



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

February 1, 2018

Mr. Daniel Stoddard
Senior Vice President and
Chief Nuclear Officer
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

**SUBJECT: SURRY POWER STATION – NUCLEAR REGULATORY COMMISSION
INTEGRATED INSPECTION REPORT 05000280/2017004 AND
05000281/2017004**

Dear Mr. Stoddard:

On December 31, 2017, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Surry Power Station, Units 1 and 2. On January 18, 2018, the NRC inspectors discussed the results of this inspection with Mr. F. Mladen and other members of your staff. The inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented two findings of very low safety significance in this report. These findings involved violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest these violations or the significance of the violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator Region II; the Director, Office of Enforcement, and the NRC Resident Inspector at the Surry Power Station.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 0001; with copies to the Regional Administrator, Region II; and the NRC resident inspector at the Brunswick Steam Electric Plant.

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 at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Steven D. Rose, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket Nos.: 50-280, 50-281
License Nos.: DPR-32, DPR-37

Enclosure:
IR 05000280/2017004, 05000281/2017004
w/Attachment: Supplemental Information

cc: Distribution via ListServ

SUBJECT: SURRY POWER STATION – NUCLEAR REGULATORY COMMISSION
INTEGRATED INSPECTION REPORT 05000280/2017004 AND
05000281/2017004 February 1, 2018

DISTRIBUTION

M. Kowal, RII
K. Sloan, RII
OE Mail
RIDSNNRRDIRS
PUBLIC
RidsNrrPMSurryResource

ADAMS Accession No. ML18032A023

OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRS	RII:DRS	RII:DRS
NAME	PMcKenna	CJones	CRead	PCapehart	RKellner	WLoo
DATE	1/23/2018	1/24/2018	1/23/2018	1/23/2018	1/24/2018	1/24/2018
OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRP	RII:DRP	
NAME	DJackson	WDeschaine	JDodson	SRose	GMacDonald	
DATE	1/23/2018	1/23/2018	1/24/2018	2/1/2018	1/31/2018	

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-280, 50-281

License Nos.: DPR-32, DPR-37

Report No.: 05000280/2017004 and 05000281/2017004

Licensee: Virginia Electric and Power Company

Facility: Surry Power Station, Units 1 and 2

Location: 5850 Hog Island Road
Surry, VA 23883

Dates: October 1, 2017 through December 31, 2017

Inspectors: P. McKenna, Senior Resident Inspector
C. Jones, Resident Inspector
C. Read, Resident Inspector
P. Capehart, Senior Operations Engineer (1R11.3)
R. Kellner, Senior Health Physicist (2RS7, 4OA1)
W. Loo, Senior Health Physicist (2RS6)
G. MacDonald, Senior Reactor Analyst (1R15)

Approved by: Steven D. Rose, Chief
Reactor Projects Branch 4
Division of Reactor Projects

SUMMARY

Integrated Inspection Report 05000280/2017004, and 05000281/2017004; October 1, 2017, through December 31, 2017; Virginia Electric and Power Company, Surry Power Station, Units 1 and 2, Maintenance Effectiveness and Operability Determinations and Functionality Assessments.

The report covered a three-month period of inspection by resident inspectors and regional inspectors. There was one NRC-identified violation and one self-revealing violation documented in this report. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," (SDP) dated April 29, 2015. The cross-cutting aspects are determined using IMC 0310, "Aspects within the Cross-Cutting Areas" dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated November 1, 2016. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

Cornerstone: Initiating Events

- Green. A self-revealing, non-cited violation (NCV) of Surry Technical Specification (TS) 6.4.A.7 was identified for the failure to have detailed written procedures with appropriate instructions in design change packages (DCPs) 78-001, 80-007, and 84-369 when replacing 1-SS-HCV-101C, the Unit 1 "C" reactor coolant (RC) hot leg sample valve. This resulted in 1-SS-HCV-101C developing a through-wall leak on the tube to valve socket weld. Additionally, due to the reactor coolant system (RCS) boundary leakage, Unit 1 required an unplanned shutdown per TS 3.1.C.3 on August 9, 2017. This issue was documented in the licensee's corrective action program (CAP) as condition report (CR) 1075404. During the shutdown, the licensee made an American Society of Mechanical Engineering (ASME) code repair by cutting and capping the tubing to stop the leak. 1-SS-HCV-101C will be restored to normal system configuration during the next refueling outage in April 2018.

The inspectors determined that the failure of the licensee to have the instructions necessary to properly install the "C" RCS loop hot leg sample valve and tubing as required by Surry procedure SUI-0001 was a performance deficiency (PD). Specifically, DCPs 78-001, 80-007, and 84-369 did not have instructions necessary to ensure the 1-SS-HCV-101C and the associated tubing was properly mounted to absorb the stresses applied to the valve and tubing during normal operation of the valve. As a consequence of the insufficient supports, 1-SS-HCV-101C experienced a through-wall leak on a socket weld on August 9, 2017, which subsequently required an unplanned shutdown of Unit 1. Using Inspection Manual Chapter (IMC) 0612, Appendix B, Issue Screening, dated September 7, 2012, the inspectors determined that the PD was more than minor because it was associated with the procedural quality attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset stability and challenge critical safety functions during shutdown as well as power operations. Using IMC 0609.04, "Initial Characterization of Findings," Table 2, dated October 7, 2016; the finding was determined to adversely affect the Initiating Events Cornerstone. The inspectors screened the finding using IMC 0609, Appendix A, "Significance Determination Process (SDP) for Findings at-Power" dated June 19, 2012, and determined that it screened as Green because the deficiency did not cause a loss of mitigation equipment relied upon to transition the plant to a stable shutdown condition. This finding did not have a cross-cutting aspect because it is not considered current licensee performance. (Section 1R12)

Cornerstone: Mitigating Systems

- Green. An NRC-identified Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI was identified for the licensee's failure to identify a condition adverse to quality related to the material condition of the machinery equipment room (MER) 5 flood dike. Specifically, the inspectors identified on November 13, 2017, several bolts on the connecting plates of the dike that were visually not flush, and found to be loose. As a result, the licensee declared the MER 5 flood dike non-functional and the "D" and "E" main control room (MCR) chillers inoperable. This issue was documented in the licensee's CAP as CR 1083839. As immediate corrective action, the licensee torqued all structural bolts to 12 ft-lbs and floor anchor nuts to 55 ft-lbs per WO 38103865619.

The inspectors determined that failure to identify a condition adverse to quality associated with the material condition of the MER 5 flood dike was a PD. Specifically, the inspectors identified on November 13, 2017, several loose bolts on the connecting plates of the MER 5 flood dike. As a result, the licensee declared the MER-5 flood dike non-functional and the "D" and "E" main control room (MCR) chillers inoperable. The inspectors determined that the PD was more than minor because it was associated with the protection against external factors 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. Specifically, the licensee failed to ensure that WO 38103734871 and drawing 11548-FC-6L had fastener torque specifications and a re-torque requirement for the MER 5 dike after it was re-assembled; and failed to identify a non-functional MER 5 flood dike. Using IMC 0609.04, "Initial Characterization of Findings," Table 2, dated June 19, 2012; the finding was determined to affect the Mitigating Systems Cornerstone. The inspectors screened the finding using IMC 0609, Appendix A, "SDP for Findings at-Power" dated June 19, 2012, the inspectors determined that a detailed risk evaluation was required. A detailed risk evaluation of the PD was performed in accordance with IMC 0609 Appendix A by a regional Senior Reactor Analyst (SRA) using input from the licensee's full scope Probabilistic Risk Assessment model. The result of the bounding analysis was an increase in core damage frequency due to the performance deficiency of $<1E-6$ /year, a Green finding of very low safety significance. This finding has a cross-cutting aspect in the evaluation component of the problem identification and resolution area, P.2, because the organization did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, ETE SU-2017-0044, written for the May, 2017, non-functional MER 5 flood dike, did not thoroughly evaluate gasket type and bolting torque, when evaluating if epoxy was required for the assembly of the MER 5 flood dike. (Section 1R15)

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at or near 100 percent rated thermal power for the entire inspection period.

Unit 2 operated at or near 100 percent rated thermal power for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

a. Inspection Scope

.1 Seasonal Extreme Weather Conditions

The inspectors conducted a detailed review of the station's adverse weather procedures for extreme low temperatures. The inspectors verified that weather-related equipment deficiencies identified during the previous year had been placed into the work control process and/or corrected before the onset of seasonal extremes. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures before the onset of seasonal extreme weather conditions. Documents reviewed are listed in the attachment. The inspectors evaluated the following risk-significant systems:

- Emergency service water
- Refueling water storage tanks
- Emergency diesel generators

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04 – 5 samples)

a. Inspection Scope

.1 Partial Walkdown

The inspectors verified that critical portions of the selected systems were correctly aligned by performing partial walkdowns. The inspectors selected systems for assessment because they were a redundant or backup system or train, were important for mitigating risk for the current plant conditions, had been recently realigned, or were a single-train system. The inspectors determined the correct system lineup by reviewing plant procedures and drawings. Documents reviewed are listed in the attachment.

