UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

September 20, 2012

EA-12-195

Mr. Paul A. Harden
Site Vice President
FirstEnergy Nuclear Operating Company
Beaver Valley Power Station
P. O. Box 4, Route 168
Shippingport, PA 15077-0004

SUBJECT: BEAVER VALLEY POWER STATION - NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000334/2012007 and 05000412/2012007, EXERCISE OF ENFORCEMENT DISCRETION

Dear Mr. Harden:

On August 10, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed a triennial fire protection inspection at Beaver Valley Power Station. The enclosed inspection report documents the inspection results, which were discussed on August 10, 2012, with yourself 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. The inspectors also reviewed mitigation strategies for addressing large fires and explosions.

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

The licensee identified a finding involving a violation of a Beaver Valley Power Station fire protection license condition. The NRC screened this finding and determined that it warranted enforcement discretion per Section 9.1 of the NRC Enforcement Policy, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)."

In accordance with Title 10 of the Code of Federal Regulations Part 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS).

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Docket Room or from the Publicly Available Records component of NRC's document system, Agencywide Documents Access and

Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

for

Christopher G. Miller, Director
Division of Reactor Safety

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

Enclosure:
Inspection Report Nos. 05000334/2012007 and 05000412/2012007
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

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Sincerely,

/RA by Peter R. Wilson for/

Christopher G. Miller, Director
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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.:	05000334/2012007 and 05000412/2012007
Licensee:	First Energy Nuclear Operating Company
Facility:	Beaver Valley Power Station
Location:	Technology Blvd., Shippingport, PA
Dates:	July 23 – August 10, 2012
Inspectors:	R. Fuhrmeister, Senior Reactor Inspector (Team Leader) C. Cahill, Senior Reactor Analyst K. Young, Senior Reactor Inspector L. Scholl, Senior Reactor Inspector D. Orr, Senior Reactor Inspector
Approved by:	John F. Rogge, Chief Engineering Branch 3 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000334/2012007 and 05000412/2012007; 07/23/2012 – 08/10/2012; First Energy Nuclear Operating Company; Beaver Valley Power Station; Triennial Fire Protection Baseline Inspection.

The report covered a two-week triennial fire protection team inspection by specialist inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Initiating Events, Mitigating Systems

NRC Identified and Self-Revealing Findings:

No findings were identified.

Other Findings:

Violations of very low safety significance or severity level IV that were identified by First Energy Nuclear Operating Company (FENOC) have been reviewed by the NRC. Corrective actions taken or planned by FENOC have been entered into FENOC's corrective action program. These violations are listed in Section 4OA3 and 4OA7 of this report.

REPORT DETAILS

Background

This report presents the results of a triennial fire protection inspection conducted in accordance with NRC Inspection Procedure (IP) 71111.05T, "Fire Protection." The objective of the inspection was to assess whether First Energy Nuclear Operating Company (FENOC) has implemented an adequate fire protection program and that post-fire safe shutdown capabilities have been established and are being properly maintained at the Beaver Valley Power Station (BVPS). The following fire areas (FAs) and/or fire zones (FZs) were selected for detailed review based on risk insights from the BVPS Fire Probabilistic Risk Assessment (PRA).

- FA 1-QP-1
- FA 1-ES-2
- FA 2-SB-4
- FA 2-CV-2

Inspection of these areas/zones fulfills the inspection procedure requirement to inspect a minimum of three samples.

The inspection team evaluated FENOC's fire protection program (FPP) against applicable requirements which included the plant Technical Specifications, Operating License Condition 2.C(5) for Unit 1 and 2.F for Unit 2 , NRC Safety Evaluations, 10 CFR 50.48, 10 CFR 50, Appendix R, and Branch Technical Position (BTP) Chemical Engineering Branch (CMEB) 9.5-1. The team also reviewed related documents that included the Updated Final Safety Analysis Report (UFSAR), Section 9.10 (Unit 1) and 9.5.1 (Unit 2), the fire hazards analysis (FHA), and the post-fire safe shutdown analyses.

The team also evaluated eight FENOC mitigating strategies for addressing large fires and explosions as required by Operating License Condition 2.C(11) for Unit 1, Operating License Condition 2.C(13) for Unit 2, and 10 CFR 50.54 (hh)(2). Inspection of these strategies fulfills the inspection procedure requirement to inspect a minimum of one sample.

Specific documents reviewed by the team are listed in the attachment.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R05 Fire Protection (IP 71111.05T)

.01 Protection of Safe Shutdown Capabilities

a. Inspection Scope

The team reviewed the FHA, safe shutdown analyses, supporting drawings and documentation to verify that safe shutdown capabilities were properly protected. The team ensured that applicable separation requirements of Section III.G of 10 CFR Part 50, Appendix R (U1), BTP 9.5-1 (U2), and FENOC's design and licensing

bases were maintained for the credited safe shutdown equipment and their supporting power, control and instrumentation cables. This review included an assessment of the adequacy of the selected systems for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring, and associated support system functions.

b. Findings

No findings were identified.

.02 Passive Fire Protection

a. Inspection Scope

The team walked down accessible portions of the selected fire areas to evaluate whether the material conditions of the fire area boundaries were adequate for the fire hazards in the area. The team compared the fire area boundaries, including walls, ceilings, floors, fire doors, fire dampers, penetration seals, electrical raceway and conduit fire barriers, and redundant equipment fire barriers to design and licensing basis requirements, industry standards, and the BVPS fire protection program (FPP), as approved by the NRC, to identify any potential degradation or non-conformances.

The team reviewed selected engineering evaluations, installation and repair work orders, and qualification records for a sample of penetration seals to determine whether the fill material was properly installed and whether the as-left configuration satisfied design requirements for the intended fire rating. The team also reviewed similar records for selected fire protection wraps to verify whether the material and configuration was appropriate for the required fire rating and conformed to the engineering design.

The team also reviewed recent FirstEnergy Nuclear Operating Company (FENOC) inspection records for penetration seals and fire barriers, to verify whether inspections were adequately conducted, the acceptance criteria were met, and any potential performance degradations were identified. In addition, the team reviewed recent test results for the carbon dioxide (CO_2) fire damper functionality tests for the Unit 2 east cable vault room to verify whether the testing was adequately conducted, the acceptance criteria were met, and any potential performance degradations were identified.

b. Findings

No findings were identified.

.03 Active Fire Protection

a. Inspection Scope

The team evaluated manual and automatic fire suppression and detection systems in the selected fire areas to determine whether they were installed, tested, maintained, and operated in accordance with NRC requirements, National Fire Protection Association

(NFPA) codes of record, and the BVPS FPP, as approved by the NRC. The team also assessed whether the suppression systems' capabilities were adequate to control and/or extinguish fires associated with the hazards in the selected areas.

