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

February 5, 2013

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

SUBJECT: BEAVER VALLEY POWER STATION – NRC INTEGRATED INSPECTION REPORT 05000334/2012005 AND 05000412/2012005

Dear Mr. Harden:

On December 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Beaver Valley Power Station, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on January 15, 2012, with Paul Harden, Site Vice President, 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.

This report documents two NRC-identified findings of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. Additionally, a licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance, and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs), consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest any NCVs 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 Power Station. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at Beaver Valley Power Station.

In accordance with 10 CFR 2.390 of the NRCs "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). ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Gordon K. Hunegs, Chief
Reactor Projects Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 05000334/2012005 and 05000412/2012005
w/Attachment: Supplementary Information

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BV INSPECTION REPORTS 2012\BV IR2012-005 FINAL .DOCX
ADAMS Accession No.: **ML13036A302**

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.:	50-334, 50-412
License Nos.:	DPR-66, NPF-73
Report No.:	05000334/2012005 and 05000412/2012005
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Beaver Valley Power Station, Units 1 and 2
Location:	Shippingport, PA 15077
Dates:	October 1, 2012 to December 31, 2012
Inspectors:	D. Spindler, Senior Resident Inspector E. Bonney, Resident Inspector E. Burkett, Reactor Inspector S. Galbreath, Reactor Engineer P. Kaufman, Senior Reactor Inspector T. Moslak, Health Physicist L. Scholl, Senior Reactor Inspector T. Ziev, Reactor Engineer
Approved By:	Gordon Hunegs, Chief Reactor Projects Branch 6 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000334/2012005, 05000412/2012005; 10/01/2012 – 12/31/2012; Beaver Valley Power Station, Units 1 and 2; Refueling and Other Outage Activities.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified two (2) findings of very low safety significance (Green), which were non-cited violations (NCV's). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within Cross-Cutting Areas." Findings for which the SDP does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Initiating Events

Green: A self revealing, Green NCV of Technical Specification 5.4.1 "Procedures," was identified for FENOC's failure to use a procedure when operating chemical volume and control system (CVCS) valve 2CHS-FCV122 during troubleshooting, as required by the regulatory guide (RG) 1.33 "Quality Assurance Program Requirements". Specifically, when an operator discovered that the valve positioner main feedback arm was sheared, the operator inadvertently manipulated the valve without guidance from a procedure or problem solving plan.

The inspectors determined that failing to use a procedure when operating 2CHS-FCV122 during troubleshooting was a performance deficiency within FENOC's ability to foresee and correct which contributed to over-pressurizing the reactor coolant system RCS during solid plant operations. This finding is more than minor because it is associated with the human performance attribute of the initiating events cornerstone and adversely impacted the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown. Specifically, the operator's failure to use a procedure when operating 2CHS-FCV122 during troubleshooting led to over-pressurization of the reactor coolant system. The inspectors evaluated the finding using "PWR Refueling Operation: RCS level > 23' or PWR Shutdown Operation with Time to Boil > 2 hours and Inventory in the Pressurizer" Checklist 4 of Attachment 1 to Appendix G of IMC 0609. Because no loss of control occurred and no checklist attributes were adversely impacted, a Phase 2 quantitative assessment was not required. Therefore, the inspectors determined the finding to be of very low safety significance.

This finding has a cross-cutting aspect in the area of Human Performance, Work Practices, because FENOC personnel failed to use human error prevention techniques during troubleshooting of 2CHS-FCV122, and proceeded in the face of uncertainty after identifying the broken positioned feedback arm [H.4(a)]. (Section 1R20)

Green: A self revealing, Green NCV was indentified for FENOC violating 10 CFR 50, Appendix B, Criterion XVI "Corrective Action," for failure to identify and correct a condition adverse to quality on the Controller Driver printed circuit board (NCD board) for the controller for 2CHS-FCV160. Specifically, FENOC failed to identify that an NCD board was installed on the

controller for 2CHS-FCV160 that was potentially impacted by defects identified in Westinghouse Technical Bulletin TB-08-06 and take corrective actions.

The inspectors determined that failing to identify and correct a condition adverse to quality on the NCD board for the controller for 2CHS-FCV160 was a performance deficiency within FENOC's ability to foresee and correct which contributed to over-pressurization of the reactor coolant system (RCS) during solid plant operations. The finding is more than minor because it is associated with the equipment performance attribute of the initiating events cornerstone and adversely impacted the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown. Specifically, the failure to ensure the availability and reliability of 2CHS-FCV160 led to over-pressurization of the reactor coolant system. The inspectors evaluated the finding using "PWR Refueling Operation: RCS level > 23' or PWR Shutdown Operation with Time to Boil > 2 hours and Inventory in the Pressurizer" Checklist 4 of Attachment 1 to Appendix G of IMC 0609. Because no loss of control occurred and no checklist attributes were adversely impacted, a Phase 2 quantitative assessment was not required. Therefore, the inspectors determined the finding to be of very low safety significance.

There is no cross-cutting aspect associated with this finding because the performance deficiency is not reflective of FENOC's current performance. (Section 1R20)

Other Findings

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

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. The unit remained at or near 100 percent power throughout the inspection period.

Unit 2 began the inspection period shutdown in a refueling outage and returned to full power on November 6, 2012. The unit remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of FENOC's readiness for the onset of seasonal cold temperatures. The review focused on the Unit 1 and Unit 2 refueling water storage tanks. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), technical specifications, control room logs, and the corrective action program to determine what temperatures or other seasonal weather could challenge these systems, and to ensure FENOC personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including FENOC seasonal weather preparation procedures and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during cold weather conditions. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04Q – 4 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- Unit 1, 'A' Emergency Diesel Generator (EDG) during 'A' system service station transformer (SSST) out of service on October 18, 2012
- Unit 1, 'A' Quench Spray system during preventive maintenance and testing on 'B' Quench Spray Pump (QS-P-1B) on December 17, 2012

- Unit 2, Low head safety injection trains ‘A’ and ‘B’ while crediting ‘A’ as the boration path
- Unit 2, 2-1 Diesel support systems fuel and starting air while the 2-1 EDG was inoperable for testing on November 28, 2012

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, technical specifications, work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether FENOC staff had properly identified equipment issues and entered them into the corrective action program for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 5 samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that FENOC controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Unit 1, Auxiliary feedwater and quench spray pump room (Fire Area QP-1) on November 27, 2012
- Unit 1, Charging Pump Cubicles (Fire Area PA-1G) on November 30, 2012
- Unit 1, Switchgear room (Fire Area ES-1) on November 30, 2012
- Unit 2, Reactor containment building (Fire Area RC-1) on October 17, 2012
- Unit 2, Valve pit area (Fire Area VP-1) on October 26, 2012

b. Findings

No findings were identified.

.2 Fire Protection – Drill Observation (71111.05A – 1 sample)

a. Inspection Scope

The inspectors observed a fire brigade drill scenario conducted on November 28, 2012, that involved a simulated fire in the site office support building (SOSB) auxiliary boiler room. The inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that FENOC personnel identified deficiencies, openly discussed them in a self-critical manner at the debrief, and took appropriate corrective actions as required. The inspectors evaluated specific attributes as follows:

- Proper wearing of turnout gear and self-contained breathing apparatus
- Proper use and layout of fire hoses
- Employment of appropriate fire-fighting techniques
- Sufficient fire-fighting equipment brought to the scene
- Effectiveness of command and control
- Search for victims and propagation of the fire into other plant areas
- Smoke removal operations
- Utilization of pre-planned strategies
- Adherence to the pre-planned drill scenario
- Drill objectives met

The inspectors also evaluated the fire brigade's actions to determine whether these actions were in accordance with FENOC's fire-fighting strategies.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 samples)

.1 Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding in the Unit 1 Auxiliary Building (PAB). The inspectors also reviewed the corrective action program to determine if FENOC identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors also focused on the component cooling water pump room areas to verify the adequacy of equipment seals located below the flood line, floor, and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers.

b. Findings

No findings were identified.

1R08 In-service Inspection - Beaver Valley Unit 2

a. Inspection Scope (71111.08 – 1 sample)

From October 1-12, 2012, the inspector conducted a review of FENOC's implementation of in-service inspection (ISI) program activities for monitoring degradation of the reactor coolant system boundary, risk significant piping and components, and containment systems during the BVPS, Unit 2, refueling outage (2R16). The sample selection was based on the inspection procedure objectives and risk priority of those pressure retaining components in these systems where degradation would result in a significant increase in risk. The inspector observed in-process non-destructive examinations (NDE), reviewed documentation, and interviewed licensee personnel to verify that the non-destructive examination activities performed as part of the Interval 3, Period 2, of the BVPS ISI program were conducted in accordance with the requirements of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI, 2001 Edition, 2003 Addenda.

Nondestructive Examination (NDE) and Welding Activities (IMC Section 02.01)

The inspector performed direct observations of NDE activities in process and reviewed records of nondestructive examinations listed below:

ASME Code Required Examinations

- Direct field observation of manual Ultrasonic Test (UT), volumetric inspection, 6-inch diameter safety injection system ASME Class 2, pipe/elbow butt weld 2SIS-270-F06 and 3-inch diameter reactor coolant system pipe/pipe butt weld 2RCS-151-F05 and record review of the associated UT examination reports.

