



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION IV  
1600 EAST LAMAR BOULEVARD  
ARLINGTON, TEXAS 76011-4511

October 31, 2018

Mr. John Dent, Jr.  
Vice President-Nuclear and CNO  
Nebraska Public Power District  
Cooper Nuclear Station  
72676 648A Avenue  
P.O. Box 98  
Brownville, NE 68321

**SUBJECT: COOPER NUCLEAR STATION – NRC INTEGRATED INSPECTION  
REPORT 05000298/2018003**

Dear Mr. Dent:

On September 30, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Cooper Nuclear Station. On October 17, 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 two findings of very low safety significance (Green) in this report. One of these findings involved a violation of NRC requirements. Additionally, NRC inspectors documented one Severity Level IV violation with no associated finding. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 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 IV; the Director, Office of Enforcement; and the NRC resident inspector at the Cooper Nuclear Station.

If you disagree with a cross-cutting aspect assignment, or a finding not associated with a regulatory requirement 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 IV; and the NRC resident inspector at the Cooper Nuclear 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 at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

*/RA/*

Jason W. Kozal, Chief  
Project Branch C  
Division of Reactor Projects

Docket No. 50-298  
License No. DPR-46

Enclosure:  
Inspection Report 05000298/2018003  
w/Attachment: Documents Reviewed

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

Docket Number(s): 05000298

License Number(s): DPR-46

Report Number(s): 05000298/2018003

Enterprise Identifier: I-2018-003-0003

Licensee: Nebraska Public Power District

Facility: Cooper Nuclear Station

Location: Brownville, Nebraska

Inspection Dates: July 1, 2018 to September 30, 2018

Inspectors: P. Vossmar, Senior Resident Inspector  
M. Tobin, Acting Senior Resident Inspector  
M. Stafford, Resident Inspector  
J. Ambrosini, Senior Emergency Preparedness Inspector, R-I  
R. Azua, Senior Reactor Inspector  
W. Cullum, Reactor Engineer  
P. Elkmann, Senior Emergency Preparedness Inspector  
D. Johnson, Senior Emergency Preparedness Specialist, NSIR  
J. Kirkland, Senior Operations Engineer  
C. Stott, Reactor Engineer

Approved By: Jason W. Kozal  
Chief, Project Branch C  
Division of Reactor Projects

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting an integrated inspection at Cooper Nuclear Station 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 and violations are summarized in the tables below.

### List of Findings and Violations

Failure to Provide Complete and Accurate Information in a License Amendment Request			
Cornerstone	Significance	Cross-cutting Aspect	Inspection Procedure
Not Applicable	Severity Level IV NCV 05000298/2018003-01 Closed	Not Applicable	71114.01 – Exercise Evaluation
The inspectors identified that the licensee provided inaccurate information to the NRC in a license amendment request for an emergency action level scheme change. Specifically, the licensee provided information about the measurement ranges of a liquid effluent radiation monitor used in emergency action levels that was not accurate.			

Failure to Perform Process Applicability Determination			
Cornerstone	Significance	Cross-cutting Aspect	Inspection Procedure
Mitigating Systems	Green NCV 05000298/2018003-02 Closed	H.5 – Work Management	71152 – Problem Identification and Resolution
The inspectors identified a Green, non-cited violation of Technical Specification 5.4.1.a, “Procedures,” for the licensee’s failure to follow Administrative Procedure 0.9, “Tagout,” Revision 88, for performing a monthly audit and Process Applicability Determination. Specifically, the inspectors noted that a clearance order on the safety-related residual heat removal service water booster pump room fan coil unit was hanging for greater than 90 days with no Process Applicability Determination performed, which resulted in the power switch for the fan coil unit being unintentionally tagged out of its normal configuration for almost 2 years.			

Failure to Provide Adequate Lubrication for Drywell Fan Coil Units			
Cornerstone	Significance	Cross-cutting Aspect	Inspection Procedure
Initiating Events	Green FIN 05000298/2018003-03 Closed	H.5 – Work Management	71152 – Problem Identification and Resolution
<p>The inspectors reviewed a Green, self-revealed finding for the licensee’s failure to implement Work Order 5060136 during maintenance on the drywell fan coil units. Specifically, on October 26, 2016, during bearing replacement work on drywell fan coil, unit D, maintenance personnel failed to properly reinstall auto-lubricator injection connectors after removing the interferences per the work order instructions. This error resulted in the failure of fan coil, unit D, due to inadequate bearing lubrication and ultimately led to a downpower and reactor shutdown.</p>			

## PLANT STATUS

Cooper Nuclear Station began the inspection period at rated thermal power. On August 24, 2018, the plant commenced power coast down and on September 29, 2018, the licensee shut the plant down for Refueling Outage 30.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) 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 performed plant status activities described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification and Resolution." 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

### 71111.04—Equipment Alignment

#### Partial Walkdown (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Protected area fire protection distribution on July 27, 2018
- (2) Startup station service transformer during emergency station service transformer bus replacement on August 9, 2018
- (3) Core spray B following maintenance on August 15, 2018

#### Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the residual heat removal system on September 14, 2018.

### 71111.05AQ—Fire Protection Annual/Quarterly

#### Quarterly Inspection (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Standby gas treatment room, Fire Area RB-V, Zone 5B, on August 6, 2018
- (2) Reactor building southeast quad, Fire Area RB-B, Zones 1B and 1G, on August 15, 2018

- (3) Optimum water chemistry building, Fire Area YD, Zone 26, on August 24, 2018
- (4) Reactor building northeast 903 foot level, Fire Area RB-FN, Zone 2A-1, on September 11, 2018
- (5) Reactor building northwest 903 foot level, Fire Area RB-CF, Zones 2A-2 and 2B, on September 11, 2018

Annual Inspection (1 Sample)

The inspectors evaluated fire brigade performance on March 30, 2018, and August 23, 2018.

71111.06—Flood Protection Measures

Cables (1 Sample)

The inspectors evaluated cable submergence protection in:

- (1) Manhole 6A on July 18, 2018

71111.07—Heat Sink Performance

Heat Sink (Triennial) (4 Samples)

The inspectors evaluated exchanger/sink performance on the following components from August 20, 2018, to August 23, 2018:

- (1) Residual heat removal heat exchanger B, cooled by service water, Section 02.02b
- (2) Reactor equipment cooling heat exchanger B, cooled by service water, Section 02.02b
- (3) Emergency diesel generator 1 jacket water heat exchanger, cooled by service water, Section 02.02b
- (4) Emergency diesel generator 1 intercooler A, cooled by service water, Section 02.02b

71111.11—Licensed Operator Requalification Program and Licensed Operator Performance

Operator Requalification (1 Sample)

The inspectors observed and evaluated training scenarios in the simulator on August 28, 2018.

