UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

January 15, 2015

Mr. Eric Larson
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 COMPONENT DESIGN BASES INSPECTION REPORT NOS. 05000334/2014007 AND 05000412/2014007

Dear Mr. Larson:

On December 4, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Beaver Valley Power Station, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on December 4, 2014, with Mr. M. Manoleras, Director Site Engineering, and other members of your staff.

The inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. In conducting the inspection, the team examined the adequacy of selected components and operator actions to mitigate postulated transients, initiating events, and design basis accidents. The inspection involved field walkdowns, examination of selected procedures, calculations and records, and interviews with station personnel.

This report documents one NRC-identified finding which was of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements and is described in Enclosure 2 of this report. However, because of the very low safety significance of the violation and because it was entered into your corrective action program, the NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the NRC Enforcement Policy. If you contest the NCV 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at Beaver Valley Power Station.

Enclosure 2 contains Sensitive Unclassified Non-Safeguards Information. When separated from the Enclosure, the transmittal document is decontrolled.

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

However, the material in Enclosure 2 contains Security-Related Information in accordance with 10 CFR 2.390(d)(1) and its disclosure to unauthorized individuals could represent a security vulnerability. Therefore, the material in Enclosure 2 will not be made available electronically for public inspection in the NRC Public Document Room or from the PARS component of NRC's ADAMS. If you choose to provide a response and if Security-Related Information is necessary to provide an acceptable response, please mark your entire response "Security-Related Information-Withhold from public disclosure under 10 CFR 2.390" in accordance with 10 CFR 2.390(d)(1) and follow the instructions for withholding in 10 CFR 2.390(b)(1). In accordance with 10 CFR 2.390(b)(1)(II), the NRC is waiving the affidavit requirements for your response.

Sincerely,

/RA/

Paul G. Krohn, Chief
Engineering Branch 2
Division of Reactor Safety

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

Enclosure 1 Public
Inspection Report 05000334/2014007
and 05000412/2014007 w/Attachment
Supplemental Information

cc w/encl (via ListServ)

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

However, the material in Enclosure 2 contains Security-Related Information in accordance with 10 CFR 2.390(d)(1) and its disclosure to unauthorized individuals could represent a security vulnerability. Therefore, the material in Enclosure 2 will not be made available electronically for public inspection in the NRC Public Document Room or from the PARS component of NRC's ADAMS. If you choose to provide a response and if Security-Related Information is necessary to provide an acceptable response, please mark your entire response "Security-Related Information-Withhold from public disclosure under 10 CFR 2.390" in accordance with 10 CFR 2.390(d)(1) and follow the instructions for withholding in 10 CFR 2.390(b)(1). In accordance with 10 CFR 2.390(b)(1)(II), the NRC is waiving the affidavit requirements for your response.

Sincerely,

/RA/

Paul G. Krohn, Chief
Engineering Branch 2
Division of Reactor Safety

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

Enclosure: No. 1
Inspection Report 05000334/2014007
and 05000412/2014007 w/Attachment:
Supplemental Information

cc w/encl (via ListServ)

Distribution: (See Next Page)

Document Name: G:\DRS\Engineering Branch 2\Pindale\BV CDBI 2014007 w Encl 1 PUB wo OUO.docx

ADAMS ACCESSION NUMBER: ML15015A219 (Cover letter w/Encl1 Pub)
ADAMS ACCESSION NUMBER: ML15015A201 (Cover letter w/Encl 2 NP)

Cover Letter w/Encl 1 Pub ☒ **SUNSI Review**		☒ **Non-Sensitive**		☒ **Publicly Available**	
OFFICE	**RI/DRS**	**RII/DRS**	**RI/DRP**	**RI/DRS**	
NAME	**SPindale/SP**	**CCahill/CC**	**SKennedy/SK**	**PKrohn/PK**	
DATE	**01/08/2015**	**01/13/2015**	**01/132015**	**01/15/2015**	

OFFICIAL RECORD COPY

Distribution w/encl – Encl 1

D. Dorman, RA **(R1ORAMAIL Resource)**
D. Lew, DRA **(R1ORAMAIL Resource)**
H. Nieh, DRP **(R1DRPMAIL Resource)**
M. Scott, DRP **(R1DRPMail Resource)**
R. Lorson, DRS **(R1DRSMail Resource)**
J. Trapp, DRS (**R1DRSMail Resource)**
S. Kennedy, DRP
C. Bickett, DRP
C. Roettgen, DRP
B. Bollinger, DRP
J. Krafty, DRP, SRI
B. Reyes, DRP, RI
P. Garrett, DRP, Resident AA
K. MorganButler, RI, OEDO
RidsNrrPMBeaverValley Resource
RidsNrrDorlLpl1-2 Resource
ROPreports Resource

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket No.:	50-334, 50-412
License No.:	DPR-66, NPF-73
Report No.:	05000334/2014007, 05000412/2014007
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Beaver Valley Power Station, Units 1 and 2
Location:	Shippingport, PA 15077
Dates:	November 3 to December 4, 2014
Inspectors:	S. Pindale, Senior Reactor Inspector, Division of Reactor Safety (DRS) Team Leader D. Kern, Senior Reactor Inspector, DRS K. Mangan, Senior Reactor Inspector, DRS K. Young, Senior Reactor Inspector, DRS C. Cahill, Senior Reactor Analyst, DRS A. Della Greca, NRC Electrical Contractor J. Zudans, NRC Mechanical Contractor
Approved by:	Paul G. Krohn, Chief Engineering Branch 2 Division of Reactor Safety

SUMMARY

IR 05000334/2014007, 05000412/2014007; 11/3/2014 – 12/4/2014; Beaver Valley Power Station, Units 1 and 2; Component Design Bases Inspection.

The report covers the Component Design Bases Inspection conducted by a team of four NRC inspectors and two NRC contractors. The team identified one finding of very low risk significance (Green), which was considered to be a non-cited violation (NCV). 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 5, dated February 2014.

No findings were identified in Enclosure 1 to this report.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity

1R21 Component Design Bases Inspection (IP 71111.21)

.1 Inspection Sample Selection Process

The team selected risk significant components for review using information contained in the Beaver Valley Power Station (BVPS) Probabilistic Risk Assessment and the U.S. Nuclear Regulatory Commission's (NRC) Standardized Plant Analysis Risk model. Additionally, the BVPS, Units 1 and 2, Significance Determination Process analyses were referenced in the selection of potential components for review. In general, the selection process focused on components that had a Risk Achievement Worth factor greater than 1.3 or a Risk Reduction Worth factor greater than 1.005. The team also selected components based on previously identified industry operating experience issues and the component contribution to the large early release frequency (LERF) was also considered. The components selected were located within both safety-related and non-safety-related systems, and included a variety of components such as pumps, breakers, heat exchangers, electrical buses, transformers, and valves.

The team initially compiled a list of components based on the risk factors previously mentioned. Additionally, the team reviewed the previous component design bases inspection reports (05000334&05000412/2006008, 05000334&05000412/2008008 and 05000334&412/2011007) and those components previously inspected. The team then performed a margin assessment to narrow the focus of the inspection to 18 components and three operating experience (OE) samples. Two components were selected because they were containment-related structures, systems, and components and were considered for LERF implications. The team's evaluation of possible low design margin included consideration of original design issues, margin reductions due to modifications, or margin reductions identified as a result of material condition/equipment reliability issues. The assessment also included items such as failed performance test results, corrective action history, repeated maintenance, maintenance rule (a)(1) status, operability reviews for degraded conditions, NRC resident inspector insights, system health reports, and industry OE. Finally, consideration was given to the uniqueness and complexity of the design and the available defense-in-depth margins.

The inspection performed by the team was conducted in accordance with NRC Inspection Procedure 71111.21. This inspection effort included walkdowns of selected components, interviews with operators, system and design engineers, and reviews of associated design documents and calculations to assess the adequacy of the components to meet the design and licensing bases. A summary of the OE samples are discussed in subsequent sections of this report. Documents reviewed for this inspection are listed in the Attachment.

.2 Results of Reviews

.2.1 Results of Detailed Component Reviews (18 Samples, one Sample is described in Enclosure 2)

.2.1.1 Sample Discussed in Enclosure 2

.2.1.2 Emergency Diesel Generator 2-2, 2EGS-EG2-2

a. Inspection Scope

The team reviewed the electrical and mechanical capabilities of Unit 2 emergency diesel generator (EDG) 2EGS-EG2-2. The design function of EDG2-2 is to provide standby power to the 4160 Volts, Alternating Current (VAC) safety-related emergency switchgear bus 2DF when the preferred offsite power is not available. EDG2-2 also provides the power to the Unit 1 safe shutdown loads when the offsite and onsite power is lost. The electrical evaluation of the EDG focused on its ability to supply quality power to the safety-related loads during design basis abnormal and accident events. Specifically, the team reviewed transient and steady state loading analyses and the design capabilities of the EDG to confirm its ability to accept and run the required loads. The team reviewed the brake horsepower basis for selected pump motors to ensure that the loads were adequately considered in the loading study at conservative motor operating conditions. The team also reviewed EDG voltage settings and voltage drop calculations to verify that adequate voltage was provided to the safety-related loads during worst-case loading conditions. Additionally, the team reviewed short circuit calculations and the 4160 Vac coordination analysis to ensure that the switchgear equipment was adequately rated and the protective devices selectively coordinated such that the loads and cables were adequately protected without interruption of service to other components during overload or faulted conditions. The team reviewed bus voltage relay settings and control schematic wiring diagrams to confirm that the EDG would start automatically during a loss-of-offsite power or degraded voltage condition and that the bus loading would occur, in accordance with design requirements and licensing bases. The team reviewed the EDG surveillance test procedures and results to verify that such testing complied with technical specification requirements and, in particular, that during the sequential starting of loads, the EDG had sufficient capability to accelerate the loads within the time periods specified in the Updated Final Safety Analysis Report (UFSAR).