- Remote observation of bare metal visual examination of the reactor vessel upper closure head (RVUCH) and control rod drive mechanism (CRDM) nozzles penetrations.

- Remote observation of the automatic volumetric UT inspection of the RVUCH CRDM penetration nozzles and vent nozzle.

- Record review of UT examination data records for the ASME Class 2, 6-inch diameter pipe welds on the hot and cold leg safety injection system piping (UT-12-1133, UT-12-1134, UT-121135, UT-121136, and UT-121137). These welds were examined based on Materials Reliability Program (MRP) recommendations.

- Remote observation of steam generator (S/G) eddy current testing (ECT) examinations, S/G tube sleeving, and S/G tube plugging.

- Remote observation of the weld overlay repair on the RVUCH CRDM penetration #44 J-groove weld indications.

- Record review of liquid penetrant (PT) examinations of the RVUCH penetration weld overlays on penetrations #16 and #57 that were installed during previous refueling outages.

- Record review of the automated remote volumetric UT inspection of the reactor vessel hot leg outlet nozzle dissimilar metal and safe-end welds from the inside diameter, ASME Class 1 component welds (2RCS*REV21-N24, 2RCS*REV21-N26, and 2RCS*REV21-N28).

- Independent general visual inspection of the containment liner coating.

The inspector reviewed certifications of the NDE technicians performing the examinations. The inspector also verified that the inspections were performed in accordance with approved procedures and that the results were reviewed and evaluated by certified Level III NDE personnel.

Other Augmented or Industry Initiative Examinations

The inspector reviewed inspections conducted to implement an industry initiative in accordance with the MRP-146, "Management of Thermal Fatigue in Normally Stagnant Non-Isolable Reactor Coolant System Branch Lines," to verify the inspections were conducted in conformance with the management guidelines. Specifically, the inspector reviewed UT examination data records of hot and cold leg safety injection system piping welds to verify that the activities were performed in accordance with applicable examination procedures and industry guidance.

Review of Originally Rejectable Indications Accepted by Evaluation

There were no samples available for review during this inspection that involved examinations with recordable indications that had been accepted for continued service.

Repair/Replacement Consisting of Welding Activities

The inspector reviewed weld overlay of the RVUCH CRDM penetration #44 J-groove weld to verify that the welding and applicable NDE activities were performed in accordance with ASME Code requirements.

PWR Vessel Upper Head Penetration (VUHP) Inspection Activities (IMC Section 02.02)

The inspector verified that the RVUCH penetration J-groove weld examinations were performed in accordance with requirements of 10 CFR 50.55a(g)(6)(ii)(D) and ASME Boiler and Pressure Vessel Code Case N-729-1, "Alternative Examination Requirements for PWR Reactor Vessel Upper Heads," to ensure the structural integrity of the reactor vessel head pressure boundary. The inspector directly observed portions of the remote bare metal visual examination of the exterior surface of the RVUCH to confirm appropriate inspection coverage was achieved and to verify that no boric acid leakage or wastage had been observed. The inspector also directly observed a sample of RVUCH CRDM penetration nozzle weld UT examinations, supplementary ECT examinations and portions of the weld repair activities.

During ultrasonic testing of the RVUCH penetration welds, FENOC identified indications in penetration #44 J-groove weld on October 6, 2012 (NRC event notification 48387). The inspector reviewed the UT examination records and evaluated the automated UT data scans and PT examination data records/photos of the three indications (one linear 0.50-inch long, one rounded 0.152-inch and one rounded 0.06-inch) that were identified on the outside diameter (OD) of the CRDM penetration #44 J-groove weld. The inspector reviewed the weld overlay repair activity to penetration #44 to ensure that it was conducted in accordance with Beaver Valley Power Station Unit 2, Relief Request No. 2-TYP-3-RV-01, and that the indication in the J-groove weld was properly mitigated by the repair. The inspector reviewed the certifications of the welders performing the weld overlay and the NDE technicians performing the PT examinations. The inspector verified that all repair activities were satisfactorily completed prior to returning the RVUCH to service.

FENOC also identified that the results of PT examinations performed on two previously installed weld overlay repairs on the RVUCH penetrations #16 and #57 J-groove welds did not meet applicable acceptance criteria. The indication in the weld overlay on penetration #16 required grinding to remove the indication and a manual weld repair was performed to restore the weld overlay. The indication in the weld overlay on penetration #57 only required minor buffing to remove the indication and no weld repair was required. The inspector reviewed the PT data records/photographs of the indication identified on previously installed weld overlay to the J-groove weld on CRDM penetration #16 and verified the weld repair activity and PT activity was in accordance with the approved procedure.

Boric Acid Corrosion Control (BACC) Inspection Activities (IMC Section 02.03)

The inspector reviewed the BACC program, which is performed in accordance with BVPS procedures, discussed the program with the boric acid program owner, and sampled photographic inspection records of boric acid found on safety significant piping and components inside the containment structure during walkdowns conducted by licensee personnel and directly observed by the NRC Resident Inspectors on September 24, 2012. The inspector observed the identification and documentation of non-conforming conditions of boric acid leaks in the corrective action program with a focus on areas that could cause degradation of safety significant components.

The inspector verified that potential deficiencies identified during the walkdowns were entered into the licensee's corrective action program and reviewed evaluations of the more significant deficiencies documented in condition reports (CR 2012-14682, 2RHS-E21B 'B' residual heat removal heat exchanger tubesheet flange area leakage, CR 2012-14687, pressurizer targets from 2RCS-269 valve leak, and CR 2012-14668, primary coolant cold leg sample isolation valve packing leak) to verify that the corrective actions were consistent with the requirements of the ASME Code and 10 CFR 50, Appendix B, Criterion XVI. The inspector also reviewed the associated engineering evaluations for the above condition reports to verify that equipment or components that were wetted or impinged upon by boric acid solutions were properly analyzed for degradation that might impact their function.

Steam Generator (S/G) Tube Inspection Activities (IMC Section 02.04)

The inspector directly observed a sample of the BVPS S/G eddy current tube examinations, which consisted of full length bobbin inspection of 100% of the in-service tubes in each of the three S/Gs (except rows 1 and 2, U-bends), plus-point inspection of 100% of row 1 and 2, U-bends, plus-point inspection of 100% of the bobbin special interest I-codes. The inspector reviewed a sample of the indications identified in the S/Gs during the eddy current inspections to verify that they were consistent with the potential degradation mechanisms as documented in the Steam Generator Degradation Assessment Report.

The inspector verified that the S/G eddy current tube examinations were performed in accordance with Unit 2 Technical Specification 5.5.5.2 and the Steam Generator Program. The inspector reviewed the S/G tube eddy current test results to verify that no in-situ pressure testing was required, no tubes required stabilization, no primary-to-secondary leakage occurred over the operating cycle, and that tubes which exhibited degradation and did not meet acceptance criteria were plugged (10 tubes) or sleeved (97 tubes) using the alternate repair criteria per Generic Letter 95-05, "Voltage-Based Repair Criteria for Westinghouse Steam Generator Tubes Affected by Outside Diameter Stress Corrosion Cracking." The inspector verified that the S/G tube examination screening criteria was in accordance with the Electric Power Research Institute (EPRI) Steam Generator Guidelines and flaw sizing was in accordance with the EPRI examination technique specification sheet.

In addition, the inspector reviewed the foreign object search and retrieval (FOSAR) results on the secondary side of the S/Gs and reviewed corrective actions to remove the foreign objects, when possible. The inspector verified a sample of the following FOSAR results: S/G 'A', one item was retrieved (small, 2-inch long piece of gasket backing) and S/G 'C,' a small, thin diameter wire approximately 1-inch long in the tube lane region which was embedded in hardened deposits in the tube lane near Row 1, C45 remained in S/G 'C.'

Identification and Resolution of Problems (IMC Section 02.05)

The inspector reviewed a sample of condition reports, which identified NDE indications, deficiencies and other nonconforming conditions since the previous refueling outage. The inspector verified that nonconforming conditions were properly identified, characterized, evaluated, corrective actions identified and dispositioned, and appropriately entered into the corrective action program.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11 – 2 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on November 15, 2012, which included a loss of all alternating current. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the technical specification action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

The inspectors observed and reviewed Unit 2 refueling cavity drain-down to the reactor flange on October 19 and 20, 2012. The inspectors observed evolution briefings and reactivity control briefings to verify that the briefings met the criteria specified in NOP-OP-1002, Conduct of Operations, Revision 7. Additionally, the inspectors observed operator performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 – 3 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, or component (SSC) performance and reliability. The inspectors reviewed system health reports, corrective action program documents, maintenance work orders, and maintenance rule basis documents to ensure that FENOC was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by FENOC staff was reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that FENOC staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Unit 1, Fuel transfer/handling system (66)
- Unit 2, Fuel transfer/handling system (66)

- Unit 2, Auxiliary steam solenoid operated seam supply valves (2MSS-SOV-105A-F)

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that FENOC performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that FENOC personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When FENOC performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Unit 1, Yellow risk for opening OCB-92 to support U2 OCB-94 return to service on October 2, 2012
- Unit 1, Probabilistic risk assessment (PRA) yellow risk entry during 'A' SSST unavailability on October 2, 2012
- Unit 2, Shutdown defense in-depth yellow risk for decay heat removal drain down to the reactor vessel flange on September 30, 2012
- Unit 2, Operational Decision Making Issue (ODMI) on un-sat Doble testing of 'B' SSST, on October 18, 2012
- Unit 2, Mode 4 Risk Assessment required by Technical specification limiting condition for operation (LCO) 3.0.46 for North Safeguards Area air conditioning unit on October 30, 2012

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 4 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- Unit 2, Low individual cell voltages on [BAT*2-4] station battery on October 2, 2012

- Unit 2, Additional tube plugging following Eddy current testing on 2EDS-E21B (Diesel Generator Intercooler Heat Exchanger) on October 5, 2012
- Unit 2, Foreign material found in the right side bank of the turbocharger intercooler on the 2-2 emergency diesel generator (EDG) on October 6, 2012
- Unit 2, Initial reactor vessel head bolting elongation exceeded acceptance criteria on October 24, 2012 (2R16)

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and UFSAR to FENOC's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by FENOC. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 2 samples)

.1 Temporary Modifications

a. Inspection Scope

The inspectors reviewed the temporary modification Engineering Change Package 12-0696, 2R16 T-Mod Fuel Transfer Cart Addition of Safety Switch Modification, to determine whether the modification affected the safety functions of a system important to safety. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results, and conducted field walkdowns of the modifications to verify that the temporary modification did not degrade the design bases, licensing bases, and performance capability of the affected system.

