UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 E. LAMAR BLVD
ARLINGTON, TX 76011-4511

August 14, 2017

Mr. G. T. Powell
Executive Vice President and
Chief Nuclear Officer
STP Nuclear Operating Company
P.O. Box 289
Wadsworth, TX 77483

SUBJECT: SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION – NRC INTEGRATED INSPECTION REPORT 05000498/2017002 AND 05000499/2017002

Dear Mr. Powell:

On June 30, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your South Texas Project Electric Generating Station, Units 1 and 2, facility. On July 6, 2017, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

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

If you contest the violations or significance of these NCVs, 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 South Texas Project Electric Generating Station, Units 1 and 2, facility.

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 South Texas Project Electric Generating Station, Units 1 and 2, facility.

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 T. Pruett for/

Nicholas H. Taylor, Branch Chief
Project Branch B
Division of Reactor Projects

Docket Nos. 50-498 and 50-499
License Nos. NPF-76 and NPF-80

Enclosure: Inspection Report 05000498/2017002
and 05000499/2017002
w/ Attachments:
1. Supplemental Information
2. Information Request for Inservice Inspection Activities

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION – NRC INTEGRATED INSPECTION REPORT 05000498/2017002 AND 05000499/2017002 – DATED AUGUST 14, 2017

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000498, 05000499
License:	NPF-76, NPF-80
Report:	05000498/2017002 and 05000499/2017002
Licensee:	STP Nuclear Operating Company
Facility:	South Texas Project Electric Generating Station, Units 1 and 2
Location:	FM 521 - 8 miles west of Wadsworth Wadsworth, Texas 77483
Dates:	April 1 through June 30, 2017
Inspectors:	A. Sanchez, Senior Resident Inspector N. Hernandez, Resident Inspector I. Anchondo, Reactor Inspector J. Braisted, Reactor Inspector W. Cullum, Reactor Inspector N. Okonkwo, Reactor Inspector C. Smith, Reactor Inspector, Lead
Approved By:	Nicholas H. Taylor, Chief, Project Branch B Division of Reactor Projects

SUMMARY

IR 05000498/2017002, 05000499/2017002; 04/01/2017 – 06/30/2017; South Texas Project Electric Generating Station, Units 1 and 2; Refueling and Other Outage Activities, and Problem Identification and Resolution

The inspection activities described in this report were performed between April 1 and June 30 2017, by the resident inspectors at the South Texas Project and inspectors from the NRC's Region IV office. Three findings of very low safety significance (Green) are documented in this report. All of these findings involved a violation of NRC requirements. The significance of inspection findings is indicated by their color (i.e., Green, greater than Green, White, Yellow, or Red), determined using Inspection Manual Chapter 0609, "Significance Determination Process," dated April 29, 2015. Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014. Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," dated July 2016.

Cornerstone: Initiating Events

- Green. The inspectors documented a self-revealed, non-cited violation of Technical Specification 6.8.1.a, Regulatory Guide 1.33, Revision 2, February 1978, Appendix A, Section 9.d.(4). Specifically, inadequate written work instructions to remove the reactor vessel head vent rig and install a breathable foreign material exclusion cover resulted in installing a blind flange and a loss of reactor coolant system water while at lowered inventory. The licensee developed proper instructions and the blind flange was promptly removed to restore the vent path for the reactor vessel head. Reactor coolant system inventory was restored. This issue was entered into the licensees' corrective action program as Condition Report 2017-13155.