The team also inspected the EDG mechanical support systems to ensure they were capable of meeting their design basis functions, including the fuel oil, lubricating oil, starting air, engine cooling, and room cooling systems. The team reviewed the fuel oil consumption calculation to ensure the quantity of fuel on site was consistent with design and licensing requirements. Engine air start system check valve leakage testing and associated calculations were reviewed to ensure engine starting capability from the

stored air supply was adequate to start the EDG during worst case delayed starting assumptions. The team reviewed engine heat exchanger design calculations and recent heat exchanger inspection results to ensure adequate cooling water flow rate and heat transfer assumptions were maintained. The team also reviewed lubricating oil storage requirements and lube oil consumption rates to ensure sufficient lubricating oil was available so that the EDG would be able to operate for its credited mission time.

The team reviewed selected maintenance procedures and completed work records to evaluate whether the EDG was being properly maintained. The team reviewed completed surveillances to determine if the EDG was being tested in accordance with the technical specifications. The team also interviewed the responsible engineers and performed walkdowns of the EDG and related equipment to assess FENOC's configuration control, the material condition, the operating environment, and potential external hazards. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse operating trends and to assess FENOC's ability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.3 Atmospheric Steam Dump Valve, PCV-1MS-101C

a. Inspection Scope

The team inspected atmospheric steam dump valve (ASDV) PCV-1MS-101C to evaluate whether the valve was capable of performing its design basis function. PCV-1MS-101C is one of three air-operated valves credited to perform plant cool down in the event that the steam dump valves to the condenser are unavailable and during certain design basis accidents. The team reviewed calculations, the vendor manual, and engineering evaluations associated with the ASDV to determine the design assumptions for the valve and to determine if the valve was capable of performing in accordance with the design assumptions. The team reviewed operating procedures for manual operation of the valves to determine if operators could effectively implement the procedure during worst case design conditions. The team interviewed engineers to ensure recommended maintenance had been established and design changes had been implemented satisfactorily in accordance with station procedures. The team also reviewed FENOC's modification that installed the valves in the system to determine if the valves and associated actuators had been installed in accordance with manufacturer's recommendations. Additionally, the team conducted a walkdown of all three valves and the associated discharge piping to verify the components, including seismic restraints, had been installed in accordance with the design requirements. The surveillance test

procedures were reviewed to verify that design basis stroke times were enveloped by test acceptance criteria. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse operating trends and to assess FENOC's ability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.4 'A' River Water Pump, 1WR-P-1A

a. Inspection Scope

The team inspected the 'A' river water (RW) pump to evaluate whether it was capable of performing its design basis function. Specifically, the team evaluated whether the pump capacity was sufficient to provide adequate flow to the safety-related components supplied by the RW system during design basis events. Design calculations were reviewed to evaluate the capability of the pump to provide flow to served components. Additionally, the team evaluated the ability of the RW system to supply non-essential components that could be served by the RW system as prescribed by the emergency operating procedures. The team also evaluated changes that impacted flow requirements to individual RW system loads due to changes in fouling factors and revised heat load requirements for components.

The team reviewed degraded voltage conditions and voltage drop calculations to confirm that the pump motor would have sufficient voltage and power available to perform its safety function at worst case degraded voltage conditions. The team also performed a review of the short circuit calculation and breaker design to confirm its capability to carry maximum calculated load and withstand maximum calculated faults without damage. The review included an evaluation of protective device coordination to confirm that the motor and cables were adequately protected without interruption of service to other components during overload or faulted conditions.

The team reviewed RW pump in-service testing (IST) results and RW system flow verification tests to determine if adequate system flow rate was available. Specifically, the team reviewed pump data trends for vibration, pump differential pressure, and flow rate test results to verify acceptance criteria were met; and evaluated if acceptance limits were adequate to ensure that procedural degradation limits for the pump were appropriate. Additionally, the team reviewed surveillance testing on equipment credited to prevent RW room flooding during design basis flood events to determine if test results were adequate to ensure system function. The team interviewed engineers and performed a walkdown of the pump to evaluate its material condition and assess the pump's operating environment. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse operating trends and to assess FENOC's ability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.6 'B' Auxiliary Feedwater Pump, 2FWE-P23B

a. Inspection Scope

The team inspected the 'B' motor-driven auxiliary feedwater (AFW) pump to verify that it was capable of meeting its design basis requirements. The AFW pump provides emergency feedwater to the steam generators in response to transient and accident events. The team reviewed analyses, procedures, and test results associated with operation of the AFW pump under postulated transient, accident, and station blackout conditions. The analyses included considerations for hydraulic performance, net positive suction head, required total developed head, pump run-out conditions, and potential for vortexing at the suction source. Seismic design documentation was reviewed to verify pump design was consistent with limiting seismic conditions. The team also evaluated the pump suction alarm setpoint to verify that it had an adequate basis. IST results were reviewed to verify acceptance criteria were met and performance degradation would be identified, taking into account setpoint tolerances and instrument inaccuracies.

The team reviewed the motor data, degraded voltage conditions, and voltage drop calculation results to confirm that the pump motor would have sufficient voltage and power available to perform the intended safety function at degraded voltage conditions. The team also performed a review of the short circuit calculation and breaker design to confirm its capability to carry maximum calculated load and withstand maximum calculated faults without damage. The review included an evaluation of protective device coordination to confirm that the motor and cables were adequately protected without interruption of service to other components during overload or faulted conditions.

The team conducted a detailed walkdown of the pump to assess the material and environmental conditions, and to verify that the installed configuration was consistent with system drawings, and the design and licensing bases. In addition, the team interviewed system and design engineers to discuss pump performance and maintenance history to determine the overall condition of the pump. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse trends associated with the pump and to assess FENOC's capability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.7 Emergency Response Facility Diesel Generator, 1RG-EG-1

a. Inspection Scope

The team inspected the emergency response facility (ERF) diesel generator, 1RG-EG-1, (mechanical and electrical systems; and the associated substation) to verify it was capable of meeting its design functional capabilities of providing emergency backup power to selected important-to-safety and non-safety related loads to the ERF and to Units 1 and 2 components. Specifically, the team evaluated the capabilities of the fuel oil system, fuel oil transfer pumps, the electric start system, the lubricating oil system, the air intake/exhaust system, and the jacket water cooling system. Additionally, the team evaluated generator loading capability, electric engine starting battery capability, protective relay set-points, and programmable logic controller load sequencing/load shedding capability to ensure proper operation of the ERF diesel generator and its capability to provide back-up emergency electric power during a loss of offsite power event. The team reviewed the UFSAR, operating procedures, and the system design basis document (DBD) to identify design basis requirement for the system. The team reviewed ERF diesel generator/substation test results and maintenance procedures to ensure reliable diesel generator operation; ensure the mechanical and electrical support systems were operating as designed; and to verify maintenance was being performed. In addition, the team interviewed engineers to determine the adequacy of past and current performance of the ERF diesel generator and substation components. The team conducted walkdowns of the ERF diesel generator/substation to evaluate material condition, system alignments, and the operating environment. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse operating trends and to assess FENOC's ability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.8 Low Head Safety Injection Pump Suction Valve, MOV-1SI-860B

a. Inspection Scope

The team inspected low head safety injection pump suction valve, MOV-1SI-860B, to determine if the normally closed containment isolation valve was capable of performing its design basis function to open while transferring to the recirculation mode of safety injection. The team reviewed the UFSAR, technical specifications, drawings, procedures, and the IST basis document to identify the performance requirements for the valve. The team reviewed periodic MOV diagnostic test results and stroke-timing test data to verify acceptance criteria were met.

The team evaluated whether the MOV safety functions, performance capability, torque switch configuration, and design margins were adequately monitored and maintained in accordance with FENOC's MOV program requirements. The team also reviewed MOV weak-link calculations to ensure the ability of the MOV to remain structurally functional while stroking under design basis operating conditions. The team verified that the MOV valve analysis used the maximum differential pressure expected across the valve during worst case operating conditions.

The team reviewed the voltage drop calculation results to verify that the MOV and control components would have sufficient voltage and power available to perform their safety function at worst case degraded voltage conditions. The team also reviewed the valve control schematic wiring diagram to ensure that the valve would function as designed under the most limiting design basis condition. The team reviewed the short circuit calculation and protection/coordination, including thermal overload sizing and application, to ensure that the valve was adequately protected without spurious actuation of the trip functions.

