



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

May 10, 2019

Mr. Ken Peters, Senior Vice President
and Chief Nuclear Officer
VISTRA Operations Company, LLC
P.O. Box 1002
Glen Rose, TX 76043

**SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2 – NRC
INTEGRATED INSPECTION REPORT 05000445/2019001 AND
05000446/2019001**

Dear Mr. Peters:

On March 31, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Comanche Peak Nuclear Power Plant, Units 1 and 2. On April 2, 2019, the NRC inspectors discussed the results of this inspection with Mr. Steven Sewell and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented seven findings of very low safety significance (Green) in this report. These findings involved violations 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 (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

The inspectors also documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or 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 the Comanche Peak Nuclear Power Plant.

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 the Comanche Peak Nuclear Power Plant.

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

Sincerely,

/RA/

Mark S. Haire, Chief
Project Branch A
Division of Reactor Projects

Docket Nos. 50-445 and 50-446
License Nos. NPF-87 and NPF-89

Enclosure:
Inspection Report 05000445/2019001
and 05000446/2019001

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

Docket Number(s): 05000445 and 05000446

License Number(s): NPF-87 and NPF-89

Report Number(s): 05000445/2019001 and 05000446/2019001

Enterprise Identifier: I-2019-001-0011

Licensee: Vistra Operations Company, LLC

Facility: Comanche Peak Nuclear Power Plant, Units 1 and 2

Location: Glen Rose, TX 76043

Inspection Dates: January 1, 2019 to March 31, 2019

Inspectors: W. Cullum, Reactor Inspector
R. Deese, Senior Reactor Analyst
J. Drake, Senior Reactor Inspector
J. Josey, Senior Resident Inspector
R. Kumana, Resident Inspector
W. Sifre, Senior Reactor Inspector

Approved By: Mark S. Haire, Chief
Project Branch A
Division of Reactor Projects

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting a Quarterly inspection at Comanche Peak Nuclear Power Plant, 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. Findings and violations being considered in the NRC’s assessment are summarized in the table below. A licensee-identified non-cited violation is documented in report section: 71111.18.

List of Findings and Violations

Inadequate Corrective Actions for Failure to Ensure Containment Hatch Closure Capability			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000445; 05000446/2019001-01 Closed	[H.6] - Design Margins	71111.04
The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Actions,” associated with the licensee’s failure to take adequate corrective actions for an inadequate containment closure procedure. Specifically, in December 2017, the NRC identified that the licensee’s procedure for emergency closure of the Unit 1 and 2 containment equipment hatches was inadequate, and the licensee failed to take adequate actions to correct the issue prior to the next outage.			
Failure to Evaluate a Change to the Facility DC Power System			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Not Applicable	NCV 05000445/2019001-02 Closed	Not Applicable	71111.04
The inspectors identified a Severity Level IV, non-cited violation of 10 CFR 50.59 for the licensee’s failure to obtain a license amendment or perform a written evaluation demonstrating the basis for not obtaining a license amendment, prior to making a change to the facility as described in the final safety analysis report.			
Failure to Monitor or Demonstrate Control of Performance Under the Maintenance Rule			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445; 05000446/2019001-03 Closed	None	71111.12
The inspectors identified a Green non-cited violation of 10 CFR 50.65(a)(2), with three examples, for failure to demonstrate effective control of performance of a maintenance rule scoped system through appropriate preventive maintenance.			

Failure to Control Hazard Barriers During Maintenance			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445/2019001-04 Closed	[H.14] - Conservative Bias	71111.13
The inspectors identified a Green non-cited violation of 10 CFR 50.65(a)(4) for failure to implement risk mitigating actions during diesel generator maintenance.			

Failure to Follow Procedure When A Degraded Condition Was Identified			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445; 05000446/2019001-05 Closed	[H.14] - Conservative Bias	71111.15
The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the licensee's failure to follow the requirements of Station Procedure STI-421.01, "Initiation of Issue Reports," Revision 0. Specifically, station personnel failed to notify the shift manager of an issue with material storage in the protected area. This issue required evaluations and compensatory actions for resolution.			

Failure to Perform Safety Evaluations in Accordance with 10 CFR 50.59			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445; 05000446/2019001-06 Closed	[H.9] - Training	71111.17T
The inspectors identified a Green, non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," (with four examples) in which the licensee failed to complete 50.59 evaluations as required by station procedures.			

Inadequate Maintenance Instructions Result in Loss of Assessment Capability			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Emergency Preparedness	Green NCV 05000445; 05000446/2019001-07 Closed	[H.8] - Procedure Adherence	71152
The inspectors reviewed a self-revealed Green, non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instruction, Procedures, and Drawings," that occurred due to inadequate maintenance instructions for safety-related radiation monitors that resulted in a major loss of assessment capability.			

Failure to Establish Adequate Procedural Guidance for Flushing Lithium at Power			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000446/2019001-08 Closed	[H.11] - Challenge the Unknown	71152
<p>The inspectors reviewed a Green, self-revealed non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the licensee's failure to establish an adequate procedure for flushing lithium from the residual heat removal system. This resulted in safety injection accumulators 2-01 and 2-02 discharge to the safety injection test header causing level drops in both accumulators and accumulator 2-01 pressure dropped to below the operability limit resulting in an unplanned component inoperability.</p>			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
NOV	05000446/2018011-01	Failure to Maintain a Quality Record Complete and Accurate in All Material Respects	92702	Closed
LER	05000446/2018-001-00	Unit 2 Automatic Reactor Trip Due to Turbine Trip, on March 19, 2019	71153	Closed

PLANT STATUS

Unit 1 began the inspection period at or near rated thermal power. On February 1, 2019, the unit was down powered to 64 percent for turbine testing. The unit was returned to rated thermal power the same day. On March 22, 2019, the unit began power coast down to a refueling outage, ending the inspection period at 92 percent power.

Unit 2 began the inspection period in a refueling outage. On January 14, 2019, the unit began a reactor startup. The unit shut down on January 15, 2019, due to a main turbine primary water leak. On January 18, 2019, the unit began a reactor startup and reached rated thermal power on January 22, 2019. On March 2, 2019, the unit was tripped due to a failure of a main feedwater isolation valve. The unit began a reactor startup the same day and reached rated thermal power on March 4, 2019. The unit remained at or near rated thermal power for the remainder of the inspection period.

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 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in Inspection Manual Chapter 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

71111.01 - Adverse Weather Protection

Impending Severe Weather Sample (IP Section 03.03) (1 Sample)

The inspectors evaluated readiness for impending adverse weather conditions for severe thunderstorms on March 13, 2019.

71111.04 - Equipment Alignment

Partial Walkdown (IP Section 02.01) (4 Samples)

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

- (1) Unit 1, safety injection pump 1-01 while 1-02 was out of service for maintenance on February 5, 2019
- (2) Unit 2, containment hatches on February 13, 2019

(3) Units 1 and 2, common class-1E DC power on March 5, 2019

(4) Units 1 and 2, seismic monitoring system on March 18, 2019

71111.05Q - Fire Protection

Quarterly Inspection (IP Section 03.01) (5 Samples)

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

(1) fire area 2CA, Unit 2 reactor building on January 9, 2019

(2) fire zones TB201 and TB202, control room emergency lighting battery rooms on January 14, 2019

(3) fire zone 1SB2A, Unit 1 safety injection pump 1-01 on March 11, 2019

(4) fire zone 2SB4, Unit 2 containment spray chemical add tank on March 13, 2019

(5) fire zone SM157, stairwell in the southeast corner of the safeguards building on March 26, 2019

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 02.02a.) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the service water intake structure on March 12, 2019.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (2 Samples)

(1) The inspectors observed and evaluated licensed operator performance in the Control Room during Unit 2 startup on January 14, 2019.

(2) The inspectors observed and evaluated licensed operator performance in the Control Room during Unit 2 startup on January 18, 2019.

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

The inspectors observed and evaluated a simulator-based loss of coolant accident scenario on March 27, 2019.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness Inspection (IP Section 02.01) (3 Samples)

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

- (1) common low voltage power distribution failure to align to normal power supply on February 28, 2019
- (2) Unit 1, battery charger and inverter failures which occurred in June 2018, on February 28, 2019
- (3) service air check valve failure during surveillance testing on March 14, 2019

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (5 Samples)

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

- (1) Unit 1, risk mitigating actions during emergency diesel generator 1-01 lube oil fill on January 17, 2019
- (2) Unit 1, risk mitigating actions while safety injection pump 1-02 was out of service on February 5, 2019
- (3) Unit 1, risk assessment during sequencer undervoltage replacement on February 13, 2019
- (4) Units 1 and 2, removal of service water pipe tunnel missile shield CPX-SWMEBB-01 on February 28, 2019
- (5) Units 1 and 2, risk mitigating actions with transformer XST2 unavailable on March 29, 2019

71111.15 - Operability Determinations and Functionality Assessments

Sample Selection (IP Section 02.01) (5 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) CR-2019-000324, Units 1 and 2, environmental qualification of steam generator atmospheric relief valves on January 10, 2019
- (2) CR-2019-000456, Units 1 and 2, Electros witch Part 21 relay issue on January 14, 2019

- (3) TR-2019-001119, Units 1 and 2, tornado missile evaluation for equipment storage on February 13, 2019
- (4) TR-2019-000805, Units 1 and 2, operations support center HVAC sensor failure on February 14, 2019
- (5) CR-2019-002132, Unit 1, environmental qualification of service water valves with teflon components on March 12, 2019

71111.17T - Evaluations of Changes, Tests, and Experiments

Sample Selection (IP Section 02.01) (35 Samples)

The inspectors reviewed the following evaluations (items 1 through 8), screenings, and/or applicability determinations for 10 CFR 50.59 from September 30, 2016, to January 14, 2019.

