



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

September 20, 2018

Mr. Richard Bologna
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, UNIT NOS. 1 AND 2 – TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000334/2018011 AND 05000412/2018011

Dear Mr. Bologna:

On August 10, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Beaver Valley Power Station, Units 1 and 2. On August 10, 2018, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of the NCV, 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, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspector at Beaver Valley Power Station.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA Raymond McKinley for/

Glenn T. Dentel, Chief
Engineering Branch 2
Division of Reactor Safety

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

Enclosure:
Inspection Report 05000334/2018011 and
05000412/2018011

cc w/encl: Distribution via ListServ

R. Bologna

SUBJECT: BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 – TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000334/2018011 AND 05000412/2018011 DATED SEPTEMBER 20, 2018

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Numbers: 50-334 and 50-412

License Numbers: DPR-66 and NPF-73

Report Numbers: 05000334/2018011 and 05000412/2018011

Enterprise Identifier: I-2018-011-0038

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Beaver Valley Power Station, Units 1 and 2

Location: Shippingport, PA 15077

Inspection Dates: July 23, 2018 to August 10, 2018

Inspectors: D. Kern, Senior Reactor Inspector (Team Lead)
C. Bickett, Senior Reactor Inspector
S. Elkhiamy, Reactor Inspector
C. Hobbs, Reactor Inspector
D. Szwarc, Senior Reactor Inspector

Approved By: G. Dentel, Chief
Engineering Branch 2
Division of Reactor Safety

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring FirstEnergy Nuclear Operating Company's (FENOC's) performance at Beaver Valley Power Station Units 1 and 2 by conducting the triennial fire protection team inspection in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. NRC and self-revealed findings, violations, and additional items are summarized in the table below.

List of Findings and Violations

Duties of the Shift Technical Advisor for Control Room Evacuation during a Fire Event.			
Cornerstone	Significance	Cross-Cutting Aspect	Inspection Results Section
Mitigating Systems	Green NCV 05000334/2018011-01 Closed	None	71111.05XT
The inspectors identified a Green non-cited violation (NCV) of Technical Specification (TS) 5.4.1(a), Procedures, related to the duties of the Shift Technical Advisor (STA) in response to a serious fire requiring control room evacuation. Specifically, procedure 1OM-56C.4.E, Shift Technical Advisor's Procedure, Revision 23, directs the STA to perform substantial plant equipment operations outside of the control room (i.e., opening breakers, operating valves, electrical switching, etc.). These duties preclude the STA from maintaining sufficient independence to provide advisory technical support to the Unit 1 and 2 Operating Shift Crews as required by NOP-OP-1002 Conduct of Operations, Revision 12, and Unit 1 TS 5.2.2.f.			

INSPECTION SCOPES

This inspection was conducted using the appropriate portions of the inspection procedure (IP) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards."

REACTOR SAFETY

71111.05XT - Fire Protection - NFPA 805 (Triennial)

The inspectors evaluated the following from July 23, 2018 to August 10, 2018:

Fire Protection Inspection Requirements (3 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas and/or fire zones:

- (1) Fire Area 1-CR-4, Process Instrument Room;
- (2) Fire Area 1-CV-2, East Cable Vault;
- (3) Fire Area 2-CB-1, Control Building (instrument & relay room, cable spread room & tunnel);

In performing this review, the inspectors performed an analysis of the following electrical circuits:

- (1) PCV-1RC-455C, Unit 1 Pressurizer Power Operated Relief Valve 455C
- (2) MOV-SI-867B, Unit 1 Boron Injection Tank Inlet Isolation Valve
- (3) TI-RC-420, Unit 1 RCS Loop B Wide Range Cold Leg Temperature Instrumentation
- (4) 4KVS-1AE-1E10, Unit 1 River Water Supply Pump 1A Breaker
- (5) 2RCS-PT-444, Unit 2 Pressurizer Pressure Control Instrumentation
- (6) 2SVS-PCV-101B, Unit 2 Atmospheric Steam Dump Valve for Steam Generator B

B.5.b Inspection Activities (2 Samples)

The inspectors evaluated feasibility of the following B.5.b Mitigating Strategies:

- (1) 1/2OM-53C.4A.100.6, Extreme Damage Mitigation Guidelines, Attachments 1.3 and 2.3, Manual Operation of Turbine Driven Auxiliary Feedwater Pump
- (2) 1/2OM-53C.4A.100.6, Extreme Damage Mitigation Guidelines, Attachments 1.6 and 2.6, Containment Flooding with Portable Pump

INSPECTION RESULTS

Duties of the Shift Technical Advisor for Control Room Evacuation during a Fire Event.			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000334/2018011-01 Closed	None	71111.05XT
<p>The inspectors identified a Green non-cited violation (NCV) of Technical Specification (TS) 5.4.1(a), Procedures, related to the duties of the Shift Technical Advisor (STA) in response to a serious fire requiring control room evacuation. Specifically, procedure 1OM-56C.4.E, Shift Technical Advisor's Procedure, Revision 23, directs the STA to perform substantial plant equipment operations outside of the control room (i.e., opening breakers, operating valves, electrical switching, etc.). These duties preclude the STA from maintaining sufficient independence to provide advisory technical support to the Unit 1 and 2 Operating Shift Crews as required by NOP-OP-1002 Conduct of Operations, Revision 12, and Unit 1 TS 5.2.2.f.</p>			
<p><u>Description:</u> The inspectors reviewed the licensee's safe shutdown (SSD) strategy for alternative shutdown and noted procedure 1OM-56C.4.E included time critical operator actions outside of the main control room (MCR) that were specified to be performed by the STA. The procedure required the STA to de-energize main control center (MCC) loads, perform electrical switching activities, lockout a fire suppression system, operate numerous valves to restore and maintain charging flow, and connect and calibrate source range nuclear instrumentation in accordance with 1OM-56C.4.F-1, BIP Activation, Revision 22. The Backup Indicating Panel (BIP) is the Unit 1 alternate shutdown station for monitoring plant parameters and is required to be installed and connected within 80 minutes (License Action 11.24). Procedure 1OM-56C.4.E also directed the STA to perform several actions prior to exiting the MCR. The inspectors determined the STA actions in the MCR take only a few minutes to perform and were reasonably within the STA's role.</p> <p>The requirement to include the STA position in the staff organization was imposed upon licensees by the NRC in September 1979 as a result of a lessons learned from the Three Mile Island Unit 2 accident. The NRC communicated to licensees about the required role of the STA, including NRC Generic Letter 79-056, Discussion of Lessons Learned Short Term Requirements, dated October 30, 1979 (ADAMS Accession No. ML031320403), in which the NRC stated "the duties of the STA should not include the manipulation of controls or supervision of operators." Further discussion about the need for the STA to maintain an independent role was communicated in NRC Information Notice (IN) 93-81, Implementation of Engineering Expertise On-Shift, dated October 12, 1993 (ML031070314), in which the NRC described observations that some licensees were assigning STAs to concurrent roles such as fire brigade leader. The IN, reiterated statements from the September 25, 1985, Notice in the Federal Register promulgating the NRC's "Policy Statement on Engineering Expertise on Shift" (50 FR 43621), in which the NRC explained the STA's function is "to provide engineering and accident assessment advice to the Shift Supervisor in the event of abnormal or accident conditions." The Policy Statement clarifies that accident assessment means "immediate actions needed to be taken while an event is in progress." NRC IN 93-81 further described the NRC's position that assigning STAs to concurrent responsibilities can potentially distract from or interfere with their required role.</p>			

Procedure NOP-OP-1002, established requirements to ensure plant operations activities are conducted in a professional manner that contributes to safe and reliable plant operation. This procedure required the STA to maintain a sufficient level of independence commensurate with plant conditions to act as an advisor to the Shift Manager/Unit Supervisor during both normal plant operations and abnormal and emergency conditions. Additionally, Unit 1 and Unit 2 TS 5.2.2.f required "An individual shall provide advisory technical support to the unit operations shift crew in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit. This individual shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift." The STA is the operations crew member assigned the duties required by TS 5.2.2.f.