- MER 3 and 4 service water system alignment after charging SW pump maintenance

- Spent Fuel Pool (SPF) train “B” alignment while the “A” train was tagged out for a relief valve replacement
- Emergency Service Water (ESW) Pumps after the monthly test of the “C” ESW pump
- Number 1 Emergency Diesel Generator (EDG) after monthly performance test

.2 Complete Walkdown

The inspectors verified the alignment of the Alternate AC (AAC) diesel and support systems. The inspectors selected this system for assessment because it is a risk-significant mitigating system. The inspectors determined the correct system lineup by reviewing plant procedures, drawings, the updated final safety analysis report, and other documents. The inspectors reviewed records related to the system’s outstanding design issues, maintenance work requests, and deficiencies. The inspectors verified that the selected system was correctly aligned by performing a complete walkdown of accessible components. To verify the licensee was identifying and resolving equipment alignment discrepancies, the inspectors reviewed corrective action documents, including condition reports and outstanding work orders. The inspectors also reviewed periodic reports containing information on the status of risk-significant systems, including maintenance rule reports and system health reports. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q – 5 samples)

a. Inspection Scope

Quarterly Inspection

The inspectors evaluated the adequacy of selected fire procedures by comparing the fire procedures to the defined hazards and defense-in-depth features specified in the fire protection program. In evaluating the fire procedures, the inspectors assessed the following items:

- control of transient combustibles and ignition sources
- fire detection systems
- water-based fire suppression systems
- gaseous fire suppression systems
- manual firefighting equipment and capability
- passive fire protection features
- compensatory measures and fire watches
- issues related to fire protection contained in the licensee’s corrective action program

The inspectors toured the following fire areas to assess material condition and operational status of fire protection equipment. Documents reviewed are listed in the attachment.

- Unit 1 Upper Cable Vault
- Unit 2 Upper Cable Vault
- Unit 1 Normal Switchgear Room
- Unit 2 Normal Switchgear Room
- Number 1 EDG Room

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

a. Inspection Scope

Internal Flooding

The inspectors reviewed related flood analysis documents and walked down the areas listed below containing risk-significant structures, systems, and components susceptible to flooding. The inspectors verified that plant design features and plant procedures for flood mitigation were consistent with design requirements and internal flooding analysis assumptions. The inspectors also assessed the condition of flood protection barriers and drain systems. In addition, the inspectors verified the licensee was identifying and properly addressing issues using the corrective action program. Documents reviewed are listed in the attachment.

- Unit 1 and Unit 2 turbine building basement service water (SW) valve pits.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance (71111.11 – 3 samples)

a. Inspection Scope

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification

On November 14, 2017, the inspectors observed a simulator scenario conducted for training of an operating crew for requalification. This licensee evaluated session included a faulted steam generator with a tube rupture causing a manual reactor trip and safety injection; and the declaration of a Site Area Emergency.

The inspectors assessed the following:

- licensed operator performance
- the ability of the licensee to administer the scenario and evaluate the operators
- the quality of the post-scenario critique
- simulator performance

Documents reviewed are listed in the attachment.

.2 Resident Inspector Quarterly Review of Licensed Operator Performance in the Actual Plant/Main Control Room

On the dates listed below, the inspectors observed licensed operator performance in the main control room.

- On October 18, 2017, Unit 1 low head safety injection (LHSI) pump performance test (PT), 1-OPT-SI-001
- On November 27, 2017, Unit 2 main turbine inlet valve freedom test, 2-OSP-TM-001

The inspectors assessed the following:

- use of plant procedures
- control board manipulations
- communications between crew members
- use and interpretation of instruments, indications, and alarms
- use of human error prevention techniques
- documentation of activities
- management and supervision

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

.3 Annual Review of Licensee Requalification Examination Results

On February 10, 2017, the licensee completed the comprehensive annual requalification examinations required to be administered to all licensed operators in accordance with Title 10 of the Code of Federal Regulations 55.59(a)(2), "Requalification Requirements," of the NRC's "Operator's Licenses." The inspectors performed an in-office review of the overall pass/fail results of the individual operating examinations and the crew simulator operating examinations in accordance with Inspection Procedure (IP) 71111.11, "Licensed Operator Requalification Program." These results were compared to the thresholds established in Section 3.02, "Requalification Examination Results," of IP 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 – 2 samples)

a. Inspection Scope

The inspectors assessed the licensee's treatment of the issues listed below to verify the licensee appropriately addressed equipment problems within the scope of the maintenance rule (10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"). The inspectors reviewed procedures and records to evaluate the licensee's identification, assessment, and characterization of the problems as well as their corrective actions for returning the equipment to a satisfactory condition. The inspectors also interviewed system engineers to assess the accuracy of performance deficiencies and extent of condition. In addition, for the one sample listed below, the inspectors performed a review of quality control to ensure the licensee was in compliance with their Quality Assurance Program requirements. Documents reviewed are listed in the attachment.

- CR 1073255, "A" emergency service water (ESW) pump flex hose connection for angle drive cooler (Quality Control Sample)
- CR 1075404, Through wall leak on welded joint of 1-SS-HCV-101C, the 'C' RCS hot leg sample valve

b. Findings

Introduction: A self-revealing Green NCV of Surry TS 6.4.A.7 was identified for the failure to have detailed written procedures with appropriate instructions in DCPs 78-001, 80-007, and 84-369 when replacing 1-SS-HCV-101C, the Unit 1 "C" Reactor Coolant (RC) hot leg sample valve. This resulted in 1-SS-HCV-101C developing a through-wall leak on the tube to valve socket weld. Additionally, due to the RCS boundary leakage, Unit 1 required an unplanned shutdown per TS 3.1.C.3 on August 9, 2017. This issue was documented in the licensee's CAP as CR 1075404.

Description: On August 9, 2017, Unit 1 was shut down per TS 3.1.C.3 when a leak from the socket weld of 1-SS-HCV-101C could not be isolated and was determined to be RCS pressure boundary leakage. The licensee attempted to isolate the leakage by closing 1-RC-81, the Unit 1 "C" RC loop hot leg drain header sample isolation valve, but this valve was also determined to be leaking by. During the shutdown, the licensee made an ASME code repair by cutting and capping the tubing to stop the leak. 1-SS-HCV-101C will be restored to normal system configuration during the next refueling outage in April 2018.

The licensee conducted an apparent cause evaluation (ACE) and determined the apparent cause of the 1-SS-HCV-101C leak was inadequate procedural instructions for the installation of seismic tubing and supports, leading to long term thermal fatigue of 3/8-inch, 316 stainless steel instrument tubing.

CR 1078608 was written to document that the "C" RC hot leg sample tubing was not installed per SUI-001, "Installation Specification for Installation of Instrumentation." The as-found configuration of the valve and tubing was determined to be an old design issue that may have occurred during activities associated with the design change documents that replaced the original sample system hand control valves (HCV) in the late 1970s and early 1980s. The design change packages (DCPs) used to replace the sample

HCVs (DCP 78-001, "Replacement of Sample System Trip Valves;" 80-007, "Replace Sample System Trip Valves," and 84-369, Replacement of SS Valves (1-SS-HCV-101A, B, C, 102B)) did not place adequate controls in the field when the valves were replaced by maintenance personnel. A final design engineering walk-down for approval of the installation was in the DCP procedure, but the licensee could not locate any documentation to prove if the as-found tubing and support configuration was the original as-built design or if the design was altered during the replacement activities.

The sample system tubing and valve normally has reactor coolant in it under a no-flow condition, which is at ambient temperature. When 1-SS-HCV-101C is cycled, the tubing line can see a delta temperature of greater than 400 degrees Fahrenheit. This extreme change in energy requires mounting installation to allow the tubing to move (i.e. expand and contract) in a controlled manner. The current configuration of the tubing run from 1-SS-HCV-101C to the RCS isolation valve is almost straight with a few 90-degree turns that are not seismically supported. The failed socket weld was in the area of one of the 90-degree turns that would have seen excessive stress during thermal expansions and contractions of the tubing line.

Surry procedure SUI-0001, (formally NUS 9115 when the equipment was originally installed) specifies that "the installation of seismically restrained tubing shall be in accordance with the applicable project specifications, appendix "D" SUI-0001, and the requirements of the design change package." The DCP for the installation of the valve modifications in the late 1970s and early 1980s did not give specifications for mounts to support the valve and tubing.

Additionally, the licensee also discussed that ETE-CPR-2012-0003, "Seismic Walk-Down Summary Report," conducted as part of the post-Fukushima walkdowns in 2012, did not identify any seismic concerns for the "C" RCS loop hot leg sample system tubing. The licensee considered this a missed opportunity to have identified and corrected the configuration issues that led to the failed socket weld on 1-SS-HCV-101C.