- (1) EV-CR-2016-001706-8, Revision1; FDA-2016-000025-01 temporary modification of 2RC-8054A to repair a leak on pressurizer 01 Pressure Transmitter.
- (2) AEV-CR-2016-005587-9; FDA-2016-000142-01, LDCR SA-2016-013 and LDC R TR-2016-003, Missile Probability Analysis Revision.
- (3) EV-TR-2017-003173-5 ABN-104, Revision 9; PCN-9 addition of alternate residual heat removal path and use of safety injection pump for core cooling in Mode 6.
- (4) EV-TR-2017-007959-13; Perform 50.59 Evaluation for FDA-2017-000106-02 "Generator Repair Plan" and 59SC-2017-000106-02.
- (5) EV-2014-013052-9; Modification to change the isolated phase bus cooling fans start logic to provide seven out of eight dampers open requirement using digital equipment.
- (6) EV-CR-2016-003267-10; FDA-2016-000075-01 Unit 1 pressurizer instrument isolation valves class change (LDCR-SA-2016-010).
- (7) EV-TR-2018-004520-14; Evaluate operator action for isolation of faulted battery charger from its battery per 50.59 screen EV-TR-2018-004520-13.
- (8) EV-CR-2017-004574-2; 59SC - STA-707-1 50.59 screen for 2RF16 changes to procedures for reactor vessel head and upper internals lifts.
- (9) EV-TR-2015-006849-4; 59SC - Provide 50.59 SC to support DCP-17-000010 to input FZ locations of raceways and equipment into GENESIS in support of ME-CA-0000-1086 revision.
- (10) EV-TR-2018-004520-10; 59SC - Perform a 50.59 screen for a compensatory measure to jumper battery cell.

- (11) EV-CR-2014-003412-18; 59SC - Perform 50.59 applicability determination and screen for additional plugging for component cooling water heat exchanger 2-01 in 2RF14.
- (12) EV-TR-2018-003799-6; Perform 10CFR50.59 review of minor fuel design changes documented in NF-TB-16-21.
- (13) EV-TR-2018-003700-2; Refer to the attached VDRT package which contains the requested screen and complete VDRT-5608075 package for valve XWT-0634.
- (14) EV-TR-2018-000169-4; 50.59 screen for backseating of 1MS-0357, SG 1-03 blowdown downstream isolation valve.
- (15) EV-TR-2018-000198-1; Maintenance clearance placed for isolation of 1-LG-2706A may exceed 90 days.
- (16) EV-TR-2018-000199-1; Maintenance clearance placed for diesel generator starting compressor solenoid 1-SV-3422-1F may exceed 90 days.
- (17) EV-TR-2018-000600-1; Shift manager clearance placed to isolate TBX-CSFLSI-01 seal water injection filter 01.
- (18) EV-CR-2016-008147-3; Compensatory action of installing scaffolding for medium energy line break (MELB) barrier.
- (19) EV-CR-2017-007829-1; 59SC - Compensatory actions to install temporary equipment for flow measurement.
- (20) EV-CR-2017-010212-1; 59SC - Shift manager clearance CP17-0913 due to feedpump deluge valve not resetting.
- (21) EV-CR-2017-012952-28; 59SC – Shift manager clearance to remove fuses 2-KXA/0746 and 2-KXB/0746.
- (22) EV-CR-2018-004743-2; 59SC - Compensatory action to blow down the receiver once per shift.
- (23) EV-TR-2016-005840-10; 59SC - VDRT-5575487 Which includes vendor final acceptance tests for open phase protection equipment for XST1.
- (24) EV-TR-2017-000041-32; 59SC - VDRT-5397434, Fuel transfer system transfer cart weldment.
- (25) EV-TR-2017-003173-4; 59SC - Review for revision to ABN-104 based on EV-TR-2017-003173-3 for loss of residual heat removal events.
- (26) EV-CR-2018-002390-5; 59SC - Changes made under EV-CR-2018-002390-4.
- (27) EV-CR-2018-006758-1; 59SC - Screen for the compensatory action for average containment temperature.

- (28) EV-CR-2018-007384-1; 59SC - Perform 50.59 screen changes to procedures OPT-612B and OPT-613B.
- (29) EV-CR-2016-007812-1; 59SC - Perform a 10CFR50.59 Review per STA-707 to update UFSAR Table 9.5-18 to specify tube plugging limit for diesel generator jacket water coolers for Unit 1 and Unit 2.
- (30) EV-TR-2018-008391-16; 59SC - Perform a 10CFR50.59 Review per STA-707 to plug tubes in the component cooling water heat exchangers.
- (31) EV-CR-2018-002189-2; 59SC - 50.59 screen for compensatory action to maintain 2-HV-2334A accumulator pressure above 2100psi.
- (32) EV-CR-2016-008215-20; 59SC - 50.59 review of compensatory measures to isolate suction and discharge pressure indication on CT and SF pumps; ref: EV-CR-2016-008215-19.
- (33) EV-TR-2016-009344-1; 59SC - Shift Manager Clearance CP16-1381 initiated to maintain X-PV-3218A isolated following failure of a functional stroke; request a 50.59SC to determine impact on the plant.
- (34) EV-CR-2018-005954-3; 59SC - Seal injection filters housing bolts and potential excessive torque specification VDRT-5655877.
- (35) EV-TR-2016-010572-2; 59SC - 59SC - Perform a 50.59 screen for hanging shift manager clearance CP16-1614 on 2-HS-2802A for damage to upper journal bearings on the motor for Circulating Water Pump Motor 2-03.

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Unit 2, pressurizer power operated relief valve accumulator pressure setpoint modification on February 14, 2019
- (2) bladder addition to safety-related tanks on March 11, 2019

71111.19 - Post Maintenance Testing

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

The inspectors evaluated the following post maintenance tests:

- (1) Unit 2, diesel generator 2-02 following intercooler crack and jacket water repair on February 12, 2019
- (2) Unit 2, pressurizer spray valve following actuator rebuild on February 20, 2019

- (3) Unit 1, diesel generator 1-01 following fuel injector torqueing on March 13, 2019
- (4) Unit 2, residual heat removal pump 2-02 following pump refurbishment on March 19, 2019
- (5) Unit 2, auxiliary feedwater pump 2-01 following maintenance on March 20, 2019

71111.20 - Refueling and Other Outage Activities

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

The inspectors evaluated refueling outage 2RF17 activities from January 1, 2019, to January 18, 2019, completing the sample for the refueling outage which started on December 8, 2018 (see Inspection Report 05000445/2018004; 05000446/2018004 (ADAMS Accession No. ML19042A345)). Specifically, the inspectors completed Inspection Procedure 71111.20, Sections 03.01.d through e, during this inspection period.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Containment Isolation Valve (ISO) (IP Section 03.01) (1 Sample)

Unit 2, service air containment isolation valve test on March 7, 2019

Surveillance Testing (IP Section 03.01) (1 Sample)

Unit 2, OPT-601B auxiliary feedwater flow control valve accumulator pressure drop test on March 26, 2019

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 from January 2018 through December 2018
- (2) Unit 2 from January 2018 through December 2018

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

- (1) Unit 1 from January 2018 through December 2018
- (2) Unit 2 from January 2018 through December 2018

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

- (1) Unit 1 from January 2018 through December 2018
- (2) Unit 2 from January 2018 through December 2018

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (2 Samples)

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

- (1) radiation monitor failures due to failure to install a jumper during maintenance on February 28, 2019
- (2) safety injection accumulator discharge due to inadequate procedure on March 29, 2019

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

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event reports which can be accessed at <https://lersearch.inl.gov/LERSearchCriteria.aspx>:

- (1) Licensee Event Report 05000446/2018-001-00, "Unit 2 Automatic Reactor Trip Due to Turbine Trip," on March 19, 2019

The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER; therefore, no performance deficiency was identified. The inspectors also concluded that no violation of NRC requirements occurred.

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

92702 – Follow-up on Corrective Actions for Violations And Deviations

Follow-up - Corrective Actions - Violations and Deviations (1 Sample)

On March 28, 2019, the inspectors reviewed the licensee's response to NOV 05000446/2018011-01, "Failure to Maintain a Quality Record Complete and Accurate in All Material Respects," and determined that the reason for the violation, corrective actions taken and planned to address recurrence, and the date when full compliance will be achieved for this violation is adequately addressed and captured on the docket.