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors evaluated a modification to the component cooling water (CCP) system. Engineering change package 12-0242-00 "Replacement of Primary Component Cooling Water Heat Exchanger 2CCCP-E21A" installed a new 'A' CCP heat exchanger on November 4, 2012. The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the heat

exchanger replacement, including alteration of the heat exchanger tubing material. The inspectors interviewed engineering personnel to ensure the modification could be reasonably performed.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 6 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- Unit 1, 'A' motor-driven auxiliary feedwater (AFW) pump packing adjustment on October 17, 2012
- Unit 1, 'B' Quench Spray pump (QS-P-1B) preventive maintenance on December 17, 2012
- Unit 2, Station Battery [BAT*2-4] replacement on October 7, 2012
- Unit 2, 2-2 EDG repairs to low rocker arm oil pressure switch and exhaust manifold inspection on October 20, 2012
- Unit 2, 'B' AFW impeller and mechanical seal replacement and motor refurbishment on October 22, 2012
- Unit 2, 2-1 EDG maintenance during refuel outage 2R16

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 1 sample)

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for the Unit 2 maintenance and refueling outage (2R16), which was conducted September 24 through November 1. The inspectors reviewed FENOC's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the shutdown and cooldown processes and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and instrument error accounting
- Status and configuration of electrical systems and switchyard activities to ensure that technical specifications were met
- Monitoring of decay heat removal operations
- Impact of outage work on the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss
- Activities that could affect reactivity
- Maintenance of secondary containment as required by technical specifications
- Refueling activities, including fuel handling and fuel receipt inspections
- Fatigue management
- Identification and resolution of problems related to refueling outage activities

b. Findings

1. Failure to Use a Procedure to Operate a CVCS Valve

Introduction: A self revealing, Green NCV of Technical Specification 5.4.1 “Procedures,” was identified for FENOC’s failure to use a procedure when operating chemical volume and control system (CVCS) valve 2CHS-FCV122 during troubleshooting, as required by the RG 1.33 “Quality Assurance Program Requirements.” Specifically, when an operator discovered that the valve positioner main feedback arm was sheared, the operator inadvertently manipulated the valve without guidance from a procedure or problem solving plan.

Description: On September 24, 2012, during Unit 2 Mode 5 solid plant operations, charging discharge flow control valve 2CHS-FCV122 failed closed. In response to the resulting drop in reactor coolant system pressure, operators secured the ‘C’ reactor coolant pump per procedure. After operators stabilized the plant, an operator was dispatched to the valve to investigate the valve failure. The operator discovered that the feedback arm for the valve’s positioner was sheared. The operator lifted the broken feedback arm to determine where it connected to the valve. This manipulation of the feedback arm caused the valve to the open. When the valve reopened, the reactor coolant system pressure spiked to a maximum of 429 psig, exceeding the over pressure protection system power operated relief valve set point of 425 psig. The power operated relief valve lifted twice to relieve reactor coolant system pressure. In response to the pressure spike, operators secured the ‘B’ charging pump and isolated 2CHS-FCV122. After verifying isolation of 2CHS-FCV122, operators restarted the ‘B’ charging pump and stabilized reactor coolant system pressure within the recommended band of 275 to 325 psig.

FENOC procedure NOP-OP-1002, Conduct of Operations, Revision 7, states that operators are to operate plant equipment with procedures, clearances, or other documents as appropriate. This procedure also states that when faced with uncertainty to stop, place the equipment in a safe condition, and obtain the appropriate guidance before proceeding. In this instance, the operator manipulated the feedback arm without fully understanding the consequences nor was the valve placed in a condition where troubleshooting could be safely performed per NOP-ER-3001, Problem Solving and Decision Making, Revision 5.

Analysis: The inspectors determined that failing to use a procedure when operating 2CHS-FCV122 during troubleshooting was a performance deficiency within FENOC's ability to foresee and correct which contributed to over-pressurizing the RCS during solid plant operations. This finding is more than minor because it is associated with the human performance attribute of the initiating events cornerstone and adversely impacted the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown. Specifically, the operator's failure to use a procedure when operating 2CHS-FCV122 during troubleshooting lead to over-pressurization of the reactor coolant system. The inspectors evaluated the finding using "PWR Refueling Operation: RCS level > 23' or PWR Shutdown Operation with Time to Boil > 2 hours and Inventory in the Pressurizer" Checklist 4 of Attachment 1 to Appendix G of IMC 0609. Because no loss of control occurred and no checklist attributes were adversely impacted, a Phase 2 quantitative assessment was not required. Therefore, the inspectors determined the finding to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of Human Performance, Work Practices, because FENOC personnel failed to use human error prevention techniques during troubleshooting of 2CHS-FCV122, and proceeded in the face of uncertainty after identifying the broken positioned feedback arm [H.4(a)].

Enforcement: TS 5.4.1 requires, in part, that written procedures be established, implemented, and maintained covering applicable procedures recommended in Regulatory Guide (RG) 1.33, Revision 2, Appendix A, February 1978. RG 1.33 requires, in part, that procedures be established for operation of the CVCS. Contrary to the above, on September 24, 2012, FENOC failed follow the guidance of NOP-OP-1002 when faced with uncertainty and operated CVCS valve 2CHS-FCV122 during troubleshooting of the broken feedback positioner arm without placing 2CHS-FCV-122 in a safe condition prior to troubleshooting. As a result, 2CHS-FCV122 failed open during solid plant operations, causing an over-pressurization of the RCS. Because this issue is of very low safety significance (Green) and FENOC entered this issue into the corrective action program as CR-2012-16903, this finding is being treated as an NCV consistent with the NRC enforcement policy. **(NCV 05000412/2012005·01, Failure to Use a Procedure to Operate a CVCS Valve)**

2. Failure to Identify and Correct a Condition Adverse to Quality

Introduction: A self revealing, Green NCV was indentified for FENOC violating 10 CFR 50 Appendix B, Criterion XVI "Corrective Action," for failure to identify and correct a condition adverse to quality on the Controller Driver printed circuit board (NCD board) for 2CHS-FCV160. Specifically, FENOC failed to identify that a NCD board was installed on the controller for 2CHS-FCV160 that was potentially impacted by defects identified in Westinghouse Technical Bulletin TB-08-06 and take corrective actions.

Description: On September 24, 2012, during Unit 2 Mode 5 solid plant operations with normal charging discharge valve 2CHS-FCV122 out of service, operators attempted to open 2CHS-FCV160 to use RCS Loop Fill as an alternate charging flow path. Upon pressing the manual open button, 2CHS-FCV160 fully opened instead of opening partially as expected. When the valve opened, the reactor coolant system pressure spiked to a maximum of 427 psig, exceeding the over pressure protection system power operated relief valve set point of 425 psig. The power operated relief valve lifted once to relieve reactor coolant system pressure. Operators adjusted the valve controller and letdown flow to stabilize reactor coolant system pressure at 294 psig. Investigation of the failure of 2CHS-FCV160 identified the NCD board for the valve controller as the cause of the valve fully opening. Further review revealed that the part number for the controller NCD board was identified in 2008 by Westinghouse Technical Bulletin TB-08-06 as being deficient. TB-08-06 stated that there could be an unexpected step change instead of the expected linear ramp with manual raise or lower inputs. During the review of TB-08-06, FENOC failed to identify that the part number for the NCD board installed in the controller for 2CHS-FCV160 was the same as the one identified in TB-08-06 and take corrective actions. During the extent of condition search, FENOC identified one additional NCD board installed in a non-safety related component. Actions to replace the additional board have been taken.