Analysis: The inspectors concluded that the failure of the licensee to have the instructions necessary to properly install 1-SS-HCV-101C and tubing as required by TS 6.4.A.7 was a PD. Specifically, DCPs 78-001, 80-007, and 84-369 did not have instructions necessary to ensure the 1-SS-HCV-101C and the associated tubing was properly mounted to absorb the stresses applied to the valve and tubing during normal operation of the valve. This resulted in 1-SS-HCV-101C experiencing a through-wall leak on a socket weld on August 9, 2017, which subsequently required an unplanned shutdown of Unit 1. Using IMC 0612, Appendix B, Issue Screening, dated September 7, 2012, the inspectors determined that the PD was more than minor because it was associated with the procedural quality attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset stability and challenge critical safety functions during shutdown as well as power operations. Using IMC 0609.04, "Initial Characterization of Findings," Table 2, dated October 7, 2016; the finding was determined to adversely affect the Initiating Events Cornerstone. The inspectors screened the finding using IMC 0609, Appendix A, "SDP for Findings at-Power" dated June 19, 2012, and determined that it screened as Green because the deficiency did not cause a loss of mitigation equipment relied upon to transition the plant to a stable shutdown condition. This finding did not have a cross-cutting aspect because it is not considered current licensee performance.

Enforcement: Surry TS 6.4.A.7 requires, in part, that “detailed written procedures with appropriate instructions shall be provided for conditions that include: corrective maintenance operations which would have an effect on the safety of the reactor.” These requirements were implemented, in part, by DCPs 78-001, 80-007, and 84-369. Contrary to the above, from 1978 through 1984, Surry failed to have detailed written procedures with appropriate instructions in DCPs 78-001, 80-007, and 84-369 when replacing 1-SS-HCV-101C. As an immediate corrective action, the licensee made an ASME code repair by cutting and capping the tubing to stop the leak. 1-SS-HCV-101C will be restored to normal system configuration during the next refueling outage in April 2018. Because the licensee entered the issue into their corrective action program as CR 1075404 and the finding is of very low safety significance (Green), this violation is being treated as an NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000280/2017004-01, Inadequate Instructions for Corrective Maintenance on Unit 1 “C” RC Hot Leg Sample Valve.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 6 samples)

a. Inspection Scope

The inspectors reviewed the maintenance activities listed below to verify that the licensee assessed and managed plant risk as required by 10 CFR 50.65(a)(4) and licensee procedures. The inspectors assessed the adequacy of the licensee’s risk assessments and implementation of risk management actions. The inspectors also verified that the licensee was identifying and resolving problems with assessing and managing maintenance-related risk using the corrective action program. Additionally, for maintenance resulting from unforeseen situations, the inspectors assessed the effectiveness of the licensee’s planning and control of emergent work activities. Documents reviewed are listed in the attachment.

- On October 12, Unit 1 and Unit 2 risk during “B” ESW pump maintenance package and “A” train charging pump SW pump maintenance package.
- On October 23, Unit 1 and Unit 2 risk for the new crane placement at the low level intake structure.
- On November 1, Unit 1 and Unit 2 risk when the “D” and “E” main control room (MCR) chillers, the “B” train of charging SW, and the number 1 EDG door were out of service for maintenance.
- On November 8, Unit 2 risk while testing the Unit 2 “B” reactor trip breaker after previous reduction in response time.
- On November 30, Unit 1 and Unit 2 risk during the Unit 2 “B” charging SW pump and strainer maintenance package, the “B” spent fuel pool (SFP) heat exchanger relief valve replacement using a freeze seal, and Unit 1 containment spray (CS) valve stroke test.
- On December 18, Unit 2 risk while testing the number 2 EDG while the “D” component cooling heat exchanger was out of service for planned maintenance and a concrete placement was planned in the switchyard.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 3 samples)

a. Inspection Scope

The inspectors selected the operability determinations or functionality evaluations listed below for review based on the risk-significance of the associated components and systems. The inspectors reviewed the technical adequacy of the determinations to ensure that technical specification operability was properly justified and the components or systems remained capable of performing their design functions. To verify whether components or systems were operable, the inspectors compared the operability and design criteria in the appropriate sections of the technical specification and updated final safety analysis report to the licensee's evaluations. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with operability evaluations. One sample included a review regarding the licensee's assessments and corrective actions for operator workarounds (OWAs). The inspectors reviewed the cumulative effects of the licensee's OWAs and evaluated the OWAs against the requirements of the licensee's CAP and Conduct of Operations procedure. Documents reviewed are listed in the attachment.

- CR 1083839, Loose bolting on the MER 5 flood dike
- CR 1069059, Unit 2 recirculation spray heat exchanger (RSHX) SW piping coating
- Operator Work Arounds

b. Findings

Introduction: An NRC-identified Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI was identified for the licensee's failure to identify a condition adverse to quality related to the material condition of the MER 5 flood dike. Specifically, the inspectors identified on November 13, 2017, several bolts on the connecting plates of the dike that were visually not flush and found to be loose. As a result, the licensee declared the MER 5 flood dike non-functional and the "D" and "E" MCR chillers inoperable.

Description: On May 2, 2017, the licensee, under WO 38103734871, removed and reinstalled the MER 5 flood dike using the specifications in drawing 11548-FC-6L, "Flood Protection Dike Details MER 5." MER 5 contains MCR chillers and the MER 5 flood dike is required for turbine building flooding protection of MER 5 as discussed in the Updated Final Safety Analysis Report (UFSAR) Section 9.10.4.27. In May 2017, the residents had previously identified a PD after the reinstallation of the MER 5 flood dike which was documented as NCV 05000280, 281/2017002-01 (ADAMS Accession No. ML17214A711). The licensee had not used epoxy as required by the manufacturer's installation procedure when the MER 5 flood dike was reinstalled after removal. As a result, the licensee evaluated the current installed application of the MER 5 flood dike in Engineering Technical Evaluation (ETE)-SU-2017-0044, "Evaluation of MER 5 Flood Wall Installation Design," and concluded that the flood dike bolting which compresses the dike gasket to 1/8-inch compression provided reasonable assurance that the dike joints will remain water tight during flooding events.

On November 13, 2017, the inspectors identified loose bolting on the MER 5 flood dike. The MER 5 flood dike was last removed and then reinstalled by the licensee on May 2, 2017. The residents spoke with the mechanical maintenance supervisor and inquired about any additional maintenance or removal of the dike since May 2; and there was none. The licensee inspected all of the connections on the MER 5 flood dike and documented 41 of 154 bolts were not properly torqued. CR 1083839 was written to document this deficiency. An engineering log entry dated November 13, 2017, determined that the existing configuration of the dike did not meet the gasket compression acceptance criteria in ETE-SU-2017-0044 because of the irregularly torqued bolting. The MER 5 flood dike was declared non-functional and the "D" and "E" MCR chillers were declared inoperable.

As immediate corrective action, the licensee torqued all structural bolting to 12 ft-lbs and the floor anchors to 55 ft-lbs as directed in WO 38103865619 and exited the unplanned LCO entry for the "D" and "E" MCR chillers after declaring the chillers operable. On November 22, 2017, while the licensee was conducting a follow-up inspection on the MER 5 flood dike, three structure nuts and one floor anchor nut were again found to be hand loose. This was documented in CR 1084560. The licensee torqued the loose bolting and verified the torque on all remaining bolting.

The licensee conducted an ACE that included a mock-up of a typical flood dike wall corner bolted connection. The mock-up flood dike was constructed using the same procedure to install the MER 5 flood dike and the bolting was torqued to achieve the correct gasket compression. The mocked-up joints were checked for tightness five days later and all fasteners were found to be hand-loose, with no change in the gasket compression gap thickness. Based on the assembly procedure, the licensee concluded that the designer of the MER 5 flood dike modification established fastener assembly instructions solely to achieve the immediate nominal gasket crush of the closed cell foam gasket material, but did not consider the impact of other assembly aspects, such as relaxation of the gasket material. As corrective action, the licensee will update appropriate station procedures and drawings to require a torque value and a re-torque requirement for bolted connections on all flood dikes. The licensee also plans to evaluate if the gasket material being used is the best for the application in the flood dikes.

Analysis: The inspectors determined that failure to identify a condition adverse to quality associated with the material condition of the MER 5 flood dike was a PD that was within the licensee's ability to foresee and correct. Specifically, the resident inspectors identified on November 13, 2017, several loose bolts on the connecting plates of the MER 5 flood dike. As a result, the licensee declared the MER-5 flood dike non-functional and the "D" and "E" MCR chillers inoperable. The inspectors determined that the PD was more than minor because it was associated with the protection against external factors 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. Specifically, the licensee failed to ensure that WO 38103734871 and drawing 11548-FC-6L had fastener torque specifications and a re-torque requirement for the MER 5 dike after it was assembled and failed to identify a non-functional MER 5 flood dike.