Operator Performance (1 Sample)

The inspectors observed and evaluated plant shutdown for Refueling Outage 30 on September 29, 2018.

Operator Exams (1 Sample)

The inspectors reviewed and evaluated requalification examination results on August 15, 2018.

#### 71111.12—Maintenance Effectiveness

##### Routine Maintenance Effectiveness (2 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Drywell fan coil Unit A on August 24, 2018
- (2) Core spray system on September 28, 2018

#### 71111.13—Maintenance Risk Assessments and Emergent Work Control (5 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) New fuel receipt inspections on July, 27, 2018
- (2) Emergency station service transformer replacement on August 10, 2018
- (3) Core spray B valve maintenance on August 15, 2018
- (4) Residual heat removal A maintenance window on September 5, 2018
- (5) Reactor recirculation M-G set A generator brushes arcing on September 13, 2018

#### 71111.15—Operability Determinations and Functionality Assessments (6 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Reactor core flow indication issues on July 24, 2018
- (2) Mechanical remote operating station hardened vent control structure design discrepancy on August 3, 2018
- (3) Residual heat removal service water 18-inch pipe elbow found below bounding 20-inch pipe minimum thickness requirement on September 11, 2018
- (4) Residual heat removal service water B pipe SW-E-10-2851-3 found below minimum wall thickness on September 28, 2018
- (5) Residual heat removal service water B pipe SW-E-8-2851-3 found below minimum wall thickness on September 28, 2018
- (6) Residual heat removal service water B pipe SW-E-7-2851-7 found below minimum wall thickness on September 28, 2018

#### 71111.18—Plant Modifications (1 Sample)

The inspectors evaluated the following temporary modification:

- (1) Voltage regulator temporary modification to address manual controller failure on August 16, 2018



#### 71111.19—Post Maintenance Testing (5 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) Core spray A following maintenance on August 1, 2018
- (2) Emergency diesel generator compressor 2B replacement on August 10, 2018
- (3) Phase 1 of planned emergency station service transformer bus replacement on August 10, 2018
- (4) Emergency station service transformer bus corona and moisture repairs on August 10, 2018
- (5) Core spray B following maintenance on August 15, 2018

#### 71111.20—Refueling and Other Outage Activities (Partial Sample)

The inspectors evaluated Refueling Outage 30 activities from September 29, 2018, to September 30, 2018. The inspectors completed inspection procedure Sections 03.01.a and 03.01.c.1.

#### 71111.22—Surveillance Testing

The inspectors evaluated the following surveillance tests:

##### Routine (3 Samples)

- (1) Alternate rod insertion instrumentation and control surveillance on July 5, 2018
- (2) Emergency diesel generator 2 monthly surveillance run on September 11, 2018
- (3) High pressure coolant injection steam line low pressure logic system functional test on September 29, 2018

##### In-service (1 Sample)

- (1) Standby liquid control pump operability test and discharge check valve radiography on September 27, 2018

#### 71114.01—Exercise Evaluation (1 Sample)

The inspectors evaluated the biennial emergency plan exercise conducted July 31, 2018. The exercise simulated a fire in the reactor building, a failure on the turbine requiring a manual reactor scram followed by a failure of the reactor protection system to bring the reactor to shutdown (anticipated transients without scram), failures preventing emergency response personnel access to the reactor building, multiple failures of safety relief valves to operate when required, and a pipe break on the high pressure core injection line with a failure of the inboard isolation valve to close. A filtered and monitored radiological release was simulated to occur from the ruptured pipe through the reactor building standby gas treatment system. A wind shift after the General Emergency required the emergency response personnel to develop a second protective action recommendation. The inspectors

discussed exercise performance with staff at Federal Emergency Management Agency (FEMA) Region VII.

71114.08—Exercise Evaluation – Scenario Review (1 Sample)

The inspectors reviewed and evaluated the proposed scenario for the July 31, 2018, biennial emergency plan exercise on June 21, 2018. The inspectors discussed the proposed scenario with staff at FEMA Region VII.

**OTHER ACTIVITIES – BASELINE**

71151—Performance Indicator Verification (4 Samples)

The inspectors verified licensee performance indicators submittals listed below:

- (1) IE04: Unplanned Scrams with Complications (USwC) Sample (07/01/2017-06/30/2018)
- (2) EP01: Drill/Exercise Performance (DEP) Sample (04/01/2017-06/30/2018)
- (3) EP02: Emergency Response Organization (ERO) Drill Participation Sample (04/01/2017-06/30/2018)
- (4) EP03: Alert And Notification System (ANS) Reliability Sample (04/01/2017-06/30/2018)

71152—Problem Identification and Resolution

Semiannual Trend Review (1 Sample)

The inspectors reviewed the licensee's corrective action program for trends in station human performance and risk recognition that might be indicative of a more significant safety issue.

Annual Follow-up of Selected Issues (2 Samples)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) Drywell fan coil unit bearing failures on September 14, 2018
- (2) Service water booster pump fan coil unit tagged out for an extended period on September 21, 2018

