



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

May 1, 2020

Mr. John Dinelli, Site Vice President
Arkansas Nuclear One
Entergy Operations, Inc.
N-TSB-58
1448 S.R. 333
Russellville, AR 72802-0967

SUBJECT: ARKANSAS NUCLEAR ONE, UNITS 1 AND 2 – INTEGRATED INSPECTION
REPORT 05000313/2020001 AND 05000368/2020001

Dear Mr. Dinelli:

On March 31, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Arkansas Nuclear One, Units 1 and 2. On April 2, 2020, 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.

Three findings of very low safety significance (Green) are documented in this report. All of these findings involved violations of NRC requirements. One Severity Level IV violation without an associated finding is also documented in this report. We are treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

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

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 IV; and the NRC Resident Inspector at Arkansas Nuclear One.

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 Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

A handwritten signature in black ink that reads "John L. Dixon, Jr." with a stylized flourish at the end.

John L. Dixon, Jr., Chief
Reactor Projects Branch D
Division of Reactor Projects

Docket Nos. 05000313 and 05000368
License Nos. DPR-51 and NPF-6

Enclosure:
As stated

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 REPORT 05000313/2020001 AND 05000368/2020001 – May 1, 2020

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

Docket Numbers: 05000313 and 05000368

License Numbers: DPR-51 and NPF-6

Report Numbers: 05000313/2020001 and 05000368/2020001

Enterprise Identifier: I-2020-001-0003

Licensee: Entergy Operations, Inc.

Facility: Arkansas Nuclear One, Units 1 and 2

Location: Russellville, AR

Inspection Dates: January 1, 2020 to March 31, 2020

Inspectors: T. DeBey, Resident Inspector
S. Hedger, Emergency Preparedness Inspector
C. Henderson, Senior Resident Inspector
J. O'Donnell, Senior Health Physicist
C. Smith, Health Physicist
T. Sullivan, Resident Inspector

Approved By: John L. Dixon, Jr., Chief
Reactor Projects Branch D
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Arkansas Nuclear One, Units 1 and 2, 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.

List of Findings and Violations

Failure to Establish Procedural Steps to Prevent Unacceptable Preconditioning of Emergency Diesel Generator Service Water Outlet Valves			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000368/2020001-01 Open/Closed	[H.12] - Avoid Complacency	71111.22
The inspectors identified a Green finding and associated non-cited violation of Title 10 of the <i>Code of Federal Regulations</i> , Part 50 (10 CFR Part 50), Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to establish a procedure appropriate to the circumstances that would have prevented unacceptable preconditioning of the service water system. Specifically, Procedure OP-2104.036, "Emergency Diesel Generator Operations," Revision 98, failed to prevent unacceptable preconditioning of Unit 2, Division 1 and 2, emergency diesel generator service water outlet valves during American Society of Mechanical Engineers (ASME) code required stroke time inservice testing.			
Failure to Perform As-Found Emergency Diesel Generator Exhaust Fan Temperature Switch Testing and Calibration			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000368/2020001-02 Open/Closed	[P.5] - Operating Experience	71111.22
The inspectors identified a Green finding and associated non-cited violation of Arkansas Nuclear One, Unit 2, Technical Specification 6.4.1.a, for the licensee's failure to properly pre-plan and perform maintenance that can affect the performance of safety-related equipment. Specifically, the licensee failed to establish model work orders that performed as-found testing and calibration of the emergency diesel generator exhaust fan temperature switches at design basis setpoints.			
Failure to Follow Procedures with an Improper Entry into a High Radiation Area			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Occupational Radiation Safety	Green NCV 05000368/2020001-03 Open/Closed	[H.11] - Challenge the Unknown	71124.01
The inspectors reviewed a self-revealed Green finding and associated non-cited violation of Arkansas Nuclear One, Unit 2, Technical Specification 6.4.1.a, for the licensee's failure to follow procedures resulting in an improper entry into a high radiation area. Specifically, a worker received a dose rate alarm after entering a high radiation area. The worker was not			

briefed by radiation protection to enter the area where he received the dose rate alarm and the worker did not immediately stop work and contact radiation protection for direction after the alarm, as required by radiation protection procedures and the radiological work permit.

Failure to Evaluate the Suitability of Components in Containment as a Result of Temperatures that Result from a Main Steam Line Break

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000313/2020001-04 Open/Closed	Not Applicable	71152

The inspectors identified a Severity Level IV, non-cited violation of 10 CFR 50.71(e), "Maintenance of Records, Making Reports," associated with the licensee's failure to correctly update the Updated Final Safety Analysis Report. Specifically, following the replacement of once-through steam generators for Arkansas Nuclear One, Unit 1, after Cycle 19, the licensee did not analyze the containment temperature or evaluate the suitability of components in containment for the effects of a main steam line break accident and failed to update the Updated Final Safety Analysis Report regarding the peak containment temperatures that occur due to a postulated main steam line break.

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000313, 05000368/2018011-03	Failure to Evaluate the Suitability of Components in Containment as a Result of Temperatures that Result from a Main Steam Line Break	71152	Closed
URI	05000313/2017004-01	Technical Specifications for Maximum Temperature of Service Water System When Aligned to Lake Dardanelle	71152	Closed

PLANT STATUS

Unit 1 began the inspection period at full power where it remained for the rest of the reporting period except for minor reductions in power to support scheduled surveillances.

Unit 2 began the inspection period at full power. On March 12, 2020, power was reduced to 80 percent to address speed oscillations in main feedwater pump B. On March 14, 2020, the unit was shut down to begin Refueling Outage 2R27.

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." From January 1 – March 19, 2020, 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.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), resident inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time the resident inspectors performed periodic site visits each week and during that time conducted plant status activities as described in IMC 2515, Appendix D; and observed risk-significant activities when warranted. In addition, resident and regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In the cases where it was determined the objectives and requirements could not be performed remotely, management elected to postpone and reschedule the inspection to a later date.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

External Flooding Sample (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated flood protection barriers, mitigation plans, procedures, and equipment to assure they were consistent with the licensee's design requirements and risk analysis assumptions for coping with external flooding for the following areas on February 5, 2020:
 - Unit 1 and Unit 2 emergency diesel generators
 - Unit 1 and Unit 2 emergency diesel generator fuel oil storage vaults
 - Unit 1 and Unit 2 start-up transformer 2

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (3 Samples)

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

- (1) Unit 1 emergency feedwater initiation and control Channel B steam generator level control module on January 24, 2020
- (2) Unit 1 emergency chilled water system train A on February 26, 2020
- (3) Unit 2 emergency diesel generator 1 and 2 room ventilation system on March 5, 2020

Complete Walkdown Sample (IP Section 03.02) (2 Samples)

- (1) Unit 2 emergency diesel generators on January 22, 2020
- (2) Unit 1 emergency diesel generators on February 11, 2020

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Unit 1 emergency diesel generator Room A, Fire Zone 86-G, Fire Area D, on January 7, 2020
- (2) Unit 1 emergency diesel generator Room B, Fire Zone 87-H, Fire Area H, on January 7, 2020
- (3) Unit 2 emergency diesel generator Room A, Fire Zone 2094-Q, Fire Area KK, on January 14, 2020
- (4) Unit 2 emergency diesel generator Room B, Fire Zone 2093-P, Fire Area QQ, on January 14, 2020
- (5) Unit 2 electrical equipment Room 2076, Fire Zone 2076-HH, Fire Area GG, on February 26, 2020

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 03.01) (2 Samples)

The inspectors evaluated internal flooding mitigation protections in the:

- (1) Unit 1 emergency diesel generator Rooms 1 and 2 on March 2, 2020
- (2) Unit 2 emergency diesel generator Rooms 1 and 2 on March 11, 2020

Cable Degradation (IP Section 03.02) (1 Sample)

The inspectors evaluated cable submergence protection in:

- (1) Unit 1 and Unit 2 manhole 8 which contained low voltage switchyard and control cables on February 25, 2020

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01)
(1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during Unit 1 plant computer malfunction and rebooting the system on January 24, 2020.