Using IMC 0609.04, "Initial Characterization of Findings," Table 2, dated June 19, 2012; the finding was determined to adversely affect the Mitigating Systems Cornerstone. The

inspectors screened the finding using IMC 0609, Appendix A, "SDP for Findings at-Power" dated June 19, 2012. The inspectors determined detailed risk evaluation was required because the finding assumed that the safety function of the "D" and "E" MCR chillers was unavailable and represented a degradation to one train of a risk significant system. A detailed risk evaluation of the PD was performed in accordance with IMC 0609 Appendix A by a regional SRA using input from the licensee's full scope Probabilistic Risk Assessment model. The major analysis assumptions included use of the licensee's turbine building flood frequency, with the "D" and "E" chillers failed and non-recoverable for a period of 195 days. The result of the bounding analysis was an increase in core damage frequency due to the PD of $<1\text{E-}6/\text{year}$, a GREEN finding of very low safety significance. This finding has a cross-cutting aspect in the evaluation component of the problem identification and resolution, P.2, because the organization did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, ETE SU-2017-0044, written for the May 2017, non-functional MER 5 flood dike, did not thoroughly evaluate gasket type and bolting torque, when evaluating if epoxy was required for the assembly of the MER 5 flood dike.

Enforcement: 10 CFR Part 50, Appendix B, Criterion XVI states, in part, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified." Contrary to the above, from approximately May 2, 2017, through November 13, 2017, the licensee did not promptly identify loose bolting on the MER 5 flood dike which rendered the flood dike non-functional and the "D" and "E" MCR chillers inoperable. The licensee's immediate corrective action to restore compliance was to re-torque all of the MER-5 flood dike fasteners thereby restoring the functionality of the dike. Because the licensee entered the issue into their CAP as CR 1083839 and the finding is of very low safety significance (Green), this violation is being treated as an NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000280, 281/2017004-02, Failure to Identify a Non-Functional Flood Control Barrier.

1R19 Post-Maintenance Testing (71111.19 – 5 samples)

a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the maintenance activities listed below to verify the work performed was completed correctly and the test activities were adequate to verify system operability and functional capability.

- 2-OP-FW-001, "Motor Driven AFW Pumps Startup and Shutdown," Revision 13, after preventative maintenance on the Unit 2 "B" motor-driven auxiliary feedwater (AFW) pump after motor maintenance, October 2, 2017.
- 0-MPM-0210-01, "Control Room Chillers Performance Checks," Revision 30, after corrective maintenance on the "D" MCR chiller, October 5, 2017.
- 2-PT-18.8, "Charging Service Water Performance Test," Revision 35, after corrective maintenance on the Unit 2 "A" charging SW pump strainer and piping, November 16, 2017.
- 2-PT-2.33A, "Emergency Bus Undervoltage and Degraded Protection Test "H" Train," Revision 6, after a degraded voltage relay replacement, November 30, 2017.

- 0-OSP-SW-005, "14 Day Frequency Performance Test: Macrofouling of CCHX 1-CC-E-1D," Revision 33, after the completion of the winter maintenance package, December 21, 2017.

The inspectors evaluated these activities for the following:

- Acceptance criteria were clear and demonstrated operational readiness
- Effects of testing on the plant were adequately addressed
- Test instrumentation was appropriate
- Tests were performed in accordance with approved procedures
- Equipment was returned to its operational status following testing
- Test documentation was properly evaluated

Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with post-maintenance testing. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 3 samples)

a. Inspection Scope

The inspectors reviewed the surveillance tests listed below and either observed the test or reviewed test results to verify testing activities adequately demonstrated that the affected SSCs remained capable of performing the intended safety functions (under conditions as close as practical to design bases conditions or as required by technical specifications) and maintained their operational readiness.

The inspectors evaluated the test activities to assess for preconditioning of equipment, procedure adherence, and equipment alignment following completion of the surveillance. Additionally, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with surveillance testing. Documents reviewed are listed in the attachment.

Routine Surveillance Tests

- 0-OSP-AAC-003, "Quarterly test of the AAC diesel," Revision 12
- 1-OPT-FW-003, "Unit 1 TDAFW Pump and Check Valve Performance Test," Revision 7

Reactor Coolant System Leak Detection

- 0-NSP-RC-004, "Establishing and Updating RCS Unidentified Leakage Baseline, Unit 2," Revision 3

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06 – 6 samples)

a. Inspection Scope

Radioactive Effluent Treatment Systems: The inspectors walked down selected components of the gaseous and liquid radioactive waste (radwaste) processing and effluent discharge systems. To the extent practical, the inspectors observed and evaluated the material condition of in-place waste processing equipment for indications of degradation or leakage that could constitute a possible release pathway to the environment. Inspected components included radwaste processing equipment in the waste processing building, turbine building, auxiliary building and associated piping and valves. The inspectors interviewed licensee staff regarding equipment configuration and effluent monitor operation. The inspectors also walked down and reviewed surveillance test records for the “A” and “B” trains of the auxiliary building and emergency core cooling system ventilation system filters.

Effluent Sampling and Discharge: The inspectors observed the collection and processing of liquid effluent samples from the process vents and ventilation vents (VG-104) in the turbine building and the Surry radwaste facility vent. Technician proficiency in collecting, processing, and preparing the applicable release permits was evaluated. The inspectors reviewed recent liquid and gaseous release permits including pre-release sampling results, effluent monitor alarm setpoints, and public dose calculations. For RM-104 (Vent Stack number1), RMs-130 and 131 (Process Vents), RM-211 (Condenser Air Ejector), the inspectors reviewed calibration and functional test records and evaluated traceability of radioactive calibration sources to National Institute of Standards and Technology (NIST) standards. The inspectors also evaluated the licensee’s capability to collect high-range post-accident effluent samples from these monitoring systems if applicable. The inspectors reviewed and discussed with licensee staff methodology for determining vent and stack flow rates and compared current vent flows to design values in the Offsite Dose Calculation Manual (ODCM).

The inspectors reviewed the 2015 and 2016 Annual Radioactive Effluent Release Reports to evaluate reported doses to the public, review any anomalous events, and to review ODCM changes. The inspectors reviewed compensatory sampling data for time periods when selected radiation monitors were out of service. The inspectors reviewed the results of inter-laboratory cross-checks for laboratory instruments used to analyze effluent samples. The inspectors also reviewed licensee effluent source term characterizations and changes to effluent release points. In addition, the inspectors evaluated recent land use census results.

Problem Identification and Resolution: The inspectors reviewed and discussed selected CAP documents associated with gaseous and liquid effluent processing and release activities including licensee sponsored assessments. The inspectors evaluated the licensee’s ability to identify and resolve issues.

Inspection Criteria: Radwaste system operation and effluent processing activities were evaluated against requirements and guidance documented in the following: 10 CFR Part 20; 10 CFR Part 50, Appendix I; ODCM; UFSAR Chapters 9 and 11; Regulatory Guide (RG) 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants;" RG 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I;" and TS Sections 5 and 6, Administrative Requirements. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (REMP) (71124.07 – 3 samples)

a. Inspection Scope

REMP Implementation: The inspectors reviewed the 2015 and 2016 Annual Radiological Environmental Operating Reports and the 2015 and 2016 Annual Radioactive Effluent Release Reports. Selected environmental measurements were reviewed for consistency with licensee effluent data, evaluated for radionuclide concentration trends, and compared with detection level sensitivity requirements as described in the ODCM. The inspectors assessed the licensee's response to any missed or anomalous environmental samples. The inspectors also reviewed the results of inter-laboratory cross-checks for laboratory instruments used to analyze environmental samples. Any changes to the ODCM, Land Use Census, or environmental program processes were discussed with licensee staff. The inspectors observed routine collection of airborne particulate and iodine air samples and verified placement of environmental dosimeters at selected locations as required by the licensee's ODCM. The inspectors noted the material condition of the continuous air samplers and environmental dosimeters. The inspectors also reviewed calibration and maintenance records for selected the environmental sampling equipment.

Meteorological Monitoring Program: The inspectors observed the physical condition of the meteorological tower and its instrumentation and discussed equipment operability and maintenance history with licensee staff. The inspectors evaluated transmission of locally generated meteorological data to other licensee groups such as emergency operations personnel and main control room operators. Calibration records for the meteorological measurements of wind speed, wind direction, and temperature were reviewed. The inspectors also reviewed meteorological measurement data recovery for 2015, 2016, and January through October 2017.

Ground Water Protection: The inspectors reviewed the licensee's continued implementation of the industry's Ground Water Protection Initiative (Nuclear Energy Institute (NEI) 07-07) and discussed any changes to the program. The inspectors discussed program guidance for dealing with spills, leaks, and unexpected discharges with licensee staff and reviewed recent monitoring well results and any voluntary communications. The inspectors also reviewed recent entries into the 10 CFR 50.75(g) decommissioning file. The inspectors reviewed and discussed the licensee's program for monitoring of structures, systems, and components with the potential to release

radioactive material to the environment. Potential effluent release points due to onsite surface water bodies were also evaluated.

