



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

July 31, 2007

Mr. Peter Sena  
Site Vice President, Beaver Valley Power Station  
FirstEnergy Nuclear Operating Company  
Post Office Box 4  
Shippingport, Pennsylvania 15077

SUBJECT: BEAVER VALLEY POWER STATION - NRC INTEGRATED INSPECTION  
REPORT 05000334/2007003 AND 05000412/2007003

Dear Mr. Sena:

On June 30, 2007, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Beaver Valley Power Station Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on July 17, 2007, with you and other members of your staff.

The inspections 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 of significance 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,

**/RA/ AAR for**

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

Enclosure: Inspection Report 05000334/2007003; 05000412/2007003  
w/Attachment: Supplemental Information

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**U. S. NUCLEAR REGULATORY COMMISSION**

**REGION I**

Docket Nos. 50-334, 50-412

License Nos. DPR-66, NPF-73

Report Nos. 05000334/2007003 and 05000412/2007003

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 01, 2007 through June 30, 2007

Inspectors: P. Cataldo, Senior Resident Inspector  
D. Werkheiser, Resident Inspector  
S. Barber, Senior Project Engineer  
J. Brand, Resident Inspector  
T. Moslak, Regional Inspector  
J. Richmond, Senior Reactor Inspector  
D. Tifft, Reactor Inspector

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

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## SUMMARY OF FINDINGS

IR 05000334/2007003, IR 05000412/2007003; 04/01/2007 - 06/30/2007; Beaver Valley Power Station, Units 1 and 2; Routine Integrated Report

The report covered a 3-month period of inspection by resident inspectors, regional reactor inspectors, and a regional health physics inspector. No findings of significance were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3 dated July 2000.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified

B. Licensee-Identified Violations

None

## REPORT DETAILS

### Summary of Plant Status:

Unit 1 began the inspection period at 100 percent power. On May 11, the unit was down-powered to 81 percent for planned condenser waterbox cleaning and returned to full power on May 13. The unit remained at 100 percent power for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power. On April 13, the unit was down-powered to 97 percent for planned main turbine governor valve adjustments and returned to full power on the same day. Additionally, due to cooling tower performance associated with warm, humid, environmental conditions, the unit manually down-powered approximately 3-5 percent several times throughout May to maintain secondary plant parameters within specification. For the remainder of the inspection period, the unit remained at 100 percent power.

### **1. REACTOR SAFETY**

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

#### **1R01 Adverse Weather Protection (71111.01)**

##### **a. Inspection Scope (1 Site Sample-Seasonal Readiness)**

In preparation for summer weather conditions, 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 hurricanes and high winds and system availability during hot weather. The inspectors conducted interviews with various station personnel to gain insights into the station's hurricane readiness program and reviewed the status of various work orders categorized as warm weather preparation activities. The inspectors reviewed the corrective action program database, operating experience, Updated Final Safety Analysis Report (UFSAR), Technical Specifications, and plant documents for the Off-Site Power System and alternate AC power 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.

The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator (TSO) and the station to verify that the appropriate information is exchanged when issues arise that could impact the offsite power system. The inspectors also reviewed and walked down the Emergency Diesel Generators and Vital 4160 VAC systems to verify seasonal readiness.

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b. Findings

No findings of significance were identified.

1R02 Evaluations of Changes, Tests, or Experiments (71111.02)

Biennial Team Inspection

a. Inspection Scope (7 Safety Evaluations and 17 Screenings & Applicability Determination samples )

The inspectors reviewed seven safety evaluations (SEs) completed within the past two years. The inspectors evaluated the SEs to determine whether First Energy Nuclear Operating Company (FENOC) had appropriately evaluated the activities or changes and properly determined that the activities or changes could be accomplished without prior NRC approval, or had obtained such approval prior to implementing the activities or changes. The SEs were reviewed to determine whether the changes to the facility or procedures as described in the Updated Final Safety Analysis Reports (UFSAR) were reviewed and documented in accordance with 10 CFR 50.59. Additionally, the inspectors assessed whether safety issues pertinent to the activities or changes were properly resolved.

The inspectors reviewed seventeen screenings and applicability determinations for which FENOC had determined that no SE was required. These reviews were performed to assess whether FENOC's threshold for performing SEs was consistent with 10 CFR 50.59.

The SEs, screenings, and applicability determinations were selected based on the risk significance of the associated structures, systems, and components (SSCs). In addition, the inspectors reviewed FENOC's administrative procedures used to control the screening, preparation, review, and approval of SEs to determine whether those procedures adequately implemented the requirements of 10 CFR 50.59. The reviewed SEs, screenings, and applicability determinations are listed in Attachment 1.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

Partial System Walkdowns (71111.04Q - 4 samples)

a. Inspection Scope

The inspectors performed four partial equipment alignment inspections, during conditions of increased safety significance, including when redundant equipment was

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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 April 5, 2007, Unit 1, Vital Battery #1 and #2 during battery charger swaps;
- On May 28, 2007, Unit 1, River Water pump seal injection and motor cooler lineup during filtered water isolation;
- On June 6, 2007, Unit 2, 'B' Emergency Diesel Generator (EDG) while it was the protected train during 'A' EDG testing; and
- On June 14, 2007, Unit 1, 'A' Recirculation Spray during 'B' recirculation spray pump [RS-P-1B] testing [1OST-13.7D].

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope (71111.05Q - 9 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. 13. 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, Motor Generator Room (Fire Area MG-1);
- Unit 1, Communication Equipment and Relay Panel Room (Fire Area CR-3);
- Unit 2, Normal Switchgear Room (Fire Area SB-4);
- Unit 2, Battery Room 2-1 (Fire Area SB-6);
- Unit 2, Battery Room 2-2 (Fire Area SB-7);
- Unit 2, Battery Room 2-5 (Fire Area SB-10);
- Unit 2, Intake Structure (Fire Area IS-2);
- Unit 2, Service Building 745' elev. (Fire Area SB-3); and
- Unit 2, Cable Tunnel/Fan Room (Fire Area CT-1).

b. Findings

No findings of significance were identified.

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1R06 Flood Protection Measures (71111.06)

a. Inspection Scope (2 internal samples)

The inspectors reviewed flood protection measures for equipment in the 'A' cubicle of the intake structure during the 'A' turbine plant river water pump replacement. This review was conducted to evaluate FENOC's protection of the enclosed safety-related systems from internal flooding conditions. The inspector 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.

In addition, the inspectors reviewed the Unit 1 and 2 flood seal program to evaluate FENOC's protection of the enclosed safety-related systems from internal flooding conditions. The inspectors performed a walkdown of various flood seals in both units. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope (1 annual sample)

The inspectors reviewed a thermal performance test associated with the Unit 1 'B' charging pump lube oil cooler conducted on May 16, 2006, in accordance with 1BVT-2.30.7, "Charging Pump Lube Oil Cooler [1CH-7A,B, or C] Heat Exchanger Thermal Performance Testing," Rev. 0. 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 against applicable acceptance criteria.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

Resident Inspector Quarterly Review

a. Inspection Scope (71111.11Q - 1 sample)

The inspectors observed Unit 1 licensed operator simulator training on June 14, 2007. The inspectors evaluated licensed operator performance regarding command and control, implementation of normal, annunciator response, abnormal, and emergency operating procedures, communications, and technical specification review and compliance for various simulator scenarios. The inspectors evaluated the licensee training to verify that (1) deficiencies in operator performance were identified, (2) conditions adverse to quality were entered into the corrective action program for resolution, and (3) applicable training objectives had been achieved. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope (71111.12Q - 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.

