



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
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May 8, 2008

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

**SUBJECT: BEAVER VALLEY POWER STATION - NRC INTEGRATED INSPECTION
REPORT 05000334/2008002 AND 05000412/2008002**

Dear Mr. Sena:

On March 31, 2008, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Beaver Valley Power Station Units 1 and 2. The enclosed integrated inspection report documents the inspection findings, which were discussed on April 23, 2008, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

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

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

P. Sena

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

Sincerely,

/RA/

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

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

Enclosures: Inspection Report 05000334/2008002; 05000412/2008002
w/Attachment: Supplemental Information

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

Sincerely,
/RA/
Ronald R. Bellamy, Ph.D., Chief
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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. 05000334/2008002 and 05000412/2008002

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Beaver Valley Power Station, Units 1 and 2

Location: Post Office Box 4
Shippingport, PA 15077

Dates: January 1, 2008 through March 31, 2008

Inspectors: D. Werkheiser, Senior Resident Inspector
D. Spindler, Resident Inspector
E. Huang, Reactor Inspector
T. Moslak, Health Physicist
A. Ziedonis, Reactor Inspector

Approved by: R. Bellamy, Ph.D., Chief
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SUMMARY OF FINDINGS

IR 05000334/2008002, IR 05000412/2008002; 01/01/2008 - 03/31/2008; Beaver Valley Power Station, Units 1 & 2; Identification and Resolution of Problems

The report covered a 3-month period of inspection by resident inspectors, regional reactor inspectors, and a regional health physics inspector. One Green finding was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3 dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. A self-revealing, Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI "Test Control," was identified for the failure to properly perform line starter testing for a Unit 2 safety-related battery exhaust fan (2HVZ-FN216B) in accordance with the written test procedure. The test procedure for the line starter establishes test conditions by installing jumpers into a process rack, RK-2SEC-PROC-B1. Due to misidentification, jumpers were installed into the incorrect process rack, RK-2SEC-PROC-B. This rendered the 'B' train of Quench Spray Chemical Additive System inoperable. The licensee entered the deficiency into their corrective action program as Condition Report 08-37168. FENOC performed a root cause evaluation, evaluated appropriate human performance contributors, and initiated corrective actions to prevent recurrence.

The finding is greater than minor because it affected the equipment performance attribute of the associated Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance, because there was no overall loss of system function due to system redundancy and the system would have been able to perform its required safety function for the applicable mission time during design basis events.

The cause of this finding is related to the cross-cutting area of human performance, in that FENOC failed to utilize adequate self and peer checking during the identification of equipment and circuits specified in the test plan [H.4(a)]. (Section 4OA2.1)

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status:

Unit 1 began the inspection period at 100 percent power. On January 19, the unit power was lowered to approximately 97 percent for planned turbine valve testing and returned to full power the same day. On February 15, unit power was lowered to approximately 82 percent for planned condenser waterbox cleaning and returned to full power on March 4. 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 January 19, unit power was lowered to 99 percent in response to a steam generator feedwater transient (4OA3.1) and returned to full power on January 21. Also, on February 20, unit power was lowered to 99 percent in response to a condenser hotwell level transient (4OA3.1) and returned to full power on February 21. The unit remained at 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

Impending Adverse Weather – External Flooding, High River Water

a. Inspection Scope (1 sample)

The inspectors evaluated FENOC's preparation and protection from the effects of external flooding conditions for Unit 1 and Unit 2 during high Ohio River water conditions during the month of January. This evaluation included a review of the Updated Final Safety Analysis Report (UFSAR) and applicable flood-related procedures to determine the readiness of protection for applicable safety-related structures, systems, and components. The inspectors performed walkdowns of the Unit 1 and Unit 2 external structures to verify the adequacy of protection from the most probable flood, as well as actions to address seasonal Ohio River water levels that could potentially impact safety-related equipment. Specifically, the inspectors reviewed licensee actions on multiple occasions following entry into the abnormal operating procedure (AOP) 1/2OM-53C.4A.75.2, "Acts of Nature - Flood," which included backwash of river water strainers that supply cooling to the Unit 1 safety-related charging pumps. Additionally, the inspectors reviewed recent FENOC inspection results, including flood barrier inspections, and verified that previously identified deficiencies had been entered into the corrective action program for resolution. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdowns (71111.04Q)

a. Inspection Scope (4 samples)

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

- On January 9, Unit 2 'C' Service Water (SW) System following SW Train 'A' Go Testing;
- On January 15, Unit 2 'B' Quench Spray (QS) System during 'A' Train QS Testing;
- On February 7, Unit 1 'B' Supplemental Leakage Collection and Release System (SLCRS) during a planned outage of the 'A' SLCRS; and
- March 3 – 7, Unit 1 Appendix 'R' fire doors during various activities.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown (71111.04S)

a. Inspection Scope (1 sample)

The inspectors completed a detailed review of the alignment and condition of the Unit 2 'A' train Recirculation Spray System (RSS), System 13, during heat exchanger cleaning activities on the 'B' train on March 28. The inspectors conducted a walkdown of the system to verify that the critical portions, such as valve positions, switches, and breakers, were correctly aligned in accordance with procedures, and to identify any discrepancies that may have had an effect on operability.

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

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Quarterly Sample Review (71111.05Q)

a. Inspection Scope (5 samples)

The inspectors reviewed the conditions of the fire areas listed below, to verify compliance with criteria delineated in Administrative Procedure 1/2-ADM-1900, "Fire Protection," Rev. 16. 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, Auxiliary Building General Area (Fire Area PA-1C);
- Unit 1, Auxiliary Building General Sub-Area (Fire Area PA-1E);
- Unit 1, Control Room & Computer Room (Fire Area CR-1);
- Unit 2, Main Steam Valve Area (Fire Area MS-1); and
- Unit 2, Control Room & Computer Room (Fire Area CB-3).

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope (1 sample)

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

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

Annual Sample Review (71111.07A)

a. Inspection Scope (1 sample)

The inspectors reviewed a thermal performance test associated with the Unit 2 'C' Component Cooling heat exchanger [2CCP-E21C] conducted on March 13, 2008, in accordance with procedure 1/2-ADM-2106, "Heat Exchanger Inspection". The review included an assessment of the testing methodology and verified consistency with Electric Power Research Institute document NP-7552, "Heat Exchanger Performance Monitoring Guidelines," December 1991, and Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." The inspectors reviewed inspection

results, related condition reports and component cooling leak test results against applicable acceptance criteria.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope (1 sample)

The inspectors observed Unit 1 licensed operator simulator-based testing on February 28, 2008 during the Red-Team drill. The inspectors evaluated licensed operator performance regarding command and control, implementation of normal, enunciator response, abnormal and emergency operating procedures, communications, technical specification review and compliance, and emergency plan implementation. The inspectors evaluated the licensee staff training personnel to verify that deficiencies in operator performance were identified, and that conditions adverse to quality were entered into the licensee's corrective action program for resolution. The inspectors verified that the training evaluators adequately addressed that the applicable training objectives had been achieved. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

Routine Maintenance Effectiveness Inspection (71111.12Q)

a. Inspection Scope (2 samples)

The inspectors evaluated Maintenance Rule (MR) implementation for the issues listed below. The inspectors evaluated specific attributes, such as MR scoping, characterization of failed structures, systems, and components (SSCs), MR risk characterization of SSCs, SSC performance criteria and goals, and appropriateness of corrective actions. The inspectors verified that the issues were addressed as required by 10 CFR 50.65 and the licensee's program for MR implementation. For the selected SSCs, the inspectors evaluated whether performance was properly dispositioned for MR category (a)(1) and (a)(2) performance monitoring. MR System Basis Documents were also reviewed, as appropriate. Documents reviewed are listed in the Attachment.