Analysis: The inspectors determined that failing to identify and correct a condition adverse to quality on the NCD board for the controller for 2CHS-FCV160 was a performance deficiency within FENOC's ability to foresee and correct which contributed to over-pressurization of the RCS during solid plant operations. The finding is more than minor because it is associated with the equipment performance attribute of the initiating events cornerstone and adversely impacted the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown. Specifically, the failure to ensure the availability and reliability of 2CHS-FCV160 lead to over-pressurization of the reactor coolant system. The inspectors evaluated the finding using "PWR Refueling Operation: RCS level > 23' or PWR Shutdown Operation with Time to Boil > 2 hours and Inventory in the Pressurizer" Checklist 4 of Attachment 1 to Appendix G of IMC 0609. Because no loss of control occurred and no checklist attributes were adversely impacted, a Phase 2 quantitative assessment was not required. Therefore, the inspectors determined the finding to be of very low safety significance (Green).

There is no cross-cutting aspect associated with this finding because the performance deficiency is not reflective of FENOC's current performance.

Enforcement: 10 CFR Part 50, Appendix B, Criterion XVI requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. Contrary to the above, on September 08, 2008, FENOC failed to identify that the NCD board installed on the controller for 2CHS-FCV160 had the part number identified in TB-08-06 and take corrective actions. As a result, the controller for 2CHS-FCV160 failed full open during solid plant operations, causing an over-pressurization of the RCS. Because this issue is of very low safety significance (Green) and FENOC entered this issue into the corrective action program as CR-2012-14860, this finding is being treated as an NCV consistent with the NRC enforcement policy. **(NCV 05000412/2012005·02, Failure to Identify and Correct a Condition Adverse to Quality)**

1R22 Surveillance Testing (71111.22 – 4 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied technical specifications, the UFSAR, and FENOC procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- Unit 1, 1OST-15.02 Primary Component Cooling Water Pump 1CC-P-1B Test on November 30, 2012 (in service test)
- Unit 2, 2BVT1.47.11, Safety Injection & Charging System Containment Penetration Valve Integrity Test (containment isolation valve)
- Unit 2, 2OST-36.4, Emergency Diesel Generator [2EGS*EG2-2] Automatic Test
- Unit 2, 2OST-10.3, Residual Heat Removal System Train A Valve Exercise on October 13, 2012 (containment isolation valve)

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

RS01 Radiological Hazard Assessment and Exposure Controls

a. Inspection Scope (71124.01 – 1 sample)

During the period December 3 - 6, 2012, the inspector 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 (RCAs). Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, relevant Technical Specifications, and the licensee's procedures.

Plant Walkdown and Radiation Work Permits (RWP) Reviews

The inspector toured accessible radiological controlled areas in the Unit 1 and Unit 2 primary auxiliary buildings. Radiation survey maps were reviewed of selected areas to identify radiological conditions, and the adequacy of postings.

The inspector identified tasks performed in the RCAs. The inspector reviewed the applicable RWPs, and the electronic dosimeter dose/dose rate alarm set points, for the

associated tasks, to determine if the radiological controls were acceptable and if the set points were consistent with plant policy. Jobs reviewed included performing a walkdown of effluent monitoring instrumentation and the Supplemental Leak Collection and Release Systems (SLCRS) in Units 1 and 2 RCAs.

The inspector evaluated the effectiveness of contamination controls by reviewing personnel contamination event reports (and related condition reports), and observing practices at various locations.

Problem Identification and Resolution

The inspector evaluated the licensee's program for assuring that access controls to radiological significant areas were effective and properly implemented by reviewing electronic dosimeter alarm reports, personnel contamination event reports, and relevant condition reports. The inspector determined that problems were identified in a timely manner, that extent of condition and cause evaluations were performed when appropriate, and corrective actions were appropriate to preclude repetitive problems.

b. Findings

No findings were identified.

Cornerstone: Public Radiation Safety

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

During the period December 3 - 6, 2012, the inspector conducted the following activities to ensure the gaseous and liquid effluent processing systems are maintained so radiological discharges are properly reduced, monitored, and evaluated, and to verify the accuracy of effluent releases and public dose calculations resulting from radioactive effluent discharges.

The inspector used the requirements in 10 CFR Part 20, 10 CFR 50 Appendix I 10 CFR 50.75(g), applicable Industry standards, and licensee procedures, required by the site Offsite Dose Calculation Manual (ODCM), as criteria for determining compliance.

a. Inspection Scope

Event Report and Effluent Report Reviews

The inspector reviewed the Beaver Valley Annual Radiological Effluent Release Reports for 2010 and 2011 to determine if the reports were submitted as required by the ODCM. The inspector reviewed sampling results, and trends identified by the licensee. The inspector determined if these releases were evaluated, and any off-normal releases were entered in the corrective action program, and adequately resolved.

The inspector reviewed radioactive effluent monitor operability issues reported by the licensee as provided in the Beaver Valley Annual Radioactive Effluent Release Reports, and reviewed these issues. The inspector determined if the issues were entered into the corrective action program and that compensatory measures were implemented to assure that effluents were properly monitored and evaluated.

ODCM and Updated Final Safety Analysis Report Review

The inspector reviewed the Beaver Valley Updated Final Safety Analysis Report (UFSAR) descriptions of the radioactive effluent monitoring systems, treatment systems, and effluent flow paths to identify system design features and required functions.

The inspector reviewed changes to the Beaver Valley ODCM made by the licensee since the last inspection. The inspector reviewed the evaluations of the changes and determined that they were technically justified and maintained effluent releases as low as is reasonably achievable (ALARA).

The inspector reviewed licensee documents to determine if the licensee has identified any non-radioactive systems; e.g., the Unit 2 nitrogen system, that have become contaminated as documented in a condition report (CR 2012-15547). The inspector reviewed selected evaluations and determined that no contaminated systems were identified that had an unmonitored effluent discharge path to the environment.

Groundwater Protection Initiative (GPI) Program

The inspector reviewed reported groundwater monitoring sample results and changes to the licensee's written program for identifying, controlling, and remediating contaminated spills/leaks to groundwater.

Procedures, Special Reports, and Other Documents

The inspector reviewed condition reports related to the effluent program issued since the previous inspection to identify any additional focus areas for the inspection based on the scope of problems described in these reports.

The inspector reviewed effluent program implementing procedures, including those associated with effluent sampling, effluent monitor set-point determinations, and dose calculations.

The inspector reviewed copies of licensee assessment reports of the effluent monitoring program since the last inspection to gather insights into the effectiveness of the licensee's program.

Walkdowns and Observations

The inspector walked down selected components of the gaseous and liquid discharge systems to verify that equipment configuration and flow paths align with the descriptions in the Beaver Valley UFSAR and to assess equipment material condition. Special attention was made to identify potential unmonitored release points, building alterations which could impact airborne, or liquid effluent controls, and ventilation system leakage that communicate directly with the environment.

Monitoring equipment inspected included:

Liquid Discharge Monitors:

- 1RW-100 Component Cooling Heat Exchanger monitor
- 1RW-100 A/B/C/D, Recirculation Spray Heat Exchanger monitor

- 1LW-104, Unit 1 Liquid Waste Effluent monitor
- 1LW-116, Unit 1 Contaminated Drains monitor
- 2SGC-RQ100, Unit 2 Liquid Radwaste Discharge monitor

Gaseous Discharge Monitors:

- 1GW-109, Process Vent monitor
- 2HVS-1RQ-109 B/C/D, Particulate, Iodine, Noble Gas Low, Medium and Wide range monitors
- 2RMQ-RQ301, Decon Building monitor
- 2HVS-RQ101, Ventilation Vent monitor
- 2HVL-RQ112, Condensate Polishing Vent monitor

The inspector reviewed the licensee's surveillance test records for air cleaning equipment (i.e., fans, charcoal filters, and high efficiency particulate air (HEPA) filters for the Units 1 and 2 Supplemental Leak Collection and Release System (SLCRS)), to assure that the equipment met the Technical Specification operability criteria.

The inspector walked down filtered ventilation systems (SLCRS), to verify there were no degraded conditions associated with high-efficiency particulate air/charcoal banks, improper alignment, or system installation issues that would impact the performance, or the effluent monitoring capability of the effluent system.

The inspector determined that the licensee had not made any changes to their effluent release paths.

The inspector reviewed liquid and gaseous discharge permits for routine processing and discharging waste streams. The inspector verified that appropriate effluent treatment equipment was being used and that radioactive liquid and gaseous waste is being processed and discharged in accordance with licensee procedures.

Sampling and Analyses

The inspector selected the condensate polishing building gaseous monitor (2HVL-RQ112), to verify that normal discharges were monitored using compensatory measures to ensure that sampling was performed consistent with the ODCM and that those controls were adequate to prevent the release of unmonitored gaseous effluents.

The inspector reviewed the results of the inter-laboratory and intra-laboratory comparison (cross check) programs to verify the quality of the radioactive effluent sample analyses. The inspector also assessed whether the intra and inter-laboratory comparison program includes hard-to-detect isotopes.

Instrumentation and Equipment

Effluent Flow Measuring Instruments

The inspector reviewed the methodology that the licensee uses to determine the effluent stack and vent flow rates to verify that the flow rates are consistent with TSs/ODCM and FSAR values.

Air Cleaning Systems

The inspector determined that surveillance test results for the HEPA and charcoal filters in the Unit 1 and Unit 2 SLCRS discharge systems met TS/ODCM acceptance criteria.

Dose Calculations

The inspector reviewed changes in reported dose values compared to the previous radioactive effluent release report to evaluate the factors which may have resulted in the change.

The inspector reviewed four radioactive liquid and two gaseous waste discharge permits to verify that the projected doses to members of the public were accurate and based on representative samples of the discharge path.