The design, operation, and maintenance of the valve were discussed with the system engineer to evaluate the valve's performance history, maintenance, and overall health. The team also conducted a walkdown of the valve and associated equipment to assess the material condition of the equipment and to evaluate whether the installed configuration was consistent with the plant drawings, procedures, and the design bases. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse trends associated with the valve and to assess FENOC's capability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.9 Primary Plant Demineralized Water Storage Tank, 2FWE-TK210

a. Inspection Scope

The team reviewed the design, testing, inspection, and operation of the primary plant demineralized water storage tank (PPDWST) and associated tank level instruments, to evaluate whether it could perform its design basis function as the preferred water source for the auxiliary feedwater pumps. Specifically, the team reviewed design calculations, drawings, and vendor specifications, including tank sizing, level uncertainty analysis, and pump vortex calculations to evaluate the adequacy and appropriateness of design assumptions and operating limits. The team interviewed system and design engineers, and reviewed instrument test records, alarm response procedures, and operating procedures to evaluate whether maintenance and testing were adequate to ensure reliable operation, and to evaluate whether those activities were performed in

accordance with regulatory requirements, industry standards, and vendor recommendations. The team also reviewed results of recent external visual inspections of the PPDWST, and conducted a walkdown of the tank area to independently assess the material condition of the PPDWST and associated instrumentation. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse trends associated with the PPDWST and to assess FENOC's capability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.10 Operator Aligns Demineralized Water Storage Tank or Service Water

a. Inspection Scope

The team evaluated manual operator actions to align makeup water to auxiliary feed water pumps, in the event the PPDWST and the normal automatic makeup supply from the demineralized water storage tank becomes unavailable. The team reviewed the associated operating procedures and verified that active components of the water supply makeup path were subject to periodic maintenance to ensure their availability.

The team interviewed licensed operators, reviewed associated alarm response procedures, and observed a licensed operator simulate performance of selected operating procedures to independently assess the likelihood of cognitive or execution errors. The team evaluated the available time margins to perform the actions and verified the validity of procedure assumptions. The team also performed walkdowns of equipment associated with establishing PPDWST makeup to ensure the components were available and in good material condition. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse operating trends and to assess FENOC's ability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.11 High Head Safety Injection System Check Valve, 2SIS-27

a. Inspection Scope

The team inspected the high head safety injection pump supply header check valve, 2SIS-27, to verify that it was capable of meeting its design basis requirements. This check valve is normally closed and is required to open upon high head safety injection

system initiation and to close during the transfer to the recirculation mode of safety injection to prevent reverse flow to the refueling water storage tank. The team reviewed the corrective and preventive maintenance history, as well as surveillance/in-service test results, to ensure the design basis requirements were met.

The team reviewed the seismic calculation of the system piping section to verify protection during a design basis earthquake. Additionally, the team interviewed engineers and conducted a walkdown of the check valve to verify material condition and valve orientation were consistent with the design basis and plant drawings. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse operating trends and to assess FENOC's ability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.12 'A' Fuel Oil Transfer Pump, 1EE-P-1A

a. Inspection Scope

The team inspected the 'A' fuel oil transfer pump, 1EE-P-1A, to verify its capability to perform as required during design basis accident conditions for EDG operation. The positive displacement diesel fuel oil transfer pump transfers fuel from the storage tanks to the diesel fuel oil day tanks. This review included various design basis documents including diesel fuel oil system calculations, technical specifications, the UFSAR, and system drawings. The team verified the capability of the fuel oil transfer pump to provide its design flowrate. In addition, the team verified the basis for the pump's IST acceptance criteria, the basis of various setpoints associated with pump operation, and the availability of adequate net positive suction head during fuel oil transfer pump operation. The team reviewed the control schematic wiring diagram to ensure that the pump would function in accordance with the design basis requirements as well as short circuit calculation and breaker coordination studies to ensure that the pump was adequately protected without spurious actuation of the trip functions.

The team observed portions of the 'C' diesel fuel oil transfer pump quarterly IST on November 19, 2014, and reviewed other completed tests to independently assess pump performance and test control. Walkdowns of accessible areas were performed to assess the material condition of the pump. The team also reviewed procurement and installation records associated with two commercially dedicated components (pump discharge pressure gauge and pump shaft coupling key) to verify their installation did not degrade the pump's capability to perform its design function. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse operating trends associated with the pump and to assess FENOC's ability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.13 Refueling Water Storage Tank Level Transmitters, LT-1QS-100A, LT-1QS-100B, LT-1QS-100C, LT-1QS-100D

a. Inspection Scope

The team inspected the refueling water storage tank (RWST) level transmitters, LT-1QS-100A/B/C/D, to evaluate whether they were capable of meeting their design basis requirements. The team reviewed the instrument logic and completed surveillance tests results to verify the instruments would provide the required system response and that the instruments were being calibrated in accordance with the design values. The team interviewed system and design engineers to ensure appropriate assumptions had been used in associated setpoint calculations. The setpoint calculations were reviewed to verify that the indication and actuation settings were correct and based on appropriate design conditions. The UFSAR, Technical Specifications, design basis documents, and emergency procedures were reviewed to ensure that design and licensing bases assumptions were met. Condition reports and surveillance test results were reviewed to verify that potential degradation was identified and corrected. A walkdown was performed to assess the material condition of the instruments and to verify that the installed configuration would support the design basis functions under transient and postulated accident conditions. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse operating trends associated with the RWST level transmitters and to assess FENOC's ability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.14 '2A' Battery Charger, BAT-CHG2-2

a. Inspection Scope

The team inspected the design, testing, and operation of the Unit 2, 125 Volt Direct Current (Vdc) battery charger (BAT-CHG2-2) to determine if it could perform its design basis function of providing direct current power to connected loads during normal, transient, and postulated accident conditions. The team reviewed design calculations, drawings, vendor specifications, and load profile studies to evaluate battery charger capability. The team reviewed maintenance and test procedures to evaluate whether

they were adequate to ensure reliable operation and that they were performed in accordance with licensing basis requirements, industry standards, and vendor recommendations. The team compared as-found and as-left inspection and test results to established acceptance criteria to verify the charger's capability conformed to design basis requirements. The team interviewed system and design engineers and walked down the battery charger to independently assess the material condition, and to evaluate whether if the system alignment and operating environment were consistent with design assumptions. Finally, the team reviewed corrective action documents and system health reports to determine if there were any adverse trends associated with the charger, and to assess FENOC's capability to identify, evaluate, and correct problems.

b. Findings

No findings were identified.

.2.1.15 Battery Breaker 2-2, BAT-BKR2-2

a. Inspection Scope

The team inspected the 125 Vdc battery breaker 2-2 to evaluate whether it was capable of meeting its design basis requirements. The team reviewed bus loading calculations to evaluate whether the 125 Vdc breaker had sufficient capacity to supply its required loads under worst case accident loading conditions. The team reviewed cable sizing calculations to ensure that cables were adequately sized for load and service conditions. The team also reviewed 125 Vdc short circuit calculations to verify that the breaker was adequately sized and to verify that the breaker short circuit interrupting ratings exceeded the maximum calculated short circuit currents. Additionally, the team reviewed breaker coordination studies to evaluate whether equipment was protected and protective devices provided selective coordination. The team reviewed maintenance procedures and preventive maintenance schedules for the breaker to evaluate whether the equipment was being maintained in accordance with vendor recommendations.

Additionally, the team performed a visual inspection of the 125 Vdc switchgear and breaker to assess the material condition of the equipment. Finally, the team reviewed corrective action documents and system health reports to evaluate whether there were any adverse operating trends and to assess FENOC's ability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.1.16 480 Volt Bus 2-9, 480VUS-2-9

a. Inspection Scope

The team inspected the 480 Vac bus 2-9 to evaluate whether it was capable of meeting its design basis requirements. The team reviewed short circuit calculations and the bus/breaker design to confirm the capability of components to carry the maximum calculated loads and withstand, without damage, maximum calculated faults. The review included an evaluation of protective device settings and coordination to confirm that the loads were adequately protected and that an overload or faulted condition did not result in an interruption of service to other components. The team reviewed the load flow analysis and voltage drop calculation to confirm that adequate voltage was available at the bus and safety-related loads under degraded grid voltage conditions. The team verified that degraded and loss-of-voltage relays were set in accordance with calculations and that associated calibration procedures were consistent with calculation assumptions, associated time delays, and setpoint accuracies.

Additionally, the team reviewed selected control schematic wiring diagrams to confirm that control of the breakers conformed to the design requirements. The review included an evaluation of the 125 Vdc control power supply to ensure that adequate voltage would be available to the breaker for closing and opening under normal, abnormal, and accident conditions.

The team reviewed the load center health report, maintenance history, selected condition reports, and applicable operability evaluations to evaluate whether there were any adverse operating trends and to confirm that the equipment was adequately maintained and failures were addressed properly and in a timely manner. The team also reviewed the preventive maintenance inspection and testing procedures associated with the bus and breakers to ensure they were maintained in accordance with industry and vendor recommendations. Additionally, the team reviewed selected operating procedures to ensure the components were operated consistent with design requirements. Finally, the team performed a visual, non-intrusive inspection of observable portions of the safety-related 480 Vac switchgear to assess the installation configuration, material condition, and potential vulnerability to hazards.

b. Findings

No findings were identified.

.2.1.17 Cross-Tie Circuit Breakers, 4KVS-1A-1A10, 4KVS-1AE-1E7

a. Inspection Scope

The team inspected the Unit 1 cross-tie circuit breaker between the 4.16 kV safety-related emergency bus 1AE to non-safety related bus 1A to verify that it could meet its design requirements. Specifically, the team reviewed the control schematic wiring diagrams for circuit breakers 4KVS-1A-1A10 and 4KVS-1AE-1E7 to evaluate whether the breaker operating schemes would perform as described in the design bases documents. The team also reviewed the load flow analysis, short circuit calculations, and breaker and cables ratings to confirm that they could carry the design basis accident loads. The review included an evaluation of the 125 Vdc control power supply to ensure that adequate voltage would be available to the breakers for closing and opening in accordance with the design basis requirements. Additionally, the team verified that the degraded and loss-of-voltage relays on the 1AE bus were set in accordance with calculations and that associated calibration procedures were consistent with calculation assumptions, associated time delays, and setpoint accuracy.