Based on operator interviews and walkdowns, the inspectors determined the 10M-56C.4.E time critical equipment operations outside of the MCR would take the STA about 1 hour to perform. The inspectors determined that assigning the STA to perform field equipment operator duties would distract the STA from their independent advisory role to the operating shift crews for both units, particularly in an event where there was a loss of offsite power coincident with a fire. This type of event would significantly challenge the STA to perform both plant monitoring activities and time critical equipment operator actions necessary to restore Unit 1 nuclear instrumentation indication at the same time. The inspectors concluded that performing this equipment operations outside the MCR for this substantial time period, precluded the STA from maintaining sufficient independence to provide advisory technical support to Unit 1 and 2 Operating Shift Crews as required by NORM-OP-1002 and TS 5.2.2.f.

Corrective Actions: FENOC entered this issue into their corrective action program as Issue Report (IR) 2018-07052 and implemented additional night order compensatory measures for assigned STA duties. These actions included training select plant personnel to perform the safe shutdown duties currently assigned to the STAs, which would allow the STA to remain available to perform independent advisory technical support duties during a control room evacuation due to a fire event.

Corrective Action Reference: IR 2018-07052

Performance Assessment:

Performance Deficiency: FENOC did not properly establish, implement, and maintain procedures (related to Regulatory Guide (RG) 1.33) for a Fire in the MCR or Forced Evacuation of the MCR.

Screening: The finding was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, not maintaining the STA available to provide advisory technical support to the Unit 1 and 2 operating shifts adversely impacted reliability of mitigating systems.

Significance: The inspectors assessed the significance of the finding using IMC 0609.04, Initial Characterization of Findings, and IMC 0609, Appendix A, Exhibit 2, Mitigating Systems Screening Questions. The inspectors determined that this finding did not represent an actual loss of function of at least a single train of a mitigating system. Therefore, the inspectors determined the finding to be of very low safety significance.

Cross-Cutting Aspect: No cross-cutting aspect was assigned to this finding because the inspectors determined the decision to use the STA to perform safe shutdown actions occurred in the 1983 revision to the procedure and did not reflect current licensee performance.

Enforcement:

Violation: Beaver Valley Unit 1 TS 5.4.1(a), Procedures, requires that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of NRC RG 1.33, Revision 2. NRC RG 1.33, Appendix A recommends procedures for Fire in the MCR or Forced Evacuation of the MCR (Paragraph 6.p) and Authorities and Responsibilities for Safe Operation and Shutdown (Paragraph 1.b). Procedure 1OM-56C.4.E, directs STA actions in response to a MCR fire or forced evacuation of the MCR. Procedure NOP-OP-1002, specifies responsibilities for operations personnel for safe operation and shutdown and requires the STA to maintain a sufficient level of independence commensurate with plant conditions to act as an advisor to the Shift Manager/Unit Supervisor during both normal plant operations and abnormal and emergency conditions. TS 5.2.2.f, requires an individual (the STA) to provide advisory technical support to the unit operations shift crew with regard to safe operation of the unit.

Contrary to the above, as of August 8, 2018, FENOC did not adequately establish, implement, and maintain procedures for a Unit 1 fire in the MCR or forced evacuation of the MCR event. Specifically, procedure 1OM-56C.4.E was deficient because it directed the STA to perform substantial plant equipment operations outside of the control room (i.e., opening breakers, operating valves, and electrical switching) which would preclude the STA from maintaining a sufficient level of independence commensurate with plant conditions to provide advisory technical support to the Unit 1 and Unit 2 Operating Shift Crews during both normal plant operations and abnormal and emergency conditions.

Disposition: This finding is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On August 10, 2018, the inspectors presented the triennial fire protection team inspection results to Mr. Richard Bologna, Site Vice President, and other members of the Beaver Valley Power Station staff.

