusions and observations presented. No proprietary information is presented in this report.

.3 Quarterly Inspection Report Exit

On October 30, 2008, the inspectors presented the normal baseline inspection results to Mr. Peter Sena, Beaver Valley Site Vice President, and other members of the licensee staff. The licensee acknowledged the conclusions and observations presented. The



inspectors confirmed that proprietary information was not retained at the conclusion of the inspection period.

#### 4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a non-cited violation (NCV).

- 10 CFR 55.21, "Medical Examination," requires in part that, "A licensee shall have a medical examination by a physician every two years." This period expires at the end of the calendar month of the two year anniversary of the previous physical.

Contrary to 10 CFR 55.21, "Medical Examination," the licensee identified that two licensed reactor operators had expired licensed operator physicals. One licensed reactor operator had performed licensed duties for thirty two (32) hours after the physical had elapsed. The other licensed operator had not performed licensed duties with an expired physical. The licensee took immediate corrective actions to have the operators examined by a physician and there were no adverse changes in the operators' physical conditions since the last physical. Based upon this, the violation was of very low safety significance. The licensee entered this issue into their corrective action program as CRs 08-45075 and 08-45291. This is a licensee-identified violation (Green), NCV of 10 CFR 55.21, "Medical Examination."

ATTACHMENT: SUPPLEMENTAL INFORMATION

**SUPPLEMENTAL INFORMATION****KEY POINTS OF CONTACT**

## Licensee personnel

S. Baker	Manager, Radiation Protection
T. Bean	LOR Program Administrator
R. Bologna	Manager Plant Engineering
R. Brosi	Director, Site Improvement
D. Canan	Supervisor, Respiratory Protection
S. Checketts	Operations Manager
T. Cotter	Superintendent, Electrical
K. DeBerry	Nuclear Engineer
M. Dzumba	Systems Engineer, Radiation Monitoring Systems
R. Fedin	Licensing Engineer
R. Freund	Supervisor, Radiation Protection Services
B. Furdak	Quality Assurance Assessor
J. Holbert	Senior Radiation Protection Technician
S. Hovanec	Plant/Systems Engineering Supervisor
C. Keller	Regulatory Compliance Manager
K. Kimmerle	Supervisor, Portable Instruments
W. Klinko	EDG Systems Engineer
J. Lebda	Radiation Protection Services Supervisor
R. Lieb	Director, Work Management/Outage Management
A. Lonnett	Administrator, RETS/REMP Program
R. Lubert	Plant Engineering Supervisor
K. Lynch	Design Engineer
M. Manoleras	Director Engineering
J. Mauck	Compliance Engineer
E. McFarland	Simulator Support
K. Mitchell	Sr. Nuclear Engineer
R. Moore	Radiation Protection Supervisor
B. Murtagh	Design Supervisor
K. Ostrowski	Director, Site Operations
R. Pattison	Senior Radiation Protection Technician
A. Reardon	EDG Systems Engineer
W. Rudolph	Superintendent Operations Training
R. Schilling	Radiation Protection Supervisor
P. Sena	Site Vice President
B. Sepelak	Supervisor, Regulatory Compliance
B. Tuite	Training Manager

Other Personnel

L. Ryan	Inspector, Pennsylvania Department of Radiation Protection
G. Wright	Reactor Inspector, NRC Region III

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Open/Closed

05000334/2008004-01      NCV    Procedure Use Errors Result in Loss of an Electrical Bus.  
(Section 4OA2.1)

Closed

05000412/2008001-00      LER    Unplanned Actuation of the Auxiliary Feedwater System  
During Plant Startup. (Section 4OA3.1)

**LIST OF DOCUMENTS REVIEWED**

Section 1R04: Equipment Alignment

Procedures

2OST-36.7, "Offsite Power Distribution," Rev. 11

Drawings

10080-RM-413-2, Rev. 13

Other

BVPS Maintenance log and Condition Report database for Unit 1 'B' Quench Spray  
2<sup>nd</sup> Quarter 2008 System Health Report

Section 1R05: Fire Protection

Procedures

2PFP-CNTB-735, "Control Room & Computer Room Fire Areas CB-3 & CB-4," Rev. 1

1PFP-SRVB-713, "Normal Switchgear Pre-Fire Plan for Fire Area NS-1," Rev. 1

1PFP-SRVB-713, "Control Room HVAC Equipment Room (CR-2)," Rev. 0

2PFP-CPBX-722, "Condensate Polishing Building Fire Area CP-1," Rev. 0

2PFP-CPBX-735, "Condensate Polishing Building Fire Area CP-1," Rev. 0

2PFP-CPBX-752, "Condensate Polishing Building Fire Area CP-1," Rev. 0

2PFP-CPBX-762, "Condensate Polishing Building Fire Area CP-1," Rev. 0

2PFP-CPBX-774, "Condensate Polishing Building Fire Area CP-1," Rev. 1

2PFP-CPBX-794, "Condensate Polishing Building Fire Area CP-1," Rev. 0

Other

BVPS-1 Updated Fire Protection Appendix R Review, Rev 26, Sec. 3.4.8 "Normal Switchgear  
Room (NS-1)"