The team reviewed maintenance procedures and schedules to evaluate whether they were consistent with vendor recommendations. The team also reviewed selected corrective action documents and system health reports to evaluate whether there were any adverse operating trends and to assess FENOC's ability to evaluate and correct problems in a timely manner. Finally, the team performed a walkdown of the equipment to assess the material condition of the equipment and the presence of physical hazards that could impact breaker operation.

b. Findings

No findings were identified.

.2.1.18 4160 Vac - 480 Vac Transformer 2-9, TRF-2-9P

a. Inspection Scope

The team inspected the 4160 Vac to 480 Vac transformer 2-9 to verify that it was capable of performing its design basis function. The team reviewed calculations, drawings, maintenance procedures, and vendor manuals, and assessed the sizing, impedance, loading, protection features, and voltage tap setpoints for the transformer to ensure adequate voltage would be supplied to the vital 480 Vac load center.

The team reviewed the adequacy and appropriateness of design assumptions in calculations related to motor starting and loading voltages to verify that voltage to connected loads would remain above the minimum acceptable values. The team also reviewed the ampacity for the source and load side feeder cables to ensure maximum

cable ratings were not exceeded during operation based on lowest allowed voltage supplied from the 4 kV vital bus. Additionally, the team reviewed the protective device settings to ensure that the feeder cables and transformer were protected in accordance with industry standards. A visual walkdown of the equipment was performed and engineers were interviewed to assess the installation configuration, material condition, and potential vulnerability to hazards. Finally, the team reviewed corrective action documents to evaluate whether there were any adverse trends associated with the transformer and to assess FENOC's capability to evaluate and correct problems.

b. Findings

No findings were identified.

.2.2 Review of Industry Operating Experience and Generic Issues (3 samples)

The team reviewed selected OE issues for applicability at the Beaver Valley Power Station. The team performed a detailed review of the OE issues listed below to evaluate whether FENOC had appropriately assessed potential applicability to site equipment and initiated corrective actions when necessary.

.2.2.1 NRC Information Notice 2012-11: Age Related Capacitor Degradation

a. Inspection Scope

The team reviewed FENOC's evaluation of NRC Information Notice (IN) 2012-11, "Age Related Capacitor Degradation," in order to evaluate their response to the operating experience. The NRC issued the IN to alert licensees of recent problems involving age-related degradation of capacitors at various nuclear power plants. The team reviewed FENOC's evaluation of the potential impact of the identified issues to determine if the issues in the IN were applicable to the BVPS.

To further assess FENOC's current capacitor maintenance practices, the team reviewed a sample of FENOC's preventive maintenance basis documents for safety-related components containing capacitors (e.g., chargers, inverters, and power supplies) to assess the maintenance history and to evaluate whether vendor/industry recommendations were being properly considered in establishing preventive maintenance practices and replacement intervals appropriate to the circuit application.

b. Findings

No findings were identified.

.2.2.2 NRC Information Notice 2012-14: Motor-Operated Valve Inoperable Due to Stem-Disc Separation

a. Inspection Scope

The team evaluated FENOC's applicability review and disposition of NRC IN 2012-14, "Motor-Operated Valve Inoperable Due to Stem-Disc Separation." The team reviewed FENOC'S evaluation of the adequacy of the station's valve program as it relates to the issues identified in this IN. The team reviewed FENOC's evaluation documented in OE 2012-1316-1 and OE 2012-0011, which included a review of the circumstances associated with the subject valve failure, and failure to detect the position of the valve for a prolonged period. FENOC's evaluation determined that there are barriers in place onsite to detect potential similar failures due to manufacturing defects, and there are program requirements for post-maintenance testing, periodic verification, and in-service testing to prevent similar events at BVPS. The team reviewed procedures associated with the barriers stated in the evaluation. The team also reviewed the processes used at BVPS for verifying valve position and valve position indication, which was a key aspect of this IN.

b. Findings

No findings were identified.

.2.2.3 NRC Information Notice 2012-03: Design Vulnerability in Electric Power System

a. Inspection Scope

The team evaluated FENOC's applicability review and disposition of NRC IN 2012-03, "Design Vulnerability in Electric Power System." The NRC issued the IN to inform licensees of recent operating experience involving the loss of one of the three phases of the offsite power circuit and alert them to potential design vulnerabilities in the voltage monitoring and protection scheme for the 4.16-kV safety-related buses. The issue also resulted in the NRC issuing Bulletin 2012-01, "Design Vulnerability in Electric Power System," to request information about their electric power system design; determine if further regulatory action is warranted; and request comprehensive verification of their compliance with regulatory requirements. The team reviewed FENOC's evaluation of the NRC IN and Bulletin; confirmed the applicability of the IN to the BVPS; verified that FENOC had responded to the Bulletin; and that plans were in place and ongoing to revise the voltage monitoring and protection scheme to correct the design vulnerabilities identified in the NRC communications and FENOC's evaluations.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (IP 71152)

a. Inspection Scope

The team reviewed a sample of problems that FENOC identified and entered into their corrective action program. The team reviewed these issues to evaluate whether FENOC had an appropriate threshold for identifying issues and to evaluate the effectiveness of corrective actions. In addition, corrective action documents written on issues identified during the inspection were reviewed to evaluate adequate problem identification and incorporation of the problem into the corrective action program. The corrective action documents that were sampled and reviewed by the team are listed in the Attachment.

b. Findings

No findings were identified.

4OA6 Meetings, including Exit

On December 4, 2014, the team presented the inspection results to Mr. M. Manoleras, Director, Site Engineering, and other members of FENOC staff. The team verified that none of the information in this report is proprietary.

Attachment: Supplemental Information

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

S. Badgett, Senior Reactor Operator
A. Bohr, System Engineer
A. Crotty, Supervisor, Plant Engineering
K. Deberry, System Engineer
K. Farzan, Regulatory Compliance
J. Freund, Reactor Operator
J. Gorham, System Engineer
G. Guzak, Supervisor, Technical Services Engineering
D. Held, Operations
M. Jansto, System Engineer
D. Jones, In-Service Testing Coordinator
M. Kienzle, System Engineer
S. Kubis, Systems Engineer
J. Mancini, Procurement Engineer
D. Marco, I&C Engineer
D. McBride, System Engineer
S. Mercer, System Engineer
K. Mitchell, System Engineer
L. Padgett, Procurement Engineer
J. Patterson, System Engineer
P. Pauvlinch, Manager, Technical Services Engineering
D. Price, Manager, Mechanical Design Engineering
M. Ressler, Supervisor, Design Analysis Engineering
T. Saibena, Nuclear Engineer
B. Sepelak, Regulatory Compliance
S. Snook, Senior Reactor Operator
H. Trembley, System Engineer
D. Wacker, Regulatory Compliance

LIST OF DOCUMENTS REVIEWED

Calculations:

10080-DEC-0211, 4.16kV Emergency Bus Undervoltage – Degraded Voltage, Revision 1
10080-DEC-0212, 480Vac Emergency Bus Undervoltage – Degraded Voltage, Revision 0
10080-DEC-183, Technical Specification EDG Voltage and Frequency, Revision 0
10080-DMC-0757, PPDWST Inventory Requirements for Extended Power Uprate, Revision 0
10080-E-048, EDG Loading with Station Blackout, Revision 12, Addenda 1-10
10080-E-068, Station Service Voltage and Load Analysis, Revision 4, Addenda 1-8
10080-E-074, Station Service Fault Analysis, Revision 4, Addenda 1-4
10080-E-113, Maximum Control Circuit Lead Lengths for Class-1E Motor Control Centers, Revision 0, Addenda 1-8
10080-E-115, Voltage Available during Worst-Case Sequential Start of EDG, Revision 3
10080-E-202, U2, DC System Management BAT*2-2/BAT*CHG2-2, Revision 1
10080-E-207, U2, Short Circuit Analysis, 125V DC-1E DC System, Revision 1
10080-E-222, 4160Vac and 480Vac Load Management and Voltage Profile Calculations Relating to Emergency Bus 2DF, Revision 0, Addenda 1-12
10080-E-241, Transient Analysis for EDGs, Revision 0, Addendum 1
10080-E-243, EDG Mode Change Due to LOOP during OST 2.36.1, Revision 0
10080-E-271, Transient Stability Analysis for EDGs, Revision 0, Addendum 1
10080-E-308, U2 Electrical Protective Device Settings Calculations for 480Vac Emergency Bus 2P, Revision 0, Addenda 1-6
10080-E-310, U2 Electrical Protective Device Settings Calculations for 4160Vac Emergency Bus 2DF, Revision 1
10080-E-524, U2, Protective Settings Calculations for 125Vdc Systems; Batteries 2-1, 2-2, 2-3, and 2-4, Revision 1
10080-E-525, U2 Electrical Protective Device Settings Calculations for EDGs 2-1 and 2-2, Revision 0, Addendum 1
10080-E-525, U2, Electrical Protective Device Settings for EDG 2-1 and 2-2, Revision 0
10080-N-794, Minimum Safeguards SI System Performance for the Full Potential Power Level and Containment Conversion, Revision 1
10080-N-800, Minimum SW Flow Requirements for U2 EDG Coolers, Revision 0, Addendum 1
10080-N-867, Maximum Allowable Leak Rate for the U2 EDG Air Start System, Revision 0
10080-UR(B)-487, Site Boundary, Control Room and ERF Doses following a LOCA Based on Core Uprate, Revision 1
1OM-53A.1.2-U, Local Operation of SG Atmospheric Steam Dump Valves, Revision 1
211-MT-142, Pressure Drop across the Diesel Engine Intake and Exhaust System, Revision 3
211-MT-145, Analysis to Verify the Adequacy of EDG Fuel Oil System, Revision 5