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed and evaluated the Unit 1 licensed operator training scenario on February 13, 2020.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (3 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

- (1) Unit 1 and Unit 2 credited design features for internal and external flooding on March 3, 2020
- (2) Unit 1 emergency diesel generator 1 and 2 on March 11, 2020
- (3) Unit 2 emergency diesel generator 1 and 2 on March 11, 2020

Quality Control (IP Section 03.02) (1 Sample)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following SSC remains capable of performing its intended function:

- (1) Unit 1 emergency diesel generator 1 exhaust fan B motor replacement on February 6, 2020

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (6 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) Unit 2 emergent work for control element drive mechanism control system relay power supply failure on January 14, 2020
- (2) Unit 1 emergency feedwater initiation and control Channel B steam generator level control module failure during surveillance testing on January 16, 2020
- (3) Unit 1 emergency safety-related switchgear room B chiller corrective maintenance and entry into a technical specification 8-hour shutdown action on January 28, 2020
- (4) Unit 2 emergent work for plant protection system A pressurizer variable setpoint malfunction on February 10, 2020

- (5) Unit 1 and Unit 2 alternate AC diesel generator lube oil system temperature thermostat corrective maintenance on February 26, 2020
- (6) Unit 1 service water bay A sluice gate planned maintenance on March 13, 2020

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (5 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) Unit 1 turbine driven emergency feedwater governor valve anti-rotation device missing set screw operability determination on February 10, 2020
- (2) Unit 1 emergency feedwater initiation and control Channel B level control module failure operability determination on February 11, 2020
- (3) Unit 1 emergency switchgear chiller train A freon leak operability determination on February 18, 2020
- (4) Unit 1 emergency diesel generator 1 room exhaust fan B excessive motor current operability determination on February 26, 2020
- (5) Unit 2 main steam safety valve 2PSV-1055 preconditioning following human performance error operability determination on March 17, 2020

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Unit 1 emergency chiller train A and train B compensatory measures during maintenance activities on March 5, 2020

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the following post maintenance test activities to verify system operability and functionality:

- (1) Unit 1 electrical equipment room emergency chiller B freon leak corrective maintenance post maintenance testing on January 22, 2020
- (2) Unit 2 emergency diesel generator 1 air inlet filter replacement on January 31, 2020
- (3) Unit 1 emergency diesel generator 1 exhaust fan B corrective maintenance on January 31, 2020
- (4) Unit 1 emergency feedwater initiation and control Channel B level module failure on February 11, 2020
- (5) Unit 1 and Unit 2 alternate AC diesel generator preventative maintenance post maintenance testing on February 19, 2020

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (1 Partial)

- (1) (Partial)
The inspectors evaluated Unit 2 Refueling Outage 2R27 activities from March 13, 2020, to March 31, 2020. The inspectors completed inspection procedure Sections 03.01.a, 03.01.b, 03.01.c.1 through 10.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (4 Samples)

- (1) Unit 2 emergency diesel generator 1 fuel oil transfer pump surveillance testing on February 27, 2020
- (2) Unit 1 and Unit 2 alternate AC diesel generator surveillance testing on March 4, 2020
- (3) Unit 1 and Unit 2 emergency diesel generator exhaust fan surveillance testing on March 11, 2020
- (4) Unit 2 emergency diesel generator exhaust fan temperature switch calibration and surveillance testing on March 17, 2020

Inservice Testing (IP Section 03.01) (2 Samples)

- (1) Unit 2 emergency diesel generator 1 service water outlet valve 2CV-1503-1 inservice testing on February 18, 2020
- (2) Unit 2 low pressure safety injection/shutdown reactor coolant isolation valve 2CV-5084-1 inservice testing on March 25, 2020

71114.04 - Emergency Action Level and Emergency Plan Changes

Inspection Review (IP Section 02.01-02.03) (1 Sample)

- (1) The licensee submitted a summary of Arkansas Nuclear One, Units 1 and 2, emergency plan changes (Revisions 44 and 45) and emergency action level changes (Procedure OP-1903.010, Revisions 58 and 59) to the NRC on January 15, 2020. The inspectors conducted an in-office review of the changes from February 10 to March 16, 2020. This evaluation does not constitute NRC approval.

71114.06 - Drill Evaluation

Select Emergency Preparedness Drills and/or Training for Observation (IP Section 03.01) (1 Sample)

- (1) Unit 2 emergency preparedness drill involving an earthquake with two dropped control element assemblies, a complete loss of feedwater, and loss of offsite power on February 7, 2020

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated how the licensee identifies the magnitude and extent of radiation levels and the concentrations and quantities of radioactive materials and how the licensee assesses radiological hazards.

Instructions to Workers (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated radiological protection-related instructions to plant workers.

Contamination and Radioactive Material Control (IP Section 03.03) (3 Samples)

The inspectors evaluated licensee processes for monitoring and controlling contamination and radioactive material:

- (1) Observation of contamination monitoring of items leaving Unit 2 containment
- (2) Observation of personnel exiting Unit 2 containment and removal of protective clothing
- (3) Observation of personnel exiting radiologically controlled area through the small articles monitor, personal contamination monitor, and portal monitor, and responses to any alarms

Radiological Hazards Control and Work Coverage (IP Section 03.04) (3 Samples)

The inspectors evaluated in-plant radiological conditions based on surveys and observation of radiological work activities:

- (1) Head lift, move, and set, high radiation area survey, posting, and control
- (2) Control element drive module (CEDM) work under vessel head
- (3) Survey and control of upper guide structure lift rig

High Radiation Area and Very High Radiation Area Controls (IP Section 03.05) (3 Samples)

The inspectors evaluated licensee controls of the following High Radiation Areas and Very High Radiation Areas:

- (1) Unit 2 reactor vessel closure head
- (2) Spent fuel pool lock box
- (3) 3A/B filter rooms

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 03.06) (1 Sample)

- (1) The inspectors evaluated radiation worker and radiation protection technician performance as it pertains to radiation protection requirements.

71124.02 - Occupational ALARA Planning and Controls

Implementation of ALARA and Radiological Work Controls (IP Section 03.03) (2 Samples)

The inspectors evaluated the licensee's communication of as low as is reasonably achievable (ALARA) and radiological work controls for the following work activities:

- (1) Refueling Outage 2R27 reactor disassembly and reassembly (includes support activities) under radiation work permit (RWP) 2020-2430
- (2) Perform inspections on Unit 2 reactor head during Refueling Outage 2R27 under RWP 2020-2471

Radiation Worker Performance (IP Section 03.04) (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance during:

- (1) Implementation of ALARA techniques for work activities during Refueling Outage 2R27.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 02.01) (2 Samples)

- (1) Unit 1 (January 1, 2019, through December 31, 2019)
- (2) Unit 2 (January 1, 2019, through December 31, 2019)

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (2 Samples)

- (1) Unit 1 (January 1, 2019, through December 31, 2019)
- (2) Unit 2 (January 1, 2019, through December 31, 2019)

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (2 Samples)

- (1) Unit 1 (January 1, 2019, through December 31, 2019)
- (2) Unit 2 (January 1, 2019, through December 31, 2019)

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 02.15) (1 Sample)

- (1) October 1, 2019 – December 31, 2019

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

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

- (1) Unit 1 unresolved item closeout for lake temperature (URI 05000313/2017004-01) and inside containment main steam line break (URI 05000313, 05000368/2020001-04) on January 28, 2020

71153 – Follow-up of Events and Notices of Enforcement Discretion

Personnel Performance (IP Section 03.03) (1 Sample)

- (1) Unit 2 main feedwater pump B speed oscillations causing a 20 percent down power on March 24, 2020