1/2 ADM-1900, "BVPS Fire Protection Program," Rev. 16

CR 07-21798

Section 1R06: Flood Protection

Procedures

1/2 OM-53C.4A.75.2, "Acts of Nature-Flood," Rev. 24

Drawings

8700-RC-18A, Rev. 11,

8700-RC-19A, Rev. 10,

8700-RC-19B, Rev. 8

8700-RC-30D, Rev. 7

Section 1R07: Heat Sink Performance

Calculations

PGT-2002-1520

Drawings

8700-RM-436-4A, Rev. 12, 8700-RM-436-4B, Rev. 12

Section 1R11: Licensed Operator Requalification Program

Procedures

NOP-OP-1002, Normal Operations Conduct of Operations

Other

Crew Performance Tracking Checklist

Section 1R12: Maintenance Rule Implementation

Condition Reports

07-21726 07-22420 07-28237 07-29477 07-31825 06-02525  
06-10449 07-31825

Section 1R13: Maintenance Risk Assessment and Emergent Work Control

Condition Reports

08-42818 08-44374 08-43941

Other

BV1/2 Maintenance Logs dated, July 16, July 28-31, August 20, and August 24  
BV1/2 Operations Logs dated, July 8, July 16, July 28-31, August 20, and August 24  
BV1/2 Maintenance Risk Profiles for weeks of July 14, July 28, August 18, and August 25

Section 1R15: Operability Evaluations

Condition Reports

08-43941 08-44374 08-43995 08-44045 08-44059

Work Orders

600480693

Section 1R18: Plant Modifications

Condition Reports

08-39799 08-40030 08-40492

Procedures

1/2 CMP-75-Leak Repair-1M, "On-Line Leak Repair Procedure"

Drawings

RM-0085B, "Flow Dia-Containment Depressurization Sys," Rev. 29  
RM-0413-002, "Valve Op No. Dia-Quench Spray System," Rev.15

Other

ECP 08-0264, "Temporary Modification Leak Seal for 2QSS-42," Rev. 0  
Team Inc. Design package for 2QSS-42, Engineering Order Number 59249

Section 1EP6: Drill Evaluation

Condition Reports

08-47496      08-47439

Section 2OS3: Radiation Monitoring Instrumentation and Protective Equipment

Procedures:

1/2-HPP-4.01.009, Rev 2	Model 89-400, Gamma Calibration System
1/2-HPP-4.03.015, Rev 2	Portable Ion Chamber Calibration and Use
1/2-HPP-3.04.002, Rev 8	Bioassay Administration
1/2-HPP-6.02.002, Rev 7	FastScan Calibration and Routine Operations
1/2-HPP-6.02.004, Rev 7	AccuScan II Calibration and Routine Operations
1/2-HPP-4.02.018, Rev 0	MGP-iDC-HF Calibrator Calibration and Use
1/2-HPP-4.04.023, Rev 2	Eberline Personnel Contamination Monitor (PCM-2)
1/2-ADM-1626, Rev 1	Respiratory Protection Program
1/2-HPP-3.07.003, Rev 1	Airborne Radioactivity Sampling
1/2-HPP-3.10.013, Rev 2	MSA Self-Contained Breathing Apparatus
1/2-HPP-3.10.027, Rev 1	Inspection and Repair of MSA Pressure Demand Facepiece
BVBP-RP-0009, Rev 1	Electronic Alarming Dosimeter Control
1/2-ADM-1601, Rev 18	Radiation Protection Standards

Calibration Records:

SAM-11:	Serial Nos.	139, 140, 290, 135
E-520	Serial No.	5123
RO-2	Serial Nos.	6266, 4522, 2727
RO-2A	Serial Nos.	1174, 1549
RO-20:	Serial Nos.	4176, 6141
PCM-2	Serial Nos.	536, 355, 288, 357, 588
SPM-906:	Serial Nos.	071, 030, 104, 026, 103, 704, 103
DMC-2000	Serial Nos.	673242
FastScan whole body counting system		
AccuScan whole body counting system		

SCBA ProCheck 3 Test Results:

Regulator Serial Nos. NT062158, 1N270196, 1N270164, NT029628, 1N209000, 1N209007

SCBA Tank Hydrostatic Test Data:

Tank Nos. OJ61854, OJ57095, OJ132399, OJ132401, OJ134064, OJ134046

Other Documents:

Unit 1 and Unit 2 Radiation Monitoring System Health 1st Quarter Report 2008  
Site Radiation Monitoring System Status Report (September 2006)  
Personnel Respirator Qualifications/Training Records  
Air Quality Record dated 08/08/2008  
Latent Issues Review Report – Radiation Monitoring System  
Action Plans – Unit 1 and Unit 2 Radiation Monitor System Reliability

Condition Reports:SCBAs:

08-43301	08-42311	08-40983	08-40198	08-38612	08-38170
08-35038	07-28154	07-26079	07-24636	07-20187	07-15390
08-32745					

Radiation Instruments:

08-45487	05-01158	07-26771	08-41867	07-31350	07-31121
07-30988	07-30383	07-30362	07-29367		

Nuclear Oversight Quarterly Assessment Report/Audit:

BV-PA-07-03

MS-C-07-08-03

BV-SA-08-043, Snapshot Assessment - Radiation Monitoring System Failures

Nuclear Quality Assessment Field Observation Reports:

BV220083377	BV220083383	BV120073202	BV320073093
BV320072902	BV220062820	BV120073200	BV220062819

Section 4OA2: Identification and Resolution of ProblemsProcedures

NOP-LP-2001, Corrective Action, Rev. 18

Design Basis Documents

1DBD-36A, Unit 1 Design Basis Document for EDGs, Rev. 11

2DBD-36A, Unit 2 Design Basis Document for EDGs, Rev. 8

Engineering Change Packages

07-0309-01, Remove Covers on EDG Excitation Control AC Shutdown Contactors, Rev. 0

07-0315, BV1 and BV2 Temporary ECP to Modify Diesel Generator K1 Relays, Rev. 0

07-0327-01, Replace K1 Relay BV-PNL-2DIGEN-1A-K1, Rev. 0

07-0327-002, Replacement BV2 EDG KI Relays, Rev. 2

07-0345-02, Temporary Mod. EDG 2-1 S1 Bypass for Rectifier Bank 1 Restoration, Rev. 0

07-0346, Temporary Mod. EDG 2-1 S1 Bypass for Rectifier Bank 1 Restoration, Rev. 0

08-0095-001, Replacement BV1 EDG K1 Relays, Rev. 1

08-0095-002, Replacement BV1 EDG K1 Relays, Rev. 1

Drawings

10080-E-12F, Elementary Diagram – Diesel Generator 2-1, Rev. 20

10080-E-12K, Elementary Diagram – Diesel Generator 2-2, Rev. 16

10080-E-12P, Elementary Diagram – Diesel Generator 2-1 EXT CONN, Rev. 11

10080-E-12Q, Elementary Diagram – Diesel Generator 2-2, Rev. 6

10080-RE-14A, Sh. 1, U-2 Wiring Diagram Emergency Diesel Generator No. 1, Rev. 19

10080-RE-14D, Sh. 4, U-2 Wiring Diagram Emergency Diesel Generator No. 1, Rev. 9

10080-RE-14K, Sh. 6, U-2 Wiring Diagram Emergency Diesel Generator No. 1, Rev. 1

10080-RE-14AD, Sh. 4, U-2 Wiring Diagram Emergency Diesel Generator No. 2, Rev. 6

10080-RE-14AK, U-2 Wiring Diagram – PNL – 2DIGEN-2A, Rev. 1

10080-LSK-22-6N, Unit 2 Logic Diagram Emergency Generator Starting, Rev. 8

2001.300-000-062, Sh. 2, SBSR-HV Series Boot Exciter Interconnection Diagram, Rev. A

Drawing Update Notice

07-0327-001-001, for Drawing 10080-E-0012P  
 07-0327-001-002, for Drawing 10080-E-0012F  
 07-0327-001-004, for Drawing 2001.300-000-062  
 07-0327-001-005, for Drawing 10080-RE-14A  
 07-0327-001-006, for Drawing 10080-RE-14D  
 07-0327-001-007, for Drawing 10080-RE-14K  
 07-0327-001-009, for Drawing LSK-022-006N  
 07-0327-002-001, for Drawing 10080-E-0012Q  
 07-0327-002-002, for Drawing 10080-E-0012K  
 07-0327-002-004, for Drawing 2001.300-000-062  
 07-0327-002-006, for Drawing 10080-RE-14AD  
 07-0327-002-007, for Drawing 10080-RE-14AK  
 07-0327-002-009, for Drawing LSK-022-006N