INSPECTION RESULTS

Inadequate Corrective Actions for Failure to Ensure Containment Hatch Closure Capability			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000445; 05000446/2019001-01 Closed	[H.6] - Design Margins	71111.04
<p>The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," associated with the licensee's failure to take adequate corrective actions for an inadequate containment closure procedure. Specifically, in December 2017, the NRC identified that the licensee's procedure for emergency closure of the Units 1 and 2 containment equipment hatches was inadequate and the licensee failed to take adequate actions to correct the issue prior to the next outage.</p>			
<p>Description: In Inspection Report 2017-004, the NRC documented a non-cited violation for an inadequate procedure, STI 600.01, "Protecting Plant Equipment and Sensitive Equipment Controls." This procedure contained instructions for emergency closure of the containment equipment hatch during times when the hatch was open, but the ability to close containment was required. The inspectors observed that the bolting pattern and required torque that were identified in the supporting engineering calculation were not incorporated into the procedure. The licensee's technical evaluation required four bolts spaced 90 degrees apart and torqued to 30 percent preload values. The procedure did not require bolts to be evenly spaced and only required the bolts to be "snug tight," a licensee term implying full effort on the tool being used. The licensee entered this into their corrective action program. Subsequently, the licensee performed an evaluation to justify alternate bolt spacing patterns and revised the procedure to include adequate bolting patterns. However, in their evaluation the licensee stated that no torque requirement existed, and the requirement was only to hold the hatch in place.</p> <p>The inspectors observed the containment hatch closure training during Refueling Outage 2RF17. The inspectors observed that the bolt patterns used conformed to the revised procedure and evaluation, but that the hatch operators did not appear to apply any torque to the bolts. When the inspectors asked about the bolts, the operators believed that there was no requirement to apply any torque beyond that needed to hold the hatch in place.</p> <p>The inspectors determined that by not applying any type of torque to the bolts, the licensee was not verifying that the containment equipment hatch could be sealed. A seal is necessary to ensure that a release of fission product radioactivity within containment will be restricted from escaping to the environment in the event of a loss of decay heat removal event when the reactor coolant system was open to the atmosphere.</p> <p>The licensee performed another evaluation and concluded that the minimum torque required to ensure a seal with four bolts was 144 ft-lbf. The licensee conducted additional training with all hatch operators on the requirement to ensure a seal on the hatch. They also conducted a demonstration with the assigned operators and concluded that the average operator applying full effort would achieve greater than 150 ft-lbf.</p>			

Corrective Action(s): The licensee trained the operators on the requirement to ensure the bolts were adequately torqued and verified through demonstration that the operators could apply enough torque to ensure the hatch would be sealed.

Corrective Action Reference(s): CR-2018-008300, CR-2019-002533

Performance Assessment:

Performance Deficiency: The inability to assure containment closure during a postulated loss of decay heat removal or fuel handling accident was a condition adverse to quality. The failure to correct a condition adverse to quality is a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the SSC and barrier performance attribute of the Barrier Integrity Cornerstone. It adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events because the finding represented a loss of reasonable assurance of the ability to close the containment equipment hatch. Specifically, the failure to assure that personnel would adequately torque the bolts on the hatch sufficient to establish a seal would, in an actual event, result in a loss of the containment barrier.

Significance: The inspectors assessed the significance of the finding using Appendix H, "Containment Integrity SDP." Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," dated October 7, 2016, the inspectors determined the finding was associated with the Barrier Integrity cornerstone. Using Inspection Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings," Exhibit 4, "Barrier Integrity Screening Questions," the inspectors determined the finding degraded the ability to close or isolate containment and required evaluation under Inspection Manual Chapter 0609, Appendix H, "Containment Integrity Significance Determination Process," dated February 25, 2019. Using the Large Early Release Frequency (LERF) type screening process, the inspectors determined the finding was a "Type B LERF" finding because the finding did not affect core damage frequency. The inspectors used Table 7.3, "Phase 1 Screening - Type B Findings at Shutdown," and determined that a Phase 2 estimate was required because the containment equipment hatch affected containment isolation, which is a system important to LERF. The inspectors used Table 7.4, "Phase 2 Risk Significance - Type B Findings at Shutdown," to determine the finding was of very low safety significance (Green) because it did not meet the threshold for low safety significance (White) for leakage from containment to the environment being greater than 100 percent containment volume per day through containment penetration seals, isolation valves, or vent and purge systems. Specifically, the licensee was able to demonstrate through calculations that the leakage from the containment hatch being closed, but not sealed, would be no more than 30 percent of the containment volume per day.

Cross-cutting Aspect: H.6 - Design Margins: The organization operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defense-in-depth, and safety-related equipment. Specifically, the licensee incorrectly assumed that a seal on the containment hatch was not required at the onset of an

accident and that the increased pressure in containment during an accident could be credited for making a seal on the hatch.

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires in part that conditions adverse to quality are promptly identified and corrected. Contrary to the above, from December 2017 to December 2018, the licensee failed to promptly correct a condition adverse to quality. Specifically, the licensee failed to implement adequate corrective actions for an inadequate procedure for emergency containment closure to ensure the containment was sealed, an activity affecting quality.

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 a Change to the Facility DC Power System

Cornerstone	SL-IV	Cross-cutting Aspect	Report Section
Not Applicable	NCV 05000445/2019001-02 Closed	Not Applicable	71111.04

The inspectors identified a Severity Level IV, non-cited violation of 10 CFR 50.59 for the licensee's failure to obtain a license amendment or perform a written evaluation demonstrating the basis for not obtaining a license amendment prior to making a change to the facility as described in the final safety analysis report.

Description: The inspectors reviewed the plant configuration of two common Class 1E DC power panels that can be powered from either the Unit 1 or Unit 2 Class 1E DC busses. The inspectors found that the licensee has shared systems for both units that receive power from these panels. The panels also have Unit 1 safety-related systems powered from the panels. The inspectors noted that shared systems must meet the requirements of 10 CFR Part 50, Appendix A, Criterion 5, which states, in part, that "structures, systems, and components important to safety shall not be shared among nuclear power units unless it can be shown that such sharing will not significantly impair their ability to perform their safety functions." The inspectors questioned whether the inclusion of Unit 1 safety-related equipment on the common panels constituted acceptable sharing of systems between units.

Upon further review, the inspectors determined that the licensee originally committed to Regulatory Guide (RG) 1.81 to demonstrate compliance with Criterion 5. The licensee, in its Final Safety Analysis Report (FSAR), stated that the DC power sources and electric distribution systems were not shared between the two units, and that "safety-related loads shared between both units" are powered from common 125 VDC panels. The NRC in its safety evaluation report concluded that the design as described in the FSAR, with shared systems being powered from the common panels but no unit-specific safety-related systems powered from the common panels, was acceptable.

In January 2000, the licensee discovered that they had unit-specific safety-related systems from both Units 1 and 2 on the common panels in addition to the previously evaluated shared systems, contrary to what was described in their FSAR. The licensee entered this design control issue into the corrective action program. In 2002, the licensee modified the Unit 2 systems to align them to Unit 2 power supplies, but left the Unit 1 systems on the common panels. The licensee then revised the FSAR to state that they did not comply with RG 1.81,

but that the existing configuration of Unit 1 systems was an acceptable exception. The inspectors determined that powering Unit 1 systems from the Unit 2 DC power supply and distribution system constituted a system being shared among units, and that the licensee had not demonstrated compliance with Criterion 5 for these systems while the panels supplying Unit 1 systems were powered from Unit 2. At the time of the inspection, the common panels were aligned to Unit 1.

The inspectors determined that the inclusion of Unit 1 systems on panels that shared DC power systems was a change to the facility as described in the FSAR. The inspectors also determined that the licensee made the change without performing a written evaluation demonstrating that a license amendment would not be required. This impeded the ability of the agency to perform its regulatory function, requiring disposition using traditional enforcement.

Corrective Action(s): The licensee entered this violation into their corrective action program.

Corrective Action Reference(s): CR-2019-001711

Performance Assessment: The inspectors determined this violation was associated with a minor performance deficiency.

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 non-compliance.

Severity: The violation was determined to be Severity Level IV using section 6.1 of the NRC Enforcement Policy, dated May 15, 2018, because it was a violation of 10 CFR 50.59, but did not have a consequence evaluated by the significance determination process as having low-to-moderate or greater safety significance.

Violation: Title 10 CFR 50.59 requires, in part, that if the licensee makes changes to the facility as described in the FSAR without obtaining a license amendment, they must maintain a written evaluation which provides the basis for determining that the change does not require a licensee amendment. Contrary to the above, in April 2002, the licensee made a change to the facility as described in the FSAR without obtaining a license amendment, but did not maintain a written evaluation which provides the basis for determining that the change does not require a licensee amendment.