- On January 13, 125VDC availability monitoring during a breaker trip for battery 2-5 while replacing an indicator bulb and documented in CR 08-33383; and
- On January 15, Unit 2 EDG 2-1 #10 cylinder fuel injection pump failures as documented in condition reports CR06-10449 (dated 11/22/06) and CR 07-31825 (dated 12/20/07).

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 their effect on overall plant risk. This review was conducted to ensure compliance with applicable criteria contained in 10 CFR 50.65(a)(4). Documents reviewed are listed in the Attachment. The inspectors reviewed the planned or emergent work for the following activities:

- Week of January 7, the inspectors assessed overall plant risk during Unit 2 planned “yellow” risk conditions while performing 2OST-1.11B, Rev. 35, “Safeguards Protection System Train A SIS Go Test,” and also during 2MSP-1.04-I, Rev. 37, “Solid State Protection System Train A Bi-Monthly Test;”
- Week of January 14, station risk assessment of work activities scheduled;
- On January 19, Unit 2 Yellow PRA risk due to isolation and removal of current/potential transformers for the ‘A’ train System Station Service Transformer;
- On January 22 and 25, Unit 1 work activities to replace failed high-level alarm magnetic amplifier to the ‘A’ Primary Grade Water Tank, [1BR-TK-6A], and its impact on surrounding safety-related instruments;
- On February 2, Unit 1 unplanned loss of switch gear area air-conditioning units and impact on plant risk;
- On March 7, Unit 2 planned breaker swap for safety-related battery 2-1; and
- Week of March 24, station risk assessment of work activities scheduled.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (8 samples)

The inspectors evaluated the technical adequacy of selected immediate operability determinations (IOD), prompt operability determinations (POD), or functionality assessments (FA), to verify that determinations of operability were justified, as appropriate. In addition, the inspectors verified that 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 eight samples of the following issues:

- On January 2, the inspectors reviewed the assessment of operability and the extent of condition documented in CR 07-32127 concerning a linear crack in the operator for MOV-1SI-885A ('A' Train LHSI Recirc line mini-flow isolation valve);
- On January 2 - 4, the inspectors evaluated the licensee's assessment of operability and evaluation of 10 CFR Part 21 information regarding automatic voltage regulators for both units' emergency diesel generators as documented in CR 07-26979;
- On January 3, inspectors re-evaluated operability, extent of condition, and common cause aspects of the Unit 2-1 Emergency Diesel Generator (EDG) #10 injector failure that occurred on December 20, 2007. The fuel injector pump had seized, as documented in CR 07-31825;
- On January 25, inspectors evaluated the licensee's operability assessment of the Unit 1-2 EDG with a pinhole leak in the river water cooling system, as documented in CR 08-34291;
- On March 3, inspectors evaluated the licensee's operability assessment of Unit 1 and Unit 2 Solid State Protection System with regards to Westinghouse Technical Bulletin 08-01, concerning semi-automatic logic tester cards, as documented in CR 08-36226;
- On March 9, inspectors evaluated the licensee's operability assessment, and reviewed CR-08-36558 and Unit 1 operations logs, dated 3/8 and 3/9, associated with a loss of oil indication on "A" Charging Pump motor outboard bearing;
- On March 13 – 19, inspectors evaluated the licensee's operability assessment, and reviewed POD 08-36693 concerning seismic loads with respect to the Unit 1 '3A' auxiliary feedwater pump motor set screws; and
- On March 27, inspectors evaluated the licensee's POD 08-37272 concerning the Unit 2 'D' Recirculation Spray Heat Exchanger low service water flow identified during the 'B' Service Water Full Flow System Test (2OST-30.13B) on March 25.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope (1 temporary modification sample)

The inspectors reviewed the following temporary modifications (TMOD) based on risk significance. The TMOD and associated 10 CFR 50.59 screening were reviewed against the system design basis documentation, including the UFSAR and the TS. The inspectors verified the TMODs were implemented in accordance with Administrative (ADM) Procedure, 1/2-ADM-2028, "Temporary Modifications," Rev. 6. Documents reviewed are listed in the Attachment.

- On January 28, TMOD ECP-08-0035-01 to capture leakage from the reactor coolant system (RCS) vent system and route to a floor drain to the pressurized relief tank (PRT) cubicle.

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 January 8, 1OST-24.2, Rev. 37, "Motor Driven Auxiliary Feedwater Pump Test [1FW-P-3A]" after planned maintenance activities;
- On January 21, Unit 2 138kV switchyard breaker OCB-85 operational checks after completing oil reservoir repair;
- On January 25, replacement of high-level alarm magnetic amplifier (L-PG-115A) for 'A' Primary Grade Water Tank (WO 2008250111);
- On January 26, Unit 2 replacement of the throttle valve on station/instrument air compressor 2SAS-C21B (WO 200253147);
- On February 14, 1OST.16.1, Rev. 12, "Supplementary Leak Collection and Release Test for Exhaust through the Main Filter Bank-Train A," performed following preventative maintenance activities on Unit 1 Leak collection Exhaust Fan Motor [1-VS-F-4A] (WO 200211872);
- On February 28, Unit 2 'C' Service Water pump test after pump overhaul (2OST-30.6B, Rev. 15, "Service Water Pump [2SWS*P21C] Test on Train B Header"); and
- On February 29, Unit 1 'A' Component Cooling pump test after oil flush and bearing replacement (WO 200263035).