8700- E-243, EDG Mode Change Due to LOOP during OST 2.36.1, Revision 0
8700.58E.1, (8700-E-211), ERF Diesel Generator Loading Study, Revision 0
8700-DCM-1447, CRDM Shroud Fan Brake Horsepower, Revision 0, Addenda 1-2
8700-DMC-1512, Determination of the Maximum Expected Differential Pressure for PCV-1MS-101A/B/C, TV-1MS-111A/B/C, and HCV-1MS-104, Revision 2
8700-DMC-1533, Determination of the Valve Total Required Thrust Actuation Capability and Margin Assessment for AOVs PCV-1MS-101A/B/C, Revision 5
8700-DMC-3136, River Water Pump Minimum Operating Point, Revision 3
8700-DMC-3534, U1 River Water Model Development and Benchmark, Revision 3
8700-DMC-3629, U1 Diesel Generator Building Heat-up Analysis Using MAAP-DBA, Revision 0
8700-DMC-3665, NPSH to U1 EDG Fuel Oil Transfer Pumps 1EE-P-1A,/B/C/D, Revision 0
8700-DMC-3803, Makeup to Steam Generators from Portable High Pressure Pump, Revision 3
8700-E-048, EDG Loading Analysis at Frequency above 60 Hz, Revision 5
8700-E-068, Station Service Load Flow and Voltage Profile Analysis, Revision 4, Addendum 4
8700-E-074, Station Service Fault Analysis, Revision 2, Addenda 1-10
8700-E-113, MCC Evaluation for Class-1E MCCs, Revision 0, Addendum 1
8700-E-201, DC System Management BAT-1-1/BAT-CHG-1-1, Revision 2
8700-E-202, DC System Management BAT-1-2/BAT-CHG-1-2, Revision 2
8700-E-211-0A1, Addendum 1, ERF Diesel Generator Loading Study, Revision 0
8700-E-211-0A3, Addendum 3, ERF Diesel Generator Loading Study, Revision 0
8700-E-211-0A4, Addendum 4, BV2 SSPS Slave Relay Contact Loading Analysis, Revision 0
8700-E-212, ERF and ERF Substation UPS Loading Calculation, Revision 0
8700-E-221, 4160Vac and 480Vac Load Management and Voltage Profile Calculations Relating to Bus 1AE, Revision 1
8700-E-251, Evaluation of Electrical Penetration Integrity for Steady-State and Short Circuit Conditions, Revision 0, Addenda 1-5
8700-E-308, Unit 1 Protective Relay Settings Calculations for 480Vac Emergency Bus 1N1, Revision 0, Addenda 1-7
8700-E-309, U1 Protective Relay Settings Calculations for 480Vac Emergency Bus 1N, Revision 0, Addenda 1-8
8700-E-341, Evaluation of CAR and CRDM Electrical Penetrations, Revision 0, Addendum 1
8700-E-342, U1 Electrical Protective Device Settings, 4160Vac Emergency Bus 1AE, Revision 0
8700-E-528, Short Circuit Analysis for ERF and Construction Substations, Revision 0
8700-SP-1EE-09, U1 EDG Fuel Transfer Pump Relief Valves RV-EE-101A/B/C/D, Revision 0
8700-SP-1QS-10, U1 RWST Low-Low Level Uncertainty Calculation, Revision 2
CN-SEE-01-67, BV Unit 2 PPDWST Storage Volume for 9.4% Power Uprate, Revision 1
CN-SEE-III-07-31, U1 Atmospheric Relief Valve Capacity, Revision 0
E-65, 4160Vac Short Circuit Calculations of ERF Substation Switchgear, Revision 0
E-69, Cable Sizes and Voltage Drops for ERF Substation 4160Vac Feeders, Revision 0
E-84, ERFS 125Vdc Battery Loads and Duty Cycle, Revision 0
E-85, 125 Vac #RFS BV1 Ground Detector Alarm Setting, Revision 0
E-91, ERFS Load Center Transformer Tap Setting, Revision 1
SWEC 2702.510.015-004, Recirculation Spray System Pump ‘D’ Pump Curve, Revision 0

Completed Surveillance and Modification Acceptance Testing:

1/2CMP-75-BAT-1E, Battery Replacement Procedure (U2 Battery 2-2), performed 10/4/12
1/2OST-58E.1, RG-EG-1 Load Test, performed 10/6/11, 11/3/11, 12/29/11, 1/26/12, 10/27/14
1/2OST-58E.1, RG-EG-1 Monthly Test, performed 6/13/13, 7/10/14, 8/17/14, 9/18/14, 10/2/14
1/2PMP-58E-ERFS-57-1, PNL-ERFS-57 Clean and Test ERFS D/G Start and Load Sequencing Programmable Controllers 484A and 484B, performed 9/18/08
1/2PMP-58E-ERFS-57-1, PNL-ERFS-57 Clean and Test ERFS D/G Start and Load Sequencing Programmable Controllers 484A and 484B, performed 7/16/14
1/2PMP-58E-ERFS-76/76A-1, PNL-ERFS-76/76A Clean and Test Load Shedding Programmable Controller 584, performed 9/30/12, 3/20/14
1/2RCP-11-PC, Ground Fault Relay Calibration, Types ITE/ABB GR-5/200, performed 5/22/12
1/2RCP-16-PC, ADD Loss-of-field Relay Calibration, Type KLF, performed 5/22/12
1/2RCP-1A-PC, Calibration of Auxiliary Relays, performed 5/22/14
1/2RCP-21-PC, ABB Generator Diff Protection Relay Calibration, Type SA-1, performed 5/22/12
1/2RCP-29A-PC, Calibration of ABB TD-S Time Delay Relay (Design 2), performed 5/22/12
1/2RCP-38A-PC, ITE Type 50 and Type 51 (with SCR Outputs) Calibration, performed 5/22/12
1/2RCP-39A-PC, Calibration of ITE/ABB Single Phase Overcurrent Relays ITE Type 50 and ITE Type 51 (with SCR Outputs), performed 5/22/12
1/2RCP-51-PC, Calibration of Phase Sequence and Phase under Voltage Relays, Types Abb-47D and -47H, performed 5/22/12
1/2RCP-63-PC, Calibration of ITE/ABB Single and Three Phase Overcurrent Relays, Type 50D and 50H, performed 5/17/12
1/2RCP-64-PC, Phase Voltage Unbalance Relay Calibration, ABB-60Q, performed 5/17/12
1/2RCP-69A-PC, Calibration of ABB-32 Relays, performed 5/14/12
1/2RCP-84-PC, ABB Relay Type ARS Style No. 717B770A13 Calibration, performed 5/22/12
1/2RCP-86-PC, IPAC Model 172 Automatic Synchronizing Relay Calibration, performed 5/21/12
1MSP-13.01-1, L-QS100A, RWST Level Ch. III Calibration, performed 1/10/13, 6/27/14
1MSP-13.02-1, L-QS100B, RWST Level Ch. IV Calibration, performed 11/30/12, 6/10/14
1MSP-13.03-1, L-QS100C, RWST Level Ch. I Calibration, performed 6/20/14
1MSP-13.04-I, L-QS100D, RWST Level Ch. II Calibration, performed 9/26/11, 5/8/13, 9/23/14
1MSP-13.05-I, L-QS100A, RWST Level Ch. III, performed 7/26/12, 7/26/12, 6/27/13, 12/8/13
1MSP-13.06-I, L-QS100B, RWST Level Channel IV, performed 5/14/13, 11/26/13
1MSP-13.07-I, L-QS100C, RWST Level Channel I, performed 2/28/14, 8/15/14
1MSP-13.08-I, L-QS100D, RWST Level Channel II, performed 2/12/14, 7/31/14
1OST-36.1, Diesel Generator No 1, Monthly Test, performed November 4, 2014
1PMP-58E-ERFS-EG-1-1E, ERFS Diesel Generator Electrical Inspection, performed 12/13/11
1-PMP-E-58-001, ERF Battery Maintenance (BV-UPS1-BAT250V-ERF), performed 6/1/14
1-PMP-E-58-001, ERF Battery Maintenance (BV-UPS2-BAT250V-ERF), performed 11/17/13
1-PMP-E-58-001, Maintenance of ERF/ERFS Batteries (BV-BAT-ERFS-1), performed 5/23/14
1-PMP-E-58-001, Maintenance of ERF/ERFS Batteries (BV-BAT-ERFS-2), performed 11/10/13
1-PMP-E-58-001, Maintenance of ERF/ERFS Batteries (BV-BAT-ERFS-3), performed 3/18/14
1-PMP-E-58-001, Maintenance of ERF/ERFS Batteries (BV-BAT-ERFS-4), performed 12/23/13
1-PMP-E-58-002, Monthly Battery Inspection of ERF/ERFS Batteries (BV-BAT-ERFS-1, BV-BAT-ERFS-2, BV-BAT-ERFS-3, BV-BAT-ERFS-4), performed 10/4/14