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

Failure to Monitor or Demonstrate Control of Performance Under the Maintenance Rule			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445; 05000446/2019001-03 Closed	None	71111.12
<p>The inspectors identified a Green, non-cited violation of 10 CFR 50.65(a)(2), with three examples, for failure to demonstrate effective control of performance of a maintenance rule scoped system through appropriate preventive maintenance.</p> <p><u>Description:</u> The inspectors identified three examples where the performance of systems, structures, and components (SSCs) that were subject to the maintenance rule, was not monitored or demonstrated to be effectively controlled through appropriate preventive maintenance.</p> <p>The first example is a violation of 10 CFR 50.65(a)(2) for failure to monitor performance or demonstrate effective control of performance for the Class 1E battery chargers. The inspectors identified a failure of the 1ED1-1 battery charger to successfully perform a maintenance rule function. The battery chargers provide DC power to the class 1E DC busses from the Class 1E AC busses. The vital bus inverters rely on effective control of DC voltage ripple on the battery charger output to allow synchronization with class 1E AC power prior to being placed online. The licensee incorporated a limit of 2 percent voltage ripple into the design basis document for the DC system. However, the licensee did not perform any testing or preventive maintenance to ensure output voltage ripple remained within limits. As a result, the DC output voltage ripple of the 1ED1-1 battery charger exceeded acceptable voltage ripple at some point in its service life, ultimately resulting in a failure of the supported inverter to return to service on June 5, 2018.</p> <p>The licensee determined that the excessive ripple was caused by a failure of a component in the battery charger, the X-302 printed circuit board (PCB). The PCB had last been replaced in December 2016 and was scheduled for a 10-year replacement frequency. Subsequent to that replacement, the licensee documented multiple occurrences where the inverters supported by that charger did not synchronize correctly. The licensee had generated work orders to troubleshoot the inverter but had not completed them prior to the June 2018 failure. Following this failure, the licensee performed an evaluation of the event for their maintenance rule program. The licensee evaluated the failure as not being a maintenance rule failure because the battery charger functions, as written, did not describe providing power to the DC busses. The inspectors concluded that the function to provide power to the DC busses was a maintenance rule function and that the June 2018 failure was a functional failure. Furthermore, because the failure could have been prevented by either performing preventive maintenance on the battery charger or by completing the troubleshooting work orders, the failure was maintenance preventable. The June 2018 failure exceeded the established performance criteria, indicating performance was not being effectively controlled, but the licensee did not monitor performance or set goals. The licensee entered this issue into the corrective action program.</p> <p>The second example is a violation of 10 CFR 50.65(a)(2) for failure to monitor performance or demonstrate effective control of performance for the common low voltage AC power system. The inspectors identified a failure of the common 120 VAC power system to provide Class 1E power to certain important to safety components that are shared between Units 1 and 2. The common panels provide power to shared radiation monitors that require Class 1E power to function following an accident, which is covered by the maintenance rule under</p>			

10 CFR 50.65(b)(2)(i). The panels can be transferred to non-Class-1E power for maintenance. Following a planned maintenance activity on Panel XEC1 in October 2016, the licensee was unable to transfer the panel back to its normal Class 1E source due to a failure of the transfer switch. Because the failure represented an inability to receive power from its Class 1E source, this was a failure to meet its maintenance rule function. The failure was maintenance preventable, because the licensee was aware of the potential for these switches to fail but did not perform preventive maintenance to address the failures. The licensee incorrectly concluded that the transfer switch failure was not a maintenance preventable failure of a maintenance rule function, because the common panels were being monitored against plant level performance criteria. The performance of the system cannot be practically monitored by the use of plant level criteria, because the common low voltage power system could have unlimited maintenance preventable functional failures without ever meeting the criteria. The licensee entered this issue into the corrective action program.

The third example is a violation of 10 CFR 50.65(a)(2) for failure to monitor performance or demonstrate effective control of performance for the inside reactor containment check valves 1(2)CA-0016. Inspectors noted that the performance criteria assigned to the valves was inadequate and that there had been multiple failures of these valves during testing. These results should have been classified as repeat maintenance preventable functional failures and caused the system to be classified as 50.65(a)(1), but the system remained in 50.65(a)(2) status.

The inspectors noted that the valves were allowed seven failures in a 24-month monitoring period. This was determined to be inadequate because the valves were tested on a 30month frequency, so the allowed amount of failures could never be exceeded. Additionally, the inspectors determined that the cause of the valves failures was a known issue, but the licensee had not taken action to correct it. Specifically, the valves and system piping are carbon steel and are part of the service air system. The service air system is neither filtered nor dried which results in water accumulation in the air system. Water accumulation in the system causes general corrosion in the piping, resulting in wear particles that affect the valves ability to close. The inspectors determined that the licensee was aware of the failure mechanism, the cause, and a solution for the issue but had prioritized it as a low priority and was not considering this when evaluating whether the failures were maintenance preventable. The inspectors determined that the failures were maintenance preventable and as such, were repeat failures, because the licensee had failed to perform the appropriate modifications to the system. The licensee entered this issue into the corrective action program.

In all these cases, the inspectors determined that the failure to demonstrate effective control was caused by incomplete descriptions of the applicable maintenance rule functions, which had been developed during initial implementation of the maintenance rule in the 1990's.

Corrective Action(s): The licensee entered these three examples into the corrective action program and is reviewing the systems' performance.

Corrective Action Reference(s): CR-2018-007884

Performance Assessment:

Performance Deficiency: The failure to monitor the performance or demonstrate effective control of performance of systems covered by the maintenance rule is 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. It adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage) because the finding represented a reduction in the reliability and availability of mitigating systems. Specifically, the failure to monitor the performance of the battery chargers resulted in multiple instances of decreased reliability of the system. The common low voltage power system affected the Emergency Preparedness Cornerstone, and the containment isolation valves affected the Barrier Integrity Cornerstone, but the Mitigating Systems Cornerstone was selected as the most significant due to the risk significance of the battery chargers.

Significance: The inspectors assessed the significance of the finding using Appendix A, "Significance Determination of Reactor Inspection Findings for At - Power Situations." Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," dated October 7, 2016, the inspectors determined the finding was associated with the Mitigating Systems cornerstone. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) For Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding was of very low safety significance (Green) because the finding did not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time.

Cross-cutting Aspect: No cross-cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: 10 CFR 50.65(a)(1), requires, in part, that the holders of an operating license shall monitor the performance or condition of structures, systems, or components (SSCs) within the scope of the rule as defined by 10 CFR 50.65(b), against licensee-established goals, in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions.

10 CFR 50.65(a)(2) states, in part, that monitoring as specified in 10 CFR 50.65(a)(1) is not required where it has been demonstrated that the performance or condition of an SSC is being effectively controlled through the performance of appropriate preventive maintenance, such that the SSC remains capable of performing its intended function.

Contrary to the above, as of March 31, 2019, the licensee failed to demonstrate that the performance of the Class 1E battery chargers, the common 120 VAC power panels, and containment check valves had been effectively controlled through the performance of appropriate preventive maintenance and did not monitor against licensee-established goals. Specifically, the licensee failed to identify, and properly account for preventive maintenance preventable functional failures of the battery chargers, the common 120 VAC panels, and containment check valves occurring from October 2016 to June 2018 which demonstrate that the performance or condition of these SSCs was not being effectively controlled through the performance of appropriate preventive maintenance and, as a result, that goal setting and monitoring was required.

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

Failure to Control Hazard Barriers During Maintenance			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445/2019001-04 Closed	[H.8] - Procedure Adherence	71111.13
The inspectors identified a Green, non-cited violation of 10 CFR 50.65(a)4 for failure to implement risk mitigating actions during diesel generator maintenance.			
<p><u>Description:</u> On January 17, 2019, the inspectors observed the licensee performing a maintenance activity to add lube oil to the Unit 1 emergency diesel generator 1-01 sump. In order to perform the maintenance, the licensee placed a hose through the normally shut door S1-28 from the train A switchgear room to the train A diesel generator room. The door is a dogged, two-leaf metal hatch that functions as a barrier for fire, flooding, and medium energy line break (MELB) events. Prior to performing the maintenance, the licensee evaluated the risk of opening the door to allow placement of the hose. The licensee identified additional compensatory measures to protect the train A switchgear in an evaluation documented in Tracking Report (TR) 2019-000001. The licensee determined that the open door did not pose a flood risk and implemented appropriate compensatory measures to mitigate the fire risk. To address the MELB risk, the licensee determined that the open doorway of the active leaf of door S1-28 could allow a MELB in the diesel generator room to impact safety-related transformer T1EB3, which provides 480 VAC power to safety-related bus 1EB3. The licensee determined that the transformer would be protected if the workers maintained door S1-28 open no more than 2 inches, with the door secured to prevent it from opening further. The licensee determined that opening the door for normal ingress and egress was acceptable provided the door was secured after personnel passed through. The evaluation was attached to the work order and a copy was present at the job site.</p> <p>When the workers began the job, they identified safety concerns with the door being secured while personnel were in the diesel generator room. They decided to leave the door open, assuming that it was acceptable as long as personnel were in the immediate area to close it. When the inspectors arrived at the work site, they noticed the door open with no one passing through it and questioned the configuration of the door. The inspectors then contacted the control room and the licensee secured the door.</p> <p>The licensee determined that crediting actions to close the door post event did not adequately mitigate the risk of a MELB. As a result of the failure to implement the risk mitigating actions, the licensee determined that the train A 480 VAC bus 1EB3 was inoperable for approximately 3 hours due to the potential for a MELB to spray water on the transformer. The allowable outage time of the bus per Technical Specification 3.8.9 is 8 hours. The licensee determined that the bus did not exceed its allowed outage time due to the hazard barrier being open.</p> <p>Corrective Action(s): The licensee restored the barrier and entered the issue into the corrective action program.</p> <p>Corrective Action Reference(s): CR-2019-000672</p>			