INSPECTION RESULTS

Failure to Establish Procedural Steps to Prevent Unacceptable Preconditioning of Emergency Diesel Generator Service Water Outlet Valves			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000368/2020001-01 Open/Closed	[H.12] - Avoid Complacency	71111.22
The inspectors identified a Green finding and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure to establish a procedure appropriate to the circumstances that would have prevented unacceptable preconditioning of the service water system. Specifically, Procedure OP-2104.036, “Emergency Diesel Generator Operations,” Revision 98, failed to prevent unacceptable preconditioning of Unit 2, Division 1 and 2, emergency diesel generator service water outlet valves during American Society of Mechanical Engineers (ASME) code required stroke time inservice testing.			
<u>Description:</u> On January 31, 2020, the inspectors observed the licensee perform the technical specification required monthly surveillance testing of Unit 2 emergency diesel generator (EDG) 1 in accordance with Procedure OP-2104.036, “Emergency Diesel Generator Operations,” Revision 98, Supplement 1C, “2DG1 Semi-Annual Test (Fast Start),” and reviewed the procedure to ensure acceptance criteria were met during the performance of the EDG 1 surveillance. During the observation of EDG 1 surveillance testing and review of Procedure OP-2104.036, Supplement 1C, the inspectors identified unacceptable preconditioning of EDG 1 service water outlet valve 2CV-1503-1 during ASME code required stroke time inservice testing (IST). Specifically, Procedure OP-2104.036, Supplement 1C, step 3.7, verified valve 2CV-1503-1 automatically opened following the start of EDG 1 and step 4.29 verified valve 2CV-1503-1 closed 30 minutes after securing EDG 1. The procedure then directed operations personnel to perform the required ASME code stroke time IST surveillance, which involved stroking this valve to obtain stroke time data. The sequencing of these procedural steps resulted in unacceptable preconditioning of valve 2CV-1503-1. Specifically, in accordance with NUREG-1482, “Guidelines for Inservice Testing at Nuclear Power Plants,” Revision 2, the NRC considers unacceptable preconditioning of pumps and			

valves in the IST program to include activities, such as operation of a pump or valve shortly before a test, if such operation could be avoided through plant procedures with personnel and plant safety maintained. The inspectors determined the 2CV-1503-1 valve IST stroke time testing could have been performed prior to the EDG 1 monthly surveillance test or as a stand-alone procedure while maintaining personnel and plant safety.

The inspectors performed an extent of condition review and identified this same testing methodology was used in all the remaining Procedure OP-2104.036 supplementals that were performed on valve 2CV-1503-1, as well as on Unit 2 EDG 2 service water outlet valve 2CV-1504-2 for its ASME code required stroke time IST. Additionally, the inspectors noted Procedure OP-2104.036 was reviewed by the licensee as part of the corrective actions associated with Condition Report CR-ANO-C-2019-00033. This condition report had previously been initiated to address an adverse trend in test methodology deficiencies in surveillance testing procedures and represented a missed opportunity in 2019 to identify the Unit 2 EDG service water outlet valve preconditioning concerns.

The inspectors and the licensee reviewed surveillance testing history associated with valves 2CV-1503-1 and 2CV-1504-2 and did not identify any adverse impacts on EDG 1 and EDG 2 operability. However, the unacceptable preconditioning of components could mask the actual as-found conditions of the system resulting in an inability to verify operability of valves 2CV-1503-1 and 2CV-1504-2.

Corrective Actions: The licensee initiated a procedure improvement form, PIF-2-20-0036, to update Procedure OP-2104.036 to prevent unacceptable preconditioning of valves 2CV-1503-1 and 2CV-1504-2.

Corrective Action References: Condition Report CR-ANO-2-2020-00354

Performance Assessment:

Performance Deficiency: The licensee's failure to establish procedural steps to prevent unacceptable preconditioning of emergency diesel generator service water outlet valves was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Procedure Quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, unacceptable preconditioning of components could mask the actual as-found conditions of the system resulting in an inability to verify operability of the emergency diesel generator service water outlet valves.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The finding was determined to be of very low safety significance (Green) because it (1) was not a design deficiency, (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 longer than its technical specification allowed outage time, (4) did not represent a loss of the probability risk analysis function of two separate technical specification systems for greater than 24 hours, (5) did not represent a loss of probability risk analysis system and/or function for greater than 24 hours, and (6) did not result in the loss of a high safety-significant, nontechnical specification train.

Cross-Cutting Aspect: H.12 - Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools. Specifically, the licensee was not aware that latent conditions can exist associated with unacceptable preconditioning of IST components during surveillance testing, failed to address them as they were discovered, and failed to consider the extent of the conditions and their causes during the implementation of corrective actions from Condition Report CR-ANO-C-2019-00033.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances. The licensee established Procedure OP-2104.036, "Emergency Diesel Generator Operations," Revision 98, as the implementing procedure for conducting ASME code required stroke time inservice testing for Unit 2 emergency diesel generators 1 and 2 service water outlet valves 2CV-1503-1 and 2CV-1504-2.

Contrary to the above, prior to and on January 31, 2020, the licensee failed to ensure that ASME code required stroke time inservice testing for valves 2CV-1503-1 and 2CV-1504-2, an activity affecting quality, was prescribed by a documented procedure of a type appropriate to the circumstances. Specifically, the licensee failed to establish procedure guidance to prevent unacceptable preconditioning of valves 2CV-1503-1 and 2CV-1504-2.

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 As-Found Emergency Diesel Generator Exhaust Fan Temperature Switch Testing and Calibration

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000368/2020001-02 Open/Closed	[P.5] - Operating Experience	71111.22

The inspectors identified a Green finding and associated non-cited violation of Arkansas Nuclear One, Unit 2, Technical Specification 6.4.1.a, for the licensee's failure to properly pre-plan and perform maintenance that can affect the performance of safety-related equipment. Specifically, the licensee failed to establish model work orders that performed as-found testing and calibration of the emergency diesel generator exhaust fan temperature switches at design basis setpoints.

Description: The inspectors reviewed the licensing and design basis for the Unit 2 emergency diesel generator (EDG) 1 and 2 exhaust fan units 2VEF-24A/B/C/D, reviewed the history of the inspection and calibration of EDG exhaust fan temperature switches (2TC-8635-1, 2TC-8637-1, 2TC-8638-2, and 2TC-8640-2), and reviewed Model Work Orders (MWO) 50233978 and 50233977 that were established to perform the testing and calibration of the temperature switches. The inspectors identified the following:

- 2VEF-24A/B/C/D are safety-related ventilation fans whose purpose is to support EDG operation by preventing their respective EDG rooms from exceeding 120 degrees Fahrenheit (F) during the 30-day mission time. Each EDG room has two redundant exhaust fans. In the event of a failure of the lead exhaust fans (2VEF-24A/C), the

backup fans (2VEF-24B/D) are sufficient to maintain room temperatures no higher than 120 degrees F. The EDG exhaust fans automatically start when the associated temperature switch reaches its design basis setpoint of 105 degrees F for the lead fans and 110 degrees F for the backup fans.

- Temperature switches 2TC-8635-1, 2TC-8637-1, 2TC-8638-2, and 2TC-8640-2 functional checks were performed on a 504-day (~16 month) interval in accordance with MWO 50233978 and 50233977. From the review of the MWOs, the inspectors identified that the temperature switch calibration testing was not performed at the as-found condition for the specified design basis setpoints of 105 degrees F and 110 degrees F. Instead, the licensee performed the calibration testing by adjusting the setpoint of each temperature switch to the measured EDG ambient room temperature, and then restored the setpoint to its initial position. Additionally, the inspectors identified that the licensee did not perform a post-maintenance test to verify the temperature switches would function at their specified design basis setpoints after completing the calibration, testing, and restoration of the temperature switches. As a result of this testing methodology, the licensee had limited ability to identify degradation of the temperature switches due to instrument drift and properly assess operability of the EDGs. A similar concern was previously identified by the inspectors and was available in the licensee's internal operating experience for the Unit 1 EDG exhaust fan temperature switches, of similar design and function, and was documented in Condition Report CR-ANO-1-2019-01032.

From the information above, the inspectors questioned the Unit 2 calibration testing methodology used in accordance with MWOs 50233978 and 50233977. Specifically, the inspectors questioned the licensee's ability to assess proper operation of the 2VEF-24A/B/C/D temperature switches if the licensee was not performing as-found calibration testing at the specified design basis temperature setpoints. In response, the licensee initiated Condition Report CR-ANO-2-2020-00600, updated MWO 50233978 and 50233977 to perform as-found calibration testing, and performed as-found calibration testing for all four temperature switches in accordance with Work Orders (WO) 541561 and 541562. During the performance of WO 541562, the 2VEF-24C/D temperature switches were both identified as being high outside the design basis temperature setpoints. The licensee initiated Condition Reports CR-ANO-2-2020-01300 and CR-ANO-2-2020-01319 and assessed the operability of the associated EDGs. After further review, the licensee determined EDG operability was maintained.