  The failure of the licensee to provide appropriate written work instructions to install a breathable foreign material exclusion cover following the removal of the reactor vessel head vent rig was a performance deficiency. The performance deficiency is more than minor because it was associated with the configuration control attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the licensee installed a blind flange, instead of a breathable foreign material exclusion cover on the reactor vessel head vent piping, which resulted in an inadvertent loss of reactor coolant during lowered inventory operations. Using Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," dated May 9, 2014, Attachment 1, Exhibit 2, "Initiating Events Screening Questions," the finding was determined to be of very low safety significance (Green) because the finding would not have resulted in a loss of decay heat removal if undetected for 24 hours, AND was determined to be self-limiting because level would have only lowered to the point at which it would have vented to the pressurizer and not lowered to the point of challenging decay heat removal function. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with work management. The licensee failed to implement an adequate process to execute work activities such that nuclear safety is the overriding priority. Specifically, contractors were supplied generic work instructions to remove the reactor coolant system head vent rig which resulted in a loss of reactor coolant system inventory [H.5]. (Section 1R20)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for failure to establish adequate procedures for the control of high-energy line break barriers. Specifically, on July 21, 2016, the inspectors identified that Procedure 0PGP03-ZA-0514, "Controlled System or Barrier Impairment," Revision 14, did not have any guidance on the control of barriers used for high-energy line breaks, despite the fact that the auxiliary feedwater pump room watertight doors are credited in the safety analyses for protection against such breaks. After discussing the acceptability of having both doors open simultaneously, the licensee shut the watertight door to auxiliary feedwater pump room for train A, and entered this condition into the licensee's corrective action program as Condition Report 2016-9006.

  The failure to prescribe procedures for the control of high-energy line break doors was a performance deficiency. This finding was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Procedure 0PGP03-ZA-0514, "Controlled System or Barrier Impairment," Revision 14, did not provide adequate procedures for the control of hazard barriers, which called the operability of the train A auxiliary feedwater system into question. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. The NRC determined that this finding did not have a cross-cutting aspect because the most significant contributor to the performance deficiency did not reflect current licensee performance. Specifically, the auxiliary feedwater pump evaluation was performed in 2000; therefore, the performance deficiency occurred outside of the nominal 3-year period for "present performance." (Section 4OA2.1)

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to provide adequate written instructions for performing preventative maintenance to ensure the emergency diesel generator building access flood panels remain capable of performing their safety function. Specifically, the preventative maintenance work order model number 61046 was not adequate to detect degraded seal conditions, which were revealed during the flooding event on March 17, 2017. This issue was entered into the licensees' corrective action program as Condition Report 2017-12897. The licensee assembled a panel of individuals who were familiar with the design, and individuals responsible for the maintenance of these access panels and is still considering options to prevent future leakage.

  The failure to provide adequate written instructions for performing preventative maintenance to ensure diesel generator building access flood panels remain capable of performing their safety function was a performance deficiency. Specifically, preventative maintenance work order model number 61046 was not adequate to detect degraded seal conditions, which were revealed during the flooding event on March 17, 2017. The performance deficiency is

more than minor, and therefore a finding, because it is associated with the protection against external factors attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to identify degrading flood barriers could result in emergency diesel generator inoperability or failure during a design basis flooding event. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) For Findings At-Power," dated July 1, 2012, Exhibit 2, "Mitigating System Screening Questions," the finding was determined to of very low safety significance (Green). Specifically, the finding was not a deficiency affecting the design or qualification of a mitigating structure, system, and component; did not represent a loss of system and/or function; did not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time; and did not represent an actual loss of function of one or more than non-technical specification trains of equipment designated as high-risk significance for greater than 24 hours. The inspectors determined that this finding did not have a cross-cutting aspect because the most significant contributor to the performance deficiency did not reflect current licensee performance. Specifically, the emergency diesel generator access panels had not allowed water intrusion due to flooding within the last 3 years and, therefore, the licensee did not have a recent opportunity to understand that the preventative maintenance work order instructions were inadequate. (Section 4OA2.2)