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)Unit 2 Refueling Outage (2R13)a. Inspection Scope (1 partial sample)

The inspectors observed selected Unit 2 pre-outage activities. The inspectors reviewed procedures and/or observed selected activities associated with the up-coming Unit 2 refueling outage. The inspectors verified activities were performed in accordance with procedures and verified required acceptance criteria were met. The inspectors also verified that conditions adverse to quality identified during performance of selected outage activities were identified as required by the licensee's corrective action program. This sample will be completed during the Unit 2 spring refueling outage and documented in IR 05000334 & 05000412/2008003. Documents reviewed are listed in the Attachment. The inspectors evaluated the following activities:

- Receipt and inspection of new fuel assemblies;
- Inspection of the upper-half Spent Fuel Pool fuel elevator cable;
- Review of the Defense-in-Depth Shutdown Safety Report;
- Receipt and lift of new High Pressure Turbine; and
- Outage Readiness Meetings.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)a. Inspection Scope (8 samples: 1 leak rate, 2 inservice testing, and 5 routine)

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. The following eight activities were reviewed:

- On January 10, 2MSP-1.04-I, Rev. 37, "Solid State Protection System Train A Bi-Monthly Test";
- On January 14 -16, 2MSP-6.40-I, Rev. 12, "Reactor Coolant Temperature Loop 2RCS-T432 Delta-T / T-avg Protection Channel III Calibration;"
- On January 16, 1OST-24.4, Rev. 37, "Steam Generator Feedwater System Operating Surveillance Test – Steam Turbine Driven Auxiliary Feed Pump Test [1-FW-P-2], (Inservice testing);"
- On January 30, BV-2MSP-01.05-I, Issue 4 Rev. 36, "Solid State Protection System Train B Bi-Monthly Test;"
- On February 7, 1MSP-39.06-E, Rev. 8 Issue 4, "Battery No. 1 Inspection and Interconnection Resistance Check;"

- On February 17, 2RST-2.5, Rev. 7 Issue 1, “Moderator Temperature Coefficient Determination ;”
- On March 21, 1OST-6.2A, Rev. 15, “Computer Generated Reactor Coolant System Water Inventory Balance, (Leak rate);” and
- On March 25, 2OST-30.13B, Rev. 23, “Train B Service Water System Full Flow Test,” (Inservice testing).

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness [EP]

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope (1 sample)

The inspectors observed a Unit 1 licensed-operator simulator drill conducted on February 28. Senior licensed-operator performance regarding event classifications, notifications and protective action recommendations were specifically evaluated. The inspector evaluated a simulator-based scenario that involved multiple, safety-related component failures and plant conditions that would have warranted emergency plan activation, emergency facility activation, and escalation to the event classification of General Emergency. The licensee credited this evolution toward Emergency Preparedness Drill/Exercise Performance (DEP) Indicators, therefore, the inspectors reviewed the applicable event notifications and classifications to determine whether they were appropriately credited, and properly evaluated consistent with Nuclear Energy Institute (NEI) 99-02, Rev. 5, “Regulatory Assessment Performance Indicator Guideline.” The inspectors reviewed licensee evaluator worksheets regarding the performance indicator acceptability, and reviewed other crew and operator evaluations to ensure adverse conditions were appropriately entered into the Corrective Action Program. Other documents utilized in this inspection include the following:

- 1/2-ADM-1111, Rev. 2, “NRC EPP Performance Indicator Instructions;”
- 1/2-ADM-1111.F01, Rev. 2, “Emergency Preparedness Performance Indicators Classifications/Notifications/PARS;”
- EPP/I-1a/b, Rev. 11, “Recognition and Classification of Emergency Conditions;”
- 1/2-EPP-I-2, Rev. 30, “Unusual Event;”
- 1/2-EPP-I-3, Rev. 28, “Alert;”
- 1/2-EPP-I-4, Rev. 28, “Site Area Emergency;” and
- 1/2-EPP-I-5, Rev. 29, “General Emergency.”

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope (10 samples)

During the period February 25 - 28, 2008, the inspectors conducted the following activities to verify that the licensee was properly implementing physical, administrative, and engineering controls for access to locked high radiation areas, and other radiological controlled areas (RCA) during power operations. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, relevant TS, and the licensee's procedures.

Plant Walkdown and Radiation Work Permits (RWP) Reviews

- The inspectors toured accessible radiological controlled areas in Units 1 and 2, and with the assistance of a radiation protection technician, performed independent radiation surveys of selected areas to confirm the accuracy of survey data, and the adequacy of postings.
- The inspectors identified an area in Unit 2 where radiological significant work was being performed. This area was the Unit 2 spent fuel pool transfer bridge, where pre-operational checks were being performed. The inspectors interviewed the worker performing the checks and reviewed the applicable RWP (208-2004) to determine if the radiological controls were acceptable and if the dosimetry setpoints were consistent with plant policy.
- There were no significant dose gradients requiring relocation of dosimetry for the radiological significant job reviewed during this inspection. There were no current radiation work permits for airborne radioactivity areas with the potential for individual worker internal exposures of > 50 mrem.
- During 2007, there were no internal dose assessments for any actual internal exposures that reached the reporting threshold of greater than 50 mrem Committed Effective Dose Equivalent (CEDE). The inspectors also reviewed data for the ten highest exposed individuals for 2007, and the dose/dose rate alarm reports and determined that no exposure exceeded site administrative, regulatory, or performance indicator criteria. Additionally, the inspectors confirmed that no declared pregnant workers were employed during 2007.

Problem Identification and Resolution

- A review of a licensee's Integrated Performance Assessment, Radiation Protection (BVSA-08-029), was conducted to determine if identified problems were entered into the corrective action program for resolution.
- Nine (9) condition reports, associated with RCA access control, initiated between October 1, 2007 and February 28, 2008, were reviewed and discussed with the licensee staff to determine if the follow-up activities were being conducted in an effective and timely manner, commensurate with their safety significance.

High Radiation Area and Very High Radiation Area Controls

- Nuclear Operating Procedures, related to high radiation area, and very high radiation area control, were reviewed, and implementation of these changes was discussed with the Radiation Protection Manager and Nuclear Oversight personnel.
- Keys to locked high radiation areas (LHRA) located in Unit 1 and Unit 2 were inventoried and accessible LHRAs were verified to be properly secured and posted during plant tours.

Radiation Worker and Radiation Protection Technician Performance

- Several radiological-related condition reports were reviewed to evaluate if the incidents were caused by repetitive radiation worker errors and to determine if an observable pattern traceable to a similar cause was evident.
- Radiation Protection Technicians were questioned regarding their knowledge of plant radiological conditions and associated controls.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope (9 samples)

During the period February 25 - 28, 2008, the inspectors conducted the following activities to verify that the licensee was properly implementing operational, engineering, and administrative controls to maintain personnel exposure as low as is reasonably achievable (ALARA) for activities performed in 2007. Also reviewed were the dose controls for current activities and the preparations to control dose during the spring Unit 2 (2R13) refueling outage. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and the licensee's procedures.

Radiological Work Planning

- The inspectors reviewed pertinent information regarding cumulative exposure history, current exposure trends, and ongoing activities to assess 2007 site ALARA performance, current (2008) exposure trends, and the challenges for the spring 2008 Unit 2 (2R13) outage.
- The inspectors reviewed the exposure status for tasks performed during the Unit 1 (1R18) fall 2007 outage and compared actual exposure with forecasted estimates contained in ALARA reviews. Additionally, the inspectors reviewed the 1R18 post outage plan and minutes for the Station ALARA Committee meetings to determine if ALARA measures were appropriately addressed for outage activities that resulted in actual doses greater than originally forecasted.