Corrective Actions: The licensee updated MWOs 50233978 and 50233977 and performed as-found calibration testing in accordance with WOs 541561 and 541562.

Corrective Action References: Condition Reports CR-ANO-2-2020-00600, CR-ANO-2-2020-00732, CR-ANO-2-2020-01300, and CR-ANO-2-2020-01319

Performance Assessment:

Performance Deficiency: The licensee's failure to establish a calibration procedure that tested as-found conditions and verified EDG exhaust fan temperature switches would control room temperature at design basis temperature setpoints was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment Performance 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's failure to perform as-found calibration testing of the EDG exhaust fan temperature switches challenged the ability to identify a degrading nonconforming condition associated with instrument drift, and to properly assess operability of the EDGs. In addition, the as-found testing, when performed correctly, showed that two temperature switches were high, out of acceptance criteria.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The finding was determined to be of very low safety significance (Green) because it (1) was not a design deficiency, (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 longer than its technical specification allowed outage time, (4) did not represent a loss of the probability risk analysis function of two separate technical specification systems for greater than 24 hours, (5) did not represent a loss of probability risk analysis system and/or function for greater than 24 hours, and (6) did not result in the loss of a high safety-significant, nontechnical specification train.

Cross-Cutting Aspect: P.5 - Operating Experience: The organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner. Specifically, the licensee did not thoroughly evaluate the internal operating experience associated with Unit 1 EDG exhaust fan temperature switch calibration issues, as documented in Condition Report CR-ANO-1-2019-01032, to determine if changes were required for the Unit 2 EDG exhaust fan temperature switch calibration testing in accordance with MWO 50233978 and 50233977.

Enforcement:

Violation: Arkansas Nuclear One, Unit 2, Technical Specifications 6.4.1.a, requires, in part, that written procedures be established, implemented, and maintained covering the applicable procedures in Appendix A to Regulatory Guide 1.33. Appendix A, Section 9.a, states, in part, that maintenance that can affect performance of safety-related equipment should be properly pre-planned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. The licensee established MWO 50233978 and 50233977 to perform testing and calibration of EDG exhaust fan VEF-24A/B/C/D temperature switches.

Contrary to the above, from initial licensing until March 2020, the licensee failed to properly pre-plan and perform maintenance that can affect performance of safety-related equipment in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Specifically, the licensee failed to establish a calibration procedure appropriate to the circumstances for testing EDG exhaust fan temperature switch as-found conditions at design basis setpoints, an activity that can affect the safety-related EDGs.

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

Failure to Follow Procedures with an Improper Entry into a High Radiation Area			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Occupational Radiation Safety	Green NCV 05000368/2020001-03 Open/Closed	[H.11] - Challenge the Unknown	71124.01
<p>The inspectors reviewed a self-revealed Green finding and associated non-cited violation of Arkansas Nuclear One, Unit 2, Technical Specification 6.4.1.a, for the licensee's failure to follow procedures resulting in an improper entry into a high radiation area. Specifically, on March 14, 2020, a worker received a dose rate alarm after entering a high radiation area. The worker was not briefed by radiation protection to enter the area where he received the dose rate alarm, and the worker did not immediately stop work and contact radiation protection for direction after the alarm, as required by radiation protection procedures and the radiological work permit.</p> <p><u>Description:</u> On March 14, 2020, the licensee briefed a radiation worker for entry into the containment building to perform a snubber location inspection and assess the condition of the pressurizer spray line. The individual was logged into Radiation Work Permit (RWP) 2020-2404, Task 2, for routine maintenance in high radiation areas (HRA). The worker's self-reading dosimeter (SRD) alarm set points were 40 millirem (mrem) and 200 mrem per hour (mrem/hr).</p> <p>The worker was briefed by radiation protection to enter the area on the 375 foot – 377 foot elevation of the Unit 2 (U2) reactor building (RX) south cavity. The highest general area dose rate on this elevation was shown to be 12 mrem/hr based on survey ANO-2003-00275. The worker was briefed to enter and exit this area from above this elevation where the dose rates were lower.</p> <p>During this entry, the worker identified a condition of interest on the next lower elevation. The worker descended from the briefed elevation (375 foot – 377 foot) to the 369 foot – 372 foot elevation of the U2 RX south cavity to get a better view of the condition of interest. This lower elevation was 5 to 10 feet below the elevation understood by the radiation protection (RP) technician that gave the HRA brief was to be entered. The dose rates of 100 to 200 mrem/hr, shown in survey ANO-2003-00276 were accessible on this lower elevation, for which the worker was not briefed for entry. The worker's SRD alarmed on this lower elevation. The worker stated that he backed out until the alarm cleared and looked at his dosimeter, which read 5 mrem for accumulated dose. The worker then continued to take pictures of the snubber locations and hangers on the pressurizer spray line before exiting the area. The worker's SRD had alarmed at 220 mrem/hr, which was about 20 times higher than the dose rate in the area for which he had been briefed.</p> <p>The Dosimetry Requirements section of RWP 2020-2404, Task 2, stated that if an SRD dose rate alarm occurs, the worker must (1) secure work, (2) back out of the immediate area until the alarm clears, (3) notify others in your work crew, and (4) immediately notify radiation protection for further instructions.</p> <p>Procedure EN-RP-101, "Access Controls for Radiologically Controlled Areas," Revision 15, Section 5.4, required a brief of personnel entering HRAs on radiological conditions using Attachment 9, "Typical HRA/LHRA/VHRA Brief Checklist." Attachment 9 stated requirements to enter HRAs including that the worker must be briefed and knowledgeable of radiological</p>			

conditions in the work area and the travel path. In addition, the attachment stated that a worker must only enter areas that they have been briefed on.

Procedure EN-RP-100, "Radiation Worker Expectations," Revision 12, Section 5.2, stated that entry into radiologically controlled areas requires an RWP to be read and understood prior to entry, and that workers know the radiological conditions in their planned work area. Section 5.3 stated that the RWP shall be read, understood, and obeyed. Section 5.5 stated that the required response to an unanticipated dose rate alarm as (a) back out of the affected area, (b) notify others in the work area, and (c) immediately contact radiation protection for direction.

Corrective Actions: The licensee assessed this issue and implemented multiple immediate corrective actions. Some of the actions taken included:

- All involved parties were interviewed and coached.
- The individual was restricted from the radiation controlled area, the individual's training was pulled, and the individual was required to requalify in this area.
- The condition was classified as a Category B, Human Performance Event, with a manager presentation to the Performance Improvement Review Group.

Corrective Action References: Condition Report CR-ANO-2-2020-00751

Performance Assessment:

Performance Deficiency: The licensee's failure to follow procedures and radiation work permit for making a proper entry into a high radiation area after receiving an unanticipated dose rate alarm was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Program and Process attribute of the Occupational Radiation Safety Cornerstone and adversely affected the cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, the failure to follow requirements involving radiological controls had the potential to increase the individual's dose. The failure to follow procedural requirements by making an improper entry into a high radiation area for which the worker was not briefed resulted in an exposure to roughly 20 times the general area dose rates for which the individual was briefed. This improper entry also resulted in an unanticipated dose rate alarm to which the worker responded by backing out until the dose rate alarm had cleared. However, the individual then failed to follow licensee procedures and the RWP to leave the area and immediately contact radiation protection for direction, thereby increasing the potential for increased dose.

Significance: The inspectors assessed the significance of the finding using Appendix C, "Occupational Radiation Safety SDP." The inspectors determined the finding to be of very low safety significance (Green) because (1) it was not associated with as low as is reasonably achievable (ALARA) planning or work controls, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised.

Cross-Cutting Aspect: H.11 - Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding. Specifically, the

worker failed to stop and assess the radiological conditions he may enter beyond the area that was briefed. The worker failed to determine that there were substantially more significant radiological conditions accessible on the level below where the SRD alarmed. Licensee procedures require workers to adhere to RWP requirements, which required the worker to be briefed on his work areas. The worker was not briefed on the dose rates for the lower elevation, and therefore was unaware of the radiological hazard.