Problem Identification and Resolution: The inspectors reviewed CAP documents in the areas of radiological environmental monitoring and meteorological tower maintenance. The inspectors evaluated the licensee's ability to identify and resolve the issues. The inspectors also reviewed recent self-assessment results.

Inspection Criteria: The inspectors evaluated REMP implementation and meteorological monitoring against the requirements and guidance contained in: 10 CFR Part 20; Appendices E and I to 10 CFR Part 50; TS Section 5.0; ODCM (Surry); UFSAR Chapters 2 and 11; RG 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment; Branch Technical Position, "An Acceptable Radiological Environmental Monitoring Program" – 1979; Safety Guide 23 "Onsite Meteorological Programs;" NEI 07-07, "Industry Groundwater Protection Initiative – Final Guidance Document;" and approved licensee procedures. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 8 samples)

a. Inspection Scope

The inspectors reviewed a sample of the performance indicator (PI) data, submitted by the licensee, for the Unit 1 and Unit 2 PIs listed below. The inspectors reviewed plant records compiled between October, 2016 and September, 2017, to verify the accuracy and completeness of the data reported for the station. The inspectors verified that the PI data complied with guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," and licensee procedures. The inspectors verified the accuracy of reported data that were used to calculate the value of each PI. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with PI data. Documents reviewed are listed in the Attachment.

Cornerstone: Mitigating Systems

- Units 1 and 2 residual heat removal system
- Units 1 and 2 high pressure injection system
- Units 1 and 2 cooling water system

Cornerstone: Radiation Safety

- Occupational exposure control effectiveness

Cornerstone: Public Radiation Safety

- Radiological control effluent release occurrences

b. Findings

No findings were identified.

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

.1 Routine Review

The inspectors screened items entered into the licensee's corrective action program to identify repetitive equipment failures or specific human performance issues for follow-up. The inspectors reviewed condition reports, attended screening meetings, or accessed the licensee's computerized corrective action database.

.2 Annual Follow-up of Selected Issues: "D" and "E" Main Control Room Chillers

a. Inspection Scope

The inspectors conducted a detailed review of the following condition reports:

- CR1057026, 01-VS-E-4E Control Room Chiller
- CR1064479, Delay in Condenser Delivery for 1-VS-E-4E
- CR1071139, Chiller Condenser Supplier did not record weld data per procedure

The inspectors chose these samples because of the multiple issues with both the "D" and "E" MCR chillers in 2017. The inspectors reviewed the design changes and inspections performed on the replacement parts for both units.

The inspectors evaluated the following attributes of the licensee's actions:

- complete and accurate identification of the problem in a timely manner
- evaluation and disposition of operability and reportability issues
- consideration of extent of condition, generic implications, common cause, and previous occurrences
- classification and prioritization of the problem
- identification of root and contributing causes of the problem
- identification of any additional condition reports
- completion of corrective actions in a timely manner

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

The assigned corrective actions taken by the licensee identified common issues between the two units and ultimately led to the replacement of both the "D" and "E" chiller condensers. The inspectors determined that the corrective actions developed as

a result of the condition reports were reasonably commensurate with the safety significance of the MCR chiller system.

.3 Annual Follow-up of Selected Issues: Containment Electrical Penetrations

a. Inspection Scope

The inspectors conducted a detailed review of CR S2002-0958, "Phase 3 Electrical Penetration Rod was Found Loose." The inspectors chose this sample as a follow-up from the August Design Bases Assurance Inspection (DBAI) when the NRC team did not have time to follow-up on a potential issue of Teflon material in containment penetrations. The Teflon issue is discussed in NRC Information Notice 2014-04, "Potential for Teflon Material Degradation in Containment Penetrations, Mechanical Seals and Other Components."

The inspectors evaluated the following attributes of the licensee's actions:

- complete and accurate identification of the problem in a timely manner
- evaluation and disposition of operability and reportability issues
- consideration of extent of condition, generic implications, common cause, and previous occurrences
- classification and prioritization of the problem
- identification of root and contributing causes of the problem
- identification of any additional condition reports
- completion of corrective actions in a timely manner

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

The inspectors reviewed all available documentation on containment penetrations from new construction to present day. The licensee had only worked on one containment electrical penetration since new construction and that occurred in April 2002. No evidence of Teflon was found in the construction of containment penetrations or during the repair of penetration 02-PEN-EP-1E-PENETR (from CR S2002-0958).

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153 – 1 sample)

(Closed) Licensee Event Report (LER) 2017-001-00, Unit 1 Shutdown due to an Unisolable Leak in Reactor Coolant Pressure Boundary

a. Inspection Scope

On August 6, 2017, with Unit 1 at 100 percent power, a RCS leak rate calculation determined the unidentified leak rate increased by 0.08 gallons per minute. On August 8, a leak was observed at an RCS hot leg sample system valve, and Unit 1 power was reduced to investigate leakage indications. The root isolation valve for the sample system valve was closed; however, leakage could not be verified as completely

isolated. Further evaluation determined the leak to be through wall at the inlet of the sample system valve. Based upon the source of the leak and possible continued leakage, a TS shutdown clock was entered on August 9, at 1338 hours. At 1637 hours, Unit 1 was placed in Hot Shutdown.

The cause of the event was the RCS pressure boundary leakage at the tubing/socket weld area of the hot leg sample system valve. With the unit in Hot Shutdown, the leak was isolated and repaired, and Unit 1 was returned to power operation on August 11, 2017. The inspectors reviewed the LER, the associated ACE and corrective actions, and interviewed licensee staff. This LER is closed.

b. Findings

A finding associated with this LER is documented in section 1R12 of this inspection report.

4OA6 Meetings, Including Exit

On January 18, 2018, the resident inspectors presented the inspection results to Mr. F. Mladen, Site Vice President, and other members of the licensee's staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

L. Black, Manager, Emergency Preparedness
T. Cuthriell, Licensing Engineer
B. Garber, Manager, Station Licensing
M. Haduck, Manager, Outage and Planning
P. Harris, Superintendent, Radiation Protection Technical Services
J. Henderson, Acting Director, Station Engineering
R. Johnson, Manager, Operations
L. Jones, Acting Manager, Protection Services
F. Mladen, Site Vice President
R. Philpot, Manager, Training
L. Ragland, Manager, Radiological Protection and Chemistry
J. Rosenberger, Acting Director, Station Safety and Licensing
R. Scanlan, Manager, Nuclear Organizational Effectiveness
R. Simmons, Plant Manager
W. Terry, Supervisor HP Technical Services
E. Turko, ISI Supervisor
D. Wilson, Manager, Maintenance

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000280/2017004-01	NCV	Inadequate Instructions for Corrective Maintenance on Unit 1 "C" RC Hot Leg Sample Valve (Section 1R12)
05000280, 281/2017004-02	NCV	Failure to Identify a Non-Functional Flood Control Barrier (Section 1R15)

Closed

05000280/2017-001-00	LER	Unit 1 Shutdown due to an Unisolable Leak in Reactor Coolant Pressure Boundary (Section 4OA3)
----------------------	-----	---

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

0-OSP-ZZ-001, Cold Weather Preparation, Rev. 22

Condition Reports

1080793 1080817 1082037 1082042 1082044 1083687 1085554 1085585
1085656

Work Orders

38103801069 38103815004

Section 1R04: Equipment Alignment

Procedures

OP-49.1B, Service Water System – CR Chillers and Supply Strainers Valve Alignment, Rev. 37

0-OP-AAC-001A, AAC Diesel Generator Systems Alignment, Rev. 13

0-OP-FC-001A, Spent Fuel Pit Cooling System Alignment, Rev. 7

0-OP-SW-002A, Emergency Service Water System Alignment, Rev. 10

1-OP-EG-001A, EDG 1 System Alignment, Rev. 14

1-OPT-EG-001, Number 1 Emergency Diesel Generator Monthly Start Exercise Test, Rev. 70

Condition Reports (*NRC Identified)

*1080475 *1080477 *1080478 *1085093 *1082879

Drawings

11448-FM-075N, Flow/Valve Operating Numbers Diagram Service Air System – Station
Blackout Unit 1, Rev. 5

11448-FB-038B, Flow/Valve Operating Numbers Diagram Fuel Oil System – Station
Blackout Unit 1, Rev. 3

11448-FB-046A SH1, Flow/Valve Operating Numbers Diagram Emergency Diesel Generator
number1
Unit 1, Rev. 22

11448-FB-046A SH2, Flow/Valve Operating Numbers Diagram Emergency Diesel Generator
number1
Unit 1, Rev. 16

11448-FBC-046D, Composite Diagram Air, Lube Oil, CW, Air Intake/Exhaust Sys.
Unit 1, Rev. 13