## INSPECTION RESULTS

Failure to Provide Complete and Accurate Information in a License Amendment Request			
Cornerstone	Significance	Cross-cutting Aspect	Inspection Procedure
Not Applicable	Severity Level IV NCV 5000298/2018003-01 Closed	Not Applicable	71114.01 – Exercise Evaluation
<p>The inspectors identified that the licensee provided inaccurate information to the NRC in a license amendment request for an emergency action level scheme change. Specifically, the licensee provided information about the measurement ranges of a liquid effluent radiation monitor used in emergency action levels that was not accurate.</p> <p><u>Description:</u> The NRC approved an emergency action level (EAL) scheme on February 23, 2010, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML100080231), which included changes to emergency action levels AU1.2 and AA1.2. The Unusual Event threshold was 2 times the calculated alarm value for a liquid release, the Alert threshold was 200 times the calculated alarm value. Liquid release alarm setpoints are variable and calculated using methods detailed in the licensee's Offsite Dose Assessment Manual. The maximum permissible alarm value was 0.099 <math>\mu\text{Ci/ml}</math> on the liquid radwaste effluent monitor, with the maximum instrument range being 0.100 <math>\mu\text{Ci/ml}</math>.</p> <p>The licensee identified on October 26, 2010, that there were no controls in place to ensure that two times and two hundred times the calculated alarm value could be read on the liquid radwaste effluent monitor. Therefore, the licensee could not ensure that emergency action levels AU1.2 and AA1.2 would be accurately implemented when conditions warranted for any specific release package. This was documented in Condition Report CR-CNS-2010-07974.</p> <p>The inspectors reviewed the licensee's license amendment request dated February 26, 2009 (ADAMS Accession No. ML090700408), and the licensee's response to a request for additional information dated September 24, 2009 (ADAMS Accession No. ML092750402) to determine whether the conditions identified in the corrective action program existed at the time the licensee requested the license amendment and whether the request correctly described the instrument responses. The inspectors determined that the licensee was requested to affirm in the request for additional information that all instruments referenced in the license amendment request were capable of measuring the parameter values provided in the proposed emergency action levels. The licensee responded on September 24, 2009, that all instruments were capable of measuring the values proposed in the emergency action levels, including the radiation monitors.</p> <p><u>Corrective Action:</u> The licensee made a change to the emergency action levels in 2010 to add "upscale high" on the liquid effluent radiation monitor as an initiating condition. In 2017 the licensee removed "upscale high" as a condition of AU1.2 to restore the differentiation between classifications. The inspectors reviewed the licensee's current emergency action levels and determined the emergency action levels can be implemented. There is no immediate safety concern pending the licensee's long-term corrective action to implement a new emergency action level scheme based on Nuclear Energy Institute (NEI) 99-02, "Development of Emergency Action Levels for Non-Passive Reactors," Revision 6.</p>			

Corrective Action References: Condition Reports CR-CNS-2010-07974, CR-CNS-2016-04791, CR-CNS-2017-01508, CR-CNS-2017-04468, and CR-CNS-2018-04662

Performance Assessment:

The inspectors determined this violation was associated with a reactor oversight program performance deficiency of minor significance. Specifically, it was determined that the licensee failed to maintain the effectiveness of the emergency plan, but it was a minor performance deficiency due to the continued effectiveness of the EAL despite the error.

Enforcement:

Severity: The Reactor Oversight Process (ROP) significance determination process does not specifically consider the regulatory process impact in its assessment of licensee performance. Therefore, it is necessary to address this violation which impedes the NRC's ability to regulate using traditional enforcement to adequately deter noncompliance. This issue was determined to be a Severity Level IV violation using the NRC Enforcement Policy dated May 15, 2018, Section 2.3.11, "Inaccurate and Incomplete Information," and Section 6.9, "Inaccurate and Incomplete Information or Failure to Make a Required Report."

The Enforcement Policy, Section 6.9(c)(1), provides that a violation is characterized as Severity Level III if the accurate information would have caused the NRC to reconsider a regulatory position or undertake substantial further inquiry. There are no corresponding Severity Level IV examples. Through discussion with the Office of Nuclear Security and Incident Response (NSIR), it was determined that had the accurate information been provided (or had the NRC known the information was inaccurate), the NRC license reviewer would have used the request for additional information (RAI) process to address the license amendment request. Specifically, the licensee would have been required to revise their proposed emergency action levels so they could be implemented before the emergency action scheme change was approved. Because the RAI is a routine NRC process, it was concluded that the failure to provide accurate information to the NRC would not have caused the NRC to undertake substantial further inquiry, and the violation was appropriately characterized as Severity Level IV.

Violation: Section 50.9(a) of 10 CFR states, in part, that information provided by a licensee shall be complete and accurate in all material respects.

Contrary to the above, on February 26, 2009, and September 24, 2009, information was provided to the Commission by the licensee that was not complete and accurate in all material respects. Specifically, the licensee provided information about the measurement ranges of a liquid effluent radiation monitor used in emergency action levels that were not correct. The information was material to the NRC's decision whether to approve a license amendment request. The NRC approved a license amendment for an emergency action level scheme on February 23, 2010, which included emergency action levels which could not be implemented; the approval of those emergency action levels was based on the incorrect submission provided by the licensee.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Perform Process Applicability Determination			
Cornerstone	Significance	Cross-cutting Aspect	Inspection Procedure
Mitigating Systems	Green NCV 05000298/2018003-02 Closed	H.5 – Work Management	71152 – Problem Identification and Resolution
<p>The inspectors identified a Green, non-cited violation of Technical Specification 5.4.1.a, “Procedures,” for the licensee’s failure to follow Administrative Procedure 0.9, “Tagout,” Revision 88, for performing a monthly audit and Process Applicability Determination. Specifically, the inspectors noted that a clearance order on the safety-related residual heat removal service water booster pump room fan coil unit was hanging for greater than 90 days with no Process Applicability Determination performed, which resulted in the power switch for the fan coil unit being unintentionally tagged out of its normal configuration for almost 2 years.</p> <p><u>Description:</u> In April 2018, inspectors identified a tag, on the safety-related residual heat removal (RHR) service water booster pump (SWBP) room fan coil unit (FCU), which maintained the power switch for the FCU OFF, out of its normal position. This safety-related FCU supports operation of more than one RHR SWBP in the event that normal control building ventilation is lost during an emergency. The FCU had recently been repaired and the licensee informed the inspectors that it had been returned to service. Upon further investigation, the inspectors noted that the tag had been present since July 2016, nearly 2 years. The inspectors also noted that the clearance order (CO) for the Tagout did not have a Process Applicability Determination (PAD) performed. The PAD would have helped the operators recognize the off-normal position of this power switch and would have identified any compensatory measures for the condition. Ultimately the licensee returned the power switch to the normal position, returning the RHR SWBP room FCU to service.</p> <p>The inspectors reviewed the history associated with this CO. In 2016, the licensee created a work order (WO), WO 5140788, to remove an obsolete, abandoned cooling tower. This cooling tower, a standby to control building ventilation, had been used to cool the RHR SWBP room. The licensee had abandoned this cooling tower in place in 2005. In July of that year, the licensee identified damage to the fan motor associated with this cooling tower.</p> <p>A subsequent work order, WO 5143045, was created to remove the damaged fan motor, which posed a safety risk, until the obsolete cooling tower could be fully removed. The licensee had to establish a CO in order to remove the fan motor. The CO was established on July 29, 2016. As part of the Tagout process, operations correctly identified this CO as requiring a PAD. The PAD was required because the CO tagged the safety-related RHR SWBP room FCU out of its normal position. On July 31, 2016, a revision to the CO was created and established. This revised CO was not marked as requiring a PAD, and the initial CO was removed. On August 3, 2016, the work to remove the damaged fan motor was completed; however, the CO remained in place to support abandoning the obsolete cooling tower per WO 5140788.</p> <p>On September 22, 2016, the licensee conducted a monthly Tagout Audit, which included the tag on the RHR SWBP room FCU. As part of the audit process, the licensee incorrectly marked the CO as not requiring a PAD because the work was intended to support abandoning equipment. This was incorrect because the power switch for the safety-related FCU was not being abandoned and was maintained in an off-normal position. WO 5143045,</p>			