Enforcement:

Violation: Arkansas Nuclear One, Unit 2, Technical Specification 6.4.1.a requires, in part, that written procedures be established, implemented, and maintained covering the applicable procedures in Appendix A to Regulatory Guide 1.33. Appendix A, Section 7.e., (1) recommends radiation protection procedures for access control to radiation areas including a radiation work permit system. The licensee established Procedure EN-RP-101, "Access Controls for Radiologically Control Areas," Revision 15, and Procedure EN-RP-100, "Radiation Worker Expectations," Revision 12, for access control to radiation areas that included the use of a radiation work permit system.

Procedure EN-RP-101, Section 5.4, required a brief of personnel entering HRAs on radiological conditions using Attachment 9, "Typical HRA/LHRA/VHRA Brief Checklist." Attachment 9 stated requirements to enter HRAs, including that the worker be briefed and knowledgeable of radiological conditions in the work area and associated travel path, and that the worker only enter areas that they have been briefed on.

Procedure EN-RP-100, Section 5.2, stated entry into radiologically controlled areas requires an RWP to be read and understood prior to entry and that the worker know the radiological conditions in the planned work area. Section 5.3 stated that the RWP shall be read, understood, and obeyed. Section 5.5 stated the required response to an unanticipated dose rate alarm as (a) back out of the affected area, (b) notify others in the work area, and (c) immediately contact radiation protection for direction.

Contrary to the above, on March 14, 2020, the licensee failed to implement Procedures EN-RP-101 and EN-RP-100 for properly entering a high radiation area. Specifically, a radiation worker failed to follow procedures that required workers to stay only in the work area that was briefed. The worker entered an area for which he was neither briefed nor knowledgeable of the radiological conditions where the worker's self-reading dosimeter alarmed. In addition, the worker failed to follow procedures and the requirements of the radiation work permit, and failed to leave the area and immediately contact radiation protection for direction when the worker's self-reading dosimeter had the unanticipated alarm.

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

Failure to Evaluate the Suitability of Components in Containment as a Result of Temperatures that Result from a Main Steam Line Break			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000313/2020001-04 Open/Closed	Not Applicable	71152
<p>The inspectors identified a Severity Level IV, non-cited violation of 10 CFR 50.71(e), "Maintenance of Records, Making Reports," associated with the licensee's failure to correctly update the Updated Final Safety Analysis Report (UFSAR). Specifically, following the replacement of once-through steam generators for Arkansas Nuclear One, Unit 1, after Cycle 19, the licensee did not analyze the containment temperature or evaluate the suitability of components in containment for the effects of a main steam line break accident and failed to update the UFSAR regarding the peak containment temperatures that occur due to a postulated main steam line break.</p>			
<p><u>Description:</u> NRC Inspection Report 05000313/2018011 (ADAMS Accession No. ML18295A382) documented an unresolved item related to the containment environment that would result from a main steam line break (MSLB) (URI 05000313/2018011-03, "Failure to Evaluate the Effects and the Suitability of Components in Containment from a Main Steam Line Break"). Specifically, UFSAR Section 14.2.2.1.5 states, in part, that "At the end of Cycle 19, the original once-through steam generators (OTSGs) were replaced. In support of Cycle 20 operation, an evaluation of the containment pressure/temperature response with the replacement OTSGs for loss of coolant accidents (LOCA) and MSLB was performed. For the MSLB, the containment pressure response with the replacement OTSGs was bounded by the current analysis. The post-MSLB temperature response with the replacement OTSGs would be worse. Entergy Operations, Inc. has adopted NUREG-0458 into the Arkansas Nuclear One, Unit 1, licensing basis which recognizes that the post-MSLB atmosphere may become superheated, but the temperature spike is of such short duration that the thermal lag of any structure, system, or component (SSC) inside containment will not increase significantly. Consequently, the initial temperature peak does not define operating limits on any SSC and the long-term containment temperature (which is essentially the saturation temperature) dominates the temperature response of SSCs. Therefore, as long as the peak MSLB pressure is less than the peak pressure following a LOCA, the temperature response of SSCs will still be defined by the LOCA."</p> <p>The inspectors determined that the provisions of NUREG-0458 apply to Arkansas Nuclear One, Unit 1. However, the NRC issued several generic communications and a Safety Evaluation Report to Arkansas Nuclear One, Unit 1 subsequent to the issuance of NUREG-0458. The Safety Evaluation Report states, in part, "Replacement equipment installed subsequent to February 22, 1983, must be qualified in accordance with the provisions of 10 CFR 50.49, using guidance of Regulatory Guide 1.89, unless there are sound reasons to the contrary." The licensee, under the provisions of 10 CFR 50.59, chose to modify the facility by replacing the original once-through steam generators with enhanced once-through steam generators. The replacement steam generators have several design differences compared to the original steam generators. Specifically, the replacement steam generators were designed with larger secondary volumes, more tubes, flow-restricting venturis, and different materials (Alloy 690 vs. Alloy 600).</p> <p>By replacing the original once-through steam generators with enhanced once-through steam generators, the licensee altered the postulated accident environment within containment.</p>			

Specifically, the MSLB containment temperature would be higher with the replacement steam generators than the maximum predicted containment temperature analyzed for the original steam generators. The NRC determined that the UFSAR did not contain the most current information regarding an approved analysis for the containment temperature due to an MSLB for the replacement steam generators, which created the potential that future changes to the facility could be made using incorrect information.

Corrective Actions: The licensee wrote Condition Report CR-ANO-1-2019-02443 and CR-ANO-1-2019-02883 to update the UFSAR and to determine what additional corrective actions are necessary.

Corrective Action References: Condition Report CR-ANO-1-2019-02443 and CR-ANO-1-2019-02883

Performance Assessment: None

Enforcement: The ROP’s 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.

Severity: Because this performance deficiency had the potential to impact the NRC’s ability to perform its regulatory function, it is necessary to address this violation using traditional enforcement to adequately deter noncompliance. Using the NRC Enforcement Policy, dated January 15, 2020, the violation was determined to be a Severity Level IV violation in accordance with Section 6.1.d.3 because the lack of up-to-date information in the UFSAR had not resulted in any unacceptable changes to the facility or procedures.

Violation: Title 10 CFR 50.71(e), requires, in part that licensees shall update periodically, as provided in paragraphs (e)(3) and (4) of 10 CFR 50.71, UFSAR, originally submitted as part of the application for the license, to assure that the information included in the report contains the latest information developed.” Contrary to the above, from October 18, 2005, through December 13, 2019, the licensee failed to update the UFSAR to assure that the information included in the report contained the latest information developed. Specifically, UFSAR, Section 14.2.2.1.5, did not contain the accurate information regarding an approved analysis for the containment temperature due to a MSLB for the replacement steam generators.

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

The disposition of this violation closes URI 05000368,05000313/2018011-03.

<p>Very Low Safety Significance Issue Resolution Process: Technical Specifications for Maximum Temperature of Service Water System When Aligned to Lake Dardanelle</p>	<p>71152</p>
<p>This issue is a current licensing basis question and inspection effort is being discontinued in accordance with the Very Low Safety Significance Issue Resolution (VLSSIR) process. No further evaluation is required.</p>	
<p>Description: The ultimate heat sink for Unit 1 is comprised of the Lake Dardanelle Reservoir and the safety-related emergency cooling pond (ECP). The preferred water source is Lake Dardanelle, and the emergency cooling pond is credited for mitigating an accident caused by the loss of the lake. The Safety Analysis Report, Section 6.3.2, states, in part, that,</p>	

“The 95 F service water (cooling water inlet temperature) is based upon the maximum expected temperature of the Lake Dardanelle Reservoir.” Additionally, the safety analysis for emergency core cooling systems assumes that the initial Lake Dardanelle temperature at the start of an accident is less than 95 degrees Fahrenheit. Further, the inspectors reviewed plant data and found occasions where the lake exceeded 95 degrees Fahrenheit.

Licensing Basis: Arkansas Nuclear One, Unit 1, Technical Specification Surveillance Requirement 3.7.8.2, “Emergency Cooling Pond,” requires that the average water temperature of the emergency cooling pond (ECP) be less than or equal to 100 degrees Fahrenheit to be operable. The Technical Specification Bases Section 3.7.8.2 states, in part, “The operating limits are based on conservative heat transfer analyses for the worst-case initial conditions that could be present considering a Unit 2 Design Basis Accident concurrent with a normal shutdown of Unit 1 and a loss of the Dardanelle Reservoir water inventory. To be considered OPERABLE, the ECP must contain a sufficient volume of water at or below the maximum temperature that would allow the service water system (SWS) to operate for at least 30 days following the design basis event without exceeding the maximum design temperature of the equipment served by the SWS. To meet this condition, the ECP initial temperature should not exceed 100 degrees Fahrenheit, and the volume of water should not fall below 70 acre-feet during normal unit operation.”