PLANT STATUS

Unit 1 began the inspection period defueled in Refueling Outage 1RE20. On April 29, 2017, the main generator breaker was closed ending 1RE20. Unit 1 achieved 100 percent power on May 2, 2017, and remained at 100 percent for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power. On April 28, 2017, power was reduced to 77 percent due to unexpected condenser fouling issues. Following condenser cleaning, Unit 2 returned to 100 percent power on April 29, 2017, and remained there for the remainder of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Summer Readiness for Offsite and Alternate AC Power Systems

a. Inspection Scope

On June 27, 2017, the inspectors completed an inspection of the station's off-site and alternate-ac power systems. The inspectors inspected the material condition of these systems, including transformers and other switchyard equipment to verify that plant features and procedures were appropriate for operation and continued availability of off-site and alternate-ac power systems. The inspectors reviewed outstanding work orders and open condition reports for these systems. The inspectors walked down the switchyard to observe the material condition of equipment providing off-site power sources.

The inspectors verified that the licensee's procedures included appropriate measures to monitor and maintain availability and reliability of the off-site and alternate-ac power systems.

These activities constituted one sample of summer readiness of off-site and alternate-ac power systems, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

.2 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

On June 30, 2017, the inspectors completed an inspection of the station's readiness for seasonal extreme weather conditions. The inspectors reviewed the licensee's adverse weather procedures for hurricane season and evaluated the licensee's implementation of these procedures. The inspectors verified that prior to hurricane season, the licensee

had corrected weather-related equipment deficiencies identified during the previous hurricane season.

The inspectors selected two risk-significant systems that were required to be protected from hurricane season:

- Unit 1 and Unit 2 345 kV switchyard
- Unit 1 and Unit 2 essential cooling water pond

The inspectors reviewed the licensee's procedures and design information to ensure the systems would remain functional when challenged by adverse weather. The inspectors verified that operator actions described in the licensee's procedures were adequate to maintain readiness of these systems. The inspectors walked down portions of these systems to verify the physical condition to ensure readiness for the hurricane season.

These activities constituted one sample of readiness for seasonal adverse weather, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

Partial Walk-Down

a. Inspection Scope

The inspectors performed partial system walk-downs of the following risk-significant systems:

- May 15, 2017, Unit 2, train B high head safety injection while train C high head safety injection was out of service for planned maintenance
- May 30, 2017, Unit 1, train B spent fuel pool cooling system while train A spent fuel pool cooling system was out of service for planned maintenance
- June 1, 2017, Unit 2, train A essential cooling water while train B essential cooling water was out of service for planned maintenance
- June 13, 2017, Unit 2, train C emergency diesel generator during elevated risk for emergent maintenance on train A electrical auxiliary building ventilation
- June 19, 2017, Unit 1, train C component cooling water while train A component cooling water was out of service for planned maintenance

The inspectors reviewed the licensee's procedures and system design information to determine the correct lineup for the systems. They visually verified that critical portions of the systems and trains were correctly aligned for the existing plant configuration.

These activities constituted five partial system walk-down samples, as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Inspection

a. Inspection Scope

The inspectors evaluated the licensee's fire protection program for operational status and material condition. The inspectors focused their inspection on five plant areas important to safety:

- May 9, 2017, Unit 2, mechanical auxiliary building volume control tank and valve room, Fire Area 03, Fire Zone Z119
- May 11, 2017, Unit 2, train B mechanical auxiliary building component cooling water pump and chiller room, Fire Area 29, Fire Zone Z140
- May 31, 2017, Unit 2, mechanical auxiliary building, fuel handling building, room 101, Fire Area 35, Fire Zone Z310
- June 20, 2017, Unit 1, fuel handling building train A emergency core cooling pump room, Fire Area 35, Fire Zone Z307
- June 30, 2017, Unit 1, fuel handling building, spent fuel pool cooling pump rooms, Fire Area 35, Fire Zones Z319, and Z320

For each area, the inspectors evaluated the fire plan against defined hazards and defense-in-depth features in the licensee's fire protection program. The inspectors evaluated control of transient combustibles and ignition sources, fire detection and suppression systems, manual firefighting equipment and capability, passive fire protection features, and compensatory measures for degraded conditions.