1301223-11448-FB-046D-A SH1, Flow/Valve Operating Numbers Diagram Starting Air System
– Station Blackout Unit 1, Rev. 0

11448-FB-046D SH4, Flow/Valve Operating Numbers Diagram Air Intake/Exhaust System
– Station Blackout Unit 1, Rev. 4

11448-FB-046D SH3, Flow/Valve Operating Numbers Diagram Cooling Water System – Station
Blackout Unit 1, Rev. 3

11448-FB-046D SH2, Flow/Valve Operating Numbers Diagram Lube Oil System – Station
Blackout Unit 1, Rev. 3

11448-FB-046D SH1, Flow/Valve Operating Numbers Diagram Starting Air System – Station
Blackout Unit 1, Rev. 11

11448-FM-071A SH 1, Flow/Valve Operating Numbers Diagram Circulating and Service Water
System Unit 1, Rev. 83

11448-FM-071B SH1, Flow/Valve Operating Numbers Diagram Circulating & Service Water
System Unit 1, Rev. 61

11448-FM-071D SH1, Flow/Valve Operating Numbers Diagram Circulating & Service Water
System Unit 1, Rev. 76

11448-FM-081A, Flow/Valve Operating Numbers Diagram Fuel Pit Systems Unit 1, Rev. 32
 11548-FM-071B SH1, Flow/Valve Operating Numbers Diagram Circulating & Service Water System Unit 2, Rev. 67

Section 1R05: Fire Protection

Procedures

0-LSP-FP-045, Fire Extinguisher Annual Maintenance, Rev. 2
 0-OSP-FP-010, Daily Fire Door Inspection, Rev. 7
 0-FS-FP-121, Diesel Generator Room Number 1 Elevation 27 Feet – 6 Inches, Rev. 2
 1-FS-FP-101, Unit 1 Cable Vault Penetration Area Elevation 15 Feet – 0 Inches, Rev. 3
 1-FS-FP-102, Unit 1 Cable Vault Tunnel Elevations 9 Feet – 6 Inches and 15 Feet – 0 Inches, Rev. 3
 1-FS-FP-103, Unit 1 Upper Cable Vault Elevation 35 Feet – 6 Inches, Rev. 3
 1-FS-FP-124, Unit 1 Switchgear Room Elevation 58 Feet – 6 Inches, Rev. 4
 2-FS-FP-101, Unit 1 Cable Vault Penetration Area Elevation 15 Feet – 0 Inches, Rev. 4
 2-FS-FP-102, Unit 2 Cable Vault Tunnel Elevations 9 Feet – 6 Inches and 15 Feet – 0 Inches, Rev. 3
 2-FS-FP-103, Unit 2 Upper Cable Vault Elevation 35 Feet – 6 Inches, Rev. 3
 2-FS-FP-124, Unit 2 Switchgear Room Elevation 58 Feet – 6 Inches, Rev. 4
 CM-AA-FPA-100, Fire Protection/Appendix R (Fire Safe Shutdown) Program, Rev. 11

Condition Reports

1082625

Drawings

11448-FAR-205 SH. 2 Equipment Location – Appendix 'R' Auxiliary Building Plan – EL. 13'-0", Surry Power Station – Unit 1 & 2, Rev. 18
 11448-FAR-206 SH1, Equipment Location – Appendix 'R' Service Building Plan – EL. 58' – 0", Unit 1, Rev. 16
 11448-FAR-206 SH6, Equipment Location – Appendix 'R' Service Building Plan – EL. 27' – 0" Unit 1, Rev. 8
 11448-FAR-206 SH. 7, Equipment Location – Appendix 'R' Service Building Plan – EL. 9'-6", Surry Power Station – Unit 1, Rev. 18
 11448-FAR-206 SH. 8, Equipment Location – Appendix 'R' Service Building Plan – EL. 9'-6", Surry Power Station – Unit 2, Rev. 22
 11448-FAR-306 SH. 8, Fire Barrier Penetrations Service Building Plan – EL. 9'-6" Surry Power Station – Unit 1, Rev. 0
 11448-FAR-306 SH. 9, Fire Barrier Penetrations Service Building Plan – EL. 9'-6" Surry Power Station – Unit 2, Rev. 0
 11448-FAR-306 SH. 15, Fire Barrier Penetrations Service Building Sections – EL. 9'-6" Surry Power Station – Unit 1, Rev. 1
 11448-FAR-306 SH. 18, Fire Barrier Penetrations Service Building Sections – EL. 9'-6" Surry Power Station – Unit 2, Rev. 0

Section 1R06: Flood Protection

Procedures

MA-AA-102, Foreign Material Exclusion, Rev. 21

Condition Reports (*NRC Identified)

*1081485 1082637 1082702

Other Documents

38103733546

Section 1R11: Licensed Operator Regualification ProgramProcedures

2-OSP-TM-001, Turbine Inlet Valve Freedom Test, Rev. 45

2-OPT-SI-005, LHSI Pump Test, Rev. 34

Other Documents

RQ-17.7-SP-1, LORP Scenario 11/14/17

Section 1R12: Maintenance EffectivenessProcedures

0-MCM-1004-01, Removal and Reinstallation of Rubber Expansion Joints, Rev. 23

0-MCM-1801-01, Welding Safety-Related and Seismic-Related Equipment, Rev. 15

CM-AA-DDC-201, Design Changes, Rev. 0

Condition Reports

1073255 10754404 1078608 1078649

Drawings

11448-CBM-071A-5, Sheet 1, ISI Classification Boundary Circulating and Service Water Unit 1, Rev. 1

Work Orders

38103837952

Other Documents

17-169, Nuclear NDE Request for 01-SW-E-8-HTEXCH Flange, 7/13/17

ACE 3064969, Unit 1 Ramped Offline IAW 0-AP-23.00, 11/22/17

DCP 78-001, Replacement of Sample System Trip Valves, Rev. 0

DCP 80-007, Replace Sample System Trip Valves, Rev. 0

DCP 84-369, Replacement of SS Valves (1-SS-HCV-101A, B, C, 102B), Rev. 0

ETE-CPR-2012-0003, Seismic Walk-down Summary Report, Rev. 0

ETE-SU-2017-0057, 01-SW-E-8 Flex Hose Flange Fabrication, Rev. 0

NUS-9115, Installation of Instrumentation, Rev. 0

SUI-0001, Installation Specification for Installation of Instrumentation, Rev. 10

Section 1R13: Maintenance Risk Assessments and Emergent Work ControlCondition Reports

1042126 1045354 1046450 1077211 1078751 1081485

Other Documents

EOOS Schedulers Risk Evaluation for Surry Power Station, October 12, 2017

EOOS Schedulers Risk Evaluation for Surry Power Station, October 23, 2017

EOOS Schedulers Risk Evaluation for Surry Power Station, November 1, 2017

EOOS Schedulers Risk Evaluation for Surry Power Station, November 8, 2017

EOOS Schedulers Risk Evaluation for Surry Power Station, November 30, 2017

EOOS Schedulers Risk Evaluation for Surry Power Station, December 18, 2017

Other Documents

QCE 3040587, Inadvertent Opening of the Unit 1 A-train Reactor Trip Bypass Breaker during 1-PT-8.1, 10/06/16

QCE 3040589, Unexpected Annunciator "Turbine Trip by Reactor Trip," 12/14/16

Section 1R15: Operability Determinations and Functionality Assessments**Procedures**

OP-AA-100, Conduct of Operations, Rev. 34

OP-AA-1700, Operations Aggregate Impact, Rev. 7

GMP-013, "Removal and Installation of Flood Protection Dikes and Secondary Flood Shields and Placing MER 3 in Extended Access," Revision 22

Condition Reports

1068129	1068357	1068528	1069051	1069058	1069059	1069060	1069064
1069066	1069067	1069070	1083839*	1084560	1086190	1086676	1086687
1086738							

Drawings

11548-FC-6L, Flood Protection Dike Details MER 5 Turbine Building, Rev. 1

S-9145-2-M-601, Piping Isometric Service Water Supply and Return RSHX 2B and 2C – Surry Power Station – Unit 2, Rev. 4

Work Orders

38102163483 38103734871 38103865619

Other Documents

ACE 3070632, MER 5 Flood Dike Loose Bolting, Rev. 0

ETE-SU-2017-0028, Engineering Evaluation of Applying One Coat of Chesterton ARC 855 to SW Piping, Rev. 0

ETE-SU-2017-0044, Evaluation of ERM 5 Flood Wall Installation Design, Rev. 0

ME-0070, RSHX SW Flow Test – Surry Power Station – Unit 2, 05/93

ME-0262, Flow/Pressure Drop Comparison of Service Water Flow Path through each of the eight RSHXs for SW Flow Testing, 12/90

ME-0570, Estimation of RSHX SW Flow during Testing For Unit 2 SW Headers, Rev. 0
Unit 1/Unit 2 Operations Aggregate Impact Report, 12/11/17