Performance Assessment:

Performance Deficiency: The failure to implement planned risk mitigating actions was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Configuration Control attribute of the Mitigating Systems cornerstone. It adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage) because the finding represented a loss of control of barriers required to ensure the availability of AC power. Specifically, the failure to maintain the door in a nearly closed position exposed a Class 1E 480 VAC bus to failure during a MELB event, resulting in an electrical distribution train being inoperable for several hours.

Significance: The inspectors assessed the significance of the finding using Appendix K, "Maintenance Risk Assessment and Risk Management SDP." Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," dated October 7, 2016, the inspectors determined the finding was associated with the Mitigating Systems cornerstone. Using Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," the inspectors determined the finding was associated with risk mitigating actions (RMAs) only. The inspectors used Flowcharts 1 and 2 to determine that the finding required a determination of the incremental core damage probability due to the failure to implement RMAs.

A risk analyst performed a bounding analysis of incremental core damage probability assuming that bus 1EB3 was unavailable along with the train A emergency diesel generator for the entire exposure time when adequate RMAs were not in place. This estimate was bounding because it assumes bus 1EB3 always failed during the exposure time and does not incorporate the probabilistic occurrences of fire, flooding, line break, and other events could have rendered bus 1EB3 unavailable, which would result in a lower estimate of incremental core damage probability. The resulting bounding estimate in the incremental core damage probability was $8.1E-8$. The inspectors determined that the finding was of very low safety significance (Green) because the incremental core damage probability was less than $1E-6$ and the finding did not affect the large early release probability.

Cross-cutting Aspect: H.14 - Conservative Bias: Individuals use decision making-practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, the licensee personnel assumed that the controls were not necessary without stopping work and discussing with their supervisor, and did not implement prescribed risk mitigating actions.

Enforcement:

Violation: 10 CFR 50.65(a)(4) requires, in part, that the licensee assess and manage the increase in risk that may result from maintenance activities. Contrary to the above, on January 17, 2019, the licensee failed to manage the increase in risk resulting from a maintenance activity. Specifically, the licensee did not implement planned risk mitigating actions that were identified as necessary by the risk assessment.

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 Procedure When A Degraded Condition Was Identified			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445; 05000446/2019001-05 Closed	[H.14] - Conservative Bias	71111.15
<p>The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the licensee's failure to follow the requirements of Station Procedure STI-421.01, "Initiation of Issue Reports," Revision 0. Specifically, station personnel failed to notify the shift manager of an issue with material storage in the protected area. This issue required evaluations and compensatory actions for resolution.</p>			
<p><u>Description:</u> On January 31, 2019, inspectors identified that the licensee had allowed material to be stored in a temporary laydown area inside of the protected area. Inspectors noted that several items appeared to be susceptible to being picked up by tornado driven winds, so the inspectors inquired as to how these items had been evaluated for their current storage area. The licensee initiated TR-2019-001119 to capture the inspector's questions.</p> <p>As part of TR-2019-001119 the licensee determined that the materials in question had not been evaluated for its current storage location. An action was assigned to engineering to evaluate the materials in question (AI-TR-2019-001119-1). Engineering completed their evaluation on February 4, 2019, and engineering management approved the evaluation on February 6, 2019. The evaluation determined that there were materials in the laydown area that were susceptible to being lifted by tornadic winds, and they needed to be strapped down in such a way as to increase their weights to a point where they were no longer susceptible.</p> <p>Inspectors reviewed AI-TR-2019-001119-1 on February 14, 2019. During their review they determined that the identified condition required an operability review because of the potential to be in an unanalyzed condition with respect to tornado driven missiles. However, inspectors noted that an operability review was not performed because the issue had not been reported to the control room by engineering upon discovery on February 4, 2019, as required by Station Procedure STI-421.01, "Initiation of Issue Reports," Revision 0, Section 6.1. Additionally, there was no guidance or actions in place to adequately strap down the material to ensure that it did not pose a risk to plant equipment.</p> <p>Inspectors informed the licensee of their observations. The licensee reviewed the issue and determined that the condition did require an operability review and compensatory actions to address it pending further review.</p> <p>Corrective Action(s): The licensee performed an operability determination and establish compensatory measures that established a reasonable expectation of operability pending development of additional corrective actions.</p> <p>Corrective Action Reference(s): CR-2019-001119</p>			

Performance Assessment:

Performance Deficiency: The licensee's failure to follow the requirements of Procedure STI-421.01 when a degraded condition was identified was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Protection Against External Factors attribute of the Mitigating Systems cornerstone. It affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the storage of materials without proper evaluations resulted in the introduction of new and unanalyzed tornadic missiles.

Significance: The inspectors assessed the significance of the finding using Appendix A, "Significance Determination of Reactor Inspection Findings for At - Power Situations." Using Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding was of very low safety significance (Green) because: (1) it was not a design deficiency; (2) it did not represent a loss of system and/or function; (3) it did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time; and (4) it did not result in the loss of a high safety significant non-technical specification train.

Cross-cutting Aspect: H.14 - Conservative Bias: Individuals use decision making-practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, engineering failed to use decision making-practices that emphasize prudent choices over those that are simply allowable.

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 and shall be accomplished in accordance with these instructions, procedures, and drawings.

Contrary to the above, from February 4–27, 2019, an activity affecting quality was not accomplished in accordance procedures appropriate to the circumstances. Specifically, station personnel failed to notify the shift manager of an issue with material storage in the protected area (as required by Station Procedure STI-421.01, "Initiation of Issue Reports") which required evaluations and compensatory actions for resolution.

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 Safety Evaluations in Accordance with 10 CFR 50.59			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445; 05000446/2019001-06 Closed	[H.9] - Training	71111.17T
The inspectors identified a Green, non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," (with four examples) in which the licensee failed to complete 50.59 evaluations as required by station procedures.			
<p><u>Description:</u> The inspectors identified four examples where the licensee failed to perform 50.59 evaluations as required by procedures and guidance specified in STA-707, "10 CFR 50.59 and 10 CFR 72.48 Reviews," Revision 21.</p> <p>Example 1. EV-CR-2017-004743-2, Blow Down the 1-01 Instrument Air Receiver</p> <p>In the screen for the compensatory measure to blow down the 1-01 air receiver once per shift, question 1 of the screening was, "Does the proposed activity involve a change to an SSC that adversely affects an UFSAR described <i>design function</i>?" The preparer answered the question "No;" the explanation provided had the following statements: "The activity is a Compensatory Measure to blow down the 1-01 Instrument Air Receiver once per shift using 1CI-0012 to remove water from the receiver. The drip trap (CP1- CIMEDT-01) that performs the automatic drain will be repaired IAW WO 5474911." This statement indicates that an automatic function was replaced with a manual function.</p> <p>The vendor manual, AP-0293-B, "Ingersoll-Rand Compressor Accessories," dated April 1976, provides the following guidance on page 7 for liquid carryover, "It is important that interstage separators be drained regularly and we are of the opinion that manual drainage at specified intervals with the fact of drainage logged, is the proper method, particularly at higher pressures. Automatic traps, if used, should have a bypass piped for visual observation and check on trap operation – the check should be made at stated intervals and the results logged." Page 12 of the manual provides guidance that drainage of the receiver following the aftercooler should be drained at least once per shift.</p> <p>CPNPP 50-59 RM-6, "CPNPP 50.59 Resource Manual," Revision 6, requires that an evaluation be performed if an automatic function is replaced with a manual action. The preparer and reviewer failed to ensure the appropriate Applicability Determination/screen/evaluation was performed and the corresponding Applicability Determination/screen/evaluation form was completed in accordance with guidance provided in CPNPP 50-59 RM-6. Screening guidance would require this change to be evaluated prior to changing from an automatic to a manual function.</p> <p>Example 2. EV-CR-2018-007384 RCS Pressure Boundary Leakage Test</p> <p>This document was to perform a 50.59 review for changes to Procedure OPT-612B, "RCS Pressure Boundary Leakage Test for Loop 1 Cold Leg Injection Valves," and Procedure OPT 613B, "RCS Pressure Boundary Leakage Test for Loop 2 Cold Leg Injection Valves," to allow the performance of reactor coolant system pressure boundary leakage test for safety injection loops 1 and 2. The licensee had attempted to perform a flush of the residual heat removal system while in Mode 1, an evolution normally performed in Modes 3,</p>			

4, or 5. Inadequate procedure changes and review of the planned process resulted in forward flow through valves 2-8956A and B. This placed the unit in a 24-hour LCO to complete Surveillance Requirement 3.4.14 for valves 2-8956 A and B. Procedures OPT-612B and OPT-613B needed to be revised to allow performance of this surveillance in Mode 1. The activity required component manipulations that isolated one safety injection accumulator and rendered one train of residual heat removal inoperable in order to perform the leak check. A threaded pipe cap was removed and various normally closed valves were opened to allow connection of the test rig. The screener and reviewer failed to recognize that these actions resulted in an "adverse effect" on the plant.