These activities constituted five quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

The activities described in subsections 1 through 4 below constitute completion of one inservice inspection sample, as defined in Inspection Procedure 71111.08.

.1 Non-destructive Examination Activities and Welding Activities

a. Inspection Scope

The inspectors directly observed the following nondestructive examinations:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Main Steam	Snubber No. MS-1002-HL5006	Visual (VT-1)
Reactor Coolant	Elbow-to-Pipe (3-RC-1015-NSS 3)	Ultrasonic
Reactor Coolant	Reducer-to-Elbow (3-RC-1015-NSS 9)	Ultrasonic
Reactor Coolant	Pipe-to-Reducer (6-RC-1015-NSS 13)	Ultrasonic
Reactor Coolant	Elbow-to-Elbow (3-RC-1015-NSS 10)	Ultrasonic
Reactor Coolant	Pipe-to-Elbow (3-RC-1015-NSS 14)	Ultrasonic
Reactor Coolant	Elbow-to-Pipe (3-RC-1015-NSS 15)	Ultrasonic
Reactor Coolant	Elbow-to-Pipe (3-RC-1015-NSS 19)	Ultrasonic

During the review and observation of each examination, the inspectors observed whether activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspectors also reviewed the qualifications of all nondestructive examination technicians performing the inspections to determine whether they were current.

The inspectors directly observed a portion of the following welding activities:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Main Steam	Pipe-to-Valve (Weld No. HFW0150)	Shielded Metal Arc Welding

The inspectors reviewed records for the following welding activities:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Reactor Coolant	Seal Cap-to-Valve Body (Weld No. C99)	Gas Tungsten Arc Welding

The inspectors reviewed whether the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code, Section IX requirements. The inspectors also determined whether essential variables were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications.

a. Findings

No findings were identified.

.2 Vessel Upper Head Penetration Inspection Activities

No vessel upper head penetration inspection activities were scheduled for the South Texas Project, Unit 1 Refueling Outage 1RE20.

.3 Boric Acid Corrosion Control Inspection Activities

a. Inspection Scope

The inspectors reviewed the licensee's implementation of its boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walk-down as specified in Procedure 0PGP03-ZE-0133, "Boric Acid Corrosion Control Program," Revision 10. The inspectors reviewed whether the visual inspections emphasized locations where boric acid leaks could cause degradation of safety significant components, and whether engineering evaluations used corrosion rates applicable to the affected components and properly assessed the effects of corrosion induced wastage on structural or pressure boundary integrity. The inspectors observed whether corrective actions taken were consistent with the ASME Code and 10 CFR Part 50, Appendix B requirements.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities

No steam generator tube inspection activities were scheduled for the South Texas Project, Unit 1 Outage 1RE20.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed 17 condition reports which dealt with inservice inspection activities and found the corrective actions for inservice inspection issues were appropriate. From this review, the inspectors concluded that the licensee has an appropriate threshold for entering inservice inspection issues into the corrective action program and has procedures that direct a root cause evaluation when necessary. The licensee also has an effective program for applying industry inservice inspection operating experience. Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On June 12, 2017, the inspectors observed simulator training for an operating crew. The inspectors assessed the performance of the operators and the evaluators' critique of their performance.

These activities constituted completion of one quarterly licensed operator requalification program sample, as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

.2 Review of Licensed Operator Performance

a. Inspection Scope

On June 15 and June 20, 2017, the inspectors observed the performance of on-shift licensed operators in the Unit 2 main control room. On June 15, 2017, the plant was in a period of heightened risk due to emergent failure of the train A electrical auxiliary building heating, ventilation, and air conditioning, which placed the unit in a red risk configuration (greater than 1.0E-6 incremental core damage probability). On June 20, 2017, the plant was in a period of heightened risk due to an emergent failure of automatic control of steam generator C main feedwater regulating valve.

In addition, the inspectors assessed the operators' adherence to plant procedures, including the conduct of operations and other operations department policies.