to remove the damaged fan motor, was closed out and marked as complete on October 3, 2016. In January 2017, WO 5140788, to abandon the cooling tower, was placed in a "Reschedule" status, to be completed at some point in the future. The CO to support this removal was still in place and no subsequent Tagout Audits would identify the need for a PAD.

On October 13, 2017, the licensee identified leakage from the service water portion of the RHR SWBP room FCU. The service water leak was repaired on April 5, 2018. Upon completing work and clearing the tags used to repair the leak, the licensee informed the inspectors that the fan coil unit had been restored to service. A few days later, the inspectors questioned the status of the RHR SWBP room FCU. It was at this time that inspectors noticed the power switch for the FCU was still tagged in the off-normal, OFF position. The inspectors noted that the licensee was surprised to learn of the remaining tag. With the switch positioned to OFF, the FCU would not run if called upon, and only one of four RHR SWBPs could be used in the event of an emergency. These questions led the licensee to revise the CO to remove the tag from the RHR SWBP room FCU. In total, the FCU was inadvertently tagged out from July 29, 2016, until May 8, 2018.

Corrective Action: The licensee revised the clearance order in order to remove the tag from the safety-related RHR SWBP room FCU, thereby returning the fan coil unit to service.

Corrective Action Reference: Condition Report CR-CNS-2018-05472

Performance Assessment:

Performance Deficiency: The inspectors determined that the failure to follow Administrative Procedure 0.9 for performing a monthly audit and Process Applicability Determination was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it adversely affected the configuration control 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 failure to follow Administrative Procedure 0.9 resulted in a missed opportunity to identify that the RHR SWBP FCU power switch had been inadvertently left tagged out of its normal position. In this configuration, the licensee was limited to only being able to run one RHR SWBP at a time, thereby adversely impacting the cornerstone objective.

Significance: The inspectors assessed the significance of the finding using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012. The inspectors determined that this finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design or qualification of a mitigating system, structure, or component; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time or two separate safety systems out of service for greater than its technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more nontechnical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours.

Cross-cutting Aspect: This finding had a human performance cross-cutting aspect associated with work management, in that the licensee failed to implement a process of planning, controlling, and executing work, resulting in the safety-related RHR SWBP room FCU remaining inadvertently tagged out for an extended period of time.

Enforcement:

Violation: Technical Specification 5.4.1.a requires, in part, that procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Section 1.c of Appendix A to Regulatory Guide 1.33, Revision 2, requires procedures for “Equipment Control” including configuration control activities such as locking and tagging. The licensee established Administrative Procedure 0.9, “Tagout,” Revision 88, to meet this requirement. Procedure 0.9, Step 22.1.2 requires, in part, that a monthly audit shall ensure an action is issued to the operations department to complete a Process Applicability Determination for components that are greater than 45 days but less than 90 days that result in a change in normal plant configuration.

Contrary to the above, on September 22, 2016, the licensee failed to ensure that the monthly audit issued an action to the operations department to complete a Process Applicability Determination (PAD) for components that were greater than 45 days but less than 90 days that resulted in a change in normal plant configuration. Specifically, the licensee failed to complete a PAD for a clearance order that changed the normal plant configuration of the safety-related RHR SWBP room FCU power switch from ON to OFF.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Provide Adequate Lubrication for Drywell Fan Coil Units

Cornerstone	Significance	Cross-cutting Aspect	Inspection Procedure
Initiating Events	Green FIN 05000298/2018003-03 Closed	H.5 – Work Management	71152 – Problem Identification and Resolution

The inspectors reviewed a self-revealed finding for the licensee’s failure to implement Work Order 5060136 during maintenance on the drywell fan coil units. Specifically, on October 26, 2016, during bearing replacement work on drywell fan coil, unit D, maintenance personnel failed to properly reinstall auto-lubricator injection connectors after removing the interferences per the work order instructions. This error resulted in the failure of drywell fan coil, unit D, due to inadequate bearing lubrication, and ultimately led to a downpower and reactor shutdown.

Description: On May 11, 2018, operations personnel secured drywell fan coil unit (DWFCU) D after they observed indications of fan failure. Subsequently, on May 26, 2018, DWFCU A also failed and needed to be secured. The licensee lowered power by approximately 5 percent in order to maintain drywell temperature below the 150 degree Fahrenheit technical specification limit. As a result of the challenge to drywell temperature limits, the licensee shut the plant down in order to repair the DWFCUs. Upon inspection, the licensee discovered that bearings associated with the D and A DWFCUs had catastrophically failed due to improper lubrication, and both fans had sustained damage related to these failures. Further investigation revealed the auto-lubricator device that ensured bearing

lubrication during the cycle had been installed in the wrong port on the bearing housing of DWFCU D. As a result, these bearings did not receive any of the relubrication that was required throughout the operating cycle. In addition, bearings with tighter tolerances than what was dictated by design specifications had been installed in all four DWFCUs as a result of an unrecognized vendor material supply issue. The licensee concluded that both of these issues led to the DWFCU bearing failures.

The inspectors reviewed work orders (WOs) associated with the work that took place during the 2016 refueling outage that replaced bearings on all four DWFCUs. The inspectors found that WO 5060136 provided instructions to “remove interferences (bearing lubricator, accelerometer, and thermos couple cables) as required for inboard and outboard bearing replacement.” An additional step instructed workers to “reinstall the removed interferences.” The inspectors concluded that these steps were not performed properly in accordance with licensee guidance on control of in-process material, and that the bearing auto-lubricators should have been restored to connect to the same bearing housing port that they had been removed from, as directed by the WO. The inspectors also concluded that the WO should have contained more detailed instructions to ensure that the auto-lubricator was reinstalled properly, that photos or drawings should have been attached to the work order to aid in worker identification of the as-found configuration, and that the workers failed to recognize that they had lost traceability control of the bearing lubricators and should have terminated execution of the work until traceability could be restored.