However, Technical Specification 3.7.7, “Service Water System,” does not require any temperature limitations, despite the fact that the initial conditions assume a maximum design temperature of 95 degrees Fahrenheit in the design basis accident safety analyses and described in the Safety Analysis Report. The technical specification bases, Section 3.7.7, states, in part, that, “The principal safety-related function of the service water system (SWS) is the transfer of heat from the reactor and safety-related components to the heat sink.”

By letter dated November 19, 1999, the NRC responded to the licensee (ADAMS Accession No. ML993330245) clarifying the licensing bases of the ultimate heat sink. The worst-case-single-failure postulated for Arkansas Nuclear One, Unit 1, was re-examined and validated. Specifically, it was confirmed that the worst-case design-basis accident was the case in which a large-break LOCA was postulated as the initiating event, and a loss-of-lake was taken as a single failure. The supporting analysis for this event resulted in the most limiting containment temperature profile. The letter clarified that the ultimate heat sink for ANO is both Lake Dardanelle and the ECP and, therefore, if the lake is taken as the single-failure, the ECP would then be the assured water source for the SWS.

Calculation 88-E-009--20, “ANO-1 DBA Reanalysis,” Revision 0, states, in part, that, “The basis for the reactor building (RB) design basis accident (DBA) analysis is a large-break loss of coolant accident (LB-LOCA) as the initiating event, in conjunction with a loss of offsite power (LOOP), and a single-failure of a train of power. This is the worst-case combination of initiating event and single failure which could conceivably challenge RB integrity and equipment performance. As a result, the Dardanelle Reservoir is the assured source of SW and the postulated worst-case lake temperature of 95 degrees F is conservatively used over the duration of the accident.” The licensee’s position is that the ECP is available for cooling during accident conditions, and controlled by technical specifications; therefore, there is no need to monitor the non-safety Lake Dardanelle lake temperature.

Significance: In response to this issue, the licensee provided an analysis that demonstrated that the containment equipment used to mitigate a design basis accident would remain environmentally qualified with service water system temperatures up to

100 degrees Fahrenheit. The maximum lake temperatures recorded near Unit 1 were less than 97 degrees Fahrenheit. For the purpose of the Very Low Safety Significance Issue Resolution Process, the inspectors screened the issue of concern through IMC 0609, Appendix A, and determined the issue of concern would likely be Green had a performance deficiency been identified.

Technical Assistance Request: The staff considered that in the event of a LOCA and a single failure of the Lake Dardanelle Reservoir, Unit 1 can be safely shut down on the ECP without exceeding the maximum design temperature of the equipment served by the SWS. Also, the 1999 letter acknowledged that there is a very low probability of an Arkansas Nuclear One, Unit 1, LOCA concurrent with the failure of Dardanelle Dam. The staff concluded that further inspection effort should be discontinued in accordance with the Very Low Safety Significance Issue Resolution Process.

The disposition of this issue closes URI 05000313/2017004-01.

EXIT MEETINGS AND DEBRIEFS

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

- On January 28, 2020, the inspectors presented the Arkansas Nuclear One, Unit 1 MSLB URI closure inspection results to Mr. T. Arnold, Licensing Manager, and other members of the licensee staff.
- On March 16, 2020, the inspectors presented the Emergency Plan and Emergency Action Level Revision In-Office Reviews inspection results to Mr. J. Toben, Manager, Emergency Preparedness, and other members of the licensee staff.
- On March 30, 2020, the inspectors presented the radiation protection inspection results to Mr. J. Dinelli, Site Vice President, and other members of the licensee staff.
- On April 2, 2020, the inspectors presented the integrated inspection results to Mr. J. Dinelli, Site Vice President, and other members of the licensee staff.

THIRD PARTY REVIEWS

Inspectors reviewed Institute of Nuclear Power Operations report.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Corrective Action Documents	CR-ANO-	1-2019-01306, 1-2020-00030, C-2011-00727, C-2019-01773, C-2019-03310,	
	Corrective Action Documents Resulting from Inspection	CR-ANO-	C-2020-00340	
	Procedures	OP-1107.001	Electrical System Operations	125
		OP-1203.025	Natural Emergencies	73
		OP-1203.054	Internal Flooding	3
		OP-2203.008	Natural Emergencies	57
OP-2203.051		Internal Flooding	7	
71111.04	Calculations	CALC-82-D-2086-01	Volume of CST T-41B Requiring Tornado Missile Protection	
		CALC-91-E-0090-02	ANO-2 EDG Room Ventilation	2
	Corrective Action Documents	CR-ANO-	1-1996-00512, 1-2003-00954, 1-2003-01002, 1-2019-02826, 1-2020-00011, 1-2020-00102, 1-2020-00200, 2-2016-01528, 2-2017-05268	
	Corrective Action Documents Resulting from Inspection	CR-ANO-	2-2020-00043, 2-2020-00100, 2-2020-00101, 2-2020-00117	
	Drawings	58526-264, Sheet 8A, 8B, 8C	EFIC Module Connection Diagram	
		M-221 Sheet 2	P&ID Emergency Chilled Water System Auxiliary Building Electrical Rooms	32
	Engineering Changes	EC-39238	Effects of Site Maximum Ambient Temperature of 113 F on ANO-1 EDG Combustion Air and Possible Derating	
	Miscellaneous	1CNA078205		
		ULD-1-SYS-08	ANO Unit 1 Emergency Feed Water Initiation and Control System	7
	Procedures	EN-MA-107	Post-Maintenance Testing	0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		EN-MA-125	Troubleshooting Control of Maintenance Activities	24
		OP-1104.023	Diesel Oil Transfer Procedure	38
		OP-1104.027	Battery and Switchgear Emergency Cooling System	51
		OP-1104.036	Emergency Diesel Generator Operations	83
		OP-1105.005	Emergency Feedwater Initiation and Control System	48
		OP-1202.012	Repetitive Tasks	22
		OP-1203-013	Natural Circulation Cooldown	25
		OP-1203.040	Forced Flow Cooldown	13
		OP-1203.041	Small Break LOCA	9
		OP-1203.044	EFW Actuation Low OTSG Pressure	25
		OP-1304.206	U1 EFIC Channel B Monthly Test, S/G pressure >750 psig	33
		OP-2104.036	Emergency Diesel Generator Operations	98
		OP-2202.008	Diesel Operations - Station Blackout	16
		OP-2305.049	EDG Periodic Test	38
		OP-2306.005	Maintenance Surveillance on Unit 2 Emergency Diesel Generators	54
		OP-3305.001	Operations System Alignment Checks	0
	Work Orders	WO	52609216, 52726370, 52818499	
71111.05	Calculations	CALC-85-E-0053-33	Fire Area GG Combustible Loading Evaluation	4
	Corrective Action Documents Resulting from Inspection	CR-ANO-	1-2019-02833, 1-2020-00316, 2-2020-00261, 2-2020-00367, 2-2020-00439	
	Drawings	FZ-1032	Fire Zone Details North and South EDG Rooms; Fire Zone 86-G, Fire Area D, and Fire Zone 87-H, Fire Area H	
	Fire Plans		ANO Prefire Plan (Unit 2)	17
	Miscellaneous		Fire Hazards Analysis	18
71111.06	Calculations	CALC-83-E-0062-05	Ponding Level Estimation in Emergency D-G Rooms Firezones 86G and 87H	3
		CALC-ANOC-CS-16-00001	Internal Flooding Walkdown Validation	3
	Corrective Action	CR-ANO-	1-2015-02434, 2-2016-04267	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents			
	Engineering Changes	EC-61840	Internal Flooding Design Basis	1
	Procedures	OP-1203.054	Internal Flooding	3
		OP-1402.245	Inspection of Floor Drains and Backflow Preventers	5
	Work Orders	WO	50234727, 52746144, 52778591,	
71111.11Q	Corrective Action Documents	CR-ANO-	1-2020-00171	
71111.12	Calculations	CALC-91-E-0090-02	ANO-2 EDG Room Ventilation	2
		CALC-92-R-1017-20	Unit One Documentation Package for EDG and FO Systems	4
		CALC-94-E-0095-29	Temperature Analysis of the EDG Room in ANO-1 during Alternate Shutdown with a Loss of Ventilation	2
		CALC-ANOC-CS-15-00003	ANO Flood Protection Design Basis	8
		CALC-ANOC-CS-15-00012	ANO Flood Protection Room Evaluations - Unit 1 and Unit 2	2
		CALC-ANOC-CS-16-00006	Arkansas Nuclear One Passive Barrier Features List	9
		EC-81848	ANO EDG Room Ventilation Engineering Study	0
	Corrective Action Documents	CR-ANO-	1-2016-01787, 1-2016-02875, 1-2017-03721, 1-2018-00020, 1-2018-01687, 1-2018-04294, 1-2018-04314, 1-2018-04376, 1-2018-05007, 1-2019-01363, 1-2020-00197, 1-2020-00218, 2-2017-00439, 2-2017-00720, 2-2017-05689, 2-2019-00561, 2-2019-03018, 2-2020-00162, C-1998-00436, C-2019-01641, C-2019-01657, C-2000-00129,	
	Engineering Changes	EC-ANO-50092	Room 72 Floor Drain and Equipment Drain Flood Mitigation Modifications	0
	Procedures	EN-OP-104	Operability Determination Process	16
		OP-1203.012A	Annunciator K01 Corrective Action	47
		OP-1203.025	Natural Emergencies	73
		OP-1203.054	Internal Flooding	3
OP-2203.008		Natural Emergencies	57	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
		OP-2203.051	Internal Flooding	7	
		OP-2304.134	Unit 2 2K4A Instrumentation Calibration	23	
	Work Orders	WO	44683, 507882, 538361, 5270257, 50235990, 52536181, 52636702, 52702571, 52733038, 52766286		
71111.13	Corrective Action Documents	CR-ANO-	1-1990-00735, 1-2019-00155, 1-2019-01222, 1-2020-00094, 1-2020-00102, 1-2020-00111, 2-2020-00039, 2-2020-00272, C-2019-00310		
	Corrective Action Documents Resulting from Inspection	CR-ANO-	C-2020-00661		
	Miscellaneous Procedures	ACMP	CEDMCS Relay 24 Volt P/S status		
			EN-OP-119	Protected Equipment Postings	12
			EN-WM-104	On Line Risk Assessment	21
			OP-1015.045	Unit 1 Safety Function Determination Program	2
			OP-1104.027	Battery and Switchgear Emergency Cooling System	51
			OP-1104.029	Service Water and Auxiliary Cooling System	120
			OP-1106.007	Common Feedwater System	8
			OP-1203.025	Natural Emergencies	73
			OP-2104.037	Alternate AC Diesel Generator Operations	34
		OP-2202.008	Station Blackout	16	
Work Orders	WO	528622, 537316			
71111.15	Calculations	CALC-M-3600-37	EDG Room Ventilation	1	
	Corrective Action Documents	CR-ANO-	1-2018-04314, 1-2018-05007, 1-2019-04572, 1-2019-04783, 1-2020-00094, 1-2020-00102, 1-2020-00111, 1-2020-00166, 1-2020-00197, 2-2020-0100, 2-2020-00661		
	Corrective Action Documents Resulting from Inspection	CR-ANO-	2-2020-00560		
			EN-OP-104	Operability Determination Process	16
			EN-WM-110	Surveillance Program	0
			OP-1104.027	Battery and Switchgear Emergency Cooling System	51
			OP-1402.159	Unit 1 EFW Turbine Governor Valve CV-6601-B	8