1-PMP-E-58-002, Monthly Battery Inspection of ERF/ERFS Batteries (BV-UPS1-BAT250V-ERF, BV-UPS2-BAT-ERF), performed 10/4/14
1RCP-92C-PC, Calibration of ERF DG Speed Sensing Relays, performed 12/1/11 and 9/2/14
2BVT 1.39.15, U2 Battery Charger (BAT*CHG2-2) Load Test, performed 7/6/12 and 11/21/13
2BVT 1.39.2, Station Battery (BAT*2-2) Service Test, performed 10/4/12
2BVT 1.47.11, SI and Charging, Containment Penetration Valve Integrity Test, performed 5/4/14
2BVT-01_36_02, EDG Simultaneous Start Test, performed 5/7/10
2ICP-11-PI938, Low Head 2SIS*P21A Suction PI 2SIS-PI938 Calibration, performed 9/25/09
2MSP-36.00B-E, Load Shedding and Auto Sequencing of "B" Train Emergency Bus Breaker Cubicles, performed 10/12/12
2MSP-36.00B-E, Load Shedding and Auto Sequencing of "B" Train Emergency Bus Breaker Cubicles, performed 5/16/14
2MSP-36_18-E, No. 2 Emergency Diesel Generator Electrical Inspection, performed 10/15/12
2MSP-36_18-E, No. 2 Emergency Diesel Generator Electrical Inspection, performed 5/7/14
2MSP-39.06-E, Battery 2-2 Inspection/Interconnection Resistance Check, performed 10/4/12
2OST-36_02, (Monthly) Diesel Generator (2EGS-EG2-2) Test, performed 9/26/12
2OST-36_02, 2EGS-EG2-2 Emergency Diesel Generator Monthly Test, performed 10/1/14
2OST-36_02, 2EGS-EG2-2 Emergency Diesel Generator Monthly Test, performed 10/29/14
2OST-36_02, Perform Outage Portions Surveillance Testing, performed 10/14/12
2OST-36_02, Perform Outage Portions Surveillance Testing, performed 4/22/14
2OST-36_04, Emergency Diesel Generator (2EGS-EG2-2) Automatic Test, performed 4/24/14
2OST-36_04, Emergency Diesel Generator (2EGS-EG2-2) Automatic Test, performed 9/25/12
2OST-36_05, Emergency Switchgear Operation Test Manual XFR from Unit to SSSTs, performed 4/18/14
2OST-36_05A, Emergency Switchgear Operation Test (Auto XFR from Unit to SSSTs), performed 9/23/12
2PMP-E-39-013, U2 ITE Low Voltage DC Circuit Breaker Inspection & Test Model: K600, K800, K1600, performed 10/3/12
2RCP-79-PC, Calibration of Synchronism Check Relays, performed 5/21/12
2RCP-82-PC, Calibration of Westinghouse/ABB Compensator Distance Relays, Type 5KD-T, performed 5/22/12
3355/1.5x2.5/7 Stage, One Variable RPM Pump Curve Performance Test, performed 8/19/14
BV-1OST-30-02, Reactor River Water Pump Test Quarterly, performed 8/15/14
BV-1OST-30-12A, Train 'A' Reactor Plant River Water Full Flow Test, performed 9/20/13
IST Test Results for 1WR-P-1A, for the period 7/24/09 through 8/15/14
IST Test Results for PCV-1MS-101C, performed 10/30/13

Corrective Actions Report

2011-00126	2011-96222	2012-09496	2014-10694	2014-17104*
2011-00128	2011-96232	2012-10036	2014-11019	2014-17348*
2011-00129	2011-96270	2012-12743	2014-11662	2014-17433*
2011-01337	2011-96354	2012-14778	2014-12257	2014-17435*
2011-05492	2011-96373	2012-14841	2014-14566	2014-17507*
2011-05512	2011-96396	2012-15337	2014-14989	2014-17755*
2011-05647	2011-96435	2012-19121	2014-16674*	2014-17771*
2011-05791	2011-96484	2013-01482	2014-16677*	2014-17874*
2011-88583	2011-96493	2013-13553	2014-16679*	2014-17875*
2011-90570	2011-96495	2013-18719	2014-16680*	2014-17877*
2011-93011	2011-97868	2013-18792	2014-16706*	2014-17930*
2011-93853	2012-02616	2013-19023	2014-16711*	600365828
2011-94917	2012-03347	2013-19224	2014-16717*	600916281
2011-95549	2012-05974	2013-19344	2014-16720*	600916282
2011-95904	2012-07990	2014-05367	2014-16729*	600931720*
2011-95909	2012-08020	2014-05688	2014-16959*	600931722*
2011-96157	2012-08761	2014-07159	2014-17102*	600932620*

*****NRC identified during this inspection.

Drawings:

10080-E-5EB, 4160Vac Emergency Diesel Generator 2-2 ACB, Revision 15
10080-E-5EE, 4160Vac Steam Generator Auxiliary Pump 2FWE*P23B, Revision 26
10080-E-6BC, 480Vac Emergency Substation 2-9 Undervoltage, Revision 16
10080-E-6NS, 480Vac MCC Circuits, Diesel Generator Auxiliaries, Revision 10
10080-LSK-5-8E, U2 Steam Generator Feed Pumps & Valves, Revision 12
10080-RC-30D, Sht. 4, BVPS2 Miscellaneous Yard Structure, Revision 5
10080-RC-30K, Sht. 10, BVPS2 Miscellaneous Structures, Revision 4
10080-RE-1AR, Sht. 1, 125Vdc One Line Diagram, U2, Revision 22
10080-RE-1AS, Sht. 2, 125Vdc One Line Diagram, U2, Revision 22
10080-RE-1AT, Sht. 3, 125Vdc One Line Diagram, U2, Revision 17
10080-RE-1AU, Sht. 4, 125Vdc One Line Diagram, U2, Revision 5
10080-RE-1AW, Sht. 1, Vital Bus System One Line Diagram, U2, Revision 21
10080-RE-1B, Sht. 2, Main One Line Diagram, Revision 17
10080-RE-1C, Equipment One Line Diagram, Revision 14
10080-RE-1DJ, Sht. 3A, 4160Vac One Line Diagram Revision 6
10080-RE-1J, Sht. 3, 480Vac One Line Diagram Revision 18
10080-RE-1Y, Sht. 14, 480Vac One Line Diagram Revision 25

10080-RM-0407-001A, Sht. 1, Chemical and Volume Control, Revision 21
10080-RM-0407-001B, Sht. 2, Chemical and Volume Control, Revision 12
10080-RM-0411-001, Low/High Head Safety Injection, Revision 19
10080-RM-0413-002, Quench Spray System, Revision 20
10080-RM-0424-003, Auxiliary Feed Water, Revision 17
10080-RM-0430-001, Service Water Supply and Distribution, Revision 33
10080-RM-0430-003, Service Water Primary Cooling, Revision 25
10080-RM-0436-001, Diesel Fuel Oil, Revision 7
10080-RM-0436-003, Diesel Starting Air, Revision 19
10080-RM-0436-003, Diesel Starting Air, Revision 19
10080-RM-0436-4A, Diesel Cooling Water, Revision 12
10080-RM-0436-5A, Diesel Generator Lubricating Oil, Revision 7
1081H94, Sht. 6, U1 RWST and Permissives, Revision 1
1081H94, Sht. 9, U1 Chlorine Detection & Loss of Flow, Revision 1
122241-RA-20A, U2 General Roof Plan - All Buildings, Revision 8
8700-02.019-0012, Storage Tank EE-TK-2A and EE-TK-2B, Revision F
8700-LSK-26-2A, Low Head Safety Injection Pumps and Valves, Revision 13
8700-LSK-26-2B, Low Head Safety Injection Pumps and Valves, Revision 10
8700-LSK-26-2C, Low Head Safety Injection Pumps and Valves, Revision 11
8700-LSK-26-2D, Low Head Safety Injection Pumps and Valves, Revision 10
8700-LSK-26-2E, Low Head Safety Injection Pumps and Valves, Revision 10
8700-LSK-26-2F, Low Head Safety Injection Pumps and Valves, Revision 8
8700-RE-1AE, Sht. 5, 125Vdc One Line Diagram, U1, Revision 18
8700-RE-1B, Sht. 2, Main One Line Diagram, Revision 25
8700-RE-1B, Sht. 2, Main One Line Diagram, U1, Revision 25
8700-RE-1C, Sht. 3, Equipment One Line Diagram, Revision 29
8700-RE-1F, 4160Vac One Line Diagram, Revision 19
8700-RE-1F, Sht. 3, 4160Vac One Line Diagram, U1, Revision 19
8700-RE-1GA, ERFS Transformers 3A and 3B, Main One Line Diagram, U1, Revision 9
8700-RE-1GB, 4160Vac One Line Diagram ERF Substation, U1, Revision 8
8700-RE-1GC, 480Vac One Line Diagram ERF Substation, U1, Revision 9
8700-RE-1GF, Sht. 1, 125Vdc ERF Substation One Line Diagram, U1, Revision 7
8700-RE-1GG, 120Vac ERF Substation One Line Diagram, U1, Revision 5
8700-RE-1H, Sht. 2, 480Vac One Line Diagram, U1, Revision 23
8700-RE-1K, Sht. 4, 480Vac One Line Diagram, Revision 28
8700-RE-1S, Sht. 11, 480Vac One Line Diagram, Revision 38
8700-RE-1T, Sht. 12, 480Vac One Line Diagram, Revision 50
8700-RE-1V, 125Vdc One Line Diagram, U1, Revision 32
8700-RE-1Z, Vital Bus and DC One Line Diagram, U1, Revision 31
8700-RE-21CK, Sht. 5, 4kV Emergency Bus 1AE Supplies, ACBs 1A10 and 1E7, Revision 10
8700-RE-21JD, Sht. 7, Main Steam, U1, Revision 8
8700-RE-21KK, Sht. 24, Safety Injection, Rev2