**Corrective Actions:** The licensee repaired and replaced damaged portions of all affected drywell fan coil units; revised the associated maintenance plans to include auto-lubricator installation instructions; and initiated an engineering change to address necessary improvements to the lubrication systems for the fan coil unit bearings.

**Corrective Action Reference:** Condition Report CR-CNS-2018-03245

Performance Assessment:

**Performance Deficiency:** The licensee’s failure to ensure that the drywell fan cooling units were provided with adequate lubrication was a performance deficiency.

**Screening:** The inspectors determined the performance deficiency was more than minor because it adversely affected the equipment performance attribute of the Initiating Events Cornerstone to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the issue resulted in a downpower and reactor shutdown due to challenging technical specification drywell temperature limits.

**Significance:** The inspectors assessed the significance of the finding using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” dated June 19, 2012, and determined that the finding had very low safety significance (Green) because it did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition.



Cross-cutting Aspect: The finding had a cross-cutting aspect in the area of human performance associated with work management, because the licensee failed to ensure that the organization implemented a process of planning and executing work activities to assure that the DWFCU auto-lubricators were connected to the correct bearing housing ports.

Enforcement: The inspectors did not identify a violation of regulatory requirements associated with this finding.

## **EXIT MEETINGS AND DEBRIEFS**

On June 7, 2018, as part of the biennial emergency preparedness inspection, the inspectors discussed the proposed exercise scenario with Mr. T. Morgan, Branch Chief, Technological Hazards Branch, FEMA Region VII, and other FEMA regional staff.

On June 21, 2018, as part of the biennial emergency preparedness inspection, the inspectors discussed the proposed exercise scenario with Mr. J. Stough, Manager, Emergency Preparedness, and other licensee staff.

On August 2, 2018, as part of the biennial emergency preparedness inspection, the inspectors discussed exercise performance with Mr. T. Morgan, Branch Chief, Technological Hazards Branch, FEMA Region VII, and other FEMA regional staff.

On September 10, 2018, the inspectors presented the biennial emergency preparedness exercise and performance indicator inspection results to Mr. J. Dent, Jr., Site Vice President and Chief Nuclear Officer, and other members of the licensee staff. The inspectors verified no proprietary information was retained or documented in this report.

On October 12, 2018, the inspectors discussed the significance of the biennial emergency preparedness exercise and performance indicator inspection findings with Mr. J. Shaw, Manager, Licensing, and other members of the licensee staff. The licensee acknowledged the issues presented.

On August 15, 2018, the inspector presented the annual licensed operator requalification inspection results to Mr. J. Florence, Superintendent, Simulator and Training Support, and other members of the licensee staff. The inspectors verified no proprietary information was retained or documented in this report.

On August 23, 2018, the inspectors presented the heat sink performance inspection results to Mr. J. Kalamaja, General Manager Plant Operations, and other members of the licensee staff. The inspectors confirmed that proprietary information was controlled to protect from public disclosure.

On October 17, 2018, the inspector presented the quarterly resident inspector inspection results to Mr. J. Dent, Jr., Site Vice President and Chief Nuclear Officer, and other members of the licensee staff. The inspectors verified no proprietary information was retained or documented in this report.

## **THIRD PARTY REVIEWS**

Inspectors reviewed Institute of Nuclear Power Operations reports that were issued during the inspection period.

## DOCUMENTS REVIEWED

### 71111.04 – Equipment Alignment

#### Condition Reports (CR-CNS-)

2017-00553                      2018-01015                      2018-04816

#### Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2016, Sheet 7	Fire Protection System Site Plan	12
2045	Flow Diagram – Core Spray System	N58

#### Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Protected Equipment Tracking Form – ESST Week 1832	August 6, 2018
CNS-2040, Sheet 2	Flow Diagram RHR Sys B	
CNS-FP-352	Yard Fire Protection	N02
DCD-13	RHR Design Control Document	February 14, 2018

#### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2.1.11.3	Radwaste/Augmented Radwaste Building Data	103
2.2.15A	Startup Transformer Component Checklist	8
2.2.30A	Fire Protection System Component Checklist	32
2.2.69	Residual Heat Removal System	101
2.2A.CS.DIV2	Core Spray Component Checklist	3
2.2A.RHR.DIV1	Residual Heat Removal System Component Checklist (DIV 1)	9
2.2B.CS.DIV2	Core Spray System Instrument Valve Checklist	0
2.2B.RHR.DIV2	Residual Heat Removal System Component Checklist (DIV 2)	12

#### Work Orders

5218034

## 71111.05 – Fire Protection

### Condition Reports (CR-CNS-)

2018-01888                      2018-04015                      2018-04068

### Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	Fire Brigade Scenario #5	4
0-BARRIER-MAPS	Barrier Maps	9
CNS-FP-212	Reactor Building Southeast Quadrant	AB/05
CNS-FP-222	Reactor Building Standby Gas Treatment Room	AB/04
CNS-FP-242	Turbine Building Basement South	AB/05
CNS-FP-247	Turbine Building – Bus Duct Area	AB/07
CNS-FP-268	Transformer Yard	N05
CNS-FP-343	OWC Gas Generator Bldg	N05
EE-01-006	Disposition of NFPA Code Compliance Deviations (Systems in Fire Zones Requiring an IPEEE Phase 2 Screening)	54
NEDC 10-080	Fundamental Fire Protection Program and Design Element Review EPM Report R1906-002-001	3
NEDC 11-104	Fire Safety Analysis for Fire Area RB-V EPM Report R1906-008-RBV	4
TPP 207, Attachment 2	Fire Drill Report	5

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0.7.1	Control of Combustibles	40
0-BARRIER-MISC	Miscellaneous Buildings	5
3.6.1	Fire Barrier Control	21

## 71111.06 – Flood Protection Measures

### Condition Reports (CR-CNS-)

2018-04041                      2018-04052                      2018-04083                      2018-04119  
2018-04135                      2018-04178                      2018-04240                      2018-04275  
2018-04817                      2018-04898