These activities constituted completion of one quarterly licensed operator performance sample, as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

Routine Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed one instance of degraded performance or condition of safety-significant structures, systems, and components (SSCs):

- June 29, 2017, Unit 1, steam generator blowdown containment isolation valve that failed to shut following a main feedwater and main steam isolation.

The inspectors reviewed the extent of condition of possible common cause SSC failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the SSCs. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule.

These activities constituted completion of one maintenance effectiveness sample, as defined in Inspection Procedure 71111.12.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors observed portions of two emergent work activities that had the potential to affect the functional capability of mitigating systems:

- Week of May 15, 2017, Unit 1, failure of train A sequencer while train D steam generator power-operated relief valve and the train D auxiliary feedwater pump were out of service

- Week of June 12, 2017, Unit 2, failure of train A electrical auxiliary building heating, ventilation, and air conditioning main area supply fan motor

The inspectors verified that the licensee appropriately developed and followed a work plan for these activities. The inspectors verified that the licensee took precautions to minimize the impact of the work activities on unaffected SSCs.

These activities constituted completion of two emergent work control inspection samples, as defined in Inspection Procedure 71111.13.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed three operability determinations that the licensee performed for degraded or nonconforming SSCs:

- June 2, 2017, Unit 2, operability determination for auxiliary feedwater cross connect, FV-7516, failing to open

- June 29, 2017, Unit 1, train B operability determination of auxiliary feedwater due to broken grease supply to room fan 11B motor bearings

- June 30, 2017, Unit 1, reactor coolant system and reactor fuel operability evaluation due to possible foreign material from damaged fuel bundle event during Refueling Outage 1RE20

The inspectors reviewed the timeliness and technical adequacy of the licensee's evaluations. Where the licensee determined the degraded SSC to be operable, the inspectors verified that the licensee's compensatory measures were appropriate to provide reasonable assurance of operability. The inspectors verified that the licensee had considered the effect of other degraded conditions on the operability of the degraded SSC.

On May 20, 2017, the inspectors reviewed operator actions taken or planned to compensate for degraded or nonconforming conditions for Unit 1. The inspectors verified that the licensee effectively managed these operator workarounds to prevent adverse effects on the function of mitigating systems and to minimize their impact on the operators' ability to implement abnormal and emergency operating procedures.

These activities constituted completion of four operability and functionality review samples, as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

1R17 Evaluations of Changes, Tests, and Experiments (71111.17T)

a. Inspection Scope

The inspectors reviewed five evaluations performed pursuant to 10 CFR 50.59, to determine whether the evaluations were adequate and that prior NRC approval was obtained as appropriate. The inspectors also reviewed 22 screenings and/or applicability determinations where licensee personnel had determined that a 10 CFR 50.59 evaluation was not necessary. The inspectors reviewed these documents to:

- Verify that evaluations were performed in accordance with 10 CFR 50.59 when changes, tests, or experiments were made

- Verify that the licensee has appropriately concluded that the change, test, or experiment can be accomplished without obtaining a license amendment

- Verify that safety issues related to the changes, tests, or experiments have been resolved

- Verify that the licensee's conclusions were correct and consistent with 10 CFR 50.59 for the changes, tests, or experiments that the licensee determined that evaluations were not required

The inspectors used, in part, Nuclear Energy Institute (NEI) 96-07, "Guidelines for 10 CFR 50.59 Implementation," Revision 1, to determine acceptability of the completed evaluations and screenings. The NEI document was endorsed by the NRC in Regulatory Guide 1.187, "Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments," dated November 2000. The list of evaluations, screenings, and/or applicability determinations reviewed by the inspectors is included as an attachment to this report.