Section 1R19: Post Maintenance Testing**Procedures**

0-OPT-ZZ-008, ASME System Pressure Tests, Rev. 11

0-MPM-0210-01, Control Room Chillers Performance Checks, Rev. 30

1-OSP-SW-005, 14 Day Freq. PT: Macrofouling of CCHX 1-CC-E-1D, Rev. 33

2-EPT-1801-01, Bus 2H Protective Relay Testing, Rev. 17

2-PT-18.8, "Charging Service Water Performance Test," Rev. 35,

2-PT-2.33A, Emergency Bus Undervoltage and Degraded Protection Test "H" Train, Rev. 6

Condition Reports

1084389 1084436

Work Orders

38103834573 38103782354 38103856403 38103867142

Section 1R22: Surveillance Testing**Procedures**

0-NSP-RC-004, Establishing and Updating RCS Unidentified Leakage Baseline Unit 2, Rev. 3

0-OSP-AAC-003, Automatic Start Test of AAC Diesel Generator, Rev. 12

1-OPT-FW-003, Turbine Driven Auxiliary Feedwater Pump 1-FW-P-2, Rev. 53

1-OPT-FW-007, Turbine Driven AFW Pump Steam Supply Line Check Valve Test, Rev. 7

2-OPT-RC-014, Increased RCS Leakage, Rev. 8
 2-OPT-RC-10.0, RCS Leakrate Computer Calculated, Rev. 43
 0-NSP-RC-004, Establishing and Updating RCS Unidentified Leakage Baseline Unit 2, Rev. 4

Condition Reports

1050567 1077598 1084648

Work Orders

38103830421 38103830435

Section 2RS6: Liquid and Gaseous Effluents

Procedures

HP-3010.020, Radioactive Liquid Waste Release Permits, Rev. 3
 HP-3010.021, Radioactive Liquid Waste Sampling and Analysis, Rev. 6
 HP-3010.030, Radioactive Gaseous Waste Release Permits, Rev. 9
 HP-3010.031, Radioactive Gaseous Waste Sampling and Analysis, Rev. 39
 HP-3010.032, Radioactive Gaseous Waste Accountability and Dose Calculations, Rev. 6
 HP-3010.040, Radiation Monitoring System Setpoint Determination, Rev. 36
 PI-AA-100-1004, Self-Assessments, Rev. 14
 PI-AA-200, Corrective Action, Rev. 33
 VPAP-2103S, Offsite Dose Calculation Manual (Surry), Rev. 20
 0-HSP-RMSS-001, RMS Setpoint Evaluation, Rev. 0
 0-IPM-CC-RRM-LIQD-001, Radwaste Facility Liquid Effluent Monitor Calibration, Rev. 5
 0-IPM-RM-G-001, Digital Ratemeter Model 942B Process Monitor Calibration, Rev. 16 and 17
 0-MPT-0620-11, In-Place Testing for Ventilation Systems, Rev. 10
 0-OPT-VS-007, Auxiliary Ventilation Filter Flow Test, Rev. 16
 1-IPM-VS-F-117A, 1-VS-F-58A Flow Instrumentation Calibration, Rev. 2
 1-IPM-VS-F-117B, 1-VS-F-58B Flow Instrumentation Calibration, Rev. 2
 1-IPT-CC-GW-RM-130, Process Vent Normal and High Range Effluent Radiation Monitor 1
 GW-RM-130 Calibration, Rev. 11 and 12
 1-IPT-CC-GW-RM-131, Vent Stack No. 2 Normal and High Range Effluent Radiation Monitor 1
 GW-RM-131 Calibration, Rev. 10-OTO1 and 11
 1-IPT-CC-VG-RM-131, Vent Stack No. 2 Normal and High Range Effluent Radiation Monitor 1-
 VG-RM-131 Calibration, Rev. 10-OTO1 and 11
 1-OP-36.5, Checking Condenser Air Inleakage and HP Sampling, Rev. 9
 2-OP-36.5, Checking Condenser Air Inleakage and HP Sampling, Rev. 7
 2-IPT-CC-RM-RMS-227, Containment High Range Area Radiation Monitor 2-RM-RMS-227
 Channel Calibration, Rev. 2 and 3
 2-IPT-CC-RM-RMS-228, Containment High Range Area Radiation Monitor 2-RM-RMS-228
 Channel Calibration, Rev. 3

Records and Data

Annual Radioactive Effluent Release Reports, 2015 and 2016
 Beta Scintillation Point Source Calibration Data Sheet: 1-VG-RM-104, 8/12/96
 Data Sheet – 877 Detector, S/N 294: 2-RM-RMS-278, 7/27/83
 Data Sheet – 877 Detector, S/N 297: 2-RM-RMS-277, 7/23/83
 Design Change No. SU-16-01084, Stack Monitor Replacement for SRF, 2/17/17
 Flow/Valve Operating Numbers Diagrams: Auxiliary Ventilation System, Surry Power Station
 (SPS) Unit 1 & 2, Virginia Power (VP), Drawing No. 11448-FB-006D, Rev. 11, SH 4 of 4;
 Gaseous Waste Disposal System, SPS Unit 1 (U1), VP, Drawing Nos.: 11448-FM-090A, Rev.
 31, SH 2 of 2, 11448-FM-090A, Rev. 47, SH 1 of 2, and 11448-FM-090B, Rev. 45, SH 1 of 2;
 and Radiation Monitoring System, SPS U1, VP, Drawing Nos.: 11448-FM-142A, SHs

2 of 3 and 3 of 3, Rev. 6 and SH 1 of 3, Rev. 11
 Gamma Point Source Calibration Data Sheet: 1-SV-RM-111, 10/27/01
 Gaseous Radioactive Waste Discharge Permit Packages, Permit Nos.: G-20171121-366-C, Process Vent 1, 11/28/17; G-20171121-367-C, Ventilation Vent 1(VG-104), 11/28/17; and G-20171121-368-C, Surry Radwaste Facility Vent, 11/28/17
 Liquid Radioactive Waste Discharge Permit Packages, Permit Nos.: L-20171116-269-B, Liquid Waste Monitoring Tank B, 11/16/17; and L-20171122-274-B, Liquid Waste Monitoring Tank A, 11/22/17
 Out-of-Service Log for Effluent Radiation Monitors, 5/01/15 thru 10/31/17
 Point Source Calibration Data Sheet: 1-RM-VG-131-2, 10/20/81
 Results of Radiochemistry Cross Check Program, Dominion, Surry Power Station, 3rd Qtr 2015 - 3rd Qtr 2017
 Surry Vent Monitors Factory Acceptance Test Report, 12/17/02
 System Health Report, Surry/Common/GW Gas Waste, 3rd Qtr 2015 thru 3rd Qtr 2017
 Work Order (WO) 38103319342, Containment High Range Area Rad Mon, 2-RM-RMS-227 Channel Calibration, 3/25/14
 WO 38103359747, 547 Day Freq.: PT Auxiliary Ventilation Filter FI-OC-22A, 11/19/14
 WO 38103473190, 547 Day Freq.: 1-GW-RM-130 Calibration, 6/24/15
 WO 38103451517, Cal Condenser Air Ejector Discharge Radiation Monitor, 02-SV-RM-211, 3/05/15
 WO 38103491027, Containment High Range Area Rad Mon, 2-RM-RMS-228 Channel Calibration, 10/23/15
 WO 38103491030, Containment High Range Area Rad Mon, 2-RM-RMS-227 Channel Calibration, 10/23/15
 WO 38103538720, Cal Vent Stack number1 Radiation Monitor, 01-VG-RM-104, 01/27/16
 WO 38103564659, 547 Day Freq.: PT Auxiliary Ventilation Filter FI-OC-22A, 6/24/16
 WO 38103569512, 547 Day Freq.: 1-VG-RM-131 Calibration, 4/28/16
 WO 38103595676, Cal Condenser Air Ejector Discharge Radiation Monitor, 02-SV-RM-211, 6/30/16
 WO 38103636223, 547 Day Freq.: 1-GW-RM-130 Calibration, 11/30/16
 WO 38103654957, Cal Radwaste Rad Monitor, 01-RRM-RITS-131, 3/11/15
 WO 38103666984, Containment High Range Area Rad Mon, 2-RM-RMS-228 Channel Calibration, 4/07/17
 WO 38103704503, Cal Vent Stack number1 Radiation Monitor, 01-VG-RM-104, 6/29/17
 WO 38103725425, 547 Day Freq.: 1-GW-RM-130 Calibration, 8/31/17
 WO 38103745992, Cal Radwaste Rad Monitor, 01-RRM-RITS-131, 7/19/17
 0-HSP-RMSS-001, RMS Setpoint Evaluation, Rev. 0, 5/02/15
 0-MPT-0620-10, Charcoal Filter Laboratory Test Analysis Documentation for Ventilation Exhaust Filtration Systems, Rev. 13, 7/14/14, 9/04/14, 1/27/16, and 2/22/16
 0-MPT-0620-11, In-Place Testing for Ventilation Systems, Rev. 10, 11/17/14 and 5/20/16
 1-IPM-VS-F-117A, 1-VS-F-58A Flow Instrumentation Calibration, Rev. 2, 6/02/15 and 12/14/16
 1-IPM-VS-F-117B, 1-VS-F-58B Flow Instrumentation Calibration, Rev. 2, 6/02/15 and 12/15/16
 10 CFR 61, Vendor Laboratory Analysis Data from 2015 through 2017 (16 record sets) LIMS Sample Nos: L65852-1, L66423, L68301, L69539, L70520, L70842, and 73502 (1-10)