- Condition Report 07-19708, "1OST-13.7C for RS-P-1A UNSAT Due to Time Delay Outside Acceptance Range"; and
- Condition Report 07-18971, "Annunciator Bay #3. Annunciators A3-65 through A3-128 Inoperable"

b. Findings

No findings of significance were identified.

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

a. Inspection Scope (7 samples)

The inspectors reviewed the scheduling and control of seven activities, and evaluated the 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. The inspectors reviewed the planned or emergent work for the following activities:

- On April 5, 2007, the inspectors reviewed FENOCs risk evaluation and preparations associated with planned, battery charger load testing on Unit 1. This evaluation included a deviation assessment for performance of the testing under “Yellow” risk management status, versus the originally-planned “Orange” risk status;
- On April 16, 2007, Unit 2 entered a planned “yellow” risk during relay calibration for transformer TR-2B;
- On April 27, 2007, inspectors reviewed condition report CR 07-19405 concerning switchyard maintenance risk assessments;
- On May 23, 2007, the inspectors reviewed FENOCs switchyard activities and risk management actions during resolution of a thermal anomaly on the Unit 1 main generator output breaker disconnect switch. This thermal anomaly was documented in condition report CR-07-20721, and affected the bus-side disconnect switch on the “A” Phase of the Unit 1 main generator output breaker PCB-331;
- On May 29, 2007, the inspectors reviewed CR 07-21098 concerning risk deviation during replacement of 1FO-55, fuel oil day-tank sightglass isolation valve, for the #1-1 Emergency Diesel Generator (EDG);
- On June 18, 2007, the inspectors reviewed the weekly probabilistic risk assessment (PRA) for the station; and
- On June 28 and 29, 2007, the inspectors reviewed risk and work management during the replacement of the Digital Radiation Monitoring System (DRMS) at Unit 2.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (7 samples)

The inspectors evaluated the technical adequacy of selected operability determinations (OD), Basis for Continued Operations (BCO), or operability assessments, to verify that determinations of operability were justified, as appropriate. In addition, the inspectors verified that TS limiting conditions for operation (LCO) requirements and UFSAR design basis requirements were properly addressed. Documents reviewed are listed in the Attachment. This inspection activity represents seven samples of the following issues:

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- On April 15, the inspectors evaluated the licensee's assessment of operability for a fire protection pipe leak in a Unit 1 safety-related area, as detailed in CR-07-18489;
- On April 17, the inspectors evaluated the licensee's assessment of operability for a Unit 2 vital battery [2-2] charger unable to change charging mode, as detailed in CR 07-15002;
- On April 25, the inspectors evaluated the licensee's operability determination and operational decision making issue (ODMI) for the Unit 2 'C' safety injection (SI) accumulator pressure transmitter failure [2SIS-PT929], as detailed in CR-07-19725;
- On May 10, the inspectors evaluated the licensee's assessment of operability for a high oil level in the Unit 1 turbine-driven auxiliary feedwater pump [FW-P-2] outboard bearing, as detailed in CR-07-20307;
- On May 16, the inspectors evaluated the licensee's OD, as detailed in CR 07-20653, concerning the Unit 1 #2 emergency diesel generator (EDG) lower air intake damper not opening;
- On June 5, the inspectors evaluated the licensee's assessment of operability for the Unit 2 emergency service water outfall and its impact by a nearby sink hole, as detailed in CR 07-21637; and
- On June 20, the inspectors evaluated the licensee's assessment of operability of seismic instrumentation when both unit's seismic instrumentation were unavailable, as detailed in CR 07-22332.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

Biennial Team Inspection

a. Inspection Scope (71111.17B - 10 samples)

The inspectors reviewed ten permanent plant modifications (i.e., facility changes) completed within the past two years. The changes were selected based on the risk significance of the associated structures, systems, and components (SSCs), and included design changes, calculation revisions, setpoint changes, procedure changes, and engineering evaluations. The inspectors assessed whether the design bases, licensing bases, and performance capability of risk significant SSCs had been degraded as a result of the facility change process.

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The inspectors reviewed the design inputs, assumptions, and design calculations to evaluate the adequacy of FENOC's facility changes. The inspectors compared selected design and operating parameters, such as safety classification, energy requirements, instrument setpoints, intra-system interfaces, and results from supporting electrical and mechanical calculations and analyses, to the design and licensing bases to evaluate the design adequacy. Design assumptions were assessed to determine whether they were technically appropriate and consistent with the UFSAR. The inspectors reviewed selected portions of the post-modification testing, functional testing, and instrument calibration records to determine whether the SSCs were ready for operation.

The inspectors reviewed affected procedures, drawings, design basis documents, and the UFSAR to evaluate whether the affected documents were appropriately revised and updated. For the selected permanent plant changes, the 10 CFR 50.59 screens or evaluations were reviewed as described in section 1R02 of this report. In addition, the inspectors performed walkdowns of selected accessible portions of the modified systems and interviewed plant staff to identify whether any abnormal or unexpected installation issues existed. The permanent plant changes reviewed are listed in Attachment 1.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (7 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. Documents reviewed during the inspection are listed in the Attachment. The following seven maintenance activities and associated PMTs were evaluated:

- On April 20, 2OST-34.8, "Standby Diesel-Driven Air Compressor Test" Rev. 2, performed following maintenance activities on Unit 2 air compressor [2IAS-C21];
- On April 30, WO 20027913, Repair 1RW-159, Charging Pump Cooler 'A' Supply Header;
- On May 1, 1OST-13.7E, "2A Recirculation Spray Pump Auto Start Test," Rev. 4, performed for failed restart of 1A Recirculation Spray;
- On May 12, 2OST-6.4/2LCP-7-F124, "Measurement of Seal Injection Flow," Rev. 5, performed following repair of flow transmitter 2CHS-F124;

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- On June 12, 1OST-13.7F "2B Recirculation Spray Pump Auto Start Test," Rev. 4, performed after timing relay calibration;
- On June 13, WO 200214680, 2MSP-36.28-E, "21C Reactor Coolant Pump 4KV Bus Underfrequency Relay, 81-VC200 Functional Test," Rev. 14, performed after relay calibration; and
- On June 29, WO 200259141, Pre-operational checks for RMS-11-1 and RMS-11-2, performed after replacement of the Unit 2 Digital Radiation Monitoring System (DRMS).

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope - (4 routine surveillance, 1 leak rate, and 1 isolation valve sample)

The inspectors observed Pre-Job test briefings, observed selected test evolutions, and reviewed the following completed 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. Documents reviewed are listed in the Attachment:

- On April 6, 1BVT1.39.14, "Station Battery Charger [BAT-CHG1-1A and BAT-CHG1-1B] Load Test," Issue 2, Revision 4;
- On April 16, 2OST-39.1B, "Weekly Station Battery Check [BAT\* 2-2]," Rev. 18;
- On May 15, 1OST-47.3J, "Containment Isolation and ASME Section XI Test-Work Week 6", Rev.8;
- On June 7, 2OST-36.1, "Emergency Diesel Generator [2EGS\*EG2-1] Monthly Test," Rev. 50;
- On June 12, 2MSP-36.28-E, "21C Reactor Coolant Pump 4KV Bus Underfrequency Relay, 81-VC200 Functional Test," Rev. 14, WO 200266978; and
- On June 18, 1OST-6.2A, "Computer Generated Reactor Coolant System Water Inventory Balance," Rev. 15.

b. Findings

No findings of significance were identified.