The inspectors evaluated the departmental interfaces between radiation protection, operations, maintenance crafts, and engineering to identify missing

ALARA program elements and interface problems. The evaluation was accomplished by attending the daily management alignment meeting, a 2R13 Radiation Protection Readiness Review meeting and a Station ALARA Committee (SAC) meeting (08-10), reviewing recent SAC meeting minutes and the BVPS Mid-Cycle Review report, and interviewing the station Radiation Protection Manager. During the SAC, the inspectors evaluated challenge board presentations for various 2R13 jobs including reactor shutdown/startup, mechanical maintenance, and reactor coolant pump seal and motor maintenance.

- The inspectors reviewed ALARA Plans for the upcoming 2R13 outage including steam generator channel head work (AP 08-2-21), reactor building sump modification (AP 08-2-33), steam generator permanent platform installation (AP 08-2-20), and split pin replacement (AP 08-2-38).

Verification of Dose Estimates

- The inspectors reviewed the assumptions and basis for the annual site collective exposure projections. The inspector also reviewed individual and departmental exposure data for activities performed in 2007, to evaluate the accuracy of past dose projections.
- The inspectors reviewed the licensee's procedures associated with monitoring and re-evaluating dose estimates when the forecasted cumulative exposure for tasks was approached and the implementation of these procedures during the Unit 1 fall 2007 outage. The inspectors reviewed the dose records for the ten workers who received the highest doses for 2007 to confirm that no individual exceeded the regulatory annual limit, administrative limits, or performance indicator criteria.

Past Jobs Performed

- The inspectors reviewed the ALARA controls contained in various RWP's and ALARA Plans (AP) for activities performed during 2008. Included in this review were Unit 1 containment entries to identify and correct valve leakage (RWP 108-1038/AP 08-1-07), spent resin transfers (RWP 108-1032/AP 08-1-02), 1CH-FL-2 filter change-out (RWP 108-1032/AP 08-1-03), in-core drive replacement (RWP 108-1039/AP08-1-08), and Unit 2 radwaste processing activities (RWP 208-2034 & 2035/AP08-2-04 & 05).

Source Term Reduction and Control

- The inspectors reviewed the status and historical trends for the Unit 1 and Unit 2 source terms. Through review of survey maps and interviews with the Senior Nuclear Specialist-ALARA, the inspectors evaluated recent source term measurements and control strategies. Specific strategies being employed included zinc addition (Unit 1), chemistry controls for 2R13, system flushes, and temporary shielding.

Declared Pregnant Workers

- The inspectors determined that no declared pregnant workers (DPW) were employed during 2007.

Problem Identification and Resolution

- The inspector reviewed elements of the licensee's corrective action program related to implementing the ALARA program to determine if problems were being entered into the program for timely resolution. Eight condition reports related to dose/dose rate alarms, programmatic dose challenges, and the effectiveness in predicting and controlling worker dose were reviewed.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES [OA]**

4OA1 Performance Indicator Verification (71151)

Cornerstone: Initiating Events (6 samples)

a. Inspection Scope

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 5, were used for each data element:

Unplanned Scrams per 7000 Critical Hours (IE01) (Units 1 & 2)

The inspectors reviewed the PIs for unplanned scrams per 7000 critical hours, to verify that scrams had been properly reported. The inspectors reviewed Licensee Event Reports, monthly operating reports, plant operating logs, and additional records. The inspectors reviewed 12 months of data (January 2007 to December 2007) for unplanned scrams.

Unplanned Scrams with Complications (IE02) (Units 1 & 2)

The inspectors reviewed the PIs for scrams that required additional operator actions, to verify this element had been properly reported. The inspectors reviewed Licensee Event Reports, monthly operating reports, plant operating logs, and additional records. The inspectors reviewed 12 months of data (January 2007 to December 2007) for unplanned scrams.

Unplanned Transients per 7000 Critical Hours (IE03) (Units 1 & 2)

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 reviewed plant operating logs, corrective action program records, monthly operating logs, and additional records. The inspectors reviewed 18 months of data (June 2006 to December 2007) for power changes.

b. Findings

No findings of significance were identified.

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

.1 Daily Review of Problem Identification and Resolution

a. Inspection Scope

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

b. Findings

Introduction. A Green self-revealing, Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," was identified for the failure to properly perform line starter testing for a Unit 2 safety-related battery exhaust fan (2HVZ-FN216B) in accordance with the written test procedure. This error resulted in the 'B' train of Quench Spray Chemical Additive System becoming inoperable.

Description. On March 21, 2008, during activities to test the line starter to a safety-related battery exhaust fan, the test jumper was inadvertently placed on terminal points in the wrong process rack. The testing was in support of Engineering Change Package (ECP) 07-0002-40, which was being implemented to replace select Class 1E motor control center components.

The purpose of this phase of the ECP test plan was to test the battery rooms' exhaust fan [2HVZ-FN216B] control circuit, overload protection, and the alarm logic circuit. The plan required a jumper installation in process rack RK-2SEC-PROC-B1, but was inadvertently placed in rack RK-2SEC-PROC-B. This jumper was necessary to simulate the absence of a differential-pressure signal across fan 2HVZ-FN216A.

Both process racks are located below the Unit 2 Control Room in the Control Building 707 foot level, however in different rooms. Each process rack has a white placard label with its identification number. Also, there is a black placard that has a note for the location of the expansion panel. The black placard acts as a cross-reference to the other process rack, which added confusion to identifying the correct process rack.

Once the incorrect rack was opened, the identification tag for the circuit to be jumpered could not be observed due to obstruction by wires. To prevent disturbing other live circuits, prints were used to identify the location to place the jumper, contrary to station procedure NOBP-LP-2603, "Event-Free Tools and Verification Practices." The jumper was installed into what was believed to be the correct location.

After a repeat failure to obtain expected test results, during re-verification of test setup conditions, a technician studied the process rack placards with more scrutiny and identified the jumper had been installed in the wrong process rack. The job was stopped

and the control room was notified. The jumper was removed and the area inspected for damage, including an engineering evaluation for damaging effects. None was found. The licensee entered the deficiency into their corrective action program as Condition Report 08-37168. FENOC performed a root cause evaluation, evaluated appropriate human performance contributors, and initiated corrective actions to prevent recurrence.

The adverse consequence of the jumper installation into the incorrect process rack would have caused a partial mis-alignment of the Quench Spray Chemical Additive System in the event of a Containment Phase 'B' isolation. If Quench Spray had been initiated, a portion of the 'B' train chemical injection flow would be diverted to the containment sump and not the spray header as designed. Because the 'B' train would not have been able to perform as designed, operators declared 'B' train of Quench Spray inoperable. This was an unplanned entry into Technical Specification 3.6.8 Condition A action statement. Operations considered the 'B' train of Quench Spray to be inoperable for a period of seven hours and fifty minutes. The Technical Specification allowed outage time for one train of Quench Spray out of service is 72 hours. The jumpers were actually installed in the wrong process rack for a total time of approximately 30 minutes.