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CNS-EE-16	Underground Electrical Layout	23
FDN-F02	Maintenance Rule Function FDN-F02 Performance Criteria Basis Document	5

Notifications

11515173	11515267	11515943	11516865
11517491	11518668	11520057	11520617
11534368			

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2.3_S-1	Panel S – Annunciator S-1	29

71111.07 – Heat Sink Performance

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
NEDC 00-095A	EQ Normal Temperature, Relative Humidity, Pressure and Radiation	5
NEDC 00-095C	High Energy Line Break/Loss of Coolant Accident Inside Containment	1
NEDC 00-095D	HELB EQ – RB Pressure / Temperature Response	1
NEDC 00-095E	CNS Reactor Building Post-LOCA Heating Analysis	3
NEDC 00-095G	Development of Methodology and Applications to Allow the Reduction of Beta TID to Equipment in the CNS EQ Program	2
NEDC 11-140	Review of ZNE Calculation 11-198 Rev. 1 “Cooper Nuclear Station Service Water System Analysis”	1
NEDC 12-019	SW Post-LOCA Flow Test Revised Acceptance Criteria	1
NEDC 91-239	DGLO/DGJW/DG Intercooler Heat Exchanger Evaluation	5
NEDC 92-034	Water Hammer Analysis of Service Water System	3, 3C1, 3C2
NEDC 93-050	RHR Quad Temperature With Hatches Removed	4

### Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
NEDC 93-184	RHR Heat Exchangers Thermal Performance and Tube Plugging Margin	3
NEDC 94-021	REC-HX-A and REC-HX-B Maximum Allowable Accident Case Fouling	7
NEDC 97-085	RHR Quad Heatup Rate After a Loss of Cooling With Two Pump Operation	9
NEDC 97-087	Acceptance Criteria for HPCI Room Cooler and Reactor Building Quad Coolers	4

### Condition Reports (CR-CNS-)

2016-04984                      2018-04932                      2018-04946

### Design Basis Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
DG1	Diesel Generator (DG) – Design Criteria Document	January 14, 2016
DGb	Appendix B – Component Design Information	January 14, 2016
REC1	Reactor Equipment Cooling System Design Criteria Document	December 3, 2014
RECb	Appendix B Component Design Information	May 20, 2016
RHR1	Residual Heat Removal System Design Criteria Document	April 4, 2016
RHRb	Appendix B Component Design Information	February 14, 2018
SW1	Service Water and Residual Heat Removal Service Water Booster System Design Criteria Document	January 18, 2016
SWb	Appendix B Component Design Information	June 2, 2017

### Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2006 SH 1	Flow Diagram Circulating, Screen Wash and Service Water Systems	90
2006 SH 3	Flow Diagram Circulating, Screen Wash and Service Water Systems	56

## Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2006 SH 4	Flow Diagram Circulating, Screen Wash and Service Water Systems	60
2031 SH 2	Flow Diagram Reactor Building Closed Cooling Water System	65
2036 SH 1	Flow Diagram Reactor Building Service Water System	4
2040 SH 2	Flow Diagram Residual Heat Removal SYS Loop B	19
KSV-47-8	Diesel Generator 1 & 2 Cooling Water Schematic	N27
KSV-47-9-NP	Jacket Water Schematic	08
KSV-91-10-NP	Intercooler Piping (16-Cyl. Eng.)	N02

## Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	RHR HX B Thermal performance test	January 18, 2016
	RHR HX B Thermal performance test	January 17, 2018
	REC HX B Thermal Performance Test	February 23, 2018
	REC HX B Thermal Performance Test	April 25, 2018
	REC HX TEMA	June 17, 1968
	RHR HX TEMA	October 6, 1993
6.SW.102	Service Water System – Post-LOCA Flow Verification (Division 1)	October 25, 2014
6.SW.102	Service Water System – Post-LOCA Flow Verification (Division 1)	October 18, 2016
6.SW.102	Service Water System – Post-LOCA Flow Verification (Division 2)	October 12, 2014
6.SW.102	Service Water System – Post-LOCA Flow Verification (Division 2)	November 3, 2016
AE-5498	Procurement Drawing for EDG LO Heat Exchanger	March 27, 1970
AE-5499	Procurement Drawing for EDG JW Heat Exchanger	February 27, 1970

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
CNSS907024	Response to Generic Letter 89-13	January 29, 1990
Conco Job #26066	Eddy Current Report for NPPD Cooper Nuclear Station Unit 1 DGJW-HX-JW1 and DGLO-HX-LO1	February 2018
LO 2015-0224-009	Flow Accelerated / Microbiologically Influenced Corrosion Programs Focused Self-Assessment Report	1
VM-1778	ITT / American Heat Exchangers Composite Manual	4

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2.3 DG1	Panel DG-1 – Annunciator DG-1	21
7.0.8.1	System Leakage Testing	25
7.2.42.3	Heat Exchanger Tube Plugging	18

Work Orders

4718578	4848585	4911606	4953685
4953686	5040446	5055085	5057836
5069818	5115446	5164181	5201942
5234301			

71111.11 – License Operator Requalification Program

Condition Reports (CR-CNS-)

2018-05727	2018-05730	2018-05735
------------	------------	------------

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Annual Requalification Results Summary	August 15, 2018
IPTE RE30	Infrequently Performed Test or Evolution Brief for Refueling Outage 30 Shutdown	0
RMP-30-027	Refueling Outage 30 Reactor Shutdown Reactivity Management Plan	September 20, 2018
SKL0560126	Ops Quick HIT #22	0

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
SKL05151333	DEH Malfunction-RFP B Trip and RRMG B Jordan Failure	0

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2.1.4	Normal Shutdown	164
2.1.5	Reactor Scram	75
2.1.10	Station Power Changes	115
2.4RR	Reactor Recirculation Abnormal	43
2.4RXPWR	Reactor Power Anomalies	9
2.4TEC	TEC Abnormal	29
6.RCS.601	Technical Specification Monitoring of RCS Heatup/Cooldown Rate	24
10.9	Control Rod Scram Time Evaluation	69

71111.12 – Maintenance Effectiveness

Condition Reports (CR-CNS-)

2017-04681	2017-05664	2018-01188	2018-02869
2018-03244	2018-03245	2018-03260	2018-04693
2018-04901	2018-05421	2018-05438	2018-05845