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1R23 Temporary Plant Modifications (71111.23)a. Inspection Scope (1 sample)

The inspectors reviewed the following temporary modification (TMOD) based on risk significance. The TMOD was reviewed against the system design basis documentation, including the UFSAR and the TS. The inspectors reviewed the TMOD implementation procedure, Administrative (ADM) Procedure, 1/2-ADM-2028, "Temporary Modifications," Rev. 6. Documents reviewed are listed in the Attachment.

- WO 200264638, Install temporary pressure gauge as contingency for failure of redundant Unit 2 'C' safety injection pressure transmitter [PT931].

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY****Cornerstone: Public Radiation Safety**2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)a. Inspection Scope (11 samples)

Implementation of these controls was reviewed against the criteria contained in 10 CFR Parts 20 and 50, Technical Specifications, the site Off-site Dose Calculation Manual (ODCM), and the licensee's procedures. This inspection activity represents completion of eleven (11) samples relative to this inspection area.

- The inspector reviewed the 2006 Annual Radiological Effluent Release Report to verify that the effluent programs were implemented as required by the ODCM. As part of this review, changes made to the ODCM were evaluated to determine if the changes affected the licensee's ability to maintain effluent doses as low as is reasonably achievable (ALARA).
- The inspector walked down the major components of the Unit 1 and Unit 2 gaseous and liquid effluent monitoring systems, with the cognizant engineer, to verify that the system configuration complied with the FSAR description, and to evaluate equipment material condition.
- The inspector reviewed the Effluent Monitoring Subsystems procedure (2-HPP-4.02.021, Rev. 6) and observed technicians collecting weekly particulate and iodine samples and taking noble gas grab samples from the following effluent radiation monitors:
  - 2RMQ-RQ303, Waste Gas Storage Vault Vent



- 2RMQ-RQ301, Decontamination Building Vent
  - 2HVS-RQ109A, Wide Range Gas Monitor (SLCRS-filtered)
  - 2HVL-RQ112, Condensate Polishing Building Vent
- The inspector reviewed the most current Unit 1 and Unit 2 liquid and gaseous effluent monitor functional test results to verify that the associated pumps/isolation valves and fans/isolation dampers, respectively, were operable. Operations Surveillance Test (OST) reviewed were 1OST- 43.9 for Unit 1 and 2OST-43.3 for Unit 2 liquid effluent pathways. 1BVT1.16.10 and 2BVT-1.16.10 were reviewed for gaseous pathways.
  - The inspector reviewed the air cleaning system test surveillance results for HEPA (High Efficiency Particulate Absolute) and charcoal filtration systems installed in Units 1 and 2, to ensure the components met their acceptance criteria, and discussed the test results with the cognizant engineer. The inspector confirmed that the air flow rates were consistent with the ODCM values.
  - The inspector observed the preparation of two liquid discharge permits. On 05/21/07, discharge permit RWDA-L-5244 was prepared for discharging a Unit 2 steam generator blowdown test tank (2SGC-TK23A). On 05/24/07 permit RWDA-L-5245 was prepared for discharging tank 2SGC-TK23B. In preparation for discharging the 23B tank, the inspector observed the technician acquire and count the sample, calculate discharge concentrations, and adjust the radiation monitor (2SGC-RQ100) alarm set points.
  - The inspector reviewed monthly dose projections for liquid and gaseous effluents performed during the past 12 months to verify that the effluent was processed and released in accordance with ODCM requirements. The inspector confirmed that no ODCM performance indicator criteria was exceeded for this time period.
  - The inspector reviewed the calibration records and quality control records for the counting room gamma spectroscopy instrumentation (Detectors Nos. 1, 2, 3, 5, & 6) to determine if the required lower limits of detection (LLD) were achievable and that effluent samples were adequately quantified and evaluated.
  - The inspector reviewed the results of the licensee's inter-laboratory quarterly cross check program for 2006, to verify the quality and accuracy of effluent sample analysis performed by the licensee.
  - The inspector reviewed the Validation and Verification (V&V) results for the radiological effluent dose calculation software (i.e., LIQDIS and GASDIS), used for the generation of discharge permits, to ensure that the software currently in use provides accurate dose projections.
  - The inspector reviewed the licensee's actions to evaluate and monitor potential groundwater pathways that may contain radioactive materials from past spills and leaks. Included in this review were the results of a hydro-geological study

entitled, "Ground Water Flow Characteristics Report for the Beaver Valley Power Station," dated 12/18/06. The inspector reviewed the plans for establishing monitoring wells in strategic locations to identify potential pathways. The inspector also reviewed the results of the licensee's study entitled, "BVPS Applicability to IE Bulletin 80-10 and IE Notices 88-22 and 2006-13," dated 03/20/07. This study resulted in more accurate evaluations of possible cross contamination of clean (non-radioactive) systems, including increased sampling/analysis frequencies.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES [OA]**

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope (6 samples)

The inspectors sampled licensee submittals for six performance indicators (PI) listed below for Unit 1 and Unit 2. The inspectors reviewed portions of the operational logs 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 4, were used for each data element.

.1 Cornerstone: Initiating Events

Unplanned Power Changes per 7000 Critical Hours (2 samples)

The inspectors reviewed the PIs for unplanned power changes per 7000 critical hours, to verify that power changes greater than 20 percent had been properly reported. The inspectors verified the accuracy of the reported data through reviews of Licensee Event Reports, monthly operating reports, plant operating logs, and additional records. The inspectors reviewed data from April 2006 to March 2007.

.2 Cornerstone: Barrier Integrity

Reactor Coolant System (RCS) Activity (2 samples)

The inspectors reviewed the PI for RCS activity to verify that the proper dose equivalent Iodine-131 was reported and that it was below the TS limit. Inspectors reviewed data for each unit from April 2006 to March 2007.

Reactor Coolant System (RCS) Leak Rate (2 samples)

Enclosure

The inspectors reviewed the PIs for RCS leak rate to verify that the maximum identified leakage did not exceed the TS value and that it was properly reported. Inspectors reviewed data for each unit from April 2006 to March 2007.

b. Findings

No findings of significance were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Review of Items Entered into the Corrective Action Program

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 followup, the inspectors performed a daily screening of items entered into FENOC's corrective action program. This review was accomplished by reviewing detailed packets of each CR, attending screening meetings, and accessing FENOC's computerized CR database.

.2 Annual Sample Review (1 sample)

Focused Review of Scaffolding Program

a. Inspection Scope

The inspectors performed a focused review of the scaffolding program and actions taken in response to an issue where scaffolding was built in such a manner that it interfered with the operation of two main steam isolation valves (MSIVs) and caused an entry into Technical Specification 3.0.3 on October 1, 2006. The inspectors reviewed the licensee's root cause analysis report, corrective actions to prevent reoccurrence, the implementation of those corrective actions, interviewed personnel, and toured selected scaffolding to verify it was erected in accordance with plant procedures.

b. Findings and Observations

No findings of significance were identified.

The inspectors determined that the licensee's actions to prevent improperly built scaffolding are appropriate. These actions included enhancing the scaffolding erection and tagging procedure by classifying scaffolding by risk significance and providing increased oversight according to the risk of the scaffolding work being performed. The risk of a scaffolding activity is assessed by a senior reactor operator prior to building or disassembling a scaffolding.

The inspectors found that FENOC appropriately identified issues associated with scaffolding and entered them into the corrective action program. The inspector identified several examples where protective padding installed on scaffolding was in contact with

Enclosure

plant components contrary to the procedural requirement. The licensee entered the issues into the corrective action program.