CPNPP 50-59-RM6, Section 5.2.2, states, in part, changes that have an adverse effect are required to be evaluated under 10 CFR 50.59 because they have the potential to increase the likelihood of malfunctions, increase consequences, create new accidents, or otherwise meet the 10 CFR 50.59 evaluation criteria.

CPNPP 50-59-RM6, Section 5.2.1 states, "Items to Consider When Deciding Whether an Item is a Change to the Facility: Does the activity decrease the reliability of an SSC design function, including either functions whose failure would initiate a transient/accident or functions that are relied upon for mitigation? Does the activity reduce existing redundancy, diversity, or defense-in-depth?"

The screener and reviewer failed to recognize that, even though technical specifications allow operation with one safety injection accumulator isolated and one train of residual heat removal inoperable, this resulted in a reduction in the existing redundancy, diversity, and defense-in-depth that required the performance of an evaluation.

Example 3. Procedure Change to SOP-102B

Section 1 of the screen for the change to SOP-102B, "Residual Heat Removal System," Revision 15, provided the following description in the change justification section: "Modified Section 5.2 to allow flushing of the RHR System to the RHUT (ref AI-CR-2018-007381-4), deleted "Intentionally Left Blank" Pages 3&4 of Attachment 4. Re-sequenced Table of Contents to reflect new page numbering. Added new prerequisite to Section 2.3 to clarify intent of Section 5.11 and moved 2.3 to previous page." The technical reviewer answered "yes" to the question: "If change is editorial, THEN circle or mark "YES." Editorial changes, as limited by STA-202, Attachment 8.F, do not require Administrative Review, Technical Review, NSR, AD, 50.59 Review or 72.48 Review."

The procedure change (in Section 5.2 to allow flushing of the RHR system) actually manipulated valves in the safety injection system to isolate the safety injection accumulators based on lessons learned when the licensee originally attempted to flush the residual heat removal system while in Mode 1. The licensee had failed to recognize that the initial conditions assumed in Procedure SOP-102B had the safety injection accumulators isolated. In Mode 1, the safety injection accumulators were in service, and the attempted flush of the residual heat removal system resulted in flow from the accumulators. The purpose of the procedure modification was to isolate the safety injection accumulator to allow a partial flush of the residual heat removal system. The preparer, reviewer, and technical reviewer all failed to identify this aspect of the procedure change. As a result, the adverse effect on the plant, a reduction in redundancy to the safety injection system, was not identified, and therefore the required 10 CFR 50.59 evaluation was not performed.

Example 4. EV-2002-002026-01-00 Bladder Equivalency Evaluation

On May 28, 2002, the licensee performed an equivalency evaluation for replacement diaphragms for the reactor make up water storage tanks, EV-2002-002026-01-00. In the evaluation the licensee identified that the new diaphragm was manufactured with a material that has a specific gravity greater than 1.0 which will make it heavier than the water in the tank, and consequently material which tears or breaks off from the diaphragm will sink into the tank and potentially into the pump suction, which could cause the pump to malfunction. The licensee determined that this was an equivalent change by crediting proper maintenance and inspection to ensure that a failure of the new material does not occur.

Inspectors determined that this was not an equivalent change because the new diaphragm introduced the potential for a new adverse effect (bladder failure could result in material sinking and clogging pump suction) and should have been evaluated. CPNPP 50-59-RM6 , Section 5.2.2 states in part, changes that have an adverse effect are required to be evaluated under 10 CFR 50.59 because they have the potential to increase the likelihood of malfunctions, increase consequences, create new accidents, or otherwise meet the 10 CFR 50.59 evaluation criteria.

Corrective Action(s): The licensee entered these issues into the corrective action program.

Corrective Action Reference(s): IR-2019-001271, IR-2019-001317, IR-2019-001428, IR-2019-001430

Performance Assessment:

Performance Deficiency: The inspectors determined that not conducting required 10 CFR 50.59 evaluations was a performance deficiency within the licensee's ability to foresee and correct. Specifically, the licensee failed to perform 10 CFR 50.59 evaluations for the compensatory measure for the instrument air system, the procedure change for the reactor coolant system pressure boundary leakage test for safety injection loops 1 and 2, the procedure change for the residual heat removal system flush, and replacement diaphragms for the reactor make up water storage tanks.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Human Performance attribute of the Mitigating Systems Cornerstone and adversely impacted the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

Significance: The inspectors assessed the significance of the finding using Appendix A, "Significance Determination of Reactor Inspection Findings for At - Power Situations." The inspectors assessed the significance of the finding using Inspection Manual Chapter 0609.04, and Inspection Manual Chapter 0609, Appendix A, Exhibit 2. The inspectors determined that this finding was of very low safety significance (Green), because the finding did not represent a loss of the emergency core cooling system or the instrument air system safety function, did not result in any loss of function beyond the technical specification-allowed outage time, and did not result in the loss of any non-technical specification trains that were designated as high safety-significance in accordance with the licensee's maintenance rule program.

Cross-cutting Aspect: H.9 - Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values. Specifically, the licensee failed to provide training to maintain a knowledgeable, technically sound workforce and instill nuclear safety values when implementing the change process.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to the above, from May 2002, to February 2019, the team identified four examples where the licensee failed to follow the requirements of Procedure CPNPP 50.59-RM6, "CPNPP 50.59 Resource Manual," Revision 6. The procedure required a 10CFR 50.59 evaluation to be performed if an activity reduces existing redundancy, diversity, or defense in depth or if an automatic function is replaced with a manual action. Specifically, the licensee implemented manual compensatory actions when the automatic trap for the instrument air system failed, made procedure changes that reduced the redundancy, diversity, reliability, and defense-in-depth of the emergency core cooling systems, and installed new material in the plant with a different adverse effect without performing 10 CFR 50.59 evaluations as required.

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

Inadequate Maintenance Instructions Result in Loss of Assessment Capability			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Emergency Preparedness	Green NCV 05000445; 05000446/2019001-07 Closed	[H.8] - Procedure Adherence	71152
The inspectors reviewed a self-revealed Green, non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instruction, Procedures, and Drawings", that occurred due to inadequate maintenance instructions for safety-related radiation monitors which resulted in a major loss of assessment capability.			
<u>Description:</u> On December 5, 2017, the licensee was performing maintenance on the control room south ventilation intake radiation monitor under Work Order (WO) 5063234 when they received audible and visible alarms in the control room indicating a loss of multiple radiation monitors. The crew evaluated the indications and determined a major loss of assessment capability occurred due to the unplanned loss of the main steam line radiation monitors for steam lines 1 and 3, and the station service water (SSW) radiation monitors. The loss of these radiation monitors impacted emergency action levels for radiation effluent. This event was reported to the NRC as Event Report No. 53105.			
The inspectors reviewed the circumstances of this event including the licensee's evaluation and corrective actions. The licensee's radiation monitoring system consists of four communication loops of 20 to 30 radiation monitors each. The loops pass inputs via each successive monitor to the plant computer system, which then provides required indications to the control room and emergency response facilities (ERFs). The licensee determined that the loss of the affected radiation monitors was due to taking the control room south ventilation			

intake radiation monitor out of service without first installing jumpers in the communication loop to bypass the monitor. This resulted in a failure of all other monitors in the affected loop to provide indication to the plant computer system.

The inadequate maintenance resulted in the simultaneous communications failure of approximately 27 radiation monitors. In addition to the monitors that met the criteria for the report, the inspectors noted the following other monitors that affected emergency classification:

- Unit 1 main steam line radiation monitors for main steam lines 1 and 3
- both Unit 1 SSW radiation monitors and all Unit 1 component cooling water radiation monitors, their credited backup for the SSW monitors
- the Unit 1 failed fuel monitor
- all Unit 1 refueling cavity monitors
- the Unit 1 containment radiation monitors for particulate, iodine, and gaseous activity
- the fuel building vent exhaust monitor

The licensee implemented compensatory measures for the affected monitors while restoring them to service. The main steam line radiation monitors affected the ability to declare a General Emergency for high steam line radiation, but the licensee determined that a General Emergency declaration could have been made using other emergency action levels. The inspectors did not identify any concerns with the licensee's conclusion regarding emergency classification.