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		OP-2306.006	Unit 2 Main Steam Safety Valve Test	28
	Work Orders	WO	44683, 470001, 537895, 538361, 52651014, 52790577, 52800714, 52828527, 52851715	
71111.18	Calculations	CALC-92-E-0103-01	ANO-1 Switchgear, Battery, DC, and Corridor 98 HVAC Evaluation	5
	Corrective Action Documents	CR-ANO-	1-2007-00339, 1-2009-01149, 1-2009-01236	
	Engineering Changes	EC-28640	Develop New Design Airflow and Chilled Water Flow for North Electrical Room Cooler VUC-14B and South Electrical Room Cooler VUC-14D	0
	Procedures	OP-1104.027	Battery and Switchgear Emergency Cooling System	51
	Work Orders	WO	52818499	
71111.19	Corrective Action Documents	CR-ANO-	1-2020-00094, 1-2020-00102, 1-2020-00111, 1-2020-00197, 1-2020-00218, 2-2020-00265, C-2020-00456, C-2020-00460, C-2020-00462	
	Procedures	EN-MA-125	Troubleshooting Control of Maintenance Activities	24
		EN-MA-128	Refrigerant Management Program	6
		OP-1104.027	Battery and Switchgear Emergency Cooling System	51
		OP-2104.036	Emergency Diesel Generator Operations	98
		OP-2107.037	Alternate AC Diesel Generator Operations	34
	Work Orders	WO	496002, 508926, 519384, 531333, 537316, 538361, 52865045, 52874126	
71111.20	Corrective Action Documents	CR-ANO-	2-2020-00040, 2-2020-00719, 2-2020-00720, C-2020-00124,	
	Drawings	M-2236, Sheet 1	Containment Spray System	95
	Engineering Changes	EC-47217	Spent Fuel Pool Cooling Pump Alternate Power Source Connection	0
	Miscellaneous	OLA-2019-00187	Outage Risk Assessment Team Report 2R27	0
	Procedures	OP-1015.008	Unit 2 SDC Control	61
		OP-2102.004	Power Operations	67
		OP-2102.010	Plant Cooldown	61
		OP-2104.004	Shutdown Cooling System	64
		OP-2104.006	Fuel Pool Systems	63