.3 Inspection Module Problem Identification and Resolution (PI&R) Review

Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

a. Inspection Scope

The inspector reviewed fifteen (15) Condition Reports, six (6) Nuclear Oversight Field Observation Reports, and a Nuclear Oversight Assessment Report to evaluate the licensee's threshold for identifying, evaluating, and resolving problems in implementing the ODCM. This review was conducted against the criteria contained in 10 CFR Parts 20 and 50, the ODCM, and the licensee's procedures.

b. Findings

No findings of significance were identified.

Biennial Inspections of Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed condition reports (CRs) associated with 10 CFR 50.59 issues and permanent plant modification issues to ensure that the licensee was identifying, evaluating, and correcting problems associated with these areas and that the planned or completed corrective actions for the issues were appropriate. The CRs reviewed are listed in Attachment 1.

b. Findings

No findings of significance were identified..

4OA3 Followup of Events and Notices of Enforcement Discretion (71153)

.1 Review Personnel Performance during Non-Routine Operations (1 sample)

a. Inspection Scope

The inspectors reviewed one event that demonstrated personnel performance in coping with a non-routine transient. The inspectors observed operations in the control room and reviewed applicable operating and alarm response procedures, technical specifications, plant process computer indications, and control room shift logs to evaluate the adequacy of FENOC's response to these events. The inspectors also verified the events were entered into the corrective action program to resolve identified adverse conditions. Documents reviewed during the inspection are listed in the Attachment.

Enclosure

- Unit 1 and Unit 2: On June 1, at 7:13 p.m., the station experienced an off-site power grid disturbance as indicated by multiple annunciators related to off-site power and various computer status alarms. The operators appropriately entered abnormal operating procedure (AOP) 1/2-35.1, "Grid Disturbance" and took action to verify proper off-site power line-up and verify the status of operating equipment. Both units observed a negative generator load spike of approximately 15 MWe, at the time of the disturbance. Operators contacted the grid system operator, in accordance with the station's grid protocol, and were notified that a grid voltage perturbation occurred due to an insulator failure on a transformer in the nearby town of Midland. Unit 1 and Unit 2 offsite electrical status remained normal. The operators performed a plant walkdown of each unit. The inspectors also reviewed plant data and logs to ensure appropriate actions were taken and applicable emergency plan entry conditions were considered. The inspectors performed walkdowns of the station to ensure equipment was operating as designed and had not been impacted by the grid disturbance. The event and subsequent information was documented by the licensee in CR-07-21465.

b. Findings

No findings of significance were identified.

4OA5 Other

.1 Unit 1 Extended Power Uprate (IP 71004)

a. Inspection Scope

The inspectors reviewed data from selected plant testing during and after final power ascension to rated thermal power (RTP). Unit 1 reached RTP (2900 MWt) on March 9, 2007. Additionally, the inspectors observed post-100% power activities and reviewed selected plant data to determine if significant plant anomalies occurred, and to ensure plant behavior was consistent with the data by simulator and analytical data.

The inspectors reviewed operator actions, applicable procedure changes, and reviewed selected plant design changes and other inspection activities conducted under the normal baseline inspection program, to ensure an adequate sample of risk-significant attributes required by NRC inspection procedure 71004 were evaluated. Specific inspections completed in the current report can be found in the Attachment.

b. Findings

No findings of significance were identified.

.2 Unit 1 Steam Generator (SG) Replacement Inspection (IP 50001)

a. Inspection Scope

Enclosure

The inspectors reviewed SG post-installation results from the following tests to ensure that the plant modifications have been successfully completed. Documents reviewed are listed in Attachment 1:

- RCS flow verification
- RCS leakage testing
- SG secondary side leakage testing
- Calibration and testing of instrumentation affected by SG replacement
- SG performance testing - moisture carryover tests

This followup review is a continuation of inspection activities for SG post-installation testing previously documented in inspection report 05000334/2006003, Section 4OA5.8.

b. Findings

No findings of significance were identified.

.3 Unit 1 and Unit 2 Conversion from current Technical Specifications (CTS) to Improved Technical Specifications (ITS)

a. Inspection Scope

The inspectors reviewed operator training, licensing documents, and evaluated station implementation of Unit 1 and Unit 2 individual CTSS into a single station ITS, as approved on February 21 (ML070390063). ITS was implemented on June 23 based on a station developed plan. Inspectors monitored the transition of Beaver Valley from CTS to ITS and reviewed station conditions to verify FENOC was in compliance with ITS.

b. Findings

No findings of significance were identified.

#### 4OA6 Management Meetings

##### .1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

On May 24, the inspector presented the inspection to Mr. E. Hubley, acting Director of Maintenance, and other members of the FENOC staff. The licensee acknowledged the conclusions and observations presented. No proprietary information is presented in this report.

##### .2 Biennial Inspections of Permanent Plant Modifications

On June 8, the inspectors presented the inspection results to Mr. M. Manoleras, Director of Engineering, and other members of the FENOC staff. The inspectors verified that this inspection feeder does not contain proprietary information.

##### .3 Quarterly Inspection Report Exit

On July 17, the inspector presented the normal baseline inspection results to Mr. J. Lash, Site Vice President, Beaver Valley Power Station, and other members of the FENOC 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

None

ATTACHMENT: SUPPLEMENTAL INFORMATION

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee personnel

S. Baker	Radiation Protection Manager
M. Banko	Environmental & Chemistry Supervisor
C. Battistone	Supervisor, Rapid Response
R. Beal	Unit 1 Ventilation Systems Engineer
R. Bologna	Operations Manager
G. Cacciani	Engineering Analyst
A. Durbin	Senior Radiation Protection Technician
R. Fedin	Regulatory Compliance Engineer
K. Frederick	Senior Design Engineer
D. Hoover	Mechanical Design Engineer
E. Hubley	Manager, Maintenance
H. Kahl	Fire Protection design Engineer
C. Keller	Regulatory Compliance
B. Klinko	Diesel System Engineer
J. Lash	Site Vice President
K. Lynch	Design Engineering
A. Lonnett	Advanced Nuclear Specialist
R. Lubert	Plant Engineer
J. Mauck	Regulatory Compliance
T. McGoutry	Component Engineer
L. Mickinac	Nuclear Oversight
J. Miller	Fire Protection Marshall
L. Miller	Fire Protection System Engineer
K. Mitchell	System Engineer
R. Moore	Radiation Protection Supervisor
B. Murtagh	Supervisor, I&C and Electrical Design Engineering
F. Oberlitner	Design Engineering
M. Patel	Electrical Design Engineer
B. Paul	Design Engineering
D. Price	Supervisor, Nuclear Mechanical/Structural Engineering
J. Redmond	System Engineer
M. Ressler	Supervisor, Design Engineering
D. Salera	Chemistry Supervisor
B. Sepelak	Compliance Supervisor
M. Testa	Senior Design Engineer
P. Vakharia	Plant Engineer, Effluent Monitoring Systems
T. Westbrook	Structural Engineer

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



Opened

None

Open/Closed

None

**LIST OF DOCUMENTS REVIEWED**

**Section 1R01: Adverse Weather Protection**

Condition Reports

07-20506      07-21826      07-21921

Procedures

½ AOP 35.1, "Degraded Grid", Rev. 4

NOP-OP-1003, "Grid Reliability Protocol", Rev.00

Other

WO 200190297

WO 200240334

FENOC Generic Letter 2006-02 Response, letter dated May 7, 2007

**Section 1R02: Evaluations of Changes, Tests, or Experiments**

10 CFR 50.59 Evaluations

01-02854, Rev. 0, "Automatic Recirculation Control Valve of HHSI Pump"

05-03593, Rev. 0, "Abandon-In-Place BV2 Hydrogen Recombiners"

05-04109, Rev. 0, "Simultaneous Hot and Cold Leg SI Recirculation (LHSI to Hot Legs)"