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Maintenance Rule Functional Failure Evaluations for HV-F09	2004 through 2018
2022, Sheet 3	Primary Containment Cooling & Nitrogen Inerting System	4
CNS-HV-39	Reactor Building Drywell Cooling Developed Flow Diagram w/ Measurement & Damper Locations	1
CS-PF01A	Maintenance Rule Function, Performance Criteria Basis	3
CS-PF01B	Maintenance Rule Function, Performance Criteria Basis	3



Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
CS-SD1	Maintenance Rule Function, Performance Criteria Basis	3
ECCS-F01	Maintenance Rule Function, Performance Criteria Basis	1
HV-F09	Maintenance Rule Function, Performance Criteria Basis	3
NEDC 89-1439	Drywell Air Cooling System Upgrade Air Flow Derivation	3

Notifications

11390131	11406486	11462355	11536478
----------	----------	----------	----------

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2.2.40	Drywell Cooling System	31
22A1271AC	Drywell Cooling System	0
3-EN-DC-204	Maintenance Rule Scope and Basis	3C1
3-EN-DC-205	Maintenance Rule Monitoring	5C1

71111.13 – Maintenance Risk Assessments and Emergent Work Control

Condition Reports (CR-CNS-)

2018-04523	2018-04645	2018-05231	2018-05374
2018-05381	2018-05382	2018-05383	

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Protected Equipment Posting for ESST Week 1832	August 5, 2018
	Protected Equipment Posting for Week 1833 CS 'B' Window	August 13, 2018
	Protected Equipment Posting for Week 1836 RHR 'A' Window	September 3, 2018
GEK 45920A	GE Systems manual for RRMG	October 1992

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0-CNS-WM-104	On-line Schedule Risk Assessment	7
0-CNS-WM-104A	On-line Fire Risk Management Actions	4
0-PROTECT-EQP	Protected Equipment Program	42
2.0.3.1	Operational Strategy Guidance Process	1
6.REFUEL.307	Refueling Bridge Interlocks Test Prior to Working in Spent Fuel Pool	11
10.23	Movement of New Fuel for Inspection	57
10.23.1	New Fuel Inspection and Channeling	1
OSGD-2018-05383	RRMG A Brushes Arcing	0

Work Orders

5101201	5101209	5112943	5167376
5170157	5171983	5208105	

71111.15 – Operability Determinations and Functionality Assessments

Condition Reports (CR-CNS-)

2016-04472	2016-05558	2018-04121	2018-04213
2018-04358	2018-05164	2018-05403	2018-05439
2018-05470	2018-05489		

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2851-1	18" SW-1 Class IV P – Reactor Bldg	11
791E250	Jet Pump Instrument System Elementary Diagram	15

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Significant changes from the 2008 to the 2011 edition of ACI 318 Article from Precast Concrete Institute (PCI) Journal	Winter 2013
ECR 11516867		

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
N-513-4	ASME Code Case Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping, Section XI, Division 1	0
NEDC 15-025	Mechanical ROS Civil/Structural Design for the Hardened Containment Vent System Project	1
PBD-FAC	Flow Accelerated Corrosion Program Basis Document	0
PBD-MIC	Microbiologically Influenced Corrosion Program Basis Document	1

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0.5.OPS	Operations Review of Condition Reports/Operability Determination	61
3.10	Flow Accelerated Corrosion (FAC) and Microbiologically Influenced Corrosion (MIC) Program Implementation	16

Work Orders

5065112                      5223979

71111.18 – Plant Modifications

Condition Reports (CR-CNS-)

2018-04564

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
DEC-5260125	Design Equivalent Change Package – TG VRG Track and Hold	0
ODMI 2018-04564	Main Generator Voltage Regulator Control	0

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2.1.11.1	Turbine Building Data	168
2.2.14	22KV Electrical System	86
2.2.77	Turbine Generator	118

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2.3_C-3	Annunciator C-3 Procedure	53
2.4GEN-H2	Generator or Hydrogen Abnormal	32
5.3GRID	Degraded Grid Voltage	49

Work Orders

5260097	5260098
---------	---------

71111.19 – Post Maintenance Testing

Condition Reports (CR-CNS-)

2018-04448	2018-04471	2018-04719	2018-04723
2018-04743	2018-04744	2018-04757	

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2077	Flow Diagram – Diesel Gen Bldg Service Water, Starting Air, Fuel Oil, Sump System & Roof Drains	N78
5759-D001, Sheet 2 and 3	5kV 2000A 3P 3W Bus Replacement Layout	4

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
6.MISC.401	Position Indicator Inservice Testing (IST)	19
6.1CS.101	Core Spray Test Mode Surveillance Operation	31
6.1CS.201	Reference Leg Injection Flow Verification and IST Check Valve Testing	11
6.2CS.101	Core Spray Test Mode Surveillance Operation (IST)(DIV 2)	29
6.2CS.201	CS Motor Operated Valve Operability Test (IST)(DIV 2)	21
6.2DG.105	Diesel Generator Starting Air Compressor Operability	25
7.3.20.3	Motor Analysis	18
7.3.41	Examination, Repair, and High Pot Testing of Non-Segregated Buses and Associated Equipment	16
7.3.51	Electrical Meter Calibration Check	15

Work Orders

5101202	5141231	5143101	5147405
5179896	5186076	5207476	5207547
5208602	5208853	5208933	5208935
5209259	5209261	5218034	7210044

71111.22 – Surveillance Testing

Condition Reports (CR-CNS-)

2017-06021	2018-05356	2018-05368	2018-05625
2018-05723			

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
945E632	ARI/ATWS Recirculation Pump Trip	N02

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
6.HPCI.308	HPCI Auto Isolation Logic Steam Line Low Pressure Logic System Functional Test (Reactor Pressure Greater Than or Equal to 150 PSIG)	7
6.SLC.101	SLC Pump Operability Test	25
6.1ARI.301	ARI/ATWS/RPT Low-Low and PCIS Low-Low-Low Reactor Water Level Channel Calibration Test	13
6.2DG.101	Diesel Generator 31 Day Operability Test (IST)(DIV 2)	84
9.EN-RP-150	Radiography and X-Ray Testing	7

Work Orders

5149721

71114.01 – Exercise Evaluation

Condition Reports (CR-CNS-)

2016-04501	2016-04591	2016-04791	2016-04933
2016-04934	2016-05311	2016-05390	2017-01631
2017-03021	2017-03929	2017-03998	2017-04422
2017-04466	2017-04468	2017-04696	2017-04854

Condition Reports (CR-CNS-)