The inspector evaluated the methods used to determine the isotopes that are included in the source term to ensure all applicable radionuclides are included, within detectability standards. The review included the licensee's current waste stream analyses to ensure hard-to-detect radionuclides are included in the effluent releases.

The inspector reviewed the licensee's methodology for offsite dose calculations to verify compliance with the ODCM and RG 1.109. The inspector reviewed meteorological dispersion and deposition factors used in the ODCM and effluent dose calculations to ensure appropriate dispersion/deposition factors are being used for public dose calculations.

The inspector reviewed the latest Land Use Census to verify that changes in the local land use have been factored into the dose calculations and environmental sampling/analysis program.

The inspector determined that the calculated doses are within the 10 CFR 50, Appendix I and ODCM dose criteria. The inspector determined that the licensee was tracking cumulative doses on a monthly, quarterly, and annual basis, and comparing dose to the regulatory criteria.

Problem Identification and Resolution

Inspector assessed whether problems associated with the effluent monitoring and control program are being identified by the licensee at an appropriate threshold and are properly addressed for resolution in the licensee's corrective action program. In addition, the inspector evaluated the effectiveness of the corrective actions for a selected sample of problems documented by the licensee.

b. Findings

No findings were identified.

Groundwater Protection Initiative (GPI) Implementation (TI-2515/185 – 1 sample)

a. Inspection Scope

The inspector reviewed monitoring results of the GPI to determine if the licensee has implemented its program as intended, and to identify any anomalous results. For anomalous results, the inspector assessed that the licensee has identified and addressed deficiencies through its corrective action program.

The inspector reviewed identified leakage or spill events and entries made into licensee's 50.75 (g) decommissioning files. The inspector reviewed evaluations of leaks or spills, and reviewed the effectiveness of any remediation actions. The inspector reviewed onsite contamination events involving contamination of groundwater and assessed whether the source of the leak or spill was identified and terminated.

For past spills, leaks, or unexpected liquid or gaseous discharges, the inspector assessed that an evaluation was performed to determine the type and amount of radioactive material that was discharged, by determining that sufficient radiological surveys were performed to evaluate the extent of the contamination; assessing whether an evaluation had been performed to include consideration of hard-to-detect radionuclides; and determining whether the licensee completed offsite notifications, as provided in its GPI implementing procedures.

The inspector reviewed the evaluation of discharges from onsite surface water bodies that contain or potentially contain radioactivity, and the potential for groundwater leakage from these onsite surface water bodies. The inspector assessed whether the licensee is properly accounting for discharges from these surface water bodies as part of their effluent release reports.

The inspector assessed whether on-site groundwater sample results and a description of any significant on-site leaks/spills into groundwater are documented in the Annual Radioactive Effluent Release Report.

The inspector performed walkdowns of selected on-site groundwater monitoring wells to confirm their locations and assess their material condition.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 – 1 sample)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine FENOC emergency drill on November 15, 2012, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator, technical support

center, and operation support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified by FENOC staff in order to evaluate FENOC's critique and to verify whether the FENOC staff was properly identifying weaknesses and entering them into the corrective action program.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index (4 samples)

a. Inspection Scope

The inspectors reviewed FENOC's submittal of the Mitigating Systems Performance Index for the following systems for the period of October 1, 2011 through September 30, 2012:

- Unit 1, Emergency AC Power System
- Unit 2, Emergency AC Power System
- Unit 1, High Pressure Injection System
- Unit 2, High Pressure Injection System

To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors also reviewed operator narrative logs, condition reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

.2 Occupational Exposure Control Effectiveness (1 sample)

a. Inspection Scope

The inspector reviewed implementation of the licensee's Occupational Exposure Control Effectiveness Performance Indicator Program. Specifically, the inspector reviewed electronic dosimeter dose and dose rate alarm reports, condition reports, and associated documents, for occurrences involving locked high radiation areas, very high radiation areas, and unplanned exposures occurring during the past four (4) calendar quarters. Data contained in these records was reviewed against the criteria specified in NEI 99-02,

Regulatory Assessment Performance Indicator Guideline, to verify that all occurrences that met the NEI criteria were identified and reported as performance indicators.

b. Findings

No findings were identified.

.3 RETS/ODCM Radiological Effluent Occurrences (1 sample)

a. Inspection Scope

The inspector reviewed relevant effluent release reports and associated dose assessments for the period October, 2011 through October, 2012, for issues related to the public radiation safety performance indicator, which measures radiological effluent release occurrences that exceed 1.5 mrem/qtr whole body or 5.0 mrem/qtr organ dose for liquid effluents; and 5 mrads/qtr gamma air dose, 10 mrad/qtr beta air dose, and 7.5 mrads/qtr for organ dose for gaseous effluents.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 3 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, “Problem Identification and Resolution,” the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that FENOC entered issues into the corrective action program at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the corrective action program and periodically attended condition report screening meetings.

b. Findings

No findings were identified.

.2 Annual Sample: Degraded Voltage Relay Time Delay

a. Inspection Scope

The inspector performed an in-depth review of FENOC’s evaluations and corrective actions associated with condition reports (CRs) 2011-95145 and 2011-96495 that documented issues associated with the design and operation of the Beaver Valley Units 1 and 2 electrical systems. During a component design basis inspection (CDBI) an unresolved item (URI) was identified regarding the adequacy of the degraded voltage protection schemes for Units 1 and 2. Specifically, the acceptability of having a 90 ±

5 second time delay before the safety related electrical buses are transferred to the emergency diesel generators during a degraded electrical grid event was questioned.

The inspector assessed FENOC's problem identification threshold, causal analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of Entergy's corrective actions to determine whether FENOC was appropriately identifying, characterizing, and correcting problems associated with this issue. The inspector compared the actions taken to the requirements of Entergy's corrective action program and Title 10 of the *Code of Federal Regulations (*10 CFR) Part 50, Appendix B, Criterion XVI, Corrective Action. In addition, the inspector reviewed documentation associated with this issue, including condition reports, engineering analyses and interviewed engineering personnel to assess the effectiveness of the implemented corrective actions and the actions planned to complete full resolution of the issue.

b. Findings and Observations

No findings were identified.

The inspectors found that FENOC was appropriately entering issues associated with the electrical system design bases into the corrective action program. Issues were being reviewed for the impact on current and past operability and potential reportability. Causal evaluations and extent of condition assessments were also found to be appropriate. A broad scope electrical calculation reconstitution plan was developed and calculation updates were currently ongoing. The inspector found that appropriate resources were allocated to support implementation of the reconstitution plan.

Following the completion of supporting calculation updates, plant modifications will be developed and implemented to modify the degraded voltage protection scheme to ensure all necessary plant equipment will remain available and operable during and following a degraded electrical grid event. The changes will take into account the timing of the degraded grid event relative to possible coincident plant transients and design basis accidents. The potential elimination of the degraded grid protection at the 480 volts alternating current (VAC) level buses will also be assessed. The changes are also intended to eliminate any apparent inconsistencies in associated correspondence and other documentation including NRC letters, technical specifications, safety evaluation reports and the Final Safety Analysis Report. Actions to implement the electrical calculation reconstitution plan are being tracked within the corrective action program.

Based on the actions taken by the licensee action to date, and on the planned actions described above, URI 05000334; 05000412/2011007-03, Degraded Voltage Relay Time Delay, is closed.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 3 samples)

.1 (Closed) Licensee Event Report (LER) 05000412/2012-001-00: Automatic Actuation of Standby Service Water Pump During Emergency Diesel Generator Test

On September 24, 2012, while performing Unit 2 "A" Emergency Diesel Generator (EDG) Automatic Test, the "B" Standby Service Water Pump (2SWE-P21B) automatically started. During this test, the "A" Service Water Pump (2SWS-P21A)

was intentially tripped to simulate a loss of offsite power. Immediately after the Service Water pump was tripped a low pressure condition occurred which initiated the automatic start of 2SWE-P21B. The inspectors determined that no new findings were identified. This LER is closed.

.2 (Closed) Licensee Event Report (LER) 05000412/2012-002-00: Unacceptable Indication Identified During Reactor Vessel Head Inspection

On October 6, 2012, during Unit 2 refueling outage (2R16), reactor vessel head penetration 44 did not meet ultrasonic testing acceptance criteria. The indication was not through wall and was repaired according to acceptable flaw repair methodology. The inspectors determined that no new findings were identified. This LER is closed.

.3 (Closed) Licensee Event Report (LER) 05000412/2012-003-00: Inoperable Reactor Enclosure Cooling Water Radiation Monitor

On October 20, 2012, FENOC discovered that Beaver Valley Unit 2 had entered Mode 3 without meeting the requirements of technical specifications with two (2) trains of main turbine trip actuation relays inoperable. As a result, the licensee failed to meet the requirements of Technical Specification 3.0.4.a when transitioning from Mode 4 to Mode 3. The enforcement aspects of this issue are discussed in Section 4OA7. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

4OA5 Other Activities

.1 Temporary Instruction 2515/187 – Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns

The inspectors verified that FENOC's walkdown packages for the Unit 1 and Unit 2 intake structure and the Unit 1 charging pump cubicles contained the elements as specified in NEI 12-07 Walkdown Guidance document:

The inspector accompanied FENOC on their walkdown of the Unit 1 and Unit 2 intake structure and verified that the licensee confirmed the following flood protection features:

- Visual inspection of the intake cubicle walls, including penetrations and doors with inflatable seals.
- External visual inspection for indications of degradation that would prevent its credited function from being performed was performed for the exterior of the intake structure.
- Open penetrations into the cubicle were verified above the PMF.
- Available physical margin was determined.
- Flood protection feature functionality was determined using visual observation.