05-04585, Rev. 0, "Effects of Sealing BV1 Relay Room Curbed Area Penetrations"

05-06604, Rev. 0, "Pressure Relief Modification for the BV1 East and West Cable Vaults"

05-06725, Rev. 0, "BV1 Safety Analysis of the Radiological Consequences of a Waste Gas  
System Rupture DBA for Control Room, EAB, and LPZ Doses"

07-00157, Rev. 0, "BV1 Impact of Reduced Atmospheric Steam Dump Valve Capacity"

10 CFR 50.59 Screenings & Applicability Determinations (no evaluation required)

03-00213, Rev. 2, "Charging Pump Modifications"

03-01848, Rev. 0, "ECP-03-00213, Charging Pump Modifications"

03-02067, Rev. 3, "Replace Charging Pump Rotating Assembly"

05-00059, Rev. 0, "BV2 Replace Station Battery Chargers"

05-03027, Rev. 0, "BV1 Replace Pressurizer Safety Valves"

05-03743, Rev. 0, "Auxiliary Feedwater Pumps Minimum Recirculation Flow Rates"

05-04193, Rev. 1, "Containment Sump vs. Refueling Water Storage Tank Levels"

05-05914, Rev. 0, "BV2 Charging Pump Recirculation Line Flow Element Flow Coefficient and  
Nominal Flow"

05-06091, Rev. 0, "Downgrade Quality Classification of Various Functional Locations"

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06-00407, Rev. 0, "BV1 Determination of Maximum Differential Pressure Across QA Category I Motor Operated Valves in Containment Quench Spray System"  
06-01149, Rev. 0, "BV1 Containment Isolation Valve Modification"  
06-04166, Rev. 0, "IST Safety and Relief Valve Tracking"  
06-04258, Rev. 0, "3B Motor Driven Auxiliary Feed Pump Check Valves and Flow Test"  
06-04800, Rev. 0, "HHSI Net Positive Suction Head during Recirculation"  
06-05414, Rev. 0, "BV2 Pressurizer Safety & Relief Valve Pipe Stress"  
07-00247, Rev. 0, "BV1 Auxiliary Feedwater System Performance with Revised Cavitating Venturi Performance"  
07-00761, Rev. 0, "BV2 Replace Time Over-current Relays for 4KVS-2B Bus"

### Calculations & Analysis

12241.00-US(b)-183, Rev. 5, "Containment Sump vs. Refueling Water Storage Tank Levels for Emergency Operating Procedure ECA 3.1"  
8700-DMC-2783, Rev. 2, "BV1 Determination of Maximum Differential Pressure Across QA Category I Motor Operated Valves in Containment Quench Spray System"

### Corrective Action Reports (\* CR generated as a result of this inspection)

97-1502	04-06173	04-08084	06-05092	07-20294
07-20365	07-20907	07-21380	07-21708*	

### Procedures

1OST-24.8B, Rev. 5, "3B Motor Driven Auxiliary Feed Pump Check Valves and Flow Test"  
NOP-LP-4003, Rev. 4, "Evaluation of Changes, Tests, and Experiments"  
NOBP-LP-4003A, Rev. 3, "FENOC 10CFR 50.59 User Guidelines"

### Self-Assessments & Audits

BV-SA-05-192, "10 CFR 50.59 Reviews Self Assessment"  
BV-SA-06-154, "10 CFR 50.59 Reviews Self Assessment"

### Miscellaneous

NRC Inspection Manual Part 9900, CFR Guidance on 10 CFR 50.59

## **Section 1R04: Equipment Alignment**

### Procedures

1OST-39.1A, "Weekly Station battery Checks, Battery No.1," Rev. 13  
1OM-39.4A, "125V DC Control System Startup," Rev. 6  
1OM-39.3.C, "Power Supply And Control Switch List," Rev. 5  
PIPS-M03.3, "Pipe Support Installation"

Drawings

8700-RE-1V, "125V DC One Line Diagram, Sh 1.," Rev. 27.  
10080-RM-436-1, Rev. 5, Diesel Gen. Fuel Oil, Valve Opera No. Diagram  
10080-RM-436-3, Rev. 12, Diesel Starting Air, Valve Opera No. Diagram  
10080-RM-436-4A, Rev. 10, Diesel Gen. Cooling Water, Valve Opera No. Diagram  
10080-RM-436-4B, Rev. 10, Diesel Gen. Cooling Water, Valve Opera No. Diagram  
10080-RM-436-5A, Rev. 6, Diesel Gen. Lube Oil, Valve Opera No. Diagram  
10080-RM-436-5B, Rev. 6, Diesel Gen. Lube Oil, Valve Opera No. Diagram

Condition Reports

07-21245      07-21816\*

Other

NOTF 600387617

**Section 1R05: Fire Protection**

Procedures

Unit 2 Pre-Fire Plans for SB-4, 6, 7 and 10

Other

BV2 Fire Protection Safe Shutdown Report, Addendum 29  
BV2 Fire Seal Database, Mechanical Inspection Report  
BVPS Unit 1 Updated Fire protection Appendix R Report, Rev. 27  
10080-RP-64F Opening Schedule, Service & Turbine Building, Rev. 1

Condition Reports

07-21354      07-21739\*      07-21816\*      07-21823\*      07-21798\*      07-22214\*

Drawings

10080-RP-116H Sleeve Locns EI 718'6" Main Stm Vlv Encl & Sleeve Schedule, Rev. 8.  
2PFP-SRVB-745, Rev.2"Cable Spreading Room", Fire Area SB-3

Pre-Fire Plans

1PFP-SRVB-713-Motor Generator Room, Rev. 1  
1PFP-INTS-705-Pump Cubicles, Rev. 1  
U2 SB-3

Calculations

10080-B-085, Rev 12, "Unit 2 Fire Hazards Analysis"

**Section 1R06: Flood Protection Methods**

Procedures

1/2-PIP-M16, "Penetration Seals", Rev. 6  
1BVT 1.33.07, "Flood Seals Visual Inspection", Rev. 3, Dated 8/3/01  
2BVT 1.33.05, "Degraded Fire Seal Evaluation"

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2BVT 1.33.07, "Flood Seals Visual Inspection", Rev. 2, Dated 2/28/05  
Maintenance Rule (a)(2)disposition review, SPEAP 3.2, Attachment 14, Dated 7/6/00  
Deficiency Tag No. 15942, Dated 8/31/98

### Calculations

211-N-265, "Unit 2 Flooding Analysis Outside Containment"

### Condition Reports

07-21701\*      07-21812\*      07-21816

## **Section 1R11: Licensed Operator Requalification Program**

### Procedures

1/2-OM 48.1I, Technical Specification Compliance  
BVBP-OPS-024, Transient Response Guidelines  
NOP-OP-1002, Conduct of Operations

### Abnormal and Emergency Operating Procedures

E-0, Issue 1C, Rev. 10, "Reactor Trip or Safety Injection"  
1OM-53.A.1.ES-1.1, Issue 1C, Rev 8, "SI Termination  
1OM-7.4H, Rev. 5, "Excess Letdown Heat Exchanger Operation"

### Other

Beaver Valley Unit 1 Current Technical Specifications

## **Section 1R12: Maintenance Rule Implementation**

### Condition Reports

07-18971      07-19708      07-20535      07-21581

### Procedures

1/2-ADM-2114, "Maintenance Rule (MR) Program Administrative Procedure", Rev. 4

### Other

Maintenance Preventable Functional Failure Determination, CR 07-19708-02  
NOTF 600379916  
NOTF 600381979

## **Section 1R13: Maintenance Risk Assessment and Emergent Work Control**

### Procedures

1OM-39.4.A, "124V DC Control System Startup," Revision 6.  
NOP-OP-1007, "Risk Determination," Revision 4.  
1/2-ADM-2033, "Risk management Program," Revision 4.