The team reviewed the as-built capability of the fire water supply system to verify whether the design and licensing basis and NFPA code of record requirements were satisfied, and to assess whether those capabilities were adequate for the hazards involved. The team reviewed the fire water system hydraulic analyses to assess the adequacy of a single fire water pump to supply the largest single hydraulic load on the fire water system plus concurrent fire hose usage. The team evaluated the fire pump performance tests to assess the adequacy of the test acceptance criteria for pump minimum discharge pressure at the required flow rate, to verify whether the criteria was adequate to ensure that the design basis and hydraulic analysis requirements were satisfied. The team also evaluated the underground fire loop flow tests to verify whether the tests adequately demonstrated that the flow distribution circuits were able to meet design basis requirements. In addition, the team reviewed recent pump and loop flow test results to verify whether the testing was adequately conducted, the acceptance criteria were met, and any potential performance degradation was identified.

The team reviewed initial discharge testing, design specifications, vendor requirements, engineering evaluations, and routine functional testing for the CO_2 suppression system for the Unit 2 east cable vault room. The team walked down accessible portions of the CO_2 system, including storage tanks and supply systems, to independently assess the material condition, operational lineup, and availability of the systems. The team also reviewed and walked down the associated fire fighting strategies and CO_2 system operating procedures.

The team walked down accessible portions of the fire detection and fire hose suppression systems in the selected areas and major portions of the fire water supply system, including both diesel and motor driven fire pumps, interviewed system and program engineers, and reviewed selected condition reports to independently assess the material condition of the systems and components. In addition, the team reviewed recent test results for the fire detection and suppression systems for the selected fire areas to verify whether the testing was adequately conducted, the acceptance criteria were met, and any potential performance degradation was identified.

The team assessed the fire brigade capabilities by reviewing training, qualification, and drill critique records. The team also reviewed FENOC's fire fighting strategies (i.e., pre-fire plans) for the selected fire areas to determine if appropriate information was provided to fire brigade members and plant operators to identify safe shutdown equipment and instrumentation, and to facilitate suppression of a fire that could impact post-fire safe shutdown capability. The team independently inspected the fire brigade equipment, including personnel protective gear (e.g., turnout gear) and smoke removal equipment, to determine operational readiness for fire fighting. In addition, the team reviewed FENOC's fire brigade equipment inventory and inspection procedure and recent inspection and inventory results to verify whether adequate equipment was available, and whether any potential material deficiencies were identified.

b. Findings

No findings were identified.

.04 Protection From Damage From Fire Suppression Activities

a. Inspection Scope

The team walked down the selected fire areas and adjacent areas, and reviewed selected documents to determine whether redundant safe shutdown trains could be potentially damaged from fire suppression activities or from the rupture or inadvertent operation of fire suppression systems. During the walkdowns, the team evaluated the adequacy and condition of floor drains, equipment elevations, and spray protection. Specifically, to determine whether a potential existed to damage redundant safe shutdown trains, the team evaluated whether:

- A fire in one of the selected fire areas would not release smoke, heat, or hot gases that could cause unintended activation of suppression systems in adjacent fire areas which could potentially damage all redundant safe shutdown trains;
- A fire suppression system rupture, inadvertent actuation, or actuation due to a fire, in one of the selected fire areas, could not directly damage all redundant trains (e.g., sprinkler caused flooding of other than the locally affected train); and
- Adequate drainage was provided in areas protected by water suppression systems.

b. Findings

No findings were identified.

.05 Post-Fire Safe Shutdown Capability – Normal and Alternative

a. Inspection Scope

The team reviewed the safe shutdown analysis, operating procedures, piping and instrumentation drawings (P&IDs), electrical drawings, the UFSAR and other supporting documents for the selected fire areas to verify that the licensee had properly identified the systems and components necessary to achieve and maintain safe shutdown conditions. The team assessed the adequacy of the selected systems and components for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring, and support system functions. This review included verification that alternative post-fire shutdown could be performed both with and without the availability of offsite power. Plant walkdowns were also performed to verify that the plant configuration was consistent with that described in the safe shutdown and fire hazards analyses. The team verified that the systems and components credited for use during shutdown would remain free from fire damage.

The team verified that the training program for licensed and non-licensed operators included alternative shutdown capability. The team also verified that personnel required for safe shutdown using the normal or alternative shutdown systems and procedures are trained and available onsite at all times, exclusive of those assigned as fire brigade members.

The team reviewed the adequacy of procedures utilized for post-fire shutdown and performed an independent walk through of procedure steps to ensure the implementation and human factors adequacy of the procedures. The team also verified that the operators could be reasonably expected to perform specific actions within the time required to maintain plant parameters within specified limits.

Specific procedures reviewed for normal and alternative post-fire shutdown included the following:

- 1OM-56B.4.I, Safe Shutdown Following a Serious Fire in the Service Building, Rev. 13
- 1OM-56B.4.H, Safe Shutdown Following a Serious Fire in Safeguards, Rev. 20
- 1OM-56C.4.A, Alternate Safe Shutdown From Outside Control Room – Intent and Methodology, Rev. 9
- 1OM-56C.4.B, Alternate Safe Shutdown From Outside Control Room – Shift Manager Procedure, Rev. 44
- 1OM-56C.4.C, Alternate Safe Shutdown From Outside Control Room – NCO Procedure, Rev. 35
- 1OM-56C.4.D, Alternate Safe Shutdown From Outside Control Room – Nuclear Operator #1 Procedure, Rev. 32
- 1OM-56C.4.E, Alternate Safe Shutdown From Outside Control Room – Shift Technical Advisor's Procedure, Rev. 21
- 1OM-56C.4.G, Alternate Safe Shutdown From Outside Control Room – Nuclear Operator #2 Procedure, Rev. 3
- 1OM-56C.4.H, Alternate Safe Shutdown From Outside Control Room – Nuclear Operator #3 Procedure, Rev. 0
- 2OM-56B.4.B, Safe Shutdown Following a Serious Fire in the Cable Vault Building, Rev. 22;
- 2OM-56B.4.I, Safe Shutdown Following a Serious Fire in the Service Building, Rev. 12;
- 2OM-56C.4.B, Alternate Safe Shutdown from Outside Control Room, Unit Supervisor Procedure, Rev. 30;
- 2OM-56C.4.C, Alternate Safe Shutdown from Outside Control Room, NCO Procedure, Rev. 18;
- 2OM-56C.4.D, Alternate Safe Shutdown from Outside Control Room, Nuclear Operator #1 Procedure, Rev. 22;
- 2OM-56C.4.E, Alternate Safe Shutdown from Outside Control Room, Nuclear Operator #2 Procedure, Rev. 21;
- 2OM-56C.4.F-1, ASP Activation, Rev. 12;

- 2OM-56C.4.F-15, Manual Operation of Hydraulically Operated Valves, Rev. 4; and,
- 2OM-56C.4.F-19, Operation of Reactor Head Vent Valves, Rev. 0.