The inspectors determined that the workers did not install the jumpers because WO 5063234 did not contain instructions to install the jumpers. The licensee had relied on the knowledge of a few experienced technicians who were aware that the jumpers needed to be installed prior to removing a monitor from service. However, the workers performing WO 5063234 on the control room south ventilation intake radiation monitor on December 5 were not aware of the need to install jumpers.

The inspectors determined that licensee Procedure STI-606.03, "Work Planning," Section 6.2 requires that work packages identify where jumpers need to be installed. The inspectors concluded that the work instructions in WO 5063234 were inadequate. The control room south ventilation intake radiation monitor is safety-related, and therefore, the work instructions were quality related instructions.

Corrective Action(s): The licensee stopped maintenance, implemented compensatory measures, and restored the monitors to service.

Corrective Action Reference(s): CR-2019-002535

Performance Assessment:

Performance Deficiency: The failure to prescribe adequate work instructions for a quality related activity is a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the facilities and equipment attribute of the Emergency Preparedness Cornerstone. It adversely affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, it resulted in the failure of multiple pieces of equipment credited for maintaining the licensee's emergency plan with respect to emergency planning standard four, which requires a standard emergency classification and action level scheme to be in use.

Significance: The inspectors assessed the significance of the finding using Appendix B, "Emergency Preparedness SDP." Using table 5.4-1, "Significance Examples Section 50.47(b)(4)," the finding was determined to be of very low safety significance (Green) because it was not a degraded risk significant planning standard function. The planning standard function was not degraded because, although an emergency action level (EAL) was rendered ineffective such that a General Emergency would not have been declared for a particular off-normal event, other EALs could have been used to make an appropriate declaration.

Cross-cutting Aspect: H.8 - Procedure Adherence: Individuals follow processes, procedures, and work instructions. Specifically, individuals did not follow the work planning procedure when preparing work instructions for maintenance on the radiation monitors.

Enforcement:

Violation: Title 10 CFR 50, Appendix B, Criterion V, "Instruction, Procedures, and Drawings," requires in part that activities affecting quality shall be prescribed by documented instructions of a type appropriate to the circumstances. Contrary to the above, on December 5, 2017, the licensee failed to prescribe activities affecting quality by documented instructions of a type appropriate to the circumstances. Specifically, the licensee prescribed maintenance on a safety-related radiation monitor with instructions that did not identify jumpers required to maintain the function of the radiation monitoring system.

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

Failure to Establish Adequate Procedural Guidance for Flushing Lithium at Power			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000446/2019001-08 Closed	[H.11] - Challenge the Unknown	71152
The inspectors reviewed a Green, self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the licensee's failure to establish an adequate procedure for flushing lithium from the residual heat removal system. This resulted in safety injection Accumulators 2-01 and 2-02 discharge to the safety injection test header causing level drops in both accumulators, and			

Accumulator 2-01 pressure dropped to below the operability limit resulting in an unplanned component inoperability.

Description: On November 2, 2018, with Unit 2 in Mode 1 operations the licensee performed an evolution to flush lithium from the residual heat removal system. The licensee used Station Procedure SOP-102A, Residual Heat Removal System, Revision 20, Section 5.11, to perform this evolution. During the flush safety injection Accumulators 2-01 and 2-02 levels dropped by 6 percent due to the accumulators discharging to the safety injection test header, and Accumulator 2-01's pressure dropped to below the operability limit resulting in an unplanned component inoperability. Operators stopped the activity and restored level and pressure in the accumulators. Condition Report CR-2018-007381 was written to capture the issue in the corrective action program.

During the licensee's investigation of the event it was determined that Procedure SOP-102A, section 5.11, was not the correct procedure for this evolution because it was not intended for use in the mode of operation. The licensee identified two causes for why an incorrect procedure was used; inadequate coordination and incorrect assumptions. Inadequate coordination because operations, chemistry and engineering had used an informal selection process which lacked rigor when selecting a procedure to perform an infrequently performed task, and this resulted in no further challenge or verifications of the adequacy of this procedure. The licensee also identified that the work scheduling process does not require operations procedures to be reviewed for impact. Inadequate assumptions because of the belief by operations, chemistry and engineering that procedure SOP-102A provided appropriate instructions for the at-power lithium flush.

Inspectors reviewed the licensee's evaluation and concluded that it identified reasonable causes and adequately addressed the identified causes.

Corrective Action(s): The licensee immediately stopped the activity, refilled and re-pressurized the safety injection accumulators. Subsequent corrective actions were to revise the work control process to require formal reviews for infrequently performed non-repetitive activities.

Corrective Action Reference(s): CR-2018-007381

Performance Assessment:

Performance Deficiency: The licensee's failure to establish an adequate procedure for flushing lithium from the residual heat removal system 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. It 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 use of an inadequate procedure for flushing lithium resulted in an inoperable safety injection accumulator.

Significance: The inspectors assessed the significance of the finding using Appendix A, "Significance Determination of Reactor Inspection Findings for At - Power Situations." Using Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding was of very low safety significance (Green) because: (1) it was not a design deficiency; (2) it did not represent a loss of system and/or function; (3) it did not represent an actual loss of

function of at least a single train for longer than its technical specification allowed outage time; and (4) it did not result in the loss of a high safety significant non-technical specification train.

Cross-cutting Aspect: H.11 - Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding. Specifically, station personnel failed to stop when faced with uncertain conditions and ensure that risks were evaluated and managed before proceeding.

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 and shall be accomplished in accordance with these instructions, procedures, and drawings.

Contrary to the above, on November 2, 2018, an activity affecting quality was not prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances. Specifically, Station Procedure SOP-102A, "Residual Heat Removal System," Revision 20, Section 5.11, provided inadequate guidance for flushing lithium from the residual heat removal system with the reactor in Mode 1 operation.

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

Licensee-Identified Non-Cited Violation	71111.18
<p>This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.</p>	
<p>Violation: 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires in part that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, from initial construction to December 2018, the licensee failed to correctly translate the design basis into specifications and procedures. Specifically, the licensee failed to ensure the design basis for nitrogen accumulator pressure for the pressurizer power operated relief valves (PORV) was correctly translated into the specification for minimum allowable pressure, resulting in a non-conservative low pressure alarm setpoint. As a result, for a period of approximately 30 hours, one Unit 1 PORV would not have been able to cycle for the required number of operations to mitigate an overpressure event when required.</p> <p>Significance: Green.</p> <p>Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," dated October 7, 2016, Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," dated May 9, 2014, and Appendix G Attachment 1, "Phase 1 Initial Screening and Characterization of Findings," Exhibit 4, "Barrier Integrity Screening Questions," the inspectors determined the finding affected the Barrier Integrity Cornerstone and required a detailed risk evaluation because the finding involved the unavailability of a PORV during low temperature overpressure (LTOP) operations.</p>	

A senior risk analyst performed a bounding detailed risk evaluation and assumed that the PORV not being able to cycle the full credited amount of times prevented the PORV from fulfilling its LTOP system function. The analyst used the frequency estimate for overpressure excursion events from NUREG-0933, "Resolution of Generic Safety Issues: Issue 94: Additional Low Temperature Overpressure Protection for Light Water Reactors," to estimate the initiating event frequency. Other influential assumptions used by the senior reactor analyst included an exposure time of approximately 30 hours and that the licensee maintained the availability of a single additional relief valve (with its associated failure rate estimated from the 2016 data update to NUREG/CR-6928, "Industry-Average Performance for Components and Initiating Events at U.S. Commercial Nuclear Power Plants") with capability sufficient to mitigate an LTOP event as described in the final safety analysis report. Using these assumptions, the senior reactor analyst determined that a bounding increase in core damage frequency for this issue was 8.9E-8 per year and was, therefore, of very low safety significance (Green).

Corrective Action Reference(s):CR-2018-008757

EXIT MEETINGS AND DEBRIEFS

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

- On February 8, 2019, the inspector presented the Evaluations of Changes, Tests and Experiments inspection results to Mr. Tom McCool and other members of the licensee staff.
- On February 13, 2019, the inspector presented the Evaluations of Changes, Tests and Experiments inspection results to Mr. Tim Hope and other members of the licensee staff.
- On April 2, 2019, the inspector presented the quarterly resident inspector inspection results to Steven Sewell and other members of the licensee staff.