### Condition Reports

07-17468      07-19166      07-19405      07-21098      07-22630

Other

Station Weekly Maintenance Risk Summary, Week of April 16, 2007, Rev. 0  
WO 200119009  
WO 20025198

**Section 1R15: Operability Evaluations**

Calculations

8700-DMC-2800, "BVPS Unit 1 Diesel Generator Building: Ventilation Adequacy with One of Two Inlet Air Dampers Closed".

Procedures

1/2OM-53C.4A.75.3, "Acts of Nature-Earthquake", Rev. 13  
1MSP-45.01, "Seismic Monitoring Instrumentation System Test"  
2OM-45B.4.F, "Seismic Instrumentation Central Control Cabinet [2ERS-CCC-1] Running", Rev. 9  
2OST-39.1B, "125 VDC Control System Operating Surveillance Test", Rev 17 and 12 (TCN 01-00126)  
2MSP-45.01, "Seismic Monitoring Instrumentation Channel Test"  
2MSP-E-39-001, "Vital Bus Weekly Battery Inspection"  
NOP-OP-1009, "Immediate and Prompt Operability Determination", Rev. 00  
NOP-OP-1010, "Operational Decision-Making", Rev. 1

Condition Reports

06-05216	07-15002	07-18489	07-19725	07-20307
07-20308	07-20653	07-20918	07-21127	07-21637
07-21854	07-21895	07-22332		

Other

2-DBD-39, 125VDC Power System, Rev. 6  
Ametek Charger Technical Manual  
BV1 Control Room Logs, dated June 19-20, 2007  
BV1 Emergency Action Levels  
BV2 Control Room Logs, dated June 19-20, 2007  
BV2 Emergency Action Levels  
BVPS Pipe Rupture Follow-up Report (L-07-083) to PA Dept of Environmental Protection, dated June 11, 2007  
ECP-05-0059, "BV2 Battery Charger Upgrade", Rev 0  
NOTF 600368623  
NOTF 600384251  
NOTF 600385869  
Station Weekly Maintenance Risk Summary, Week of May 14, 2007, Rev. 0 and 1  
WO 200253684

**Section 1R17: Permanent Plant Modifications**

Modifications

## A-1

CERF 000788, Rev. 0, "BV2 Replace Time Over-current Relays for 4KVS-2B Bus"  
ECP-03-0213, Rev. 2, "BV2 Charging Pump Modifications"  
ECP-04-0143, Rev. 0, "OPDT/OTDT Setpoint Parameter Value Change"  
ECP-05-0059, Rev. 0, "BV2 Replace Station Battery Chargers"  
ECP-05-0110, Rev. 0, "BV1 Replace Pressurizer Safety Valves"  
ECP-05-0411, Rev. 0, "Downgrade Quality Classification of Various Functional Locations"  
ECP-06-0202, Rev. 0, "BV2 Replace 30 inch Butterfly Valve 2SWS-33"  
ECP-06-0233, Rev. 1, "Emergency Diesel Generator Air Start Modifications to Support ITS"  
ECP-06-0278, Rev. 0, "Vendor Change of EDG Fuel Injection Pump Rack Settings"  
ECP-07-0010, Rev. 0, "BV1 Atmospheric Steam Dump Valve Reduced Capacity"

### Calculations & Analysis

06.039-0262, Rev. A, "Target Rock End Load Analysis"  
06.039-0261, Rev. A, "Target Rock Design Report"  
06.039-0164, Rev. B, "Target Rock Seismic Analysis"  
10080-N-841, Rev. 0, "BV2 Charging Pump Recirculation Line Flow Element Flow Coefficient and Nominal Flow"  
12241-NP-X109A, Rev. 5, Addendum A3, "Pressurizer Safety & Relief Valve Pipe Stress"  
8700-DMC-1429, Rev. 0, Addendum 5, "BV1 Auxiliary Feedwater System Performance with Revised Cavitating Venturi Performance"  
8700-DMC-2230, Rev. 2, "Auxiliary Feedwater Pumps Minimum Recirculation Flow Rates"

### Corrective Action Reports (\* CR generated as a result of this inspection)

03-04467	03-08751	05-01058	05-02321	05-02419
05-04517	05-06361	06-04505	06-04837	06-07355
07-21540	07-21548	07-21603*	07-21708*	

### Drawings

8700-06.024-3593, Sheet 1, Rev. 3, "BV1 Target Rock Drawing"

### Procedures

06.039-0259, Rev. B, "Target Rock Test Procedure"  
1OM-53A.1.E-0, Rev. 10, Issue 1C, "Reactor Trip or Safety Injection"  
1OM-53A.1.E-3, Rev. 9, Issue 1C, "Steam Generator Tube Rupture"  
1OM-53A.1.ECA-3.1, Rev. 11, Issue 1C, "SGTR with Loss of Reactor Coolant - Subcooled Recovery Desired"  
1OM-53A.1.ES-3.1, Rev. 9, Issue 1C, "Post-SGTR Cooldown Using Backfill"  
1OST-36.1, Rev. 46, "Diesel Generator No. 1 Monthly Test"  
2BVT 1.60.5, Rev. 16, "IST Safety and Relief Valve Tracking"  
2CMP-36EGS-FUEL-INJ-PUMP-1M, Rev. 6, "Removal & Installation of EDG Fuel Injection Pump"  
2ICP-36-P205-1, Rev. 0, "2EGA-P205-1, Diesel Generator 2-1 Starting Air Low Pressure Alarm Switch and Pressure Indicator Calibration"  
2OM-7.2.A, Rev. 15, "CVCS Operation and Precautions & Limitations"  
NOP-CC-2001, Rev. 5, "Design Verification"  
NOP-CC-2002, Rev. 3, "Design Input"  
NOP-CC-2003, Rev. 10, "Engineering Changes"

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NOP-CC-2004, Rev. 5, "Design Interface Reviews and Evaluations"  
NOP-CC-2004-01, Rev. 7, "Design Interface Review Checklist"  
NOP-CC-2002, Rev. 4, "Calculations"

### Self-Assessments & Audits

BV Design Basis Assessment Report, October through December 2006  
BV-PA-06-04, "Fleet Oversight Quarterly Performance Report - Beaver Valley"  
BV-SA-06-121, "Engineering Changes Self Assessment"

### Miscellaneous

EPRI NP-2770-LD, Volume 8, "Test Results for Target Rock Safety Valve," dated March 1983  
FENOC Letter to Westinghouse, ND1MLM:0107, "Installation of Automatic Mini-flow Valves,"  
dated August 2, 2001  
Notification 600336154  
Westinghouse Letter to BV, FENOC-01-339, "BV2 Installation of Automatic Recirculation  
Valve," dated November 30, 2001  
UFSAR, Rev. 16, Section 8.3.1  
UFSAR, Rev. 16, Table 6.3-1, "ECCS Component Parameters"

## **Section 1R19: Post-Maintenance Testing**

### Procedures

1OST-13.7C, "1A Recirculation Spray Pump Auto Start Test", Rev. 3  
2OST-34.8, "Standby Diesel-Driven Air Compressor [2IAS-C21] Test", Rev. 2  
2MSP-36.28-E, "21C Reactor Coolant Pump 4kV Bus Underfrequency Relay, 81-VC200  
Functional Test", Issue 4 Rev. 14

### Condition Reports

07-19663	07-19708	07-20343	07-20353	07-21249
07-21401	07-21941			

### Work Orders

200207913	200212185	200214680	200261587	200266978
NOTF 600378840				
NOTF 600384367				

### Other

ECP 06-0227  
Unit 1 Control Room Logs, dated May 1, 2007

## **Section 1R22: Surveillance Testing**

### Condition Reports

07-19715      07-20942      07-21726\*      07-21795\*      07-22420\*

### Miscellaneous

BV1 Control Room Logs, dated June 18, 2007  
 BV1 Work Order 200204221 (1BVT-01.39.14, No. 1 Battery Charger Load Test)  
 BV1 NOTF 600386874 (Failed TV-1SS-111A2, Dual Indication Repair)  
 1DBD-39, "Design Basis Document for 125 VDC Power System, Revision 6.