The team reviewed manual actions to ensure that they had been properly reviewed and approved and that the actions could be implemented in accordance with plant procedures in the time necessary to support the safe shutdown method for each fire area. The team also reviewed the periodic testing of the alternative shutdown transfer capability and instrumentation and control functions to ensure the tests are adequate to ensure the functionality of the alternative shutdown capability.

b. Findings

No findings were identified.

.06 Circuit Analysis

a. Inspection Scope

The team reviewed FENOC's post-fire safe shutdown analysis for the selected fire areas to ensure the analysis identified both required and associated electrical circuits and cables for the systems and components necessary to achieve and maintain safe shutdown. The team reviewed electrical schematics and cable routing data for the power and control cables associated with selected components. Specifically, the team evaluated the selected circuits and cables to determine whether they were (a) adequately protected from potential fire damage, or (b) analyzed to show that fire-induced faults (e.g., hot shorts, open circuits, and shorts to ground) would not prevent safe shutdown, or (c) analyzed to show that any adverse effect of potential damage could be mitigated with approved operator manual actions, in order to verify fire-induced faults would not adversely impact safe shutdown capabilities. The team's evaluations considered credible fire scenarios, cable insulation attributes, cable failure modes, cable routing, and common power supply or electrical bus configurations.

In addition, the team reviewed cable raceway drawings and cable routing databases for a sample of components required for post-fire safe shutdown to determine whether those cables were routed as described in the safe shutdown analysis. The team also reviewed equipment important to safe shutdown, but not part of the success path, to assess whether FENOC's safe shutdown methodologies were appropriate, conformed to design and licensing basis requirements, and appropriately considered the guidance in NRC Regulatory Guide 1.189, "Fire Protection for Nuclear Power Plants," Revision 2.

Circuit analysis was performed for the following components:

Unit 1

- LT-RC-460, Pressurizer Level {(at Backup Indicating Panel (BIP)};
- MOV-CH115B, Reactor Water Storage Tank (RWST) Isolation to Charging Pump;
- MOV-CH115D, RWST Isolation to Charging Pump;
- MOV-CH289, Charging Pump Header Containment Isolation Valve; and
- SOV-RC102B, Reactor Vessel Vent Valve (at BIP).

Unit 2

- 2CHS*P21A, Charging Pump A, (High Head Safety Injection);
- 2FWE*P23A, Motor Driven Auxiliary Feed Water (AFW) Pump A;
- 2FWS*LI487F, 21B Steam Generator Wide Range Level {(at Alternate Shutdown Panel (ASP)};
- 2RHS*P21A, Residual Heat Removal (RHR) Pump A; and
- 2E10, Emergency Diesel Generator (EDG) 2-1 ACB Output Circuit Breaker.

The team reviewed a sample of circuit breaker over-current protection coordination studies to determine whether equipment needed for post-fire safe shutdown activities could be adversely affected due to a lack of coordination that could result in a common power supply or common electrical bus concern. The team also evaluated whether coordination studies appropriately considered multiple faults due to fire. In addition, the team reviewed a sample of circuit breaker maintenance records, for components required for safe shutdown, to determine whether the breakers were properly maintained.

The team assessed the transfer of control from the control room to the alternative shutdown locations to determine whether it would be affected by fire-induced circuit faults (e.g., by the provision of separate fuses and power supplies for alternative shutdown control circuits).

b. Findings

No findings were identified.

.07 Communications

a. Inspection Scope

The team reviewed safe shutdown procedures, the safe shutdown analysis, and associated documents to verify an adequate method of communications would be available to plant operators following a fire. During this review, the team considered the effects of ambient noise levels, clarity of reception, reliability, and coverage patterns. The team also inspected the designated emergency storage lockers to verify the availability of portable radios for the fire brigade and for plant operators. The team also

verified that communications equipment such as repeaters and transmitters would not be affected by a fire.

b. Findings

No findings were identified.

.08 Emergency Lighting

a. Inspection Scope

The team observed the placement and coverage area of eight-hour emergency lights throughout the selected fire areas to evaluate their adequacy for illuminating access and egress pathways and any equipment requiring local operation or instrumentation monitoring for post-fire safe shutdown. The team also verified that the battery power supplies were rated for at least an eight-hour capacity. Preventive maintenance procedures, the vendor manual, completed surveillance tests, and battery replacement practices were also reviewed to verify that the emergency lighting was being maintained consistent with the manufacturer's recommendations and in a manner that would ensure reliable operation.

b. Findings

No findings were identified.

.09 Cold Shutdown Repairs

a. Inspection Scope

The team verified that the licensee had dedicated repair procedures, equipment, and materials to accomplish repairs of components required for cold shutdown which might be damaged by the fire to ensure cold shutdown could be achieved within the time frames specified in their design and licensing bases. The team verified that the repair equipment, components, tools, and materials (e.g., pre-cut cables with prepared attachment lugs) were available and accessible on site.

b. Findings

No findings were identified.

.10 Compensatory Measures

a. Inspection Scope

The team verified whether compensatory measures were in place for out-of-service, degraded, or inoperable fire protection and post-fire safe shutdown equipment, systems, or features (e.g., detection and suppression systems and equipment, passive fire barriers, pumps, valves, or electrical devices providing safe shutdown functions or

capabilities). The team evaluated whether the short term compensatory measures adequately compensated for the degraded function or feature until appropriate corrective action could be taken and whether FENOC was effective in returning the equipment to service in a reasonable period of time.

b. Findings

No findings were identified.

.11 Fire Protection Program Changes

a. Inspection Scope

The team reviewed recent changes to the approved fire protection program to verify that the changes did not constitute an adverse effect on the ability to safely shutdown.

b. Findings

No findings were identified.

.12 Control of Transient Combustibles and Ignition Sources

a. Inspection Scope

The team reviewed FENOC's procedures and programs for the control of ignition sources and transient combustibles to assess their effectiveness in preventing fires and in controlling combustible loading within limits established in the FHA. A sample of hot work and transient combustible control permits were reviewed to assess the adequacy of FENOC's fire protection program administrative controls. The team performed plant walkdowns to independently verify whether transient combustibles and ignition sources were being properly controlled in accordance with the administrative controls.

b. Findings

No findings were identified.