The inspectors independently performed their walkdown and verified that the following flood protection features were in place:

- Charging pump cubicles walls were verified to be above calculated external flood height.

- Available physical margin documented corresponded with inspected conditions.
- Interior and exterior wall conditions were acceptable.
- All required penetrations were sealed.

The inspectors verified that non-compliances with current licensing requirements, and issues identified in accordance with the 10 CFR 50.54(f) letter, Item 2.g, of Enclosure 4, were entered into the licensee's corrective action program. In addition, issues identified in response to Item 2.g that could challenge risk significant equipment and the licensee's ability to mitigate the consequences, will be subject to additional NRC evaluation.

No NRC-identified or self-revealing findings were identified.

.2 Temporary Instruction 2515/188 – Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns

The inspectors accompanied the licensee on their seismic walkdowns of the Unit 2 Turbine Driven Feed Pump – 2FWE-P22, September 17, 2012, Unit 2 Safeguards Building; Unit 2 A Quench Spray Pump Suction Valve – 2QSS-MOV-100A, September 17, 2012, Unit 2 Safeguards Building, Unit 2 A Low Head Safety Injection Pump Suction Isolation Valve 2SIS-1, Unit 2 Safeguards Building and verified that the licensee confirmed that the following seismic features associated with 2FWE-P22, 2QSS-MOV-100A, and 2SIS-1 were free of potential adverse seismic conditions:

- Anchorage was free of bent, broken, missing or loose hardware
- Anchorage was free of corrosion that is more than mild surface oxidation
- Anchorage was free of visible cracks in the concrete near the anchors
- Anchorage configuration was consistent with plant documentation
- SSCs will not be damaged from impact by nearby equipment or structures
- Overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment
- Attached lines have adequate flexibility to avoid damage
- The area appears to be free of potentially adverse seismic interactions that could cause flooding or spray in the area
- The area appears to be free of potentially adverse seismic interactions that could cause a fire in the area
- The area appears to be free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding).

The inspectors independently performed their walkdown and verified that the following were free of potential adverse seismic conditions:

:

- Unit 1 #1 Emergency Diesel Generator – 1EG-1, December 19, 2012, Unit 1 Diesel Generator Building
- Unit 2 B Safety Injection Accumulator- 2SIS-21B, October 15, 2012, Unit 2 Primary Containment Elevation 692'

Observations made during the walkdown that could not be determined to be acceptable were entered into the licensee's corrective action program for evaluation.

Additionally, inspectors verified that items that could allow the spent fuel pool to drain down rapidly were added to the seismic walkdown equipment list (SWEL) and these items were walked down by the licensee.

No NRC-identified or self-revealing findings were identified.

4OA6 Meetings, Including Exit

On January 15, 2012, the inspectors presented the inspection results to Paul Harden, Site Vice President, and other members of the BVPS staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by FENOC and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

A licensee identified, Green NCV of Technical Specifications (TS) 3.0.4.a was identified for FENOC's meet all Technical Specification Table 3.3.2-1 requirements to enter mode 3 during reactor startup following a refueling outage on Unit 2. Specifically, while testing turbine trip relays during, two trains of turbine trip relays were inoperable which requires all feedwater lines to be isolated and deactivated. The licensee failed to ensure that the feedwater lines were appropriately isolated and deactivated prior to entering mode 3. This finding is more than minor because it is associated with the transient initiator contributor attribute of the initiating events cornerstone and adversely impacted the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during plant startup. The inspectors evaluated the finding using Exhibit 2, "Initiating Events Screening Questions" worksheet in Appendix A of IMC 0609, "Significance Determination Process." The inspectors determined this finding was not a design qualification deficiency resulting in a loss of functionality or operability, did not represent an actual loss of safety function of a system or train of equipment, was not potentially risk-significant due to a seismic, fire, flooding, or severe weather initiating event, did not affect reactivity control systems, and did not involve the fire brigade. Therefore, inspectors determined the finding to be of very low safety significance (Green).

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

G. Alberti	Steam Generator Project
M. Banko	Quality Assurance Assessor
C. Battistone	Acting Manager, Technical Services Programs
G. Buck	ISI/NDE, Level III Contractor
G. Cacciani	Design Engineer
D. Canan	Senior Nuclear Specialist – Respiratory Protection
E. Crosby	Radiation Protection Supervisor
D. Digiovanni	Environmental Engineer
T. Dileo	Reactor Engineer
K. Farzan	Compliance Engineer
J. Freund	Supervisor, Radiation Protection, Support Services
J. Fontaine	Supervisor, ALARA
B. Furdak	Chemistry Manager
D. Grabski	ISI Coordinator
P. Harden	Site Vice President
T. Heimel	ISI/NDE, Level III Contractor
J. Hesser	Senior Radiation Protection Technician
M. Jansto	Engineer, Radiation Monitoring Systems
R. Lieb	Director, Site Operations
R. Lupert	Supervisor, Design Engineering
C. Mancuso	Acting Director, Engineering
M. Manoleras	Director, Fleet Engineering
D. McBride	Engineer, Diesel Systems
J. Miller	Fire Marshall
L. Musgrave	Staff Nuclear Engineer, ISI
M. Patel	Electrical Design Engineering
D. Patten	Director, Technical Engineering Programs
A. Reardon	Engineer, Ventilation Systems
L. Renz	Manager, Environmental Programs
B. Sepelak	Supervisor, Regulatory Compliance
T. Steed	Site Radiation Protection Manager
Z. Warchoc	Advanced Nuclear Engineer, Fleet Engineering
W. Williams	Staff Nuclear Engineer, Technical services
R. Wolfe	Project Engineer

Other Personnel

L. Ryan	Inspector, Pennsylvania Department of Radiation Protection

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000412/2012005-01	NCV	Failure to Use a Procedure to Operate a CVCS Valve (Section 1R20)
05000412/2012005-02	NCV	Failure to Identify and Correct a Condition Adverse to Quality (Section 1R20)
05000412/2012-001-00	LER	Automatic Actuation of Standby Service Water Pump During Emergency Diesel Generator Test (Section 4AO3)
05000412/2012-002-00	LER	Unacceptable Indication Identified During Reactor Vessel Head Inspection(Section 4AO3)
05000412/2012-003-00	LER	Mode 3 Entered with Both Trains of Turbine Trip Circuitry Inoperable (Section 4AO3)

Closed

05000334; 05000412/2011007-03	URI	Degraded Voltage Relay Time Delay (Section 4AO2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
2OST-45.11, Cold Weather Protection Verification, Revision 20
1OST-45.11, Cold Weather Protection Verification, Revision 22

Condition Reports
2011-88098 2011-02169 2008-48772 2010-81573

Section 1R04: Equipment Alignment

Procedures
2OM-11.3.B.1, Valve List-2SIS, Revision 12

Condition Reports
2012-01746 2010-74998 2010-74881

Miscellaneous
2PFP-VLVP-712-Valvepits, Valve Pits Fire Area VP-1, Revision 0

Drawings
10080-RM-0411-001, Low/High Head Safety Injection, Revision 18
10080-RM-436-001, Valve Oper No. Diagram Diesel Fuel Oil, Revision 6
10080-RM-436-002, Valve Oper No. Diagram Diesel Air Intake, Exh, and Vacuum, Revision 4
10080-RM-436-003, Valve Oper No. Diagram Starting Air, Revision 19
8700-RM-0413-001, Valve Oper No. Diagram Containment Depressurization Sys, Revision 24

Section 1R05: Fire Protection

Procedures
1/2ADM-1900, Fire Protection Program, Revision 27

Condition Reports
2011-05012

Other
1PFP-AXLB-722-Auxiliary Building General Area, Fire Area PA-16, Revision 3
1PFP-SFGB-735-AUX FW & QS Pumps, Fire Area QP-1, Revision 0
1PFP-SRVB-713-AE Switchgear Room, Fire Area ES-1, Revision 1
2PFP-RCBX-767, Reactor Containment Building, Fire Area RC-1, Revision 1
2PFP-RCBX-738, Reactor Containment Building, Fire Area RC-1, Revision 2
2PFP-RCBX-718, Reactor Containment Building, Fire Area RC-1, Revision 1
2PFP-RCBX-692, Reactor Containment Building, Fire Area RC-1, Revision 1
2PFP-VLVP-712-VALVEPITS, Valve Pits Fire Area VP-1, Revision 0