8700-RE-21KW, Sht. 1, River Water, Revision 8
8700-RE-21KW, Sht. 2, River Water, Revision 6
8700-RE-21YM, Sht. 1, ERFS Diesel Generator No.1, Revision 8
8700-RE-21YM, Sht. 4, ERFS Diesel Generator No.1, Revision 3
8700-RE-21YN, Sht. 2, ERFS Diesel Generator No.1, Revision 8
8700-RE-21YP, Sht. 3, ERFS Diesel Generator No.1, Revision 6
8700-RE-21YR, Sht. 5, ERFS Diesel Generator No.1, Revision 8
8700-RE-21YS, Sht. 6, ERFS Diesel Generator No.1, Revision 7
8700-RE-22ET, QS Instrument System RWST Loop Diagram LT-QS-100A/B, U1, Revision 10
8700-RE-22EV, QS Instrument System RWST Loop Diagram LT-QS-100C/D, U1, Revision 14
8700-RK-6K, U1 RWST (1QS-TK-1) Instrument Tubing for LT-1QS-100A West Yard Outside Reactor CTMT, EL. 735'-0", Revision 1
8700-RK-6L, U1 RWST (1QS-TK-1) Instrument Tubing for LT-1QS-100B West Yard Outside Reactor CTMT, EL. 735'-0", Revision 1
8700-RK-6M, U1 RWST (1QS-TK-1) Instrument Tubing for LT-1QS-100C West Yard Outside Reactor CTMT, EL. 735'-0", Revision 1
8700-RK-6N, U1 RWST (1QS-TK-1) Instrument Tubing for LT-1QS-100D West Yard Outside Reactor CTMT, EL. 735'-0", Revision 1
8700-RM-0413-001, Containment Depressurization System, Revision 25
8700-RM-0413-002, Containment Depressurization System, Revision 13
8700-RM-0413-00N, Notes and Reference Data, U1, Revision 7
8700-RM-0421-001, Main Steam, Revision 24
8700-RM-0430-001, River Water System, Revision 33
8700-RM-0430-002, River Water System, Revision 22
8700-RM-0430-003, River Water System, Revision 28
8700-RM-0430-004, River Water System, Revision 18
8700-RM-0430-005, River Water System, Revision 23
8700-RM-0436-002, EDG Fuel Oil System, Revision 11
8700-RP-6C, Sht. 2, U1 Yard Piping West Reactor Containment (RWST), Revision 12
8700-RP-6C, Sht. 3, U1 Yard Piping West Reactor Containment (RWST), Revision 12
IDF-872W, 3 Phase Thyrister Controlled Constant Potential Battery Charger, Revision 1
U1 Fuel Oil Day Tank [1EE-TK-2A/2B] Curve, Revision 2
U2 Primary Plant Demineralized Water Storage Tank [2FWE-TK210] Curve, Revision 3

Engineering Evaluations/Modifications:

ECP 11-0691, Install DP Instrumentation Across 1EE-S-1A/B and a Pressure Gauge, Revision
ECP 12-0589, Replacement of U1 EDG Fuel Oil Transfer Pump Motors, Revision 0
ECP 12-0714, Replace EDG Strainer Screen 1EE-S-1A/1B, Revision 0
EM 102116, NRC Information Notice 91-56 Evaluation, Revision 0
EM 200955, Allowable Leakage to the RWST during a DBA, Revision 0

OE 2013-0483-4, Engineering Review of NRC IN 2013-05, Battery Expected Life and Potential Impact on Surveillance Requirements, 8/13/13
TER 10485, RWST Level Transmitter Replacement (LT-QS-100A, B, C, D), 8/26/97
TER 12000, U1 RPS/ESFAS Protection Channel Sensor Inaccuracy Verification, Revision 0
TER 12111, Evaluation of U2 EDG Operating Frequency, Revision 1
TER 12178, U1 RPS/ESFAS Transmitter Calibration Review Criteria, Revision 0

Licensing and Design Basis Documentation:

1/2DBD-58E, Design Basis Document for ERF Substation Diesel Generator, Revision 3
1DBD-13, Design Basis Document for Containment Depressurization System, Revision 17
1DBD-21, Design Basis Document for Main Steam System, Revision 11
1DBD-36A, Design Basis Document for Emergency Diesel Generator System, Revision 12
1DBD-36B, Design Basis Document for 4.16 kV Power Distribution System, Revision 8
1DBD-37, Design Basis Document for 480Vac Distribution System, Revision 6
2DBD-11, Design Basis Document for Safety Injection System, Revision 13
2DBD-24B, Design Basis Document for Auxiliary Feedwater System, Revision 13
2DBD-36A, Design Basis Document for Emergency Diesel Generator System, Revision 9
2DBD-36B, Design Basis Document for 4.16 kV Power Distribution System, Revision 8
2DBD-37, Design Basis Document for 480Vac Distribution System, Revision 6
2DBD-39, Design Basis Document for 125Vdc Power System, Revision 9
U1 UFSAR, Revision 28
U2 UFSAR, Revision 20

Miscellaneous Documents:

08700-DES-0509, Procurement Specification for RWST Level Transmitters, Revision 0
BV2-TA-18, VRR Voltage Regulating Relay (90-208) Setting Sheet, Revision 2
BV2-TA-19, VRR Voltage Regulating Relay (90-1208) Setting Sheet, Revision 2
BV2-TB-18, VRR Voltage Regulating Relay (90-209) Setting Sheet, Revision 2
BV2-TB-19, VRR Voltage Regulating Relay (90-1209) Setting Sheet, Revision 2
BVS-384, Specification for Containment Electrical Penetrations for U1, Revision 3
FO-SA-2014-0043, NRC CDBI Assessment Readiness, 11/4/14
L-12-361, FENOC Letter to NRC, Response to NRC Bulletin 2012-01, 10/25/12
L-14-040, FENOC Letter to NRC, Response to RAI for NRC Bulletin 2012-01, 2/2/14
Maintenance Data System, BV-LT-1QS-100A, 5/18/99-6/27/14 Instrument Drift Data, 11/26/14
Maintenance Data System, BV-LT-1QS-100B, 9/18/98-6/10/14 Instrument Drift Data, 11/26/14
Maintenance Data System, BV-LT-1QS-100C, 2/4/99-6/20/14 Instrument Drift Data, 11/26/14
Maintenance Data System, BV-LT-1QS-100D, 4/1/99-9/23/14 Instrument Drift Data, 11/26/14
Maintenance Rule System Basis Document, 125Vdc System, Revision 8

Maintenance Rule System Basis Document, Containment Depressurization System, Revision 7
Maintenance Rule System Basis Document, ERF Substation (1RG-EG-1) System, Revision 6
Maintenance Rule System Basis Document, Reactor Control/Protection System, Revision 13
NORM-ER-3106, FENOC Battery Systems, Revision 4
NUREG/CR-3234, Potential for Containment Leak Paths through Electrical Penetration Assemblies under Severe Accident Conditions, July 1983
Preventive Maintenance Deferral Form BV-DF-13-0266, Revision 0
Repetitive Maintenance Revision Request BV-REV-06-1394, Revision 0
Repetitive Maintenance Revision Request BV-REV-06-1395, Revision 0
Repetitive Maintenance Revision Request BV-REV-07-1839, Revision 0
Repetitive Maintenance Revision Request BV-REV-07-1840, Revision 0
Repetitive Maintenance Revision Request BV-REV-07-1845, Revision 0
Repetitive Maintenance Revision Request BV-REV-07-1846, Revision 0
Repetitive Maintenance Revision Request BV-REV-12-0792, Revision 0
Repetitive Maintenance Revision Request BV-REV-12-0914, Revision 0
Repetitive Maintenance Revision Request BV-REV-12-1403, Revision 0
U1 IST Program for Pumps and Valves, 4th Ten-Year In-Service Test Interval, Revision 13

Procedures:

1/2-ADM-0702, Station Blackout Program, Revision 1
1/2-ADM-1900, Fire Protection Program, Revision 35
1/2-PMP-75-TRF-2E, 4160/480 V Step-Down Transformer Inspection, Issue 4, Revision 17
1/2-PMP-E-36-015, ITE Medium Voltage Circuit Breaker Inspection and Test Model 5HK-250/350, Issue 4, Revision 20
1/2-PMP-E-75-001, 4160 VAC Motor Inspection and Lubrication, Issue 4, Revision 12
1/2-RCP-11-PC, Ground Fault Relay Calibration, Type ITE/ABB GR-5/200, Issue 4, Revision 7
1/2-RCP-30A-PC, Calibration of Timing Relays, Issue 4, Revision 18
1/2-RCP-30-PC, Calibration of Timing Relays, Issue 4, Revision 18
1/2-RCP-31-PC, Calibration of Auxiliary Relays Type WL, HEA, and LOR, Issue 4, Revision 10
1/2-RCP-38A-PC, Calibration of ITE/ABB Single Phase Overcurrent Relays, ITE Type 50 and ITE type 51 (with SCR Outputs), Issue 4, Revision 8
1/2-RCP-51-PC, Calibration of Phase Sequence and Phase Undervoltage Relays, Types ABB-47D/H, Issue 4, Revision 4
1OM-53A.1.2-K, Dedicated AFW Pump [1FW-P-4] Startup, Revision 3
1OM-56C.4.F-10, Dedicated AFW Pump [1FW-P-4] Startup, Revision 6
1BVT 1.60.5, IST Safety and Relief Valve Tracking, Revision 17
1CAL-21-P101C, Atmospheric Steam Dump Loop P-MS101C Calibration, Revision 7
1OM-36.4.AFH, Local - Fuel Transfer, Revision 3
1OM-53A.1.2-O-AE, Starting River Water Pump on Bus 1AE during SBO, Revision 0
1OM-53A.1.2-U, Local Operation of SG Atmospheric Steam Dump Valves, Revision 1
1OM-53A.1.4-D, Dumping Steam Method to Depressurize RCS and Ruptured SG, Revision 1
1OM-53A.1.A-1.14U1 Actions to Establish Station Blackout Cross-tie to BV2, Revision 4