.13 Large Fires and Explosions Mitigation Strategies

a. Inspection Scope

The team reviewed the licensee's preparedness to handle large fires or explosions by reviewing eight licensee mitigating strategies to verify they continue to meet 10 CFR 50.54 (hh)(2) by determining that:

- Procedures are being maintained and adequate;
- Equipment is properly staged and is being maintained and tested; and,
- Station personnel are knowledgeable and can implement the procedures.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES [OA]

4OA2 Identification and Resolution of Problems

.01 Corrective Actions for Fire Protection Deficiencies

a. Inspection Scope

The team verified that the licensee was identifying fire protection and post-fire safe shutdown issues at an appropriate threshold and entering them into the corrective action program. The team also reviewed a sample of selected issues to verify that the licensee had taken or planned appropriate corrective actions.

b. Findings

No findings were identified.

4OA3 Followup of Events and Notices of Enforcement Discretion

.01 (Closed) Licensee Event Report (LER) 50-334/2011-01: Fire Barrier Penetration Seals Not Conforming To a Tested Configuration

Introduction. The licensee identified a finding of low to moderate safety significance involving a violation of a Beaver Valley Power Station Unit 1 (Beaver Valley 1) fire protection license condition, in that FENOC identified that the coatings on some flexible conduits installed through fire barrier penetration seals in Unit 1 did not conform to tested and approved configurations. The finding has been screened by the NRC and determined to warrant enforcement discretion per Section 9.1 of the NRC Enforcement Policy, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)."

Description. As a result of transitioning to NFPA 805, FENOC identified that samples taken of the coatings of flexible steel conduits from certain Unit 1 fire barrier penetrations did not exhibit expected flame resistant characteristics and were not in conformance with previously-tested and approved configurations. Specifically, while the original tests of the penetration seal material (silicon foam) used rigid steel conduit as penetrating items, the licensee identified that some seals contained aluminum conduit or liquid-tight flexible conduit which were coated with poly vinyl chloride (PVC). Further, the licensee identified that the PVC material and thickness varied by manufacturer, and identified up to 16 different types of coating material on conduit within approximately 924 of the 2843 fire barrier penetrations. Since these penetrations differed from the previously-tested and approved configuration, Beaver Valley postulated that the potential could exist for a fire in one fire area to eventually spread to another fire area by burning or melting the seal.

The licensee entered this issue into its corrective action program as CR-2011-04769, CR-2011-96801, and CR-2011-97411. FENOC implemented fire watch tours in all affected areas, and established combustible free zones around each affected penetration. FENOC continues to pursue resolution of this issue through review of tests with aluminum conduits for another facility, analysis, comparison with UL listed designs, and may perform additional fire tests. The NRC concluded that FENOC's interim compensatory measures were commensurate with the risk significance.

Analysis. FENOC failed to analyze the acceptability of using aluminum conduit or PVC-coated liquid-tight flexible steel conduit in lieu of rigid steel conduit as the penetrating items through numerous fire barrier penetrations. The licensee evaluated this issue through use of its fire probabilistic safety assessment (PRA), and determined that the change in core damage frequency attributed to the issue was $8X10^{-6}$ per reactor year (White). NRC staff reviewed this evaluation and concluded that the risk numbers were artificially inflated by the rules for fire PRA. Namely, the NRC staff considered that NUREG/CR-6850 imposes a 317 kW transient combustible material fire in all compartments, with an ignition frequency of $3.9X10^{-3}$ per year for the control and primary auxiliary buildings, and $4.9X10^{-3}$ for general plant areas. The inspection team did not observe this level of transient combustible material in any area of the plant. Therefore, the NRC concluded that FENOC's risk estimate is conservative and that this issue would be of no greater than low to moderate safety significance.

NRC Enforcement Policy, "Enforcement Discretion for Certain Fire Protection issues (10 CFR 50.48)," provides, in part, for the exercise of enforcement discretion for certain noncompliances with fire protection license conditions that are identified as a result of a licensee's transition to NFPA 805. The NRC staff concluded that this issue qualifies for discretion since: 1) FENOC identified the violation as a result of the voluntary initiative to adopt NFPA 805; 2) FENOC took immediate compensatory measures and actions to correct the violation as described above; 3) the issue was not likely to have been previously identified by routine licensee activities; 4) the violation was not willful; and, 5) the violation is not associated with a finding of high safety significance.

Cross-cutting aspects are not applicable to findings involving enforcement discretion.

Enforcement. Beaver Valley Unit 1 License Condition 2.C.5 requires that FENOC shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report (UFSAR) for the facility, and that FENOC may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire. Beaver Valley Unit 1 UFSAR Section 9.10, "Fire Protection System," states, in part, that fire protection features to satisfy the provisions of Appendix A to NRC Branch Technical Position (BTP) APCSB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976," are reflected in the Fire Protection Safety Evaluation Report for Beaver Valley Unit 1 issued by the NRC, and documented as Amendment No. 18 to the Technical Specifications, dated June 6, 1979. The Fire Protection Safety Evaluation Report for Beaver Valley Unit 1, Section 4.9.3 states that The licensee has conducted a

survey of penetrations in safety-related areas and will upgrade them where necessary to the fire rating of the wall. Ceiling or floor they pass through.

Contrary to the above, on November 2, 2011, while preparing for its transition to NFPA 805, Beaver Valley identified that electrical conduit installed through certain Unit 1 fire barrier penetrations were covered with an outer coating that had not a part of the tests conducted to determine the acceptability of the electrical penetration seal material. Consequently, the ability of the affected seals to provide protection at least equivalent to the fire barriers could not be verified.

Beaver Valley is in transition to NFPA 805 and, therefore, the licensee-identified violation was evaluated in accordance with the criteria established in Section 9.1 of the NRC Enforcement Policy, "Enforcement Discretion for Certain Fire Protection issues (10 CFR 50.48)." Because all the criteria were met, the NRC is exercising enforcement discretion for this issue. This LER was reviewed by the inspectors and no additional findings were identified.

4OA6 Meetings, including Exit

Exit Meeting Summary

The team presented their preliminary inspection results to Mr. Paul Harden, Site Vice President, and other members of the site staff at an exit meeting on August 10, 2012. No proprietary information was included in this inspection report.

4OA7 Licensee Identified Violations

.01 Requirement for Seismic Water Supply for Firefighting Not Met

License Condition 2.F for Unit 2 requires FENOC to implement and maintain the fire protection program as approved in the Safety Evaluation Reports. UFSAR Section 9.5.1, Revision 14, states, in part, "The BVPS-2 fire suppression system is capable of delivering water to manual hose stations located within reach of areas containing safety-related equipment required for safe shutdown following a safe shutdown earthquake." Supplement 5 to NUREG-1057, "Safety Evaluation Report Related to the Operation of Beaver Valley Power Station, Unit 2," Section 9.5.1, "Fire Protection Program," documented the review of Amendment 14 of the FSAR.