DOCUMENTS REVIEWED**71111.05XT****Fire Protection Licensing Documents**

ARS-BV1-11-022, Fire Risk Evaluation of Process Instrument Room (1-CR-4), Revision 1
 ARS-BV1-11-025, Fire Risk Evaluation of East Cable Vault (1-CV-2), Revision 1
 ARS-BV2-11-013, Fire Risk Evaluation of Instrument and Relay Room (2-CB-1), Revision 1
 ARS-BV3-13-172, Fire Area Transition Review, Revision 5
 BVPS-1, Exemption dated 3/14/83, Request for Exemption from some Requirements of Appendix R to CFR Part 50
 BVPS-1 License Amendment 301 for Transition to NFPA-805, Performance Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants dated 1/22/2018
 BVPS-1 SER dated 1/5/83, SER for Appendix R to 10CFR50, Items III.G and III.L
 BVPS-1 SER dated 6/6/79, SER Related to Amendment No. 18 to Facility Operating License No. DPR-66
 BVPS-1 UFSAR, Section 9.10, Fire Protection
 BVPS-1 Updated Fire Protection Appendix R Report, Revision 31
 BVPS-2 Fire Protection Safe Shutdown Report, Addendum 39
 BVPS-2 License Amendment 190 for Transition to NFPA-805, Performance Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants dated 1/22/2018
 BVPS-2 UFSAR, Section 9.5.1, Fire Protection System
 BVPS-2 UFSAR, Section 9.5A, Fire Protection Evaluation Report
 DPR-66, Beaver Valley Unit 1 Operating License, Amendment 290
 NPF-73, Beaver Valley Unit 2 Operating License, Amendment 187
 Safety Evaluation Related to Order No. EA-02-026, Beaver Valley Power Station, Unit Nos. 1 and 2

Procedures

1-PMP-E-37-011, General Electric Low Voltage Circuit Breaker Inspection and Test Model AK-3A & 7A-25, Revision 13
 1-PMP-E-37-013, Square D Low Voltage Circuit Breaker Inspection and Test Model Masterpact NT and NW, Revision 10
 1/2-ADM-1900, Fire Protection Program, Revision 40
 1/2-ADM-1900, Fire Protection Program, Revision 41
 1/2-ADM-1906, Control of Transient Combustible and Flammable Materials, Revision 13
 1/2-ADM-2024, Fuse Control Program, Revision 2
 1/2-CMP-E-75-014, Testing of G.E. Verastrip Molded Case Circuit Breakers, Revision 1
 1/2-CMP-75-MCB-2E, Testing of ITE 480V Molded Case Circuit Breakers, Revision 8
 1/2-CMP-75-MCP-5E, Electrical Test Procedure for Inspection, Verification, and Calibration Testing of 480V Motor Control Center Motor Circuit Protectors, Revision 2
 1/2OM-53C.4A.100.6, Extreme Damage Mitigation Guidelines, Issue 1 Revision 10
 BV-2OST-6.8, Pressurizer PORV Stroke Test, Revision 20
 BVRM-OPS-0018, Fire Protection Surveillance Requirements, Revision 0

Operations Procedures

1OM-56C.1.B, Summary Description, Revision 3
 1OM-56B.4.H, Safe Shutdown Following a Serious Fire in Safeguards, Revision 26
 1OM-56C.4.F-14, Water to Water Heat Exchanger, Revision 0
 1OM-56C.4.F-10, Dedicated AFW Pump Startup, Revision 6
 1OM-56C.4.A, Intent and Methodology, Revision 11
 1OM-56C.4.B, Shift Manager Procedure, Revision 46
 1OM-56C.4.C, NCO Procedure, Revision 37
 1OM-56C.4.D, Nuclear Operator #1 Procedure, Revision 33
 1OM-56C.4.E, Shift Technical Advisors Procedure, Revision 23
 1OM-56C.4.F, BIP Activation, Revision 22
 1OM-56C.4.G, Nuclear Operator #2 Procedure, Revision 3
 1OM-56C.4.H, Nuclear Operator #3 Procedure, Revision 0
 1OST-33.16A, Operating Surveillance Test – Early Warning Fire Detection Test DGP-1FP-1
 Loops, Revision 5
 1/2OST-33.33, Fire Protection Equipment Inventory Verification, Revision 14
 1/2OST-33.34, Fire Protection Equipment Readiness Checks, Revision 7
 1/2OST-56B.1, Fire Emergency Equipment Verification, Revision 15
 1/2PFP-MUTUAL AID, Mutual Aid and Large Area Fire Pre-Fire Plan, Revision 1
 2OM-56C.4.B, Unit Supervisor Procedure, Revision 35
 2OM-56C.4.C, NCO Procedure, Revision 20
 2OM-56C.4.D, Nuclear Operator #1 Procedure, Revision 25
 2OM-56C.4.H, Nuclear Operator #3 Procedure, Revision 1
 2OM-56C.4.F-1, ASP Activation, Revision 13
 2OM-56C.4.F-13, Alternate Supply of Cooling Water to Station Air Compressors for Long term
 Cooling, Revision 8
 NOP-OP-1002, Conduct of Operations, Revision 12
 NOP-OP-1013, Control of Time Critical Operator Actions, Revision 2
 NORM-OP-1002, Conduct of Operations, Revision 6
 NORM-OP-1009, SRO Review of Condition Reports, Revision 8
 OTG-B5b OVERVIEW, Security Threat B.5.b. Overview, Revision 0