Section 1R06: Flood Protection Measures

Other
BVPS-2 UFSAR
BVPS Unit 2 Probabilistic Risk Assessment

Section 1R08: In-service Inspection

Procedures
NDE-UT-308, Component Weld Profiling and Thickness Measurements Using Straight Beam Ultrasonic Techniques, Revision 14
NDE-UT-329, Ultrasonic Examination of Small-Diameter Piping Butt Welds and Components for Thermal Fatigue, Revision 0
1/2-ADM-2096, Alloy 600/690 Management Program, Revision 11
NOP-ER-2001, Boric Acid Control Program, Revision 10
1/2-ADM-2039, BVPS ISI Ten-Year Plans, Revision 13
1/2-ADM-2099, Primary Containment ISI Program, Revision 0
NOP-CC-5703, FirstEnergy Nuclear Operating Company ASME Section XI Repair/Replacement (R/R) Program, Revision 1
ISIE-ECP-2, Steam Generator Examination Program, Revision 23
PCI Energy Services Procedure Specification 43 MN-GTAW/SMAW, Revision 8
Wesdyne Procedure PDI-ISI-254-SE-NB, Remote Inservice Examination of Reactor Vessel Nozzle to Safe End, Nozzle to Pipe and Safe End to Pipe Welds Using the Nozzle Scanner, Revision 2
Wesdyne Procedure WDI-STD-1041, Reactor Vessel Head Penetration Ultrasonic Examination Analysis, Revision 8

Wesdyne Procedure WDI-SSP-1237, Liquid Penetrant Examination of CRDM Penetration Nozzle Weld Overlays at Beaver Valley, Revision 0

NDE Records

UT Pipe Weld Examination Report No. 2SIS-270-F06, 6" diameter Safety Injection System ASME Class 2, Pipe/Elbow Butt Weld, dated October 3, 2012

UT Pipe Weld Examination Report No. 2RCS-151-F05, 3" diameter Reactor Coolant System Pipe/Pipe Butt Weld, dated October 8, 2012

UT Pipe Weld Examination Report Nos. UT-12-1133, dated October 4, 2012 and UT-12-1134, UT-121135, UT-121136, and UT-121137, all dated October 6, 2012 for 6" Diameter Safety Injection System

Remote Visual Examination of Reactor Vessel Head Penetrations, Component 2REV-HEAD-Outside Diameter (OD) Surface Report No.VEN-VT-02, dated October 10, 2012

Remote UT Examination Reports, BVPS Unit 2 Reactor Vessel Outlet Nozzle Dissimilar Metal and Safe-End Weld Examination of 2RCS*REV21-N24, Safe-End to Pipe 2RCS*007-F01, 2RCS*REV21-N26 Safe-End to Pipe 2RCS*004-F01, and 2RCS*REV21-N28 Safe-End to Pipe 2RCS*001-F01, all dated October 7, 2012

Liquid Penetrant Examination of Unit 2 Reactor Vessel Head J-Weld Overlay & Tube Weld OD Overlay Report No. PT903341-02, dated October 12, 2012

Miscellaneous

ASME Boiler and Pressure Vessel Code Case N-729-1, Alternative Examination Requirements for PWR Reactor Vessel Upper Heads

BVPS Unit 2 Fifteenth Refueling Outage Inservice Inspection Report, FENOC Letter L-11-182, dated July 5, 2011

FENOC Letter dated June 21, 2010 and Supplemental Letter dated August 13, 2010, BVPS Unit 2 Relief Request Regarding an Alternate Weld Repair Method for Reactor Vessel Head Penetrations J-Groove Welds

FENOC Letter dated December 27, 2011, BVPS Unit 2 Request for Relief Relating to Reactor Vessel Nozzle Welds

BVPS Unit 2 2R16 Steam Generator Degradation Assessment, dated September 2012

BVPS 2R16 Beaver Valley Power Station Unit 2 Cycle 16 Steam Generator Operational Assessment, Westinghouse SG-SGMP-11-19, dated June 8, 2011

Westinghouse Procedure DMW-SLV-001, Installation of Alloy 800 Leak-Limiting Mechanical Transition Zone Sleeves in the Steam Generator Tubesheet Region – First energy-Beaver Valley Unit 2, Revision 2

Westinghouse WCAP-15987-P, Technical Basis for the Embedded Flaw process for Repair of Reactor Vessel Head Penetrations, Revision 2, dated December 2003

Westinghouse WCAP-16158-P, Technical Basis for Repair Options for Reactor Vessel Head Penetration Nozzles and Attachment Welds: Beaver Valley Unit 2, Revision 0, dated August 2008

MS-C-12-01-13, Fleet Oversight Audit Report, January 16, 2012 through March 6, 2012, Design Control/Engineering Programs/ ASME, dated March 8, 2012

Condition Reports

2012-14660	2012-15151	2012-14668	2012-15219	2012-14682	2012-15729
2012-14687	2012-15765	2012-14713	2012-15840	2012-14717	

Section 1R11: Licensed Operator Requalification Program

Miscellaneous
ECA 0.0

Section 1R12: Maintenance Effectiveness

Procedures
NOP-ER-3004, FENOC Maintenance Rule Program, Revision 1

Condition Reports
2012-17256 2012-16147 2012-15686 2012-16197 2012-15083 2012-15408
2011-90855 2011-93183 2012-10887 2012-16449 2012-16998 2012-18163
2011-05088 2012-14582 2011-00110 2012-01763 2012-15520 2012-15412
2012-14327 2012-17264

Miscellaneous
Periodic Assessment of Maintenance Rule Program September 2009 through February 2011

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
1/2ADM-2033, Risk Management Program, Revision 4

Condition Reports
2012-15379 2012-15326 2012-15978 2012-16815 02-05216

Miscellaneous
Unit 1 Weekly Maintenance Risk Summary, Revision 3
Unit 1 Weekly Maintenance Risk Summary –Week of October 1, 2012, Revision 0
Unit 2 Shutdown Defense In-Depth, Dated October 2, 2012
Unit 2 Shutdown Defense In-Depth, Dated September 2, 2012
Unit 2 Weekly Maintenance Risk Summary, Revision 0

Section 1R15: Operability Determinations and Functionality Assessments

Procedures
2RP-2.10, Remove Guide Studs, Reactor Vessel Stud Installation, and Tensioners, Revision 6
2MSP-36.20-M, #2 Emergency Diesel Generator Inspection, Revision 19
2OST-30.13B, Train 'B' Service Water System Full Flow Test, Revision 31
1/2 CMP-75-BAT-1E, Station Battery Replacement Procedure, Revision 9
2BVT1.39.4, Station Battery [BAT*2-4] Service Test, Revision 7

Condition Reports
2012-13776 2012-15697 2012-15815 2012-16281 2012-16817 2012-16636
2012-15815 2012-15845 2012-15644 2012-15697 2012-15944 2012-15388

Maintenance Orders/Work Orders
200533907 200533971 200465559

Miscellaneous
EER 600790553

Section 1R18: Plant Modifications

Procedures
1/2RP-3.24, Refueling Procedure Core Reload, Revision 7
RP-3.2, Refueling Procedure Fuel Transfer System, Revision 4
2RP-3.13, Refueling Equipment Wet Operational Demonstration, Revision 2

Condition Reports
2012-15818 2012-15717

Miscellaneous
ECP 12-0406-00, Revision 2
ECP 12-0242-00, Revision 0
Regulatory Applicability Determination No. 12-01575
Regulatory Applicability Determination No. 12-04206
ECP 12-0696, 2R16 T-Mod Fuel Transfer Card Addition of Safety Switch Modification, Revision 0

Section 1R19: Post-Maintenance Testing

Procedures
1OST-13.2, Quench Spray Pump [1QS-P-1B] Test, Revision 39
1OST-24.2, Motor Driven Aux Feed Pump Test [1FW-P-3A], Revision 46
1/2CMP-75-BAT-1E, Station Battery Replacement Procedure, Revision 9
2BVT1.39.4, Station Battery [BAT*2-4] Service Test, Revision 7
2OST-24.6B, 23B AFW Pump Check Valves & Flow Test, Revision 10 (LUC PAF-12-01548)
2MSP-36.29-M, No. 1 Emergency Diesel Generator Filter Strainer, Heat Exchanger, and Woodward Governor Maintenance, Revision 26
2OST-36.1, Emergency Diesel Generator [2EGS*EG2-1] Monthly Test, Revision 4
2MSP-36.17-E, No.1 Emergency Diesel Generator Electrical Inspection, Revision 16
2MSP-36.19-M, No. 1 Emergency Diesel Generator Inspection, Revision 19
2OM-36.4.AE, Post Maintenance Governor Testing, Revision 4
2OM-36.4.AG, Emergency DG [2EGS*EG2-2] Startup & Shutdown, Revision 21
2ICP-36-PS211-2, 2EGO-PS211-2, Diesel Generator 2-2 Rocker Arm Lube Oil Pressure Switch Calibration, Revision 5

Condition Reports
2012-16334 2012-15388 2012-16715 2012-16344 2012-16282

Maintenance Orders/Work Orders
200479791 200514244 200326132 200465541 200465490 200533971
200165156 200165540 200476985 200504300 200534350 200534492

Miscellaneous
10080-E-11GL, Train B Signal Isolators, Revision 12
10080-E-12K, Diesel Generator 2-2, Revision 16
EER 600792699

Section 1R20: Refueling and Other Outage Activities

Procedures
2OST-47.2B, Containment Close Out Inspection, Revision 12
2BVT-1.47.11, Safety Injection and Charging System Containment Penetration Valve Integrity Test, Revision 15
2OM-7.4.H, Chemical and Volume Control System Operating Procedure – Collapsing the Pressurizer Bubble, Revision 19

Condition Reports
2012-17172 2012-15236 2012-15699 2012-15726 2012-15698 2012-15769
2012-15229 2008-45911 2012-14791 2012-14860 2012-14791