Contrary to the above, in the year 2000, BVPS abandoned the booster pump which provided the seismic water supply to the standpipe system feeding the areas containing safety-related equipment. This condition was identified by the FENOC NFPA 805 Project Team in 2006. At that time, a procedure was developed to align a 6-inch bypass line around the abandoned booster pump to provide water from the River Water System to the standpipe system in the Primary Auxiliary Building (PAB). FENOC did not perform an evaluation at that time to determine the capability of the line to provide adequate water pressure and flow to ensure effective hose streams for firefighting purposes.

In response to questions from the team, FENOC performed an informal, undocumented calculation which determined that the 6-inch bypass line would not provide sufficient flow and pressure to enable effective hose streams at normal river water system operating conditions. FENOC revised an operations standing order to direct operators to isolate unnecessary river water flow paths after an earthquake to raise river water system pressure to improve flow and pressure provided to the PAB standpipe system.

This issue only pertains following a safe shutdown earthquake. The safety-related equipment is designed to withstand a safe shutdown earthquake. Non safety-related equipment in proximity to safety-related equipment is also designed so that an earthquake will not cause it to fail in such a way that it will adversely impact safety-related equipment. FENOC's seismic-fire interaction study indicates that while there may be some seismically induced fires following a safe shutdown earthquake, none will be in areas containing safety-related equipment. With this "seismic 2 over 1 design," there will be no safety-related equipment damaged by a seismic induced fire, so delta CDF will be zero (Green). Since this issue is of very low safety significance and has been entered into FENOC's corrective action program as CR-2012-12265, it is being treated as a Green, licensee identified NCV consistent with the NRC Enforcement Policy.

ATTACHMENT: SUPPLEMENTAL INFORMATION

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

P. Harden, Site Vice President
D. Benyak, Manager of Regulatory Compliance
R. Bologna, Director of Engineering
R. Kurkienicz, Manager of Fleet Oversight
J. Belfiore, Design Engineer (Fire Protection)
T. Collopy, Design Engineer (Electrical)
K. Farzan, Compliance Engineer (Licensing)
J. Flaherty, Design Engineer (Electrical)
H. Kahl, Design Engineer (Fire Protection/Safe Shutdown)
B. Sepelak, Nuclear Compliance Supervisor
M. Tobin, Electrical Contractor
R. Price, Operator Training
J. Bosilevac, Telecommunications Supervisor
M. Unfried, Design Engineer
C. Eberle, Operations Procedure Writer
D. Gmys, Fire Protection System Engineer
J. Miller, Site Fire Marshall

NRC Personnel

J. Rogge, Chief, Engineering Branch 3, Division of Reactor Safety
C. Cahill, Senior Reactor Analyst, Division of Reactor Safety
D. Spindler, Senior Resident Inspector, Beaver Valley Power Station
E. Bonney, Resident Inspector, Beaver Valley Power Station

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NONE

Opened and Closed

NONE

Closed

LER 50-334/11-01

Discussed

NONE

LIST OF DOCUMENTS REVIEWED

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10080-B-438, BV-2 Turb. Bldg Sprinkler System Conformance to NFPA-850, Addendum 1

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10080-DEC-0190, Evaluation of Thermo-Lag 330 J-Box Configurations, Rev. 1
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8700-E-524, U1 Electrical Protective Device Settings Calculations for 120VAC UPS Systems, Rev. 1
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2OM-56C.4.D, Alternate Safe Shutdown from Outside Control Room, Nuclear Operator #1 Procedure, Rev. 22
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1OST-33.07, Motor Driven Fire Pump Test, performed 3/31/12 & 4/26/12
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2OST-33.04, Fire Water Hydrant Test, performed 4/17/12
2OST-33.12, Fire Water Loop Flow Test, performed 1/17/11 & 9/22/11
2OST-33.13A, Annual Smoke Detector Functional Test, performed 9/30/11
2OST-33.13P, CO2 Functional Test Zone 2A (east cable vault), performed 6/16/12
2OST-33.16D, Aux Bldg Early Warning Smoke Detector Functional Test, performed 9/21/11
2OST-33.16E, Service Bldg Early Warning Smoke Detector Functional Test, performed 4/24/12
2OST-33.31, Fire Brigade Equipment Inventory, performed 5/11/12
2OST-33.31, Fire Brigade Equipment Test, performed 5/23/12
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QC-3A.2 Release No. 10098, Penetration CV-1H (seismic gap), performed 3/30/87
QC-3A.2 Release No. 10187, Penetration SS-A-1H, performed 2/9/87
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QCI-5836, Penetration Seal 2FBKUT08 Repair Inspection, performed 10/5/11
QCI-5850, Penetration Seal 2WBKUT08 Repair Inspection, performed 10/7/11
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1OST-45.10, BIP Valve Control Switch Test, Rev. 4, completed 10/28/10
1OST-45.10, BIP Valve Control Switch Test, Rev. 4, completed 5/4/12
1/2OST-56C.1, Operating Surveillance Test – Appendix R PAX Phone Verification, Rev. 8, completed 8/7/11
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BVPS Unit 1, System-38-Unit 1 120 VAC Distribution and Lighting System, 4th Quarter 2011
BVPS Unit 1, System-39-Unit 1 125 VDC Distribution System, 4th Quarter 2011
BVPS Unit 1, System-36A-Unit 1 Emergency Diesel Generators, 1st Quarter 2012
BVPS Unit 1, System-36B-Unit 1 4 KV Station Service System, 1st Quarter 2012
BVPS Unit 1, System-37-Unit 1 480 Volt Station Service System, 1st Quarter 2012
BVPS Unit 1, System-38-Unit 1 120 VAC Distribution and Lighting System, 1st Quarter 2012
BVPS Unit 1, System-39-Unit 1 125 VDC Distribution System, 1st Quarter 2012
BVPS Unit 2, System-36A-Unit 1 Emergency Diesel Generators, 4th Quarter 2011
BVPS Unit 2, System-36B-Unit 1 4 KV Station Service System, 4th Quarter 2011
BVPS Unit 2, System-37-Unit 1 480 Volt Station Service System, 4th Quarter 2011
BVPS Unit 2, System-38-Unit 1 120 VAC Distribution and Lighting System, 4th Quarter 2011
BVPS Unit 2, System-39-Unit 1 125 VDC Distribution System, 4th Quarter 2011
BVPS Unit 2, System-36A-Unit 1 Emergency Diesel Generators, 1st Quarter 2012
BVPS Unit 2, System-36B-Unit 1 4 KV Station Service System, 1st Quarter 2012
BVPS Unit 2, System-37-Unit 1 480 Volt Station Service System, 1st Quarter 2012
BVPS Unit 2, System-38-Unit 1 120 VAC Distribution and Lighting System, 1st Quarter 2012
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8700-10.001-0689, Intake Structure Cubicle No. 3 3 Hr. Fire Floor and Walls, Rev. J
8700-10.1-800-A, Typicals MS-1, MS-2, MS-3 & MS-4 Mechanical Wall/Floor Fire Seals