Analysis. The failure to properly perform line starter testing for a Unit 2 safety-related battery exhaust fan (2HVZ-FN216B) in accordance with the written test procedure is considered a performance deficiency. Traditional enforcement does not apply because the issue did not have an actual safety consequence or potential for impacting the NRC's regulatory function, and it was not the result of any willful violation of NRC requirements. The finding is greater than minor because it affected the equipment performance attribute of the associated Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The significance of this finding was evaluated using Inspection Manual Chapter 0609.04, "Phase I- Initial Screening and Characterization of Findings". The inspectors determined that this finding was of very low safety significance (Green), because there was no overall loss of system function due to system redundancy and the system would have been able to perform its required safety function for the applicable mission time during design basis events. Because this finding is of very low safety significance and has been entered into FENOC's corrective action program, the violation is being treated as a non-cited violation.

The cause of this finding is related to the cross-cutting area of human performance, in that FENOC failed to utilize adequate self and peer checking during the identification of equipment and circuits specified in the test plan [H.4(a)].

Enforcement. 10 CFR 50, Appendix B, Criterion XI, requires in part, that test activities are performed in accordance with written test procedures. Contrary to these requirements, FENOC failed to ensure test activities involving the battery rooms' exhaust fan were appropriately performed in accordance with the test plan, rendering the 'B' train of Quench Spray Chemical Additive System inoperable. Because this deficiency was considered of very low safety significance, and was entered into the corrective action program for resolution as CR 08-37168, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy.

(NCV 05000334/2008002-01, Incorrect Jumper Placement during Testing Renders Quench Spray Chemical Addition Inoperable.)

.2 Semi-Annual Trend Review

a. Inspection Scope (1 sample)

The inspectors reviewed site trending results for June through December 2007, to determine if trending was appropriately performed and evaluated by FENOC. This review covered the site trending program under FENOC's Integrated Performance Assessment (IPA) process, and included a sample of self-assessments from the several organizations at Beaver Valley, such as BV-SA-08-014, "I&C Maintenance, 2007 IPA 2nd 6Mos". This review verifies that existing trends were (1) appropriately captured and scoped by applicable departments, (2) consistent with the inspectors' assessment from the daily CR and inspection module reviews (Section 40A2.1 and .3), and (3) not indicative of a more significant safety concern. Additionally, the inspectors verified the performance of site trending against NOP-LP-2001, Rev. 18, "Condition Report Process", and NOBP-LP-2018, Rev. 03, "Integrated Performance Assessment /Trending." The inspectors also reviewed quarterly Quality Assurance reports and issues captured in the Activity Tracking database to identify issues and trends to evaluate during the inspection.

b. Findings and Observations

No findings of significance were identified. However, an adverse trend in human performance was identified, evident from previous IPAs as well as a review of condition reports and inspection findings over the course of the assessment period. This trend was also identified by the licensee's IPA process (e.g. IPA BV-SA-08-032, CR 07-25570, and CR 08-33463). Also of note, the licensee appropriately identified a weakness in the corrective action process, specifically with regard to the effectiveness of investigations for IPA-identified issues (CR 07-32032) and the quality of Full Apparent and Root Cause evaluations.

.3 Annual Sample Review

Annual Safety Culture Assessment

a. Inspection Scope (1 sample)

The inspectors selected the 2007 annual Safety Culture Assessment (BV-PA-07-143) and management assessment process for detailed review. This review utilized guidance contained in NOBP-LP-2501, Rev 8., "Safety Culture Assessment" and NOBP-LP-2502, Rev. 4, "Safety Culture Monitoring" and focused on the adequacy and appropriateness of corrective actions. The 2007 Safety Culture Report and 2007 safety conscious work environment (SCWE) surveys were reviewed for trends. The inspectors also attended various licensee discussions regarding the station culture assessment and development of corrective actions.

b. Findings and Observations

No findings of significance were identified. The inspectors noted that the overall statistical rating was high, indicating a positive safety culture. The licensee management team downgraded six of eight assessment areas based on group discussions in each area and noted areas for improvement. The overall assessment of station safety culture

appeared to be consistent with inspector observations. Issues identified were documented in condition reports.

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

.1 Review Personnel Performance during Non-Routine Operations

a. Inspection Scope (2 samples)

The inspectors reviewed two events that demonstrated personnel performance in coping with non-routine evolutions and transients. The inspectors observed operations in the control room and reviewed applicable operating and alarm response procedures, TSs, 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.

- Unit 2: On January 19, 2008, at 2:42 p.m., operators received an alarm and responded to an apparent failure of level control to the 22D moisture separator drain tank which resulted in a thermal power transient. Operators responded by stabilizing power at 99 percent by reducing main turbine load and inserting control rods. The appropriate alarm response procedure was referenced. The cause of the control failure was determined to be due to a valve positioner failure. The valve positioner was repaired and the unit returned to full power two days later. The inspectors verified safety and steady-state power limits were not exceeded. This event was documented in the corrective action program as CR 08-33868.
- Unit 2: On February 20, 2008, at 3:30 a.m., operators identified lowering levels on all three steam generators from their program band. Level was 2 percent lower than expected and trending downward. Operators stabilized level and returned level to the normal band by manual control of the feedwater regulating valves. The feedwater transient resulted in a thermal power transient. Operators reduced turbine load and inserted control rods to stabilize power at 99 percent. The cause of the lowering water level was due to condensate water being diverted to the turbine plant water storage tank by an automatic dump valve. The dump valve responded properly to a hotwell level transient caused by a malfunctioning circulating water vacuum priming valve on the 'B2' condenser waterbox. The malfunctioning valve failed open, resulting in the initial hotwell transient. The valve failed in a safe operating condition and the unit was returned to full power on February 21 after the transient was understood. The inspectors verified safety and steady-state power limits were not exceeded. This event was documented in the corrective action program as CR 08-35615.

b. Findings

No findings of significance were identified.

4OA5 Other

.1 In-Process Observation of Corrective Actions Associated with the NRC's August 15, 2007 Confirmatory Order.

a. Inspection Scope

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

In addition to implementing interim corrective actions, the Order required in part that the licensee (refer to IR05000346/2007005 for a list of all required commitments):

- Conduct effectiveness review to determine if an appropriate level of regulatory sensitivity was evident among First Energy employees including those who received regulatory sensitivity training in January 2008 and 2009.

b. Observations and Findings

Davis-Besse inspection report IR05000346/2008002 contains detailed closure information.

4OA6 Management Meetings.1 Access Control / ALARA Planning and Control

The inspectors presented the inspection results of 2S01 and 2S02 to Ken Grada, Director of Work and Outage Management, and other members of FENOC staff, at the conclusion of the inspection on February 28. The licensee acknowledged the conclusions and observations presented. No proprietary information is presented in this report.