Issue Reports (* written as a result of the NRC inspection)

2004-03320	2012-11877	2015-10546	2018-06753*
2007-26399	2012-12055	2015-11044	2018-06897*
2009-55022	2012-12055	2015-11116	2018-06925*
2009-62244	2012-12142	2016-01778	2018-06955*
2009-62461	2013-11708	2016-03480	2018-07021*
2009-62461	2014-07961	2016-03800	2018-07009*
2009-62471	2014-07964	2016-07764	2018-07010*
2009-62532	2015-09055	2016-09298	2018-07052*
2009-63473	2015-09600	2017-10250	2018-07053*
2010-75120	2015-09601	2017-11687	2018-16744*
2012-07558	2015-09643	2018-00072	2018-16745
2012-08570	2015-09643	2018-06253*	2018-16858*
2012-09757	2015-09643	2018-06755*	
2012-11302	2015-09643	2018-06756*	
2012-11398	2015-10527	2018-06752*	

Maintenance Orders/Work Orders

200133663	200531715	200603143	200645424
200248758	200531735	200603145	200645425
200397517	200531736	200611262	200688743
200467988	200551830	200637740	200688744
200507707	200569969	200637741	

Calculations, Analysis, and Engineering Evaluations

2701.620-000-024, Fire Suppression Activities Effect on Nuclear Safety Performance Criteria, Revision 0

2701.620-000-100, Early Warning and Actuation Fire Detection Spacing Report, Revision 0

8700-01.062-0038, Results Report for BV1 – Fire Suppression Activities Effect on NSPC, Revision 0

8700-01.062-0083, Early Warning and Actuation Fire Detection Spacing Report, Revision 0

8700-DMC-3079, Fire Pump Minimum Operating Curve, Revision 0

10080-DMC-0710, Evaluation of Appendix R Safe Shutdown Requirement of Achieving Cold Shutdown Conditions within 72 Hours with Excess Letdown Flow Path Open, Revision 0

12241-ESK-123N, 480V MCC-2-11 Time-Current Curves, 3/31/87

ARS-BV1-MSO-001, Beaver Valley Power Station Unit 1 Multiple Spurious Operation (MSO) Expert Panel Review Report, Revision 2

ARS-BV2-MSO-001, Beaver Valley Power Station Unit 2 Multiple Spurious Operation (MSO) Expert Panel Review Report, Revision 2

ECP 06-0346, 480V MCC-1-E14 Time-Current Curves, Revision 3

ECP 07-0002, 480V MCC-2-E10 Time-Current Curves, Revision 2

ECP 10-0839, 480V MCC-1-E06 Time-Current Curves, Revision 4

ECP 11-0078, Fire Detector Relocations in Process Rack Area (CR-4) to Meet Code Requirements, Revision 0

ECP 14-0656, Unit 2 PORV Isolation Switches, Revision 1

FPPCE 06-038, Installation of Penetration through Concrete Wall from Each Cable Vault to the PCA Shop, Revision 0

FPPCE 12-122, Engineering Evaluation of the Smoke Detector Spacing in Fire Area CR-4, Revision 1

FPPCE 13-110, Revision of 1/2-ADM-1900 to Address the Fire Protection Expert Permit Tracking Program, Revision 0

FPPCE 17-091, NFPA 805 Compensatory Measure Review, Revision 0

I-TCP-18-378738, Transient Combustible Permit for 2-CB-1, 07/02/2018

I-TCP-18-402084, Transient Combustible Permit for 1-CR-4, 01/02/2018

I-TCP-48-437027, Transient Combustible Permit for 1-TB-1, 05/09/2018

I-TCP-18-440994, Transient Combustible Permit for 1-PA-1E, 06/04/2018

SCI-17756-09, Attachment W, Fire PRA Insights, Revision 1

Drawings and Wiring Diagrams

10080-E-11L, Unit 2 Elementary Diagram, 125 VDC Circuits Pressurizer Power Operated Relief Valves, Sheet 1, Revision 17