Electrical Protective Device Setting Sheets and Electrical System Coordination Curves

BV1-RBN-1, 480V Bus 1-8N, Feeder from 1000/1333 KVA Transformer, Rev 4
BV1-RBN-7, 480V Bus 1-8N, Feeder to MCC-1-E5 (Breaker 8N6), Rev 6
BV1-RBN-9, 480V Bus 1-8N, Feeder to MCC-1-E3 (Breaker 8N8), Rev 5
BV1-VBE-6, 4160V Emergency Bus 1A to 1AE Tie (Breakers A10 & E7), Rev. 1
BV1-VBE-7, 4160V Emergency Bus 1AE (Breaker 1E7), Rev. 2
BV1-VBE-9, 4160V Emergency Bus 1AE (Breaker 1E9)(EDG 1), Rev. 5
BV1-VBE-10, 4160V Emergency Bus 1AE (Breaker 1E9)(EDG 1), Rev. 4
BV1-VBE-11, 4160V Emergency Bus 1AE (Breaker 1E9)(EDG 1), Rev. 1
BV1-VBE-12, 4160V Emergency Bus 1AE (Breaker 1E9)(EDG 1), Rev. 3
BV1-VBE-13, 4160V Emergency Bus 1AE (Breaker 1E9), Rev. 1
BV1-VBE-15, 4160V Emergency Bus 1AE (Breaker E11)(Charging Pump 1A Motor), Rev. 3
BV1-VBE-16, 4160V Emergency Bus 1AE (Breaker E12)(Transformer 1-8N), Rev. 4
BV1-VBE-17, 4160V Emergency Bus 1AE (Breaker E12)(Transformer 1-8N1), Rev. 4
BV1-VBE-18, 4160V Emergency Bus 1AE (Breaker E12)(4160/480V Bank Feeder), Rev. 1
BV1-VBE-26, 4160V Emergency Bus 1AE Under Voltage Motor Protection, Rev. 9
BV2-DG1-1, 4160V Emergency Bus 2AE (Breaker 2E10)(EDG 2-1), Rev. 4
BV2-DG1-2, 4160V Emergency Bus 2AE (Breaker 2E10)(EDG 2-1), Rev. 2
BV2-DG1-3, 4160V Emergency Bus 2AE (Breaker 2E10)(EDG 2-1), Rev. 1
BV2-DG1-4, 4160V Auxiliary Diesel Generator 2-1, Rev. 3
BV2-DG1-5, 4160V Emergency Bus 2AE (Breaker 2E10)(EDG 2-1), Rev. 4
BV2-DG1-6, 4160V Emergency Bus 2AE (EDG 2-1), Rev. 1
BV2-DG1-7, 4160V Emergency Bus 2AE (EDG 2-1), Rev. 1
BV2-DG1-8, 4160V Emergency Bus 2AE (EDG 2-1), Rev. 1
BV2-RBN-1, 480V Bus 2N Incoming Feeder from 1500/2000 KVA, Rev. 2
BV2-RBN-4, 480V MCC*2-E09 Feeder, Rev. 6
BV2-RBN-5, 480V MCC*2-E13 Feeder, Rev. 4
BV2-RBN-6, 480V MCC*2-E05 Feeder, Rev. 4
BV2-RBN-7, 480V MCC*2-E01 Feeder, Rev. 5

BV2-RBN-8, 480V MCC*2-E08 Feeder, Rev. 5
BV2-RBN-9, 480V MCC*2-E07 Feeder, Rev. 6
BV2-RBN-10, 480V MCC*2-E10 Feeder, Rev. 5
BV2-RBN-15, 480V MCC*2-E-15 Feeder (Breaker 3C), Rev. 4
BV2-VBE-4, 4160V Emergency Bus 2AE (Breaker 2E12)(Charging Pump, 2CHS-P21A), Rev. 4
BV2-VBE-8, 4160V Emergency Bus 2AE (Breaker 2E7)(Supply from 4160V Bus 2A), Rev. 4
BV2-VBE-9, 4160V Emergency Bus 2AE (Breaker 2E11), Rev. 2
BV2-VBE-16, 4160V Emergency Bus 2AE (Breaker 2E4)(RHR Pump (2RHS-P21A), Rev. 4
BV2-VBE-20, 4160V Emergency Bus 2AE (Breaker 2E18)(Aux. Feed Pump (Motor)), Rev. 4
11700-ESK-115G1, U1, Incoming Supply to 4160V Bus 1AE from 4160V Bus 1A, 4160 Bus 1AE, Breaker 1E7, Rev. 1
11700-ESK-115G2, U1, Incoming Supply to 4160V Bus 1AE from 4160V Bus 1A, 4160 Bus 1AE, Breaker 1E7, Rev.1
11700-ESK-115I, U1, 2850KW Gen. Auxiliary Diesel Generator #1, 4160V Bus 1AE, Breaker 1E9, Rev.1
11700-ESK-115K, U1, 600 HP Motor Charging Pump High Head Safety Injection, 4160V Bus 1AE, Breaker 1E11, Rev. 1
11700-ESK-115L, U1, 1000/1333 KVA Trans. 1-8N and 1-8N1, Feeder to 480V Sub. 1-8, 4160V Bus 1AE, Breaker 1E12, Rev. 2
11700-ESK-128A, U1, Incoming Feeder from 1000/1333 KVA Trans. 1-80, 480V Bus 1-8N, Breaker 8N1, Rev. 1
11700-ESK-128F, U1, Motor Control Center MCC-1-E05, 480V Bus 1-8N, Breaker 8N6, 6/15/05
11700-ESK-128H, U1, Motor Control Center MCC1-E03, 480V Bus 1-8N, Breaker 8N8, 6/15/05
12241-ESK-115D, U2, 300 HP Motor for Residual Heat Removal Pump, 2RHS-P21A, 4160V Bus 2AE, Breaker 2E4, Rev. 1
12241-ESK-115G, U2, Incoming Supply from Bus 2A, 4160V Bus 2AE Bus 2AE, Breaker 2E7, Rev. 1
12241-ESK-115J, U2, 5298 KVA Generator, Auxiliary Diesel Generator 2-1, 4160V Bus 2AE, Breaker 2E10, Rev. 1
12241-ESK-115K, U2, 1500/2000 KVA Transformer 2-8N, Feeder to Emergency 480V Bus 2N, 4160V Bus 2AE, Breaker 2E11, Rev. 1
12241-ESK-115L, U2, 600 HP Motor for Charging Pump High Head Safety Injection, 2CHS-P21A, 4160V Bus 2AE, Breaker 2E12, Rev. 1
12241-ESK-115R, U2, 400 HP Motor for Steam Generator Auxiliary Feed Pump, 2FWE-P23A, 4160V Bus 2AE, Breaker 2E18, Rev. 1
12241-ESK-128A, U2, Feeder Breaker to Emergency 480V Bus 2N480V Bus 2N, Breaker 3B, Rev. 2
12241-ESK-128B, U2, 480V MCC-2-E15 Feeder Breaker, 480V Bus 2N, Breaker 4B, Rev. 3
12241-ESK-128C, U2, 480V MCC-2-E03 Feeder Breaker, 480V Bus 2N, Breaker 4C, Rev. 3
12241-ESK-128D, U2, 480V MCC-2-E05 Feeder Breaker, 480V Bus 2N, Breaker 5B, Rev. 2
12241-ESK-128E, U2, 480V MCC-2-E07 Feeder Breaker, 480V Bus 2N, Breaker 5C, Rev. 4
12241-ESK-128F, U2, 480V MCC-2-E09 Feeder Breaker, 480V Bus 2N, Breaker 6B, Rev. 3
12241-ESK-128G, U2, 480V MCC-2-E11 Feeder Breaker, 480V Bus 2N, Breaker 6C, Rev. 3
12241-ESK-128H, U2, 480V MCC-2-E13 Feeder Breaker, 480V Bus 2N, Breaker 6D, Rev. 2
12241-ESK-128W, U2, 480V MCC-2-E15 Feeder Breaker, 480V Bus 2N, Breaker 3C, Rev. 2