Work Orders:
200167275 600788384

Other:
12-03916, Regulatory Applicability Determination, Revision 0
Plant Computer Information printout PO499A – Wide Range Pressure, dated 9/25/12
Unit 2 Operating Logs, dated 9/25/12

Section 1R22: Surveillance Testing

Procedures
1OST-15.02 Primary Component Cooling Water Pump 1CC-P-1B Test, Revision 33
2OST-10.3, Residual Heat Removal System Train A Valve Exercise, Revision 28
2BVT1.47.11, Safety Injection & Charging System Containment Penetration Valve Integrity Test, Revision 15
2OST-36.4, Emergency Diesel Generator [2EGS*EG2-2] Automatic Test, Revision 37
2OST-10.3, Residual Heat Removal System Train A Valve Exercise, Revision 28

Condition Reports
2011-90912 2011-98152 2012-16123 2012-14741 2012-14703

Section RS01: Radiological Hazard Assessment and Exposure Controls

Procedures:
1/2-ADM-1601 Radiation Protection Standards, Revision 20
1/2-ADM-1611 Radiation Protection Administrative Guide, Revision 13
NOP-OP-4102, Radiological Postings, Labeling, and Markings, Revision 9

Condition Reports:
2012-16856 2012-16867

Miscellaneous Reports:
Personnel Contamination Event Reports
Electronic Dose and Dose Rate Alarm Reports
Occupational Exposure Control Effectiveness Performance Indicator Reports from October 2011 through November 2012

Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment

Procedures:
1/2-ODC-1.01 ODCM: Index, Matrix, and History of ODCM Changes, Revision16
1/2-ODC-2.01 ODCM: Liquid Effluents, Revision 12
1/2-ODC-2.02 ODCM: Gaseous Effluents, Revision 3
1/2-ODC-3.01 ODCM: Dispersion Calculation Procedure and Source Term Inputs, Revision 1
1/2-ODC-3.02 ODCM: Bases for ODCM Controls, Revision 2
1/2-ODC-3.03 ODCM: Controls for RETS and REMP Program, Revision 11
1HPP-4.02.002 Effluent Monitors, Revision 5
1-HPP-4.02.008 SA-9/SA-10 Noble Gas Monitors, Revision 3
1-HPP-4.02.010 SPING-4 Particulate, Iodine, and Noble Gas Monitor, Revision 3
2-HPP-4.02.020 DRMS, Process Monitoring Subsystem, Revision 16
2-HPP-4.02.021 DRMS, Effluent Monitoring Subsystem, Revision 13
1/2-ENV-05.04 Radioactive Waste Discharge Authorization-Liquid, Revision 3
NOP-OP-3202 FENOC Radiochemistry Quality Control Program, Revision 3
1/2-CHM-ANA-5.24E Efficiency Calibration of the APEX/Genie 2K Gamma Spectroscopy System, Revision 0
1/2-CHM-ANA-5.11Tritium, Revision 11
NOBP-OP-2012 System/Work Practice Prioritization for NEI 07-07, Revision 0
NOP-OP-2012 Groundwater Monitoring, Revision 6
2OST-43.3 Liquid Waste Process Effluent Monitor Channel Functional Test, Revision 17
1OST-43.9E [RM-1LW-104] Low Range Channel Functional Test, Revision 1
1OST-43.9F [RM-1LW-104] High Range Channel Functional Test, Revision 1

Effluent Discharge Permits:
Gaseous:
RWDA-G-01827, Unit-2 Containment Building
RWDA-G-01829, Unit-2 Reactor Coolant System Degas

Liquid:
RWDA-L-5961, 1BR-TK-4B
RWDA-L-5962, 2SGC-TK23B
RWDA-L-5964, 2SGC-TK23A
RWDA-L-5966, 1-LW-TK6B

Nuclear Oversight Performance Assessment (PA) Reports:
PA-BV-12- 02 and 03 Trimester Chemistry Performance Assessments
PA-BV-2011-03, Pipe sleeving & cleaning the storm drain system to correct tritium found in groundwater

Condition Reports :
2012-15547 2012-06294 2012-16967 2012-09707 2011-89867 2011-05587
2011-02487 2010-82309 2010-81828

Effluent Radiation Monitor Calibration Records:
1MSP-43.60-I, RM-1VS-109, Ventilation Vent monitor, Revision 19
1MSP-43.18-I, RM-1LW-104, Liquid Waste Effluent monitor, Revision 8
1MSP-43.61A, RM-GW110, Gaseous Waste monitor, Revision 10
1MSP-43.61C-I, RM-VS-112, Reactor Building/SLCRS monitor, Revision 8
1MSP-43.23-I, RM-LW-116, Liquid Waste Contaminated Drains monitor, Revision 9

2MSP-43.32-I, 2HVS-RQI-109, A Elevated Release Particulate monitor, Revision 11
2MSP-43.33-I, 2HVS-RQI-109, B/C/D Elevated Release Gas monitor, Revision 13
2MSP-43.38-I, 2HVL-RQI-112, Condensate Polishing Building exhaust monitor, Revision 10
2MSP-43.39-I, 2SGC-RQI-100, Liquid Waste Effluent Monitor, Revision 10

Miscellaneous Reports:
2012 Land Use Census and Atmospheric Dispersion Evaluation
Unit 1/2 Radiation Monitor Action Plan
Unit 1 SLCRS Trains A and B Filter Efficiency and Flow Tests
Unit 2 SLCRS Trains A and B Filter Efficiency and Flow Tests
2012 Fall Groundwater sample results
2012 Monthly, Quarterly, and Annual Dose Projections for Liquid and Gaseous Effluents
Laboratory Cross Check Program Result for 1st, 2nd, and 3rd quarters of 2012

Section 1EP6: Drill Evaluation

Miscellaneous
White Team Mini-drill Controller Book, Dated November 15, 2012

Section 4OA1: Performance Indicator Verification

Procedures
1/2 -ADM – 1111, NRC EPP Performance Indicator Instructions, Revision 7

Other
Performance Indicator data – 2nd quarter 2011 to 4th quarter 2012

Section 4OA2: Problem Identification and Resolution

Condition Reports

11-96222	11-95145	11-96495	11-95549	11-95904	11-95909
11-96153	11-96493	11-96396	11-96373	11-96354	11-96232

Calculations
8700-E-271, Station Service System Dynamic Stability Study, Revision 4
8700-E-068, Station Service Load Flow and Voltage Profile Analysis, Revision 5

Drawings
8700-RE-1C, Equipment One Line Diagram, Revision 28
10080-RE-1C, Equipment One Line Diagram, Revision 14

Procedures

1PMP-37-SS-Linestarter-2E, Linestarter Inspection, Issue 4, Revision 12
1/2PMP-36TR-Transformer-1E, System Transformer Inspections, Issue 4, Revision 8
10M-36.2.A, Precautions, Limitations, and Setpoints – Unit 1 4KV Station Service System, Revision 12
20M-36.2.A, Precautions, Limitations, and Setpoints – Unit 2 4KV Station Service System, Revision 13
10ST-36.5A, Emergency Switchgear Operation Test (Auto Transfer from Unit to System Station Transformer), Revision 12

20ST-36.5A, Emergency Switchgear Operation Test (Auto Transfer from Unit to System Station Transformer), Revision 15

Miscellaneous
Electrical Calculation Reconstitution Plan, Revision 2
OE 2012-0082-1-FA001, Review of NRC Regulatory Information 2011-12, dated 11/28/12

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion

Condition Reports
2012-17172 2012-18018 2012-15729 2012-14778

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
AFW	auxiliary feedwater
ALARA	as low as is reasonably achievable
ASME	American Society of Mechanical Engineers
BACC	boric acid corrosion control
BVPS	Beaver Valley Power Station
CCP	component cooling water
CDBI	Component Design Bases Inspection
CFR	Code of Federal Regulations
CR	condition report
CRDM	control rod drive mechanism
CVCS	chemical volume and control system
ECT	eddy current testing
EDG	emergency diesel generator
EPRI	Electric Power Research Institute
FENOC	FirstEnergy Nuclear Operating Company
FOSAR	foreign object search and retrieval
GPI	Groundwater Protection Initiative
HEPA	high efficiency particulate air
IMC	Inspection Manual Chapter
ISI	inservice inspection
LCO	limiting condition for operation
LER	licensee event report
MRP	Materials Reliability Program
NCD	Controller Driver printed circuit board
NCV	non-cited violation
NDE	non-destructive examination
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
ODMI	Operational Decision Making Issue
OD	outside diameter
PAB	Unit 1 Auxiliary Building
PARS	Publicly Available Records

PRA	probabilistic risk assessment
PT	liquid penetrant test
RCA	Radiological Controlled Area
RCS	reactor coolant system
RG	regulatory guide
RVUCH	Reactor Vessel Upper Closure Head
RWP	Radiation Work Permit
SDP	Significance Determination Process
S/G	steam generator
SLCRS	Supplemental Leak Collection and Release System
SOSB	site office support building
SSC	structure, system, or component
SSST	system service station transformer
UFSAR	Updated Final Safety Analysis Report
URI	unresolved item
UT	Ultrasonic Test
VAC	volts alternating current
VUHP	Vessel Upper Head Penetration