10080-E-11Q, Unit 2 Elementary Diagram, Miscellaneous Circuits, Sheet 3, Revision 1

10080-RE-10F, Unit 2 Wiring Diagram, 125VDC Panel DC2-10 & DC2-11, Revision 14

10080-RE-11K, Unit 2 Wiring Diagram, 120VAC Panel AC2-E9 & AC2-19, Revision 9

10080-RE-11Q, Unit 2 Wiring Diagram, 120 VAC Vital Bus 2-1B, 2B, 3B, & 4B, Revision 9

10080-RE-36X, Unit 2 Wiring Diagram, Penetration 2RCP-17A, Revision 10
10080-RE-36Y, Unit 2 Wiring Diagram, Electro Hydraulic Operator Assembly, Sheet 1, Revision 12
10080-RE-36Y, Unit 2 Wiring Diagram, Penetration 2RCP-17B, Revision 8
10080-RE-3AAP, Unit 2 Wiring Diagram, Bench Board Section A3, Sheet 14, Revision 10
10080-RE-3ABF, Unit 2 Wiring Diagram, Vertical Board Section A6, Sheet 6, Revision 12
10080-RE-3BAE, Unit 2 Wiring Diagram, Bench Board Section B1, Sheet 5, Revision 10
10080-RE-3BAU, Unit 2 Wiring Diagram, Vertical Board Section B6, Sheet 6, Revision 14
10080-RE-3DAC, Unit 2 Wiring Diagram, Emergency Shutdown Panel Section 1, Sheet 3, Revision 7
10080-RE-3DAG, Unit 2 Wiring Diagram, Emergency Shutdown Panel Section 2, Sheet 3, Revision 8
10080-RE-3EAC, Unit 2 Wiring Diagram, Alternate Shutdown Panel Section 1, Sheet 3, Revision 2
10080-RE-3EAG, Unit 2 Wiring Diagram, Alternate Shutdown Panel Section 2, Sheet 3, Revision 2
10080-RE-3EM, Unit 2 Wiring Diagram, Auxiliary Emergency Relay Panel 242, Revision 22
10080-RE-3HQ, Unit 2 Wiring Diagram, Alternate Shutdown Transfer Relay Panel 250, Sheet 3, Revision 12
10080-RE-3HV, Unit 2 Wiring Diagram, Alternate Shutdown Transfer Relay Panel 281, Sheet 1, Revision 9
10080-RE-3HW, Unit 2 Wiring Diagram, Shutdown Transfer Relay Panel 282, Sheet 1, Revision 4
10080-RE-4AT, Unit 2 Wiring Diagram, Auxiliary Reactor Protection Safeguard Test Rack B, Sheet 2, Revision 6
10080-RE-4BH, Unit 2 Wiring Diagram, Primary Process Rack Control Group 4, Cabinet 8, Revision 13
10080-RE-4CH, Unit 2 Wiring Diagram, Secondary Process Rack Cabinet A1, Revision 11
10080-RE-4GY, Unit 2 Wiring Diagram, Misc. Inst. Pipe Tunnel Main Steam Pipe Area and Cable Vault, Revision 10
10080-RE-4JD, Unit 2 Wiring Diagram, Analog Termination Cabinet 1, Sheets 1-3, Revision 10
10080-RE-4JH, Unit 2 Wiring Diagram, Analog Termination Cabinet 2, Sheet 2, Revision 9
10080-RE-9JC, Unit 2 Wiring Diagram, 480V MCC 2-E13, Sheet 2, Revision 23
10080-RE-370, Concealed Conduit & Sleeves Aux Building SH-1, Revision 22
10080-RM-0656B-001, Valve Operator Normal Diagram Site Fire Protection, Revision 6
10080-RM-421-2, AFW Pump Steam, Revision 17
10080-RY-0002A, Site Plan, Revision 13
10080-TLD-006-088, Unit 2 Test Loop Diagram, Pressurizer 2RCS*PRE21 Pressure Control, Sheets 1-5, Revision 5
10080-TLD-21A-091, Unit 2 Test Loop Diagram, Main Steam System Atmospheric Steam Dump Valve, Sheets 1-6, Revision 3
8700-RE-10D, Unit 1 Wiring Diagram, 125 VDC Dist. Panel 3, Revision 16
8700-RE-11B, Unit 1 Wiring Diagram, 120 VAC Vital Bus 2&4, Revision 29
8700-RE-14C, Unit 1 Wiring Diagram, Diesel Generator Auto Sequence Relay Panel, Revision 11
8700-RE-1AR, Unit 1 480V One Line Diagram, MCC-1-E14, Sheet 18, Revision 10
8700-RE-21JQ, Unit 1 Elementary Diagram, Reactor Cooling, Sheet 4, Revision 13
8700-RE-21JT, Unit 1 Elementary Diagram, Reactor Cooling, Sheet 7, Revision 13
8700-RE-36F, Unit 1 Wiring Diagram, Penetration RCP-4F, Sheet 6, Revision 9
8700-RE-3AC, Unit 1 Wiring Diagram, Bench Board Section A, Sheet 27, Revision 18