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		OP-2104.039	HPSI System Operation	89
		OP-2104.040	LPSI System Operations	76
		OP-2203.002	Spent Fuel Pool Emergencies	19
		OP-6030.110	Termination Splicing and Soldering of Cable and Wire	25
	Work Orders	WO	363443, 365081, 540856, 52863684	
71111.22	Calculations	CALC-91-E-0107-05	EDG Day Tank T30A, T30B Capacity Evaluation	0
		CALC-91-E-0107-06	EDG Storage Tank T57A T57B Capacity Evaluation	2
	Corrective Action Documents	CR-ANO-	2-2006-00259, C-2016-04594, C-2019-00033, C-2020-00456, C-2020-00460, C-2020-00462, 2-2020-01300, 2-2020-01319	
	Corrective Action Documents Resulting from Inspection	CR-ANO-	2-2020-00354, 2-2020-00562, 2-2020-00600, 2-2020-00721, C-2020-00624, 2-2020-01300	
	Engineering Changes	EC-75425	Documentation of Baseline for ANO2 Reference Values for IST Components	0
	Miscellaneous	SEP-ANO-1-IST-1	ANO Unit 1 Inservice Testing Bases Document	5
		SEP-ANO-2-IST-1	ANO Unit 2 IST Bases	6
		SEP-ANO-2-IST-2	ANO Unit 2 IST Plan	6
		SEP-ANO-2-IST-3	ANO Unit 2 IST Cross Reference Document	6
	Procedures	OP-1104.036	Emergency Diesel Generator Operation	83
		OP-1305.007	RB Isolation and Miscellaneous Valve Stroke Test	50
		OP-2104.004	Shutdown Cooling System	64
		OP-2104.036	Emergency Diesel Generator Operations	98
		OP-2104.040	LPSI System Operations	76
		OP-2107.037	Alternate AC Diesel Generator Operations	34
ULD-0-TOP-19		Station Blackout	1	
ULD-2-SYS-01	Emergency Diesel Generator System	10		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Work Orders	WO	52866278, 52874126, 52862868, 525710, 52770765, 52673745, 52571987, 438638, 457300, 479564	
71114.04	Corrective Action Documents Resulting from Inspection	CR-ANO-	C-2020-0864, C-2020-0865, C-2020-0866	
	Miscellaneous		Arkansas Nuclear One Emergency Plan	43, 45
			10 CFR 50.54(q)(3) Screening, Procedure/Document Number: OP-1903.010, Revision: 059	12/05/2019
			10 CFR 50.54(q)(3) Screening, Procedure/Document Number: ANO Emergency Plan, Revision: 044	12/05/2019
			10 CFR 50.54(q)(3) Screening, Procedure/Document Number: ANO Emergency Plan, Revision: 045	12/05/2019
			10 CFR 50.54(q)(3) Screening, Procedure/Document Number: OP-1903.010, Revision: 058	12/05/2019
		0CAN012001	Emergency Plan and Emergency Plan Implementing Procedure Arkansas Nuclear One, Units 1 and 2; NRC Docket Nos. 50-313, 50-368, and 72-13; Renewed Facility Operating License Nos. DPR-51 and NPF-6	01/15/2020
		0CAN031801	License Amendment Request, Adoption of Emergency Action Level Schemes Pursuant to NEI 99-01, Revision 6 Arkansas Nuclear One, Unit 1 and Unit 2, Docket Nos. 50-313, 50-368 and 72-13; License Nos. DPR-51 and NPF-6	03/29/2018
		0CAN091801	Response to Request for Additional Information Related to the Application for Adoption of Emergency Action Level Schemes Pursuant to NEI 99-01, Revision 6 Arkansas Nuclear One, Units 1 and 2; Docket Nos. 50-313, 50-368 and 72-13 License Nos. DPR-51 and NPF-6	09/17/2018
		0CAN091901	License Amendment Request, Change in Implementation	09/05/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
			Date for Amendments 263 and 314 Arkansas Nuclear One, Unit 1 and Unit 2; NRC Docket Nos. 50-313, 50-368, and 72-13; Renewed Facility Operating License Nos. DPR-51 and NPF-6		
	Procedures	OP-1903.010	Emergency Action Level Classification	57, 59	
71114.06	Corrective Action Documents	CR-ANO-	1-2020-00267, 2-2020-00305, C-2020-00360, C-2020-00365, C-2020-00370, C-2020-00379, C-2020-00381, C-2020-00382, C-2020-00383, C-2020-00384, C-2020-00385, C-2020-00392		
71124.01	Corrective Action Documents	CR-ANO-	1-2019-02553, 1-2019-02993, 1-2019-03043, 1-2019-03082, 1-2019-03210, 2-2019-02443, C-2019-03633, C-2019-03795, C-2019-03949, C-2019-04161, C-2019-04861, 2-2020-00751		
		CR-HQN-	2019-02887, 2019-02903		
	Corrective Action Documents Resulting from Inspection	CR-ANO-	1-2020-00565, 1-2020-00566, 2-2020-01495		
	Miscellaneous			Spent Fuel Pool Items Survey	03/03/2020
				Long Term Instrument Location: AMS-4	02/24/2020
				Videos for Indirect Observation of Radiation Work Activities	
				HRA & LHRA Boundary Checklist	03/03/2020
		DFS-11		Radiation Survey for VSC #3 (Before and After Shield Ring)	01/28/1997
		DFS-11		Radiation Survey for VSC #1 (Before and After Shield Ring)	12/17/1996
	Procedures	EN-RP-100		Radiation Worker Expectations	12
EN-RP-101			Access Control for Radiologically Controlled Areas	15	
EN-RP-102			Radiological Control	7	
EN-RP-106			Radiological Survey Documentation	7	
EN-RP-106-01			Radiological Survey Guidelines	5	
EN-RP-108			Radiation Protection Posting	22	
EN-RP-110-06			Outage Dose Estimating and Tracking	1	
EN-RP-121			Radioactive Material Control	16	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
		EN-RP-131	Air Sampling	17	
		EN-RP-141	Job Coverage	9	
		EN-RP-152	Conduct of Radiation Protection	5	
		EN-RP-201	Dosimetry Administration	5	
		EN-RP-308	Operation and Calibration of Gamma Scintillation Tool Monitors	9	
	Radiation Surveys	ANO-	1910-00141, 1910-01167, 1910-01394, 1910-01599, 1910-01707, 20/03-00508, 20/03-00580, 20/03-00591, 2003-00275, 2003-00276, 20-03-00649, 20-03-00715, 20-03-00777, 20-03-00828, 20-03-01121		
		ANO-AS-	012120-0023, 022620-0073, 030320-0084, 031420-0095, 031720-0116, 111919-0746		
	Radiation Work Permits (RWPs)	2019-1405	Tours and Inspections in non-High Radiation Areas	1	
		2020-1065	20 Year Inspection of VSCs	0	
		2020-2404	Routine Maintenance Activities During 2R27	0	
		2020-2430	2R27 Reactor Disassembly/ Reassembly (includes support activities)	1	
		2020-2432	De-fuel & re-fuel the reactor during 2R27 (to include removal / replacement of the fuel transfer tube cover, refuel canal deep end entries, CEA shuffle, fuel inspections & reconstitution activities)	0	
		2020-2464	2CVC-139 Replacement (2F-3A/B Filter Cubicle) to include hot spot flushes scaffold support	0	
		2020-2470	Phased Array U.T. Inspections of Alloy 600 welds during 2R27	0	
		2020-2471	Perform inspections on Unit 2 Reactor Head during 2R27	0	
		2020-2900	Emergent Minor Maintenance Activities during 2R27	0	
	Self-Assessments	LO-ALO-2019-00082	Pre-NRC Inspection Self-Assessment: Radiological Hazard & Exposure Controls and Occupational ALARA Planning and Controls	11/21/2019	
		QA-14/15-2019-ANO-1	Quality Assurance Audit Report: Radiation Protection/Radwaste	10/24/2019	
	71124.02	ALARA Plans	2020-1065	ALARA Plan for VSC-24 Aging Management 20 Year Examination of VSC Lead Cask	03/03/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
		2020-2430	ALARA Plan for Tasks 2, 4, & 6	12/02/2019	
		2020-2432	ALARA Plan for Tasks 2 & 5	12/02/2019	
		2020-2432	RWP In-Progress Review – 50%	03/23/2020	
		2020-2470	ALARA Plan for Task 2	1	
		2020-2471	ALARA Plan for Task 3	11/10/2019	
	Corrective Action Documents	CR-ANO-	C-2019-03509, C-2019-03527, C-2019-04805, 1-2019-02955, 1-2019-03314, 1-2019-04418, 2-2019-01530, 2-2019-02316, 2-2020-00766		
	Miscellaneous		1R28 Final RWP Status	03/26/2020	
		DFS-11	Radiation Survey for VSC #3 (Before and After Shield Ring)	01/28/1997	
		DFS-11	Radiation Survey for VSC #1 (Before and After Shield Ring)	12/17/1996	
	Procedures	EN-RP-105	Radiological Work Permits	19	
		EN-RP-110	ALARA Program	14	
		EN-RP-141-01	Job Coverage Using Remote Monitoring Technology	7	
	Radiation Work Permits (RWPs)	2020-1065	20 Year Inspection of VSCs	0	
		2020-2430	2R27 Reactor Disassembly/ Reassembly (includes support activities)	1	
		2020-2432	De-fuel & re-fuel the reactor during 2R27 (to include removal / replacement of the fuel transfer tube cover, refuel canal deep end entries, CEA shuffle, fuel inspections & reconstitution activities)	0	
		2020-2470	Phased Array U.T. Inspections of Alloy 600 welds during 2R27	0	
		2020-2471	Perform inspections on Unit 2 Reactor Head during 2R27	0	
	Self-Assessments	LO-ALO-2019-00082	Pre-NRC Inspection Self-Assessment: Radiological Hazard & Exposure Controls and Occupational ALARA Planning and Controls	11/21/2019	
		QA-14/15-2019-ANO-1	Quality Assurance Audit Report: Radiation Protection/Radwaste	10/24/2019	
	71151	Procedures	EN-LI-114	Regulatory Performance Indicator Process	15
	71152	Calculations	88-E-0098-20	ANO-1 DBA Reanalysis	0
	71153	Corrective Action Documents	CR-ANO-	2-2020-00678, 2-2020-00681, 2-2020-00701, 2-2020-00703, 2-2020-00710, 2-2020-00892	
		Procedures	OP-2203.027	Loss of Main Feedwater Pump	18