.2 Quarterly Inspection Report Exit

On April 23, the inspectors presented the normal baseline inspection results to Mr. Peter Sena, Site Vice President, and other members of the licensee staff. The licensee acknowledged the conclusions and observations presented. The inspectors confirmed that proprietary information was not retained at the conclusion of the inspection period.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION**KEY POINTS OF CONTACT**Licensee personnel

S. Baker	Site, Radiation Protection Manager
R. Bologna	Plant Engineering Manager
W. Blazier	Reactor Operator
J. Clark	Radiation Protection Health Services Technician
W. Cothen	Unit 1 Unit Supervisor
B. Cotter	Equipment Operator
D. Durkosh	Unit 2 Unit Supervisor
J. Flaherty	Manager, Design Engineering
J. Freund	Supervisor, Rad Operations Support
K. Grada	Director Operations and Maintenance/Work Management
B. Haffey	Unit 2 Reactor Operator
D. Held	Unit 2 Shift Manager
C. Hrelec	Analyst Condition Reports
L. Hunt	Instrument and Control Supervisor
B. Huston	Reactor Engineering
L. Keenen	I&C Test Lead Technician
C. Keller	Regulatory Compliance Manager
J. Lebda	Supervisor, Radiation Protection Services
J. Lutz	Unit 2 Shift Manager
K. Lynch	Staff Nuclear Engineer
J. Mauck	Compliance Engineer
T. McGourty	Staff Nuclear Engineer
C. Modro	I&C Engineering
D. Monyok	I&C Work Planning
J. Orr	Crane / Wire Rope Inspector
K. Ostrowski	Director, Site Operations
P. Pauvlinch	Supervisor, Nuclear Plant Systems Engineer
T. Porter	I&C Technician
R. Pucci	Senior Nuclear Specialist
J. Scott	I&C Supervisor
P. Sena	Site Vice President
B. Sepelak	Supervisor, Regulatory Compliance
D. Sharbaugh	Unit 1 Shift Manager
M. Smith	Shift Technical Assistant
G. Storolis	Unit 2 Shift Manager
K. Tiefenthal	Unit 2 Shift Manager
G. Woosely	Unit 2 Supervisor

Other Personnel

L. Ryan	Inspector, Pennsylvania Department of Radiation Protection
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LIST OF ITEMS OPENED, CLOSED, AND DISCUSSEDOpen/Closed

05000412/2008002-01 NCV Incorrect Jumper Placement during Testing Renders
Quench Spray Chemical Addition Inoperable. (Section
40A2.1)

LIST OF DOCUMENTS REVIEWED**Section 1R01: Adverse Weather Protection**Procedures

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

Alarm Response Procedure for A6-102, Intake Structure River Water Level-Temp Abnormal.

Condition Reports

08-34277 08-34353 08-35660 08-37204

Miscellaneous

BV-SA-08-040, Snapshot Assessment of Flood Seal Program
Unit 1 & 2 Daily Shift Operating Logs, dated February 5-7, 2008

Section 1R04: Equipment AlignmentCondition Reports

07-25550 07-28029 07-28030 08-33189* 08-35440*

* - NRC Identified

Drawings

8700-RM-430-1, Rev. 29, "Valve Oper No Diagram Service Wtr Supply & Distribution"
8700-RM-430-1A, Rev. 4, "Valve Oper No Diagram Standby Service Wtr Supply"
8700-RM-430-2, Rev. 31, "Valve Oper No Diagram Service Water Primary Cooling"
8700-RM-430-3, Rev. 17, "Valve Oper No Diagram Service Water Primary Cooling"
8700-RM-430-4, Rev. 14, "Valve Oper No Diagram Service Water Secondary Cooling System"
8700-RM-413-2, Rev. 13, "Valve Oper No Diagram Quench Spray System"
8700-RM-416-1, Rev. 13, "BVPS-1 Piping and Instrumentation Diagram Vent and Air Cond
Primary Plant"

Procedures

2DBD-13, Rev. 11, "Design Basis Document for Containment Depressurization System"
2OM-13.1.C, Rev. 1, Major Components"
2OM-13.3.B.1, Rev. 9, "Valve List – 2QSS"
2OM-30.3.B.1, Rev. 38, "Valve List – 2SWS"
2OST-1.11B, Rev. 35, "Safeguards Protection System Train A SIS Go Test"
2OST-13.1, Rev. 24, "Quench Spray Pump [2Qss*P21A] Test"
2OST-13.10A, Rev. 23, "Chemical Injection System Valve Position and Pump Operability
Check - [Train A]"

Miscellaneous

Operations Standing Order 07-010
Unit 2 Daily Operations Log, dated 1/15/08
Work Order 200211871

Section 1R05: Fire Protection

Procedures

1OST-33.15A, Rev. 15, "Fire Extinguisher Monthly Inspection"
2OST-33-15A, Rev. 6, "Fire Extinguisher Inspection"

Pre Fire Plans

1PFP-AXLB-752, "Auxiliary Building General Area Fire Area PA-1C"
1PFP-AXLB-735, "Auxiliary Building General Area Fire Area PA-1E"
U2 Pre Fire Plan MS-1
U2 Pre Fire Plan CB-3
1-PFP-SRVB-235

Condition Reports

08-37243

Miscellaneous

Analysis No. 10080-B-085, Rev. 12

Section 1R06: Flood Protection Methods

Condition Reports

08-37204 08-35435

Section 1R07: Heat Sink Performance

Work Orders

200257498 200261285

Miscellaneous

½-ADM-2106.F01, Rev. 2, Heat Exchanger Inspection Report [2CCP-E21C], March 11, 2008
Unit 2 Daily Status Report, dated March 12, 2008
Unit 2 Operations Shift Logs, dated March 11 – 14, 2008

Section 1R11: Licensed Operator Requalification Program

Procedures

1/2-ADM-1111, Rev. 2, "NRC EPP Performance Indicator Instructions;"
1/2-ADM-1111.F01, Rev. 2, "Emergency Preparedness Performance Indicators
Classifications/Notifications/PARS"
1/2-ADM-EPP-IP-1.1.F01, Rev. 2, "Initial Notification Form," Dated 2/28/08
EPP/I-1a/b, Rev. 11, "Recognition and Classification of Emergency Conditions"
NRC Form 361, Rev 12-2000, "Reactor Plant Event Notification Worksheet," for drill, dated
2/28/2008

Miscellaneous

Red Team Mini-Drill February 28, 2008 Rev. 0

Section 1R12: Maintenance Rule Implementation

Procedures

NOP-ER-3004-03, Rev. 00, "Maintenance Rule Failure Review Form," dated 1/22/08 for CR 08-33383

2OST-36.1, "Emergency Diesel Generator [2EGS* EG 2-1] Monthly Test"