8700-RE-3AQ, Unit 1 Wiring Diagram, Bench Board Section A, Sheet 39, Revision 9
 8700-RE-3AR, Unit 1 Wiring Diagram, Bench Board Section B, Sheet 40, Revision 17
 8700-RE-3AV, Unit 1 Wiring Diagram, Bench Board Section B, Revision 15
 8700-RE-3BU, Unit 1 Wiring Diagram, Misc. Wiring Details, Revision 15
 8700-RE-4BJ, Unit 1 Wiring Diagram, Auxiliary Relay Rack A, Revision 17
 8700-RE-4BL, Unit 1 Wiring Diagram, Reactor Protection Rack 3A, Revision 42
 8700-RE-4BS, Unit 1 Wiring Diagram, Auxiliary Reactor Protection Test Rack Train A,
 Revision 7
 8700-RE-4GC, Unit 1 Wiring Diagram, Primary Process Rack 4, Revision 5
 8700-RE-4GF, Unit 1 Wiring Diagram, Primary Process Rack 9&10, Revision 6
 8700-RE-4GG, Unit 1 Wiring Diagram, Primary Process Rack 11&12, Revision 12
 8700-RE-4GH, Unit 1 Wiring Diagram, Primary Process Rack 13&14, Revision 7
 8700-RE-4HL, Unit 1 Wiring Diagram, Secondary Process Rack M (Left Half), Revision 3
 8700-RE-8BG, Unit 1 Wiring Diagram, 4160V Breaker 1E7, Supply to Emergency Bus 1AE,
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 8700-RE-8L, Unit 1 Wiring Diagram, 4160V Breaker 1E10, Supply to River Water Pump
 1WR-P-1A, Revision 16
 8700-RM-0059F, Arrangement Intake Structure Sheet No. 2, Revision 11
 8700-RM-0424-002, Feedwater System, Revision 20
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 RE-0001N, Unit 2 480V One Line Diagram, MCC-2-11, Sheet 4, Revision 15
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 RE-0001W, Unit 2 480V One Line Diagram, MCC-2-E10, Sheet 12, Revision 29
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Completed Tests and Surveillances

BV-2RCS-PCV455D-SW, Install PORV 2RCS-PCV455D & 456 Isolation Switches, 5/13/17
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 BV-2OST-45.9B, Alternate Shutdown Panel Checks in Modes 4, 5, 6, and Defueled, 10/20/15
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 1/2-CMP-75-MCB-1E, Testing of Westinghouse and Cutler-Hammer Molded Case Circuit
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 1/2-CMP-75-MCB-1E, Testing of Westinghouse and Cutler-Hammer Molded Case Circuit
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1PFP-SFGB-735-East, East Cable Vault Fire Compartment 1-CV-2, Revision 2

1PFP-SRVB-713-Process, Process Instrumentation Room Fire Compartment 1-CR-4,
Revision 5

2PFP-AXLB-773, Cable Tunnel, Cable Tunnel Fan Room Fire Compartment 2-CB-1, Revision 2

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