DOCUMENTS REVIEWED

71111.04 – Equipment Alignment

Condition Reports

CR-2000-000142	CR-2017-011443	CR-2018-008300	CR-2019-000653
CR-2019-000672	CR-2019-002533	TR-2017-011236	TR-2017-011749

Procedures

Number	Title	Revision
STI-600.01	Protecting Plant Equipment and Sensitive Equipment Controls	1
SOP-605A	125 VDC Switchgear and Distribution Systems, Batteries and Battery Chargers	12

Drawings

Number	Title	Revision
E1-0020 Sh. K	125V DC One Line Diagram	CP-24
E1-0020 Sh. L	125V DC One Line Diagram	CP-23

Miscellaneous

Documents Number	Title	Revision or Date
FDA-2000-00142	Final Design Authorization	02

Calculations

Number	Title	Revision or Date
MM-90-2671	Technical Evaluation	11/28/1990

71111.12 – Maintenance Effectiveness

Condition Reports

CR-2015-008236	CR-2016-000049	CR-2016-007907	CR-2017-000594
CR-2017-0010477	CR-2017-004704	CR-2018-003921	CR-2018-003945
CR-2018-004761	CR-2019-002622	TR-2016-000169	TR-2016-002742
TR-2016-008960	TR-2018-004761		

Work Orders

5380904	5517474	5144575	5220567	5331282	5347463	5377428
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Miscellaneous Documents Number	Title	Revision or Date
DBD-EE-044	DC Power Systems	28
DBD-EE-043	118V AC Uninterruptible Power Supply System	14

71111.13 – Maintenance Risk and Emergent Work

Condition Reports

TR-2019-000001

Work Orders

5692097 5705947

Procedures Number	Title	Revision
STA-696	Hazard Barrier Controls	3

71111.17T – Evaluations of Changes, Tests and Experiments

Condition Reports

CR-2017-005150	CR-2017-012952	CR-2018-007381	CR-2018-007384
TR-2019-001160	CR-2019-001179	CR-2019-001200	CR-2019-001240
CR-2019-001249	CR-2019-001271	IR-2019-001316	IR-2019-001317
IR-2019-001318	IR-2019-001428	IR-2019-001430	TR-2017-007959
TR-2018-004675			

Work Orders

5352698	5510637	5510645	5510646	5510663	5510664	5510665
5510666	5510588	5510605	5510610	5510611	5510615	5510633
5510634	5510635	5510636	5351262	5351266	5351253	5383860
5351257	5351268	5346400	5284599	5435995	391842	3905518

Procedures Number	Title	Revision
ODA-401	Control of Annunciators, Instruments, and Protective Relays	11
OPT-612B	RCS Pressure Boundary Leakage Test FOR LOOP 1 CL INJECTION VALVES	3

Procedures Number	Title	Revision
OPT-613B	RCS PRESSURE BOUNDARY LEAKAGE TEST FOR LOOP 2 CL INJECTION VALVES	3
SOP-102B	RESIDUAL HEAT REMOVAL SYSTEM	15
SOP-609A	DIESEL GENERATOR SYSTEM	21
STA-602	TEMPORARY MODIFICATIONS AND TRANSIENT EQUIPMENT PLACEMENTS	18
STA-707	10CFR50.59 AND 10CFR72.48 REVIEWS	21
STA-738	FIRE PROTECTION SYSTEMS/EQUIPMENT IMPAIRMENTS	7
STI-422.02	COMPENSATORY ACTIONS & TRANSIENT EQUIPMENT PLACEMENTS	1
STI-707.04	10CFR50.59 AND 10CFR72.48 REVIEWS APPLICABILITY DETERMINATIONS	1
TDM-401B	TURBINE/GENERATOR LIMIT CURVES	5
ABN-104	RESIDUAL HEAT REMOVAL SYSTEM MALFUNCTION	9
ABN-104	RESIDUAL HEAT REMOVAL SYSTEM MALFUNCTION	8
ABN-402	MAIN GENERATOR MALFUNCTION	13
ALM-0031A	ALARM PROCEDURE 1-ALB-3A	8
ALM-0031B	ALARM PROCEDURE 2-ALB-3A	4
TDM-401B	TURBINE/GENERATOR LIMIT CURVES	5

Drawings Number	Title	Revision
M2-0235	FLOW DIAGRAM, SPENT FUEL POOL COOLING AND CLEAN-UP SYSTEM	CP-17
M2-2225	INSTRUMENTATION AND CONTROL DIAGRAM, FIRE DETECTION/PROTECTION SYSTEM CHANNELS 4100, 4102, 4103, 4111	CP-2
COMANCHE 004	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL PLC CONTROL PANEL CP1/2-EPIBHX-01P	CP-3
COMANCHE 015	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL DAMPER CONTROL PANEL	CP-1
COMANCHE 006	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL PLC CONTROL PANEL CP1/2-EPIBHX-01P	CP-3
COMANCHE 008	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL PLC CONTROL PANEL CP1/2-EPIBHX-01P	CP-2
COMANCHE 010	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL PLC CONTROL PANEL CP1/2-EPIBHX-01P	CP-2

Drawings Number	Title	Revision
COMANCHE 012	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL AHUA/AHUB FAN STRTER PANELS CP1/2-EPIBMC-01 AND CP1/2- EPIBMC-02	CP-3
COMANCHE 014	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL	CP-2
COMANCHE 011	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL PLC CONTROL PANEL CP1/2-EPIBHX-01P	CP-2
COMANCHE 013A	UNIT 1 AND UNIT 2 ISOPHASE BUS CONTROL INTERNAL WIRING DIAGRAM	CP-3
2323-A1-0507	PRIMARY PLANT AUXILIARY ELECTRICAL AND CONTROL BUILDING FLOOR PLAN	CP-1
COMANCHE 002	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL INTERIOR PANEL LAYOUT	CP-2
COMANCHE 003	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL PLC CONTROL PANEL CP1/2-EPIBHX-01P	CP-2
COMANCHE 015A	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL DAMPER CONTROL PANEL	CP-1
COMANCHE 015B	UNIT 1 & UNIT 2 ISOPHASE BUS CONTROL DAMPER CONTROL PANEL	CP-1
M1-0260	FLOW DIAGRAM - RESIDUAL HEAT REMOVAL SYSTEM	CP-37
M1-0261	FLOW DIAGRAM - SAFETY INJECTION SYSTEM SHEET 1 OF 5	CP-24
M1-0216	FLOW DIAGRAM – COMPRESSED AIR SYSTEM	CP-45
M1-0250	FLOW DIAGRAM - REACTOR COOLANT SYSTEM	CP-34
M1-2300	INSTRUMENTATION AND CONTROL DIAGRAM, VENTILATION – CONTAINMENT, CHANNEL 5400/5403	CP-7
Miscellaneous Documents		
Miscellaneous Documents Number	Title	Revision or Date
EVAL-2018-007	CPNPP Nuclear Oversight Audit Report - CONFIGURATION & DESIGN CONTROL	08/16/2018
DBD-ME-013	Design Basis Document – Containment Isolation System	25
RIR-22946OCR	Receipt Inspection Report	10/06/1983
CP-201700626	Comanche Peak Nuclear Power Plant, Docket Nos. 50-445 and 50-446 and 72-74, 10CFR50.59 Evaluation Summary Report 020, 10CFR72.48 Evaluation Summary Report 005, and Commitment Material Change Evaluation Report 014	12/05/2017
DBD-ME-014-02	Design Basis Document – Generator and Exciter System	21

Vendor Documents Number	Title	Revision or Date
CP-201600573	EVALUATION OF COMANCHE PEAK UNIT 1 CLASS 2 TO CLASS 1 VALVE UPGRADES	05/31/2016
CP1/CP2-EPIBHX-01E/01F	Damper Position Monitor	08/16/2016
CT-27331	MISSILE PROBABILITY ANALYSIS METHODOLOGY FOR LUMINANT GENERATION COMPANY LLC, COMANCHE PEAK UNITS 1 & 2 WITH SIEMENS RETROFIT TURBINES	8
VDRT-5472306	Unit 2 Generator Stator Damage – Monitoring Installation Plan	07/21/2017
WPT-18067	Transmittal of LTR-SEE-17-189, Flow Evaluation of Forced Forward Flow through the Residual Heat Removal Pumps at Comanche Peak Units 1 & 2	10/03/2017

Calculations Number	Title	Revision
MEB-391	Minimum Allowable Service Water Flow to Diesel Generators	5
ME-CA-0229-2188	Component Cooling Water Heater Exchanger Fowling Water Analysis	8

71111.18 – Plant Modifications

Condition Reports

CR-2018-008757

Work Orders

5435249 5689179

Modifications Number	Title	Revision
FDA-2018-000119-01	Final Design Authorization	

Calculations Number	Title	Revision
ME-CA-0000-3342	Air Accumulator Check Valve Leakage – Decay Rate, Pressure, Time	3

71152 – Identification and Resolution of Problems

Condition Reports

CR-2017-013243	CR-2018-003808	CR-2019-002535
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Work Orders

5540984	5063234
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Procedures

Number	Title	Revision
STI-606.03	Work Planning	3

Miscellaneous Documents

Number	Title	Revision
DBD-EE-023	Radiation Monitoring System	23

COMANCHE PEAK NUCLEAR POWER PLANT – NRC INTEGRATED INSPECTION REPORT
05000445/2019001 AND 05000446/2019001 – May 10, 2019

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