Condition Reports

08-33383 06-10449 07-31825

Miscellaneous

MR System Basis Document (Unit 2 System 39)

MR Monthly Monitoring Report (Jan 08) for Unit 2 System 39, dated 2/2/08

Section 1R13: Maintenance Risk Assessment and Emergent Work Control

Procedures

1/2-ADM-2033, Rev. 4, "Risk Management Program"

2MSP-1.04-I, Rev. 37, "Solid State Protection System Train A Bi-Monthly Test"

NOP-OP-1007, Rev. 4, "Risk Determination"

2OST-1.11B, Rev. 35, "Safeguards Protection System Train A SIS Go Test"

1OM-44E.4.Z, Rev. 8, "Switchgear Area Cooling System Startup"

1OM-44E.4.AAJ, Rev. 1, Local Safety Switches

1MSP-8.01, Rev. 9, "L-PG115A, Primary Water Storage Tank (1BR-TK-6M) Level Test"

1/2-ODC-3.03, Rev. 6, "Off-Site Dose Calculation Manual," section 8.3 attachment

Condition Reports

07-13191 08-33421 08-33553 08-34811 08-34822 08-34076
08-34360 08-35320 08-37366 08-37416

Miscellaneous

I&C Standard Pre-job Briefing Sheet: Solid-State Protection System, 2MSP-1.04-I and 1.05-I

Unit 2 Daily Operations Log, dated 1/8/08

Unit 2 Daily Operations Log, dated 1/10/08

Weekly Maintenance Risk Summary for the week of January 7, 2008, Rev. 1

BVPS 1/2 Work Week Schedule for week of January 20, 2008

BVPS 1/2 Work Week Schedule for week of January 14, 2008

BVPS 1/2 PRA Risk Profile for January 19, 2008

BVPS 1/2 PRA Risk Profile for January 14, 2008

Work Order (WO) 200288915

Unit1 ARP for A4-97 Alarm

NOTF 600440668

BVPS-1 shift operations logs, dated January 22 through January 25

WO 200250111

Section 1R15: Operability Evaluations

Procedures

NOP-OP-1009, Rev. 00, "Immediate and Prompt Operability Determination"

Drawings

8700-06.024-0158, Unit 1 River Water

BVPS UFSAR Unit 2, Rev. 16

Pages 6.2-50 and 6.2-50a

Tables 6.2-57 and 9.2-2

Condition Reports

01-03450	07-32127	07-31825	08-36226	08-36558	08-36693
08-37095	08-37272	08-37286	08-37328	08-37427	08-37441

Work Orders & Notifications

WO 200295196	NOTF 600433194	NOTF 600433198
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Miscellaneous

TER-8848

KALSI Engineering Report Document 1707C

IN 2007-36, "Emergency Diesel Generator Voltage Regulator Problems"

EVAL-21-2007-02, "MPR Evaluation of Basler Electric SBSR AVR Card Solder Joints-Salem Event Evaluation"

Addendum 1 to EVAL-21-2007-02, "MPR Evaluation of Basler Electric SBSR AVR Card Solder Joints-Salem Event Evaluation," dated January 14, 2008

Unit 1 Operations Logs, dated 3/8 and 3/9

Prompt Operability Determination Form NOP-OP-1009-01, Rev. 0

Westinghouse Technical Bulletin TB-08-01, "Solid State Protection System Semi-Automatic Tester Board"

Section 1R18: Plant Modifications

Other

ODMI Unit 1 Reactor Head Vent System Leakage Resolution

ECP-08-0035-01

Section 1R19: Post-Maintenance Testing

Procedures

1MSP-8.01, Rev. 9, "L-PG115A, Primary Grade Water Storage Tank [1BR-TK-6A] Level Test"

1OM-15.4.G, Rev. 9, "Starting an Additional CCR Pump"

1OST-13.2, Rev. 30, "Quench Spray Pump [1QS-P-1B] Test"

1OST-13.11B, Rev. 6, "Train B Quench Spray System Operability Test"

1OST-15.1, Rev. 19, "[1CC-P-1A] Quarterly Test"

1OST-16-1, Rev. 12, "Supplementary Leak Collection and Release Test for Exhaust through the Main Filter Bank-Train A"

1OST-24.2, Rev. 37, "Motor Driven Auxiliary Feed Pump Test [1FW-P-3A]"

2OM-34.4A, Rev. 9, "Station Air and Instrument Air Startup"

Condition Reports

06-04697	08-34827	08-34076	08-36166
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Work Orders & Notifications

WO 200263035	NOTF 600434993*
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Other

Clearance Tagout 1W03-24-FW-001, No. 3A Motor Driven Auxiliary Feedwater Pump
Clearance Tagout 1W03-24-FW-002, Aux FW Pump FW-P-3A Suction Line From WT-TK-10
Flow Indic Switch
Unit 1 Daily Operations Log, dated 1/08/08, 2/29/08
Unit 2 Daily Operations Log, dated 1/19/08, 1/26/08
AOP-2.34.1, Rev. 11, "Loss of Station Instrument Air"
Clearance: 2WO5-34-SAS-005A

Work Orders

200288915 200211872

Section 1R22: Surveillance Testing

Condition Reports

08-33008 08-33438 08-33473 08-33603 08-33586 08-33549
08-33577 08-35323 08-35326 08-37272 08-37304 08-37286

Procedures

2MSP-1.04-I, Rev. 37, "Solid State Protection System Train A Bi-Monthly Test"
2MSP-6.40-I, Rev. 12, "Reactor Coolant Temperature Loop 2RCS-T432 Delta T / Tavg
Protection Channel III Calibration"
1OST-6.2A, Rev. 15, "Computer Generated Reactor Coolant System Water Inventory Balance"

Work Orders

200237784 200248926 200247487

200250780, "BV-2MSP-01_05-I Verify Operability of Rx Protection Logic System Train B Test"

Notifications

600436881 600436924 600436879 600139775

Other

I&C Standard Pre-job Briefing Sheet: Solid-State Protection System, 2MSP-1.04-I and 1.05-I
Unit 2 Daily Operations Log, dated 1/10/08
Unit 2 Daily Operations Log, dated 1/14/08
Unit 2 Daily Operations Log, dated 1/15/08
Unit 2 Daily Operations Log, dated 1/16/08
Unit 2 Daily Operations Log, dated 2/11/08
Unit 2 Daily Operations Log, dated 3/05/08
ITS Basis Section 3.8.4 and 3.8.6j
ITS Section 3.8.1, Electrical Power Systems
LRM Section 3.8.1 Electrical Power Systems Unit 1 & 2 (125Vdc Battery Bank Maintenance
Requirements)
IEEE Std 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement
of Vented Lead-Acid Batteries for Stationary Applications"

Section 1EP6: Drill Evaluation

Condition Reports

08-36058 08-36063 08-36064 08-36066 08-36068 08-36070

08-36086 08-36089 08-36119

Other

Red Team Mini-Drill February 28, 2008 Rev. 0

Section 2OS1: Access Control to Radiologically Significant Areas

Procedures:

Access Control to Radiologically Significant Areas/ALARA Planning & Controls (71121.01/02)

1/2-ADM-1601, Rev 15, Radiation Protection Standards
 1/2-ADM-1611, Rev 9, Radiation Protection Administrative Guide
 1/2-ADM-1621, Rev 3, ALARA Program
 1/2-ADM-1630, Rev 10, Radiation Worker Practices
 1/2-ADM-1631, Rev 5, Exposure Control
 1/2-HPP-3.02.003, Rev 8, Decontamination Control
 1/2-HPP-3.02.004, Rev 4, Area Posting
 1/2-HPP-3.04.002, Rev 5, Bioassay Administration
 1/2-HPP-3.05.001, Rev 4, Exposure Authorization
 1/2-HPP-3.07.002, Rev 5, Radiation Survey Methods
 1/2-HPP-3.07.013, Rev 3, Barrier Checks
 1/2-HPP-3.08.003, Rev 10, Radiation Barrier Key Control
 1/2-HPP-3.08.006, Rev 1, Shielding
 BVBP-RP-0003, Rev 4, Dosimetry Practices
 BVBP-RP-0013, Rev 2, Radiation Protection Risk Assessment Process
 BVBP-RP-0016, Rev 0, Survey Requirements During Plant Transients
 BVBP-RP-0020, Rev 6, RP Job Coverage General Guidance
 NOP-WM-7001, Rev 1, ALARA Program
 NOP-WM-7002, Rev 1, Operational ALARA Program
 NOP-WM-7003, Rev 3, Radiation Work Permit
 NOP-WM-7015, Rev2, Respiratory Protection Program
 NOP-WM-7017, Rev 1, Contamination Control Program
 NOP-WM-7021, Rev 2, Radiological Postings, Labeling, and Markings
 NOP-WM-7025, Rev 0, High Radiation Area Program
 BVBP-RP-0024, Rev 1, Remote Monitoring

Integrated Performance Assessment:

BV-SA-08-029, Radiation Protection, Integrated Performance Assessment

Condition Reports:

71121.01 Related:

07-29392	07-29473	07-29226	07-26705	07-28910	07-28792
07-24516	07-27141	07-31772			

71121.02 Related:

07-29908	07-29004	07-29005	07-29006	07-31753	08-33636
08-33634	08-33631				

Recent Work RWP's and ALARA Plans:

RWP 108-1034/AP 08-1-04, 1CH-FL-4A/B Filter Changeout
 RWP 108-1037/AP 08-1-06, Radwaste Shipping
 RWP 108-1030/AP 08-1-02, Resin Transfer
 RWP 108-1038/AP 08-1-07, Unit 1 Reactor Building Entries – Trouble shoot valve leakage

RWP 108-1039/AP 08-1-08, Unit 1 Reactor Building Entries – Replace incore drive
RWP 108-1032/AP 08-1-03, 1CH-FL-2 Filter Changeout
RWP 208-2033/AP 08-2-03, Flush and Charge 2SGC-IOE21 A/B
RWP 208-2034, AP 08-2-04, Resin Transfer

ALARA Committee Meeting Minutes:

Meeting Nos. 1R18-1 thru 1R18-19 and 07-29 thru 07-43

2R18 ALARA Plans:

08-2-38, Split Pin Replacement
08-2-20, Steam Generator Platform Installation
08-2-33, RBC Sump Modification
08-2-21, Steam Generator Channel head work

ALARA Reports:

2R13 Outage ALARA Plan
1R18 Post-Outage ALARA Plan Report

Section 4OA2: Identification and Resolution of Problems

Condition Reports

08-33131, "Incorrect Fuse Pulled During Maintenance Activity"
08-33139, "PT-1CV-101A has Nicked Wire"
08-35475, "TV-1DG-108B Valve Found Open During Restoration Step of 1OST-6.2A, RCS Leak Rate"
08-37168, "Incorrect Jumper Placement During ECP Testing"
08-37330, "Biocide Valve Mis-position and NPDES Permit Condition"
08-37373, "Evaluation of Recent Human Performance Events Over a Short Period of Time"
00-1664, "Prevention of Inadvertent Dual Train/Unit Bulk Biocide Treatments"

Procedures

1OM-30.4.AJ, BV-1 Clamicide
2OM-30.4.M, BV-2 Clamicide
2OM-13.1.E, Rev. 3, "Containment Depressurization System Description"
NOPL-CC-0001, "Engineering Principles and Expectations"

Miscellaneous

Drawings RE-3HM, RE-4CB, E-11DQ
Engineering Change Package 07-0002-40
Unit 1 Shift Operating Logs, dated March 26-27, 2008
Unit 2 Shift Operating Logs, dated March 21, 2008
Plant Engineering Stand-down Presentation Slides, dated November 14, 2007
Test Plan for MCC-2-E14-4D (2HVZ-FN216B), SAP Order 200248765
Work Order 200248765

Section 4OA3: Event Response

Condition Reports

07-25654, "Second Point Heater Drain Receiver Level Control Failure (2HDH-TK21A)"
07-25965, "Unit 2 Heater Drain Receiver Tank Level Controls Need Upgraded"
08-33868, "Heater Drain Level Control Valve Failure Causes Reactor Power Increase"
08-35615, "Unplanned Load Reduction Due To Hotwell Level Anomaly"

Procedures

20M-23B.4.AAM, Rev. 4, "Moisture Separator Drains Receiver Tank / Pump Trouble"

Miscellaneous

BVPS-2 Shift Operations Logs, dated January 19 -21, 2008

BVPS-2 Shift Operations Logs, dated February 20 -22, 2008

Problem Solving Plan for CR 07-25654, dated August 30, 2007

Problem Solving Plan for CR 08-35615, dated February 21, 2008

Operational Decision Making Issue for CR 07-25654 / 07-25965, dated January 23, 2008

LIST OF ACRONYMS

ADM	Administrative Procedure
BCO	Basis for Continued Operations
BVPS	Beaver Valley Power Station
CFR	Code of Federal Regulations
CR	Condition Report(s)
FENOC	First Energy Nuclear Operating Company
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISI	Inservice Inspection
LCO	Limiting Conditions for Operation
LER	Licensee Event Report
MR	Maintenance Rule
MSP	Maintenance Surveillance Package
NRC	Nuclear Regulatory Commission
OD	Operability Determinations
OST	Operations Surveillance Test
PCE	Personnel Contamination Event Report
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PMT	Post Maintenance Testing
PRT	Pressurized Relief Tank
RCA	Radiologically Controlled Area
RCS	Reactor Coolant System
RWP	Radiation Work Permit
SLCRS	Supplemental Leakage Collection and Release System
SSC	Structures, Systems, and Components
SW	Service Water
SWS	Service Water System
TMOD	Temporary Modification
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
VHRA	Very High Radiation Area