Piping and Instrumentation Diagrams

10080-RM-0433-001A, BV-2 Fire Protection P&ID, Rev. 21
10080-RM-0433-001B, BV-2 Fire Protection P&ID, Rev. 8
10080-RM-0433-001C, BV-2 Fire Protection P&ID, Rev. 19
10080-RM-0433-001D, BV-2 Fire Protection P&ID, Rev. 12
10080-RM-0433-002A, BV-2 Fire Protection P&ID, Rev. 17
8700-RM-0037B, Sht. 2, U1, Flow Diagram, Reactor Coolant System, Rev. 39
8700-RM-0406-002, U1, Valve Oper. NO Diagram, Reactor Coolant System, Rev. 21
8700-RM-0407-001, U1, Chemical and Volume Control System, Rev. 31
8700-RM-0424-002, U1, Feedwater System, Rev. 14
10080-RM-0045A, U1, Feedwater Piping, Rev. 35
10080-RM-0407-001A, Sht.1, U2, Chemical and Volume Control, Rev. 20
10080-RM-0407-002, U2, Charging System, VCT and Make-up, Rev. 19
10080-RM-0410-001, U2, Residual Heat Removal Piping, Rev. 16
10080-RM-0424-003, U2, Auxiliary Feedwater, Rev. 14
8700-RM-444E-3, Switchgear Ventilation, Rev. 3
8700-RM-0406-002, Reactor Coolant System, Rev. 21
RM-0407-001A, Sheet 1, Valve Oper No Diagram Chemical and Volume Control, Rev. 20

Vendor Manuals

2563.831-000-001, 3M Interam Fire mat 3-hour Wrap for Electrical Raceways, Rev. E
TSI Technical Note 20684, Thermo-Lag 330 Installation Manual, Rev. V
2501.931-852-001, 12Vdc Emergency Lighting Installation and Maintenance Instructions, Rev. L

Pre-Fire Plans

1-PFP-SFGB-722-Safeguards Area, Rev. 1
1-PFP-SFGB-735-Aux FW & QS Pumps, Rev. 1
1-PFP-SFGB-735-East Cable Vault, Rev. 2
1-PFP-SFGB-735-West Cable Vault, Rev. 2
1-PFP-SFGB-751-West Safeguards, Rev. 1
1-PFP-SRVB-713-AE Switchgear, Rev. 1
1-PFP-SRVB-713-DF Switchgear, Rev. 2
2-PFP-MSCV-735-East Cable Vault, Rev. 3
2-PFP-SRVB-760-Normal Switchgear, Rev. 0

Fire Brigade Documents

2010 Annual Fire Brigade Qualification Status Report
2009 Annual Fire Brigade Qualification Status Report

Fire Drills and Critiques

Fire Drill 1-YARD-04, performed 4/19/11, 5/25/11, 9/10/11
Fire Drill 2-CB-05, performed 5/4/11, 5/11/11, 7/18/11, 11/16/11, 12/7/11
Event Response to Unit-2 SOSB-3, performed 5/6/11

Event Response to Unit-2 PAB Elev. 768 ft., performed 6/4/11
Fire Drill 1-YARD-03, performed 6/22/11
Fire Drill 1-SFGD-02, performed 8/3/11, 8/17/11, 8/24/11, 8/31/11, 9/29/11, 10/19/11
Fire Drill 2-CB-07, performed 11/2/11
Fire Drill 1-SB-06, performed 12/9/11, 12/30/11
Fire Drill 2-MSCV-04, performed 12/14/11, 5/16/12, 5/23/12, 6/9/12, 6/13/12, 6/20/12, 6/23/12, 6/30/12
Fire Drill 2-CB-05, performed 12/21/11, 12/29/11
Fire Drill 1-PAB-06, performed 1/25/12, 2/8/12, 2/1/12, 2/8/12, 2/29/12, 3/28/12
Fire Drill 2-DG-04, performed 3/14/12
Fire Drill 1-STOREROOM-01, performed 8/1/12, 8/8/12
Fire Drill 1-GDC-01, performed 11/10/10
Fire Drill 1-ERFS-02, performed 12/28/10, 12/31/10, 12/10/10, 7/28/10, 6/1/10, 4/28/10, 5/12/10, 5/19/10, 5/26/10
Fire Drill 1-PAB-04 performed 11/17/10
Fire Drill 1-PAB-05 performed 11/20/10
Fire Drill 1-PAB-04 performed 11/28/10
Fire Drill 1-DG-02 performed 12/4/10
Fire Drill 1-ERFS-02 performed 11/19/10
Fire Drill 2-MSCV-01 performed 11/22/10
Fire Drill 1-PAB-04 performed 12/8/10
Fire Drill 2-YARD-03 performed 12/11/10
Fire Drill 1-TB-02 performed 12/12/10
Fire Drill 2-MSCV-01 performed 12/9/10
Fire Drill 2-DG-02 performed 7/21/10
Fire Drill 2-DG-02 performed 8/18/10
Fire Drill2-DG-02 performed 9/18/10
Fire Drill 2-DG-03 performed 8/11/10
Fire Drill 2-DG-02 performed 8/25/10
Fire Drill 2-DG-04 performed 6/19/10

Fire Brigade Training

FB-9324, Portable Fire Extinguisher Hands-On Practical, Rev. 1, Issue 1
FB-9337, Fire Brigade, Rev. 4, Issue 6