2017-04874	2017-05029	2017-05037	2017-05039
2017-06824	2018-00539	2018-00747	2018-01319
2018-02631	2018-02845	2018-02873	2018-03033
2018-03080	2018-03142	2018-03157	2018-03283

Miscellaneous Documents

<u>Title</u>	<u>Revision/Date</u>
Cooper Nuclear Station Emergency Plan	71
Evaluation Report for the Exercise conducted December 20, 2016	January 19, 2017
Evaluation Report for the Exercise conducted March 28, 2017	April 7, 2017
Evaluation Report for the Exercise conducted May 16, 2017	May 24, 2017
Evaluation Report for the Exercise conducted August 15, 2017	August 23, 2017
Evaluation Report for the Exercise conducted October 17, 2017	October 25, 2017
Evaluation Report for the Exercise conducted January 30, 2018	February 14, 2018
Evaluation Report for the Exercises conducted in August and September 2016	September 15, 2016
Evaluation Report for the August through November 2017 Mini-Drills	November 29, 2017
Evaluation Report for the Notification of Unusual Event declared September 2, 2016	September 8, 2016
Evaluation Report for the Notification of Unusual Event declared on November 11, 2017	November 17, 2017

Procedures

<u>Number</u>	<u>Title</u>	<u>Date</u>
0-CNS-LI-102	Corrective Action Process, Revision 8	August 23, 2017
5.7.1	Emergency Classification, Revision 60	April 12, 2018
5.7.2	Emergency Director EPIP, Revision 36	February 28, 2018

Procedures

<u>Number</u>	<u>Title</u>	<u>Date</u>
5.7.6	Notification, Revision 73	December 18, 2017
5.7.7	Activation of the TSC, Revision 39	November 3, 2016
5.7.8	Activation of the OSC, Revision 27	March 28, 2016
5.7.9	Activation of the EOF, Revision 36	November 3, 2016
5.7.12	Emergency Radiation Exposure Control, Revision 17	March 14, 2018
5.7.14	Stable Iodine Thyroid Blocking, Revision 22	October 14, 2017
5.7.15	OSC Team Dispatch, Revision 22	April 25, 2018
5.7.20	Protective Action Recommendations, Revision 29	March 22, 2017
5.7.23	Activation of the Joint Information Center, Revision 17	February 3, 2016

71151 – Performance Indicator Verification

Condition Reports (CR-CNS-)

2017-01203	2017-01805	2017-01857	2017-01858
2017-02185	2017-02895	2017-02937	2017-03256
2017-05026	2017-05889	2018-00160	2018-00650
2018-02306	2018-03157	2018-04184	

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	PI Documentation and Data Review Form, Scrams with Complications, Reporting Period	July 2018
EPDG 2	Attachment G-1: Emergency Preparedness Performance Indicator Guide	25
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	7

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
5.7.1	Emergency Classification	59, 60
5.7.6	Notification	72, 73
5.7.20	Protective Action Recommendations	29
5.7.27	Alert and Notification System, Revision 19	December 12, 2017
5.7.27.2	False Activation of Alert and Notification System, Revision 9	December 12, 2017

71152 – Problem Identification and Resolution

Condition Reports (CR-CNS-)

2017-07513	2018-02363	2018-02869	2018-03180
2018-03245	2018-03251	2018-03261	2018-03265
2018-03268	2018-03294	2018-04415	2018-04629
2018-04816	2018-04827	2018-04865	2018-04938
2018-05022	2018-05054	2018-05058	2018-05170
2018-05272	2018-05307	2018-05320	2018-05472

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2022, Sheet 3	Primary Containment Cooling & Nitrogen Inerting System	4
2016-0060-008	Work Tracker	
CNS-HV-39	Reactor Building Drywell Cooling Developed Flow Diagram w/ Measurement & Damper Locations	1

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0.47	Control of In-Process Material	16
0.9	Tagout	88, 94
0-EN-LI-100	Process Applicability Determination	18C2
2.1.11.3	Radwaste/Augmented Radwaste Building Data – Modes 1, 2, and 3	103
2.2.38A	HVAC Control Building System Component Checklist	6



Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2.2.40	Drywell Cooling System	31

Work Orders

4440167	4503202	4503487	5060133
5060134	5060135	5060136	5140788
5143045	5214101	5247353	5247354

COOPER NUCLEAR STATION – NRC INTEGRATED INSPECTION  
 REPORT 05000298/2018003 - October 31, 2018

**DISTRIBUTION**

KKennedy, RA  
 SMorris, DRA  
 AVegel, DRP  
 MShaffer, DRS  
 MHay, DRP  
 RLantz, DRS  
 DCylkowski, RC  
 JKozal, DRP  
 DProulx, DRP  
 CYoung, DRP  
 TDeBey, DRP  
 PVoss, DRP  
 MTobin, DRP  
 MStafford, DRP  
 AElam, DRP  
 CCook, RIV/OEDO  
 VDricks, ORA  
 JWeil, OCA  
 TWengert, NRR  
 AMoreno, RIV/CAO  
 BMaier, RSLO  
 GMiller, IPAT  
 PJayroe, IPAT  
 MHerrera, DRMA  
 R4Enforcement  
 ROP Reports

Electronic Distribution for Cooper Nuclear Station

DOCUMENT NAME: R:\\_REACTORS\CNS\CNS2018003-IR-PV.docx

ADAMS ACCESSION NUMBER: ML18304A484

SUNSI Review      ADAMS:       Non-Publicly Available       Non-Sensitive      Keyword:  
 By: JWK       Yes     No       Publicly Available       Sensitive      NRC-002

OFFICE	SRI:DRP/C	ASRI:DRP/C	RI:DRP/C	BC:DRS/EB1	BC:DRS/EB2	BC:DRS/OB
NAME	PVoss	MTobin	MStafford	TFarnholtz	GWerner	VGaddy
SIGNATURE	PJV	MCT	MHS	TRF	GEW	vgg
DATE	10/26/2018	10/29/2018	10/26/2018	10/26/2018	10/26/2018	10/26/18
OFFICE	BC:DRS/PSB2	ATL:DRS/IPAT	SPE:DRP/C	BC:DRP/C		
NAME	HGepford	GMiller	DProulx	JKozal		
SIGNATURE	HJG	GBM	DLP	JWK		
DATE	10/26/18	10/29/18	10/29/18	10/31/2018		

OFFICIAL RECORD COPY