1OST-1.10J, Cold Shutdown Valve Exercise Test (Part J) Main Steam Valves, Revision 3
1OST-36.2, Diesel Generator No. 2 Monthly Test, Revision 69
2OM-24.1.D, Steam Generator Feedwater System, Revision 6
2OM-39.4.A, Start-up of Batteries *2-1/2/3/4/5/6 and their Specific Chargers, Revision 13
2OM-39.4.AAE, 125Vdc Bus Trouble, Revision 7
2OM-39.4.M, Start-up and Shutdown of Spare Battery Charger (Train B), Revision 2
2OM-53A.1.A-1.10, Feeding Steam Generators from Condensate System, Revision 1
2OM-53A.1.A-1.18, ERFS Diesel Generator Start-up, Revision 2
2OM-53C.4.2.39.1B, Loss of 125Vdc Bus 2-2, Revision 4
2BVT 1.47.11, SI and Charging, Containment Penetration Valve Integrity Test, Revision 15
2BVT-1.36.2, EDG Simultaneous Start Test, Issue 1, Revision 4
2ICP-37-VM2P, 480V Emergency Bus 2P Voltmeter Calibration, Issue 4, Rev0
2MSP-36.00B-E, Load Shedding and Auto Sequencing of 'B' Train Emergency Bus Breaker Cubicles, Issue 4, Revision 15
2MSP-36.18-E, No. 2 Emergency Diesel Generator Electrical Inspection, Issue 4, Revision 17
2-MSP-E-36-002, Testing 2EGS-E2-2 Control Room Kilowatt Meter, Issue 4, Revision 2
2OM-24.4.AAI, Primary Plant Demineralized Water Storage Tank Level Low, Revision 12
2OM-53A.1.2-N, BV2 Actions to Establish SBO Cross-tie, Revision 3
2OM-53A.1.A-1.6, Generator Auto Loading and Auxiliary Equipment, Revision 3
2OST-11.14B, HHSI Full Flow Test, Revision 20
2OST-11.14B, HHSI Full Flow Test, Revision 33
2OST-36.02, Emergency Diesel Generator (2EGS-EG2-2) Monthly Test, Revision 68
2OST-36.05A, Emergency Switchgear Operation (Auto XFR from Unit to SSSTs), Revision 15
2OST-36.2, Operating Surveillance Test, Revision 65
2OST-36_04, Emergency Diesel Generator (2EGS-EG2-2) Automatic Test, Revision 38
2PMP-37EJS-BKR-2E, 480V Station SW Supply Breaker Inspection, Issue 4, Revision 6
NOBP-CC-7004, Shelf Life Evaluation, Revision 1
NOBP-CC-7006, Storage Maintenance Requirements, Revision 7
NOBP-ER-3900, Equipment Reliability Common Definitions and Structure, Revision 3
NOBP-ER-3903, Component Template Implementation ER Workbench Module 3, Revision 6
NOP-WM-3001, Work Management PM Process, Revision 12
NORM-ER-3106, Battery Systems, Revision 4
NORM-ER-3311, I&C Loop Components Template, Revision 9
NORM-ER-3603, Check Valve Component Template, Revision 7
NORM-ER-3701, Storage Maintenance Requirements, Revision 0
PIPS M03.3, Pipe Support Installation, Revision 4

System/Program Health Reports:
Plant Health Report, U1, 2nd Quarter 2013
System Health Report, U1 125Vdc Distribution System, 2nd Quarter 2013
System Health Report, U1 Containment Depressurization System, 1st Quarter 2014
System Health Report, U1 Emergency Diesel Generator System, 1st Quarter 2014
System Health Report, U1 Emergency Diesel Generator System, 2nd Quarter 2013

System Health Report, U1 ERF Substation System, 1st Quarter 2014
System Health Report, U1 Main Steam System, 1st Quarter 2014
System Health Report, U1 River Water System, 1st Quarter 2014
System Health Report, U1, 4kV Station Service System, 1st Quarter 2014
System Health Report, U2 125Vdc Distribution System, 1st Quarter 2014
System Health Report, U2 125Vdc Distribution System, 2nd Quarter 2013
System Health Report, U2 Auxiliary Feedwater System, 1st Quarter 2014
System Health Report, U2 Emergency Diesel Generator System, 1st Quarter 2014
System Health Report, U2 Emergency Diesel Generator System, 2nd Quarter 2013
System Health Report, U2, 480V Station Service System, 1st Quarter 2014
System Health Report, U2, 4kV Station Service System, 1st Quarter 2014

Vendor/Technical Manuals:

07.050-0010, Main Control Board Instruments (Rosemount), 11/2/13
2501.240-000-004, Ametek Solid State Controls, Instruction Manual 100 Amp Battery Charger, Revision C
2501.260-358-001, Gould – Brown Boveri, 125Vdc Battery Breaker Switchgear Instruction Manual, Revision Q
01.024-0196, Instruction/Technical Manual for Vital bus No. 3 UPS, Revision P
01.024-0258, Instruction / Technical Manual for Vital bus No. 4 - 15KVA UPS, Revision J
01.024-0270, Instruction/Technical Manual for Vital Bus No. 1&2 KVA UPS, Revision C
07.033-0041, AMETEK Local Pressure Indicators Instruction, Revision F
2501.240-000-002, Instruction Manual for 20 KVA UPS, Revision G
2501.240-000-004, Instruction Manual 100 Amp Battery Charger, Revision C
2507.310-648-004, Model 1153 Series B Alphaline Pressure Transmitter for Nuclear Service Product Manual, Revision 2
8700-01.024-0267, Instruction/Technical Manual Redundant 100 Amp Battery Chargers, Revision A
8700-001.015-0092, 4kV Normal & Emergency Switchgear Instruction Book, Revision AN
8700-09.016-0464, BBC Brown Boveri 5kV Switchgear-Bus Duct and Indoor Ventilated Transformer Technical Manual, Revision A
02-042-0048, Technical Manual for Installation, Operation, and Maintenance of 28 GMC/1 Stage River Water Pumps, 2/18/04
06.049-0013, Installation, Operation, and Maintenance D-100 Valves, Revision M
06.049-0027, Atmospheric Steam Dump Valves Installation and Instruction Manual, Revision 0
10.001-0658, Fire Pump Technical Manual, 4/3/14
91-101312-20, Copes-Vulcan Specification Sheet for MS Atmospheric Dump Valves, Revision 3

Work Orders:

200261445	200467667	200521966
200282505	200467982	200524275
200295596	200467993	200524278
200335736	200468001	200524279
200339863	200468009	200524280
200373820	200468211	200524281
200373847	200468212	200525125
200377859	200468213	200526719
200383019	200468216	200526722
200383049	200468589	200526821
200383067	200468590	200526856
200383114	200468608	200527265
200398081	200469816	200527266
200404145	200470732	200527418
200407036	200485631	200528371
200407762	200488907	200528752
200416187	200490679	200529086
200420681	200491288	200529654
200420682	200494079	200530288
200428296	200498217	200532630
200431103	200500242	200533584
200432301	200501215	200538561
200435096	200503078	200543686
200438737	200506187	200543734
200440387	200506337	200544106
200440902	200506669	200544477
200441396	200506670	200577850
200444328	200506820	200598049
200446069	200506821	200602551
200453150	200507206	200610793
200453154	200507459	
200453155	200509937	
200453156	200511541	
200453157	200511555	
200453158	200517979	
200454900	200519267	
200463827	200519641	
200465469	200520381	
200465536	200520382	
200466537	200520383	
200466929	200520384	
200467204	200521588	
200467299	200521959	

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened/Closed

None for Enclosure 1 of this report.

LIST OF ACRONYMS

AC	Alternating Current
ADAMS	Agencywide Documents Access and Document Management System
AFW	Auxiliary Feedwater
ASDV	Atmospheric Steam Dump Valve
BVPS	Beaver Valley Power Station
CFR	Code of Federal Regulations
CR	Condition Report
DBD	Design Basis Document
DC	Direct Current
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generator
ERF	Emergency Response Facility
FENOC	First Energy Nuclear Operating Company
IMC	[NRC] Inspection Manual Chapter
IN	[NRC] Information Notice
IP	Inspection Procedure
IST	In-Service Testing
kV	Kilovolts
LERF	Large Early Release Frequency
MOV	Motor-Operated Valve
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OE	Operating Experience
PPDWST	Primary Plant Demineralized Water Storage Tank
RW	River Water
RWST	Refueling Water Storage Tank
UFSAR	Updated Final Safety Analysis Report
Vac	Volts, Alternating Current
Vdc	Volts, Direct Current