Interim Drawing Change Notice

2-LSK-022-006N-EO2-0141-03, for Drawing LSK-022-006N  
 2-LSK-022-006N-EO7-0008-01, for Drawing LKS-022-006N

Completed Surveillance Procedures

1OST-36.1, Unit 1 Diesel Generator No. 1 Monthly Test, Rev. 49, Completed 06/25/08  
 1OST-36.2, Unit 1 Diesel Generator No. 2 Monthly Test, Rev. 50, Completed 07/09/08  
 2OST-36.1, Unit 2 Emergency Diesel Generator [2EGS\*EG2-1] Monthly Test, Rev. 54,  
 Completed 07/02/08  
 2OST-36.2, Unit 2 Emergency Diesel Generator [2EGS\*EG2-2] Monthly Test, Rev. 54,  
 Completed 07/16/08 and 07/18/08

Condition Reports

07-28237	07-28287	07-28510	07-29510	07-29477	08-32745
07-31121	07-31112	07-31083	07-31040	07-30999	07-30988
07-30911	07-30847	07-30823	07-30484	07-30447	07-30431
07-30390	07-30362	07-30322	07-30318	07-29367	07-29335
07-29481	07-26305	08-34184	08-34809	08-35042	08-35155
08-35155	08-35674	08-36538	08-36611	08-36612	08-37021
08-37070	08-37199	08-37326	08-37619	08-37646	08-37677
08-40286	08-40489	08-41416	08-43396	08-43518	08-37304
08-37026	08-36471	07-26326			

Work Orders

200285126	200286543	200287273
200286523	200287200	

Other

1OM-43.1C Unit 1 Major Components of Radiation Monitoring System  
 2OM-43.1C Unit 2 Major Components of Radiation Monitoring System  
 UFSAR Chapter 11, Rev 24 for Unit 1, and Rev 16 for Unit 2, entitled Radioactive Wastes and  
 Radiation Protection  
 Snapshot Assessment (BV-SA-08-043), Equipment Failures versus PM Template Strategy  
 Latent Issues Review Report, BVPS Radiation Monitoring System  
 Quarterly System Health Reports for System 43, Unit 1 and Unit 2 Radiation Monitoring System  
 Unit 1 and Unit 2 Operator Burden Reports

Improving Unit 1 Radiation Monitor Reliability  
Improving Unit 2 Radiation Monitor Reliability

Section 4OA3: Event Response

Procedures

1/2-EPP/I-1a/b, Rev. 11, "Recognition and Classification of Emergency Conditions;"  
1/2-EPP-I-2, Rev. 31, "Unusual Event;"  
1/2-EPP-I-3, Rev. 29, "Alert;"

Condition Reports

08-46291

Other

NRC EN 44487, dated September 16, 2008  
NUREG-1022, Event Reporting Guidelines 10 CFR 50.72 & 50.73, October 2000

Section 4OA5: Other Activities

Procedures

NRC IP 92709, Licensee Strike Contingency plans

Other

Emergency Operating Procedure for Labor Action  
BVPS Labor Action Contingency Plans; Operations, Security, Compliance  
2-SPT-52-40441-3, Escalation to EPU Uprate Power, 2900 MWt, Unit 2, WO 200227803  
BV2 Operations Shift Logs dated June 26, 2008; Turbine Performance testing.  
BV1 & BV1 EPU SE, Section 4 Regulatory Commitments  
L-06-035, BVPS Unit 1 & 2, Supplemental Information – EPU Implementation Plan & Power  
Ascension Testing (LAR 302 & 173), dated March 10, 2006

Cross-Reference of Beaver Valley (05000334/412) Inspection Reports which contain EPU-related Inspection Activities

2008004	2006008	2005008	2003005
2008003	2006005	2005006	2003003
2007003	2006004	2004006	
2007002	2006003	2004005	



**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
IBEW	International Brotherhood of Electrical Workers
IMC	Inspection Manual Chapter
IOD	Immediate Operability Determinations
IP	Inspection Procedure
IR	Inspection Report
ISI	Inservice Inspection
LCO	Limiting Conditions for Operations
LER	Licensee Event Report
MSP	Maintenance Surveillance Package
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OD	Operability Determinations
OE	Operating Experience
OST	Operations Surveillance Test
PCM	Personnel Contamination Monitor
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PMT	Post Maintenance Testing
POD	Prompt Operability Determinations
QC	Quality Control
SAM	Small Article Monitor
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process
TLD	Thermoluminescent Detector
TMOD	Temporary Modification
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
US	Unit Supervisor