## **Section 1R23: Temporary Plant Modifications**

### Condition Reports

07-19725      07-21127      07-21529

### Other

ODMI-07-21127  
 WO 200256730 (repair/replace pressure transmitter 2SIS-PT929)

## **Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems**

### Procedures:

1/2-ODC-1.01, Rev 5	ODCM: Index, Matrix, and History of ODCM Changes
1/2-ODC-2.01, Rev 5	ODCM: Liquid Effluents
1/2-ODC-2.02, Rev 1	ODCM: Gaseous Effluents
1/2-ODC-3.01, Rev 1	ODCM: Dispersion Calculation Procedure and Source Term Inputs
1/2-ODC-3.02, Rev 2	ODCM: Bases for ODCM Controls
1/2-ODC-3.03, Rev 5	ODCM: Controls for RETS and REMP Program
1/2-HPP-3.06.005, Rev 3	Radioactive Waste Discharge Authorization-Liquid, Computer Calculation Method
1/2-HPP-3.06.006, Rev 4	Batch Radioactive Waste Discharge Authorization
1-HPP-4.02.001, Rev 6	Process Monitoring Systems
1-HPP-4.02.002, Rev 3	Effluent Monitors
2-HPP-4.02.020, Rev 10	DRMS, Process Monitoring Subsystem
2-HPP-4.02.021, Rev 6	DRMS, Effluent Monitoring Subsystem
1/2-ENV-01.03, Rev 1	Monthly Release Permit for the Continuous Ventilation Pathways

### Test Reports:

-BV-1MSP-17-05-1, Calibration of Laundry and Contaminated Shower Liquid Discharge Monitor LW-103, 10/17/06  
 -BV-1MSP-17-06-1, Calibration of Liquid Waste Discharge Flow Loop F-LW-104-1, 04/09/07  
 -BV-1MSP-43-18-1, Calibration of RM-LW104 Liquid Waste Effluent, 12/08/06  
 -BV-1MSP-43-59-1, Calibration of RM-VS110 Rx Bldg-SLCRS Rad Monitor, 03/24/07  
 -BV-1MSP-43-60-1, Calibration of RM\_IVS-109, Ventilation Vent Rad Monitor, 05/27/06



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- 2SGC-RQ100, Liquid Waste Process Effluent Rad Monitor Calibration, 11/11/06
- BV-1BVT1-16-06, Unit-1 A-Supplementary Leak Collection and Release System (SCLRS)  
Filter Efficiency Test and Flow Test, 11/01/06
- BV-1BVT1-16-06, Unit-1 B-Supplementary Leak Collection and Release System (SCLRS)  
Filter Efficiency Test and Flow Test, 02/24/06
- BV-2BVT1-16-06, Unit-2 A-Supplementary Leak Collection and Release System (SCLRS)  
Filter Efficiency Test and Flow Test, 04/17/06
- BV-2BVT-01-16-11, SLCRS Filter Train B Charcoal Sample Test, 07/11/2005
- BV-2BVT-01-16-07, SLCRS Filter Train B Charcoal Sample/HEPA/Air Flow/ differential  
pressure Test, 04/14/06
- 2BVT-2.44.09, Decontamination Building Filtration System Charcoal (2HVQ-FITA227) Test  
Sample Removal, 04/07/06

### Nuclear Oversight (NO) Reports:

- Second Quarter 2005 Assessment Report (BV-C-05-02)
- NO Field Observation Report Nos. BV320072963, BV320052192, BV320052197,  
BV120052025, BV320052008, BV320041944

### Condition Reports:

06-01619	06-09951	06-05181	06-11975	06-11809	06-03307
06-04648	07-12344	07-12513	07-18914	07-19457	07-19679
07-19834	07-20589	07-15733			

### Miscellaneous Reports:

- 2005 and 2006 Annual Radioactive Effluent Release Reports
- BVPS Applicability to IE Bulletin 80-10 and IE Information Notices 88-22 & 2006-13
- Ground Water Flow Characteristics Report for BVPS , 12/18/06
- Licensee Event Report (LER-2-06-002)Entry into Technical Specification 3.0.3 due to  
Inoperability of Both Trains of Supplemental Leak Collection and Release System

## **Section 40A2: Identification and Resolution of Problems**

### Procedures

1/2-ADM-0810, Rev 8, "Scaffold Erection and Tagging"

### Condition Reports

07-21896	07-21945	07-21957	07-21979*	07-21687	07-22085*
07-02888	06-09596	06-09475	06-09451	06-08963	06-08714
06-08268	06-07987	06-07932	06-07684	06-07453	06-07450
06-07046	06-06967	06-06623	06-06622	06-06621	06-06610
06-06609	06-06605	06-06604	06-06603	06-06602	06-06081
06-05037	06-04593	06-04129	06-03748	06-03559	06-03303
06-02687	06-02486	06-02072	06-02035	06-01878	06-01848
06-01534	06-01523	06-01433	06-01245	06-01236	06-01211
06-01125	06-00790	06-00511	05-08203	05-07900	05-07801
05-07756	07-21430	07-21691	05-06862	05-06864	07-17165

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07-15856	07-15772	07-15820	07-15276	07-15278	07-15279
07-14163	04-07835	04-07837	07-18024	07-12629	07-14371

### Miscellaneous Documents

List of scaffolds from FIN team

List of scaffolds from construction services

List of scaffolds from maintenance services

Root Cause Analysis Report, "Scaffold Interference with operation of MSIV 2MSS-AOV101A/B causes entry into Technical Specification 3.0.3", revised January 12, 2007

BV-SA-06-033, "Focused Self-Assessment Report, Beaver Valley Seismic Scaffolding Program," dated 12/6/2006

Engineering Assessment - Scaffold Interference with Operation of MSIVs

### **Section 40A3: Event Response**

#### Condition Reports

07-21465	07-21485	07-21602
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#### Procedures

½ AOP 35.1, "Degraded Grid", Rev. 4

Unit 1 Alarm Response Procedures A8-28, A8-32

NOP-OP-1003, "Grid Reliability Protocol", Rev.00

#### Other

Unit 1 & Unit 2 control room logs dated June 1 and 2, 2007

FENOC Generic Letter 2006-02 Response, letter dated May 7, 2007;

### **Section 40A5: Other Activities**

#### Unit 1 Extended Power Uprate (IP 71004)

##### Procedures / Surveillances / Post Maintenance Tests

1BVT 1.6.1, "Reactor Coolant System Total Flow Measurement", Issue 2, Rev. 19, completed March 15, 2007

1-SPT-52-40440-3, "Escalation to EPU Uprate Power (2900 MWt), Rev. 1, completed March 19, 2007

1OM-54.4.C1-3, "Daily Heat Balance", Rev. 22, completed March 7 & 9, 2007

1OST-35.5, "Main Generator Parameter Trending", Rev. 12, completed March 9, 2007

1MSP-6.79-I, "Operational Alignment of Process Temperature Instrumentation", Issue 4, Rev. 2, completed March 15, 2007