Condition Reports

1070471

Other Documents

SAR003112, Rad Effluent Control & HP-AA-111-1011, Rev. 0

Section 2RS7: Radiological Environmental Monitoring Program (REMP)

Procedures

ER-AA-BPM-101, Underground Piping and Tank Integrity Program, Rev. 11
 HP-1033.620, Portable Air Samplers Calibration and Operation, Rev. 9
 HP-3051.010, Radiological Environmental Monitoring Program, Rev. 24
 HP-3051.020, Groundwater Protection Program Rev. 7
 HPTB-2118, Radioactive Effluents Control Program: Technical Bases, Rev. 0
 HSP-REMP-001, Land Use Census, Rev. 12
 HSP-REMP-002, Environmental Radiation Monitors, Rev. 3
 HSP-RM-002, Monitoring Normally Non-Radioactive Systems for Radioactive Contamination, Rev. 10
 PI-AA-200, Corrective Action, Rev. 33
 RP-AA-502, Groundwater Protection Program, Rev. 5
 RP-AA-503, Radiological Decommissioning Records - 10 CFR 50.75(g) Program, Rev. 1
 RP-AA-504, Remediation Process for the Groundwater Protection Program, Rev. 4
 RP-AA-111-1012, Radiological Environmental Monitoring Program Review, Rev. 1
 VPAP-2103S, Offsite Dose Calculation Manual (Surry), Rev. 20
 0-IPM-MM-PR0-001, Primary Meteorological Tower Instrumentation Calibration, Rev. 9
 0-IPM-MM-PR0-002, Backup Meteorological Tower Instrumentation Calibration, Rev. 6 and 7
 IMP-C-MM-41, Repair and Maintenance of the Wind Speed and Direction Sensor Monitoring System Remote Meteorological Site, Rev. 1

Records and Data

Annual Effluent Release Report Logs, 1/01/16 through 1/01/17
 Annual Radiological Environmental Operating Report (AREOR), Surry Power Station for 2015 and 2016
 Annual Radioactive Effluent Release Report (ARERR), Surry Power Station for 2015 and 2016
 Audit Report, Teledyne Brown Engineering Environmental Services, Audit number WT-WTHQN-2015-00728 (NUPIC number24191), 7/6/16
 Audit Report Closure, Teledyne Brown Engineering Environmental Services, Audit number WT-WTHQN-2015-00728 (NUPIC number24191), 10/26/2016
 Direct Radiation Measurements - Sector Quarterly TLD Results [REMP TLDs], for 2015, 2016, and 1st through 3rd Quarter 2017
 Environmental Sample Log (REMP Sampling Schedule) for November and December 2017
 Groundwater Protection Program Sampling Results, January 2015 through September 2017
 HPPOS-16-03, Implementation of ANSI/N13.37-2014 Environmental Dosimetry Criteria at Surry Power Station, November 2016
 Maximo Preventive Maintenance Report, Primary and Back-Up Meteorological Tower PM List, 11/29/17
 Memorandum with Attachment, Surry Meteorological Data (Joint Frequency Distributions and Data Recovery Percentage) for 2015, 2016, and data recovery through 10/22/17, various dates
 Radiological Environmental Monitoring Program Review, CR 1021187, Surry for the Period 09/14 – 01/16, 5/31/16
 REMF Air Sampler Certificate of Calibration: S/N 12331, 1/12/16, 4/13/16 and 3/13/17; S/N 21059, 1/12/2016, and 1/18/2017; S/N 22124, 1/12/16, and 1/4/17; S/N 22125, 1/12/16, and 1/18/17; S/N 22126, 1/12/16, and 1/18/17; S/N 23354, 1/12/16; S/N 23355, 1/12/16, and 1/4/17; and S/N 23357, 1/12/16, and 1/4/17
 Surry Groundwater Protection Program Risk Assessment, 2014
 Surry Power Station 2015, and 2016 Land Use Census, Various Dates
 Vendor Laboratory Cross Check Performance Summary for 2015 and 2016, [including Eckert & Zeigler Analytics, Inc, DOE's Mixed Analysis Performance Evaluation Program (MAPEP), and

Environmental Resource Associates, (ERA)], Data from 2015 and 2016 AREOR
 WO 38103709427, PM/CAL Back-up Met Tower Instrumentation, 10/11/16
 WO 38103708958, PM/CAL Primary Met Tower Instrumentation, 10/12/16
 WO 38103746265, PM/CAL Back-up Met Tower Instrumentation, 4/11/17
 WO 38103746270, PM/CAL Primary Met Tower Instrumentation, 4/5/17
 WO 38103722272, PM: Replace W/D & W/S Sensors on Primary Met Tower, 4/5/17
 2014 Priority Index Spreadsheet, Surry Power Station (ranking of Structure, System, and
 Component risk to groundwater)

Condition Reports

1018801 1019609 1033970 1056980 1066641 1080538

Other Documents

SAR 1021187, Radiological Environmental Monitoring Program, 5/31/16

Section 40A1: Performance Indicator Verification

Procedures

HP-3010.020, Radioactive Liquid Waste Release Permits, Rev. 3
 HP-3010.032, Radioactive Gaseous Waste Accountability and Dose Calculations, Rev. 6
 PI-AA-100-1000, Performance Indicators, Rev. 5
 RP-AA-112, Radiation Safety Performance Indicator Reporting, Rev. 4

Records and Data

Electronic Dosimeter Dose/Dose Rate Alarm Log November 2016 through October 2017,
 11/1/2017
 Gaseous Release Permit (Gas Permit Post-Release Data), G-20171020-330-B, 10/22/17
 Liquid Release Permit (Liquid Permit Post-Release Data), L-20171016-254-C, 10/23/17
 Gamma Spectrum Analysis, Sample ID 20-OCT-2017-0007, B WGDT, 10/20/17
 Gamma Spectrum Analysis, Sample ID 23-OCT-2017-0006, SDC number4 (Storm Drain
 Composite
 number4), 10/23/17
 Surry Power Station, Regulatory Assessment Performance Indicators (NRC Performance
 Indicators), Radiological Protection, October 2016 through September 2017, various dates

Condition Reports

103342 1051862 1070592

Other Documents

ER-AA-SPI-101, Implementation of the Consolidated Data Entry (CDE) Reporting for Mitigating
 System Performance Index (MSPI), Rev. 0
 NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 7
 SU-2014-0082, MSPI Basis Document, Rev. 0

Section 40A2: Identification and Resolution of Problems

Procedures

Condition Reports

1057026 1064479 1071139 1071588 1075052 1076705 1077406 1079364 1079766
 1079975 1080437 1081113 1081119

Drawings

11448-FE-35A, Arrangement of Electrical Penetrations in Containment, Rev. 11

Work Orders
38046769301

Other Documents

CA3047896, EACE to Engineering 01-VS-E-4E, Rev. 0
 CA3052825, CA to Document the Results of Inspection of 1-VS-E-4D
 Containment Electrical Penetrations Design Basis Document, Rev. 3
 DCP SU-17-00126, Condenser End Bell Modification, Rev. 0
 ET-CEP-10-0010, Issuance of QDR-S-15.6, Revision 3, Westinghouse Containment Electrical
 Penetrations for Surry, Rev. 0
 NRC Information Notice 2014-04, Potential for Teflon Material Degradation in Containment
 Penetrations, Mechanical Seals and Other Components, 3/26/14
 NUS-401, Rework of Reactor Containment Electrical Penetrations for Surry Power Station 1972
 Extension, Rev. 0
 NUS-2050, Specification for Inadequate Core Cooling System Penetration Procurement Surry
 Power Station Units 1 and 2, Rev. 1
 Procurement Technical Evaluation, 10000022846, Containment Electrical Penetrations, Type
 IIA, Rev. 5
 VTM 38-A331-00001, Amphenol Cables/Special Connectors/Engineered Interconnections:
 Technical Manual for Penetrations, Rev. 2

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

Condition Reports

1075133 1075268 1075289 1075326 1075404 1075405 1075418 1075467

Other Documents

ACE 3064969, Unit 1 Ramped Offline IAW 0-AP-23.00, 11/22/17