Operator Safe Shutdown Training

1SQS-56C.1, Alternate Safe Shutdown From Outside the Control Room, Rev. 8
1PL-162, STA Alternate Safe Shutdown – Initial Conditions, Rev.0
1PL-156, STA Establishing Stable Hot Standby Conditions, Rev.1
1OJT-1.56C, Operate and Test the Backup Indicating Panel and Equipment, Rev. 2
1CR-609, Control Room Evacuation, Rev. 4
1PL-030, Safe Shutdown from the Switchgear Room, Rev. 13
1PL-034, Establish Manual Control of Atmospheric Steam Dumps, Rev. 10
1PL-154, Perform Source Range Drawer and Calibration at BIP, Rev. 1
1PL-155, Open FWI Valve per 1OM-56C.4F-10, Rev. 2
2010 Cycle 6 Licensed Operator Continuing Training Plan, Rev. 0

2011 Cycle 2 Non-Licensed Operator Continuing Training Plan, Rev. 0
2012 Cycle 2 Non-Licensed Operator Continuing Training Plan, Rev. 0
2SQS-56C.1, Alternate Safe Shutdown, Rev. 6
Licensed Operator Continuing Training Program Annual Topic Plan: Level 2 Schedule, Rev. 07/11/12
Non-Licensed Operator Continuing Training 3-Year Cycle and NLO Curriculum: Level 1 Schedule, Curriculum 20, Rev. 3

Hot Work and Ignition Source Permits

200502844
600752947

Miscellaneous Documents

Fire Protection System Engineer Walkdown Report, dated 5/23/12 & 6/22/12
ITL Report 87-12-4131, Three Hour Fire Endurance Test on Thermo-Lag 330, Rev. 1
NFPA Fire Protection Handbook 15th Edition
NRC BTP CMEB 9.5-1 (ML070660454), Rev. 2
NRC Regulatory Guide 1.189, Fire Protection for Nuclear Power Plants, Rev. 2
Operations Fire Protection System Impairment Log, dated 7/24/12
Operations Standing Order 09-002, NFPA Compliance Issues, dated 3/10/09
NFPA 13-2002, Installation of Sprinkler Systems
NFPA 20-1990, Installation of Centrifugal Fire Pumps
NEI 00-01, Guidance for Post-Fire Safe Shutdown Circuit Analysis, Rev. 2
2701.620-000-005, Multiple Spurious Operation (MSO) Expert Panel Review Report, Rev. B
Unit 1 Maintenance Rule Monthly Monitoring Report for Fire Protection (System 33), July 2012
Unit 2 Maintenance Rule Monthly Monitoring Report for Fire Protection (System 33), July 2012
Unit 2 Operations Midnight Shift Roster for 07/26/12
PKM-NFPA-12-0009, BVPS Unit 2 Fire Protection Safe Shutdown Operator Manual Action Feasibility Study, Rev. 0
BV1Rev5F, Fire PRA Quantification Notebook, Rev. 5
76 FR 40777, Interim Enforcement Policy for Certain Fire Protection Issues

Condition Reports

CR-2004-01965	CR 2006-11007	CR-2006-11702	CR-2006-11704
CR 2006-11337	CR-2006-6932-002	CR-2007-21798	CR-2007-25818
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CR 2009-61136	CR-2009-61329	CR-2009-62244	CR 2009-62268
CR 2009-62272	CR 2009-62709	CR-2009-62461	CR-2009-62471
CR 2009-63473	CR 2009-63473	CR 2009-64936	CR 2009-64939
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CR-2011-05658	CR-2011-07153	CR-2011-87677	CR-2011-90757
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CR-2011-97021	CR 2011-97315	CR-2011-97411	CR-2012-00565

CR-2012-01514	CR-2012-02496	CR-2012-02900	CR-2012-03663
CR-2012-03667	CR-2012-03736	CR-2012-04017	CR-2012-04037
CR-2012-04257	CR-2012-04801	CR-2012-04958	CR 2012-07207
CR 2012-07558	CR-2012-07608	CR 2012-08570	CR-2012-09868
CR-2012-09911	CR-2012-10368*	CR-2012-10841	CR-2012-10157
CR-2012-10588	CR-2012-10719	CR-2012-109454	CR-2012-11116
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CR-2012-12055*			

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CR-G203-2009-62700	CR-G203-2009-62745	CR-G203-2009-66414
CR-G203-2009-66546	CR-G203-2009-68607	CR-G203-2010-70650
CR-G203-2010-71023	CR-G203-2010-71428	CR-G203-2010-75115
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CR-G203-2010-77655	CR-G203-2010-81544	CR-G203-2010-82394
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* NRC identified during this inspection.

Work Orders

200135884	200136429	200275504	200321839
200351149	200351178	200375559	200385616
200399089	200403614	200403808	200413158
200416638	200441840	200445040	200450948
200453166	200462539	200464938	200474868
200475373	200475379	200065687	200065688
200404890	200448178	200434813	

Notifications

600766469
600766470
600609799
600676509
600676526

LIST OF ACRONYMS

AC	Alternating Current
ADAMS	Agencywide Documents Access and Management System
AFW	Auxiliary Feed Water
APCSB	[NRC] Auxiliary and Power Conversion Systems Branch
ASP	Alternate Shutdown Panel
BIP	Backup Indicating Panel
BVPS	Beaver Valley Power Station
BTP	[NRC] Branch Technical Position
CFR	Code of Federal Regulations
CO_2	Carbon Dioxide
DBD	Design Basis Document
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generator
EGM	Enforcement Guidance Memorandum
Elev.	Elevation
FA	Fire Area
FENOC	First Energy Nuclear Operating Company
FHA	Fire Hazards Analysis
FPP	Fire Protection Program
FZ	Fire Zone
HP	Horsepower
KVA	Kilovolt Ampere
KW	Kilowatt
IMC	[NRC] Inspection Manual Chapter
IP	Inspection Procedure
IPE	Individual Plant Examination
IPEEE	Individual Plant Examination of External Events
IR	[NRC] Inspection Report
MCC	Motor Control Center
MOV	Motor Operated Valve
MSO	Multiple Spurious Operation
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
PAR	Publicly Available Records
PRA	Probabilistic Risk Assessment
P&ID	Piping and Instrumentation Drawing
RHR	Residual Heat Removal
RWST	Reactor Water Storage Tank
SCBA	Self-Contained Breathing Apparatus
SER	Safety Evaluation Report
SOV	Solenoid Operated Valve
SSDA	Safe Shutdown Analysis
TRM	Technical Requirements Manual
UFSAR	Updated Final Safety Analysis Report
VAC	Volts Alternating Current
VDC	Volts Direct Current