Unit 1 Uprate: Thermal Expansion and Restraint Walkdowns for 2770MWt, 2835MWt, and 2900MWt Operating Conditions Summary Report, dated April 5, 2007

Miscellaneous

1/2-ADM-1359.F06, "Unit 1 Simulator to Plant Comparison at 108% Uprate (Post GV Tuning)", Rec 3 with SDR No. 179 on May 22, 2007

BV-PORC-07-05, Review of BVPS-1 EPU Uprate 97.75% (2835MWt) Test Results, dated March 8, 2007

ECP04-0440-02; Phase 2&3 (+5%) Power Uprate Ascension Testing

Work Orders

WO 200243585; Master work order to ascend Unit 1 from 2770 MWt to 2900 MWt

WO 200243585

WO 200246904

WO 200246894

Condition Reports

07-16208      07-18351      07-18410

<b>Inspection Procedure</b>	<b>Title</b>	<b>Inspection Report</b>	<b>Description and 71004 Section</b>
71004	Power Uprate	07-03	BV1 Simulator to Plant Comparison (5/22) at 108% Uprate (2900MWt) (2.02.e)
		07-03	BV1 EPU Post-100% +100hour (3/19) plant data. (2.02.e)
		07-03	BV1 EPU 2835MWt (3/7) and 2900MWt (3/9) heat balance data (2.02.e)
		07-03	BV1 Main Generator parameter trend data at 2900MWt (3/9) (2.02.e)
		07-03	BV1 Process Temperature operational data at 2900MWt (3/15) (2.02.e)
		07-03	BV1 RCS Total Flow Measurement data at 2900MWt (3/15) (2.02.e)
		07-03	BV1 PORC review of interim EPU power level (2835MWt) test data (3/8) (2.02.g)
		07-03	BV1 RCS Chemistry Data at 2900MWt (3/19) (2.02.e)
		07-03	BV1 Health Physics Radiation Surveys outside containment at 2900MWt (3/14-5/15) (2.02.e)

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		07-03	BV1 Thermal Expansion and Restraint Walkdown data (4/5) (2.02.e)
71111.02	Evaluation of Changes, Tests, or Experiments	07-03	BV1 Simultaneous Hot and Cold Leg SI Recirculation (LHSI to Hot Legs) (2.02.a)
		07-03	BV1 Impact of Reduced Atmospheric Steam Dump Valve Capacity (2.02.a)
71111.17B	Permanent Plant Modifications	07-03	BV1 OPDT/OTDT Setpoint Parameter Value Change (2.02.b)
		07-03	BV1&2 Charging Pump Modifications (2.02.b)
50001	Steam Generator Replacement	07-03	BV1 Replacment Steam Generator Post Installation test data (2.02.e)

### Unit 1 Steam Generator (SG) Replacement Inspection (IP 50001)

#### RCS flow verification

WO 200147579

1-SPT-06-30193-1, Rev. 0, "SGRP Warranty Test: Reactor Coolant System Flow Rate", dated May 19, 2006

#### RCS and Secondary side leakage testing

1-CHM-SAM-3.49

1/2-CHM-ANA-5.12

Unit 1 Chemistry Logs dated April - May 2006

BOP-VT-06-124, New SG Replacement Welds / Mode 3 Leakage Package, dated April 19, 2006

BOP-VT-06-126, Reactor Coolant Boundary - All Elevations / Mode 3 Leakage Package, dated May 5, 2006

#### Calibration and testing of instrumentation affected by SG replacement

Engineering Change Package (ECP) 02-0238

ECP 02-0298

ECP 03-0575

WO 200048213, 'A' SG Feedwater Instrumentation / Control Loop and Calibration

WO 200048214, 'B' SG Feedwater Instrumentation / Control Loop and Calibration

WO 200048215, 'C' SG Feedwater Instrumentation / Control Loop and Calibration

WO 200147586, Steam Generator Water Level Control and Pressure Tests

1-SPT-24-30193-1, Rev.0, "SGRP Functional Test: Steam Generator Water Level Control", dated April 24, 2006

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### SG performance testing - moisture carryover tests

WO 200147578

DAR-AEE-07-1, Rev. 0, "Steam Generator Moisture Carryover Evaluation Test Results for First Energy Beaver Valley Unit 1"; dated March 16, 2007

### Condition Reports

07-14840      06-03292

### Other

ECP 03-0193, Unit 1 Steam Generator Replacement, Rev. 1

1-SPT-25-30193-2, Rev. 1, "SGRP Warranty Test: Blowdown System Flow Capacity (RSG), dated May 9, 2006

1-SPT-21-30193-1, Rev. 0, "SGRP Warranty Test: Replacement Steam Generators Steam Pressure:", dated December 21, 2006

BV1RSG-TG-1, Rev. 2, "Test Guideline for Steam Pressure Testing of RSGs at BVPS Unit 1", dated July 27, 2006

### Unit 1 and Unit 2 Conversion to Improved Technical Specifications

#### Technical Specifications

Up to June 23, 2007:

Unit 1, Amendment 277

Unit 2, Amendment 160

From June 23, 2007:

Unit 1/Unit 2, Amendment 278 / 161

#### Updated Final Safety Analysis Report (UFSAR)

Unit 1, Rev. 23

Unit 2, Rev 16

#### License Requirement Manual

Up to June 23, 2007:

Unit 1, Rev. 55

Unit 2, Rev. 51

From June 23, 2007:

Unit 1, Rev. 56

Unit 2, Rev. 52

#### Procedures

1/2OM-48.1.J, "Safety Function Determination Program", Rev. 0

#### Condition Reports

06-11762	06-11765	07-13174	07-14434	07-19108
07-20388	07-21309	07-21515	07-22248	07-22751
07-21783	07-22865	07-22866	07-22931	07-23001

07-23115

Other

Beaver Valley Unit 1 license amendment 296 (ITS Conversion)

Beaver Valley Unit 2 license amendment 169 (ITS Conversion)

BVPS Unit 1 and Unit 2 Current Technical Specifications to Improved Specification  
Roadmap

BVPS Units 1 & 2 Improved Technical Specification Implementation Guide, Rev 1, dated  
February, 12, 2007

**LIST OF ACRONYMS**

ADM	Administrative Procedure
AFW	Auxiliary Feedwater
BCO	Basis for Continued Operations
BVPS	Beaver Valley Power Station
CFR	Code of Federal Regulations
CR	Condition Report(s)
DRMS	Digital Radiation Monitoring System
EDG	Emergency Diesel Generator
EPU	Extended Power Uprate
ERF	Emergency Response Facility
FENOC	First Energy Nuclear Operating Company
HEPA	High Efficiency Particulate Absolute
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ITS	Improved Technical Specification
ISTS	Improved Standard Technical Specification
ISI	Inservice Inspection
LCO	Limiting Conditions for Operations
LER	Licensee Event Report
MR	Maintenance Rule
MSIV	Main Steam Isolation Valves
MSP	Maintenance Surveillance Package
MWe	MegaWatts - Electric
MWt	MegaWatts - Thermal
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
OD	Operability Determinations
ODCM	Off-Site Dose Calculation Manual
OST	Operations Surveillance Test
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PMT	Post-Maintenance Testing
PRA	Probabilistic Risk Assessment
RCS	Reactor Coolant System
RETS	Radiological Environmental Technical Specifications
SG	Steam Generator
SE	Safety Evaluations
SLCRS	Supplemental Leak Collection and Release System
SSC	Structures, Systems, and Components
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order