This inspection consisted of 27 samples of evaluations, screenings, and/or applicability determinations, as defined in Inspection Procedure 71111.17-05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed six post-maintenance testing activities that affected risk-significant SSCs:

- April 25, 2017, Unit 1, train D auxiliary feedwater pump operability test following maintenance to correct governor low oil level
- May 9, 2017, Unit 2, train B essential chilled water pump operability test following planned maintenance
- May 9, 2017, Unit 1, train C control room envelope heating, ventilation, and air conditioning following supply fan motor replacement
- May 15, 2017, Unit 2, train C high head safety injection pump following motor endplay adjustment
- June 9-10, 2017, Unit 1, train C emergency diesel generator testing following push rod replacements
- June 17, 2017, Unit 2, train A electrical auxiliary building heating, ventilation, and air conditioning following motor rewind

The inspectors reviewed licensing- and design-basis documents for the SSCs and the maintenance and post-maintenance test procedures. The inspectors observed the performance of the post-maintenance tests to verify that the licensee performed the tests in accordance with approved procedures, satisfied the established acceptance criteria, and restored the operability of the affected SSCs.

These activities constituted completion of six post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

During the station's Refueling Outage 1RE20, that concluded on April 29, 2017, the inspectors evaluated the licensee's outage activities. The inspectors verified that the licensee considered risk in developing and implementing the outage plan, appropriately managed personnel fatigue, and developed mitigation strategies for losses of key safety functions. This verification included the following:

- Verification that the licensee maintained defense-in-depth during outage activities
- Observation and review of fuel handling activities
- Monitoring of heat-up and startup activities

These activities constituted completion of one refueling outage sample, as defined in Inspection Procedure 71111.20.

b. Findings

Introduction. The inspectors documented a Green, self-revealed, non-cited violation of Technical Specification 6.8.1.a, Regulatory Guide 1.33, Revision 2, February 1978, Appendix A, Section 9.d.(4). Specifically, inadequate written work instructions to remove the reactor vessel head vent rig and install a breathable foreign material exclusion (FME) cover resulted in installing a blind flange and a loss of reactor coolant system (RCS) water while at lowered inventory.

Description. On March 21, 2017, Unit 1 was in Mode 5 and at lowered RCS inventory in the band of 37'3" to 37'9", which is just below the reactor vessel head flange. The RCS time-to-boil was at 16 minutes with an RCS temperature at 110 degrees Fahrenheit. Following RCS drain down to lowered inventory, contractors were instructed to remove the reactor vessel head vent rig and install a breathable FME cover on the head vent piping. The contractors were given instruction0 for the activity in a high-level discussion as a part of the beginning of shift brief for the refueling group. The assigned contractors reviewed the work instructions and went into containment to perform the activity. At 10:29 a.m., the refueling logbook noted that the head vent rig removal was complete.

In the control room, operators were monitoring RCS level via the RCS sight glass and controlling inventory through chemical volume and control system letdown and charging. In this condition, there was only one RCS level indication and the control room was in a heightened level of awareness for work activities that could affect RCS inventory. There were also no alarms for leakage or inventory control issues. Throughout the morning and into the afternoon, the reactor operators noted the volume control tank (VCT) level increasing, but attributed the increase to gas coming out of solution in the steam generator U-tubes which displaced water. Over several hours, operators lowered VCT level 10 percent by diverting RCS inventory to the recycle hold-up tank and were

considering a second diversion because VCT level had again increased by 10 percent. The VCT was an available indication that was readily detectable by the operations staff.

At 3:15 p.m., the refueling mechanical maintenance supervisor recognized, through paperwork review and discussion with the contractors, that a blind flange had been installed on the reactor vessel vent piping instead of the breathable FME cover. The supervisor instructed the contractors to remove the blind flange and install the breathable FME cover. The nuclear steam supply system manager informed the control room that the reactor head vent path was inadvertently isolated and was being removed. Operations decided to raise the indicated RCS level to the top of the operating band (37'9"). At 4:50 p.m., the contractors removed the blind flange and installed the breathable FME cover. Upon removal of the blind flange, operators observed a 3.5 inch drop in RCS level as indicated on the RCS sight glass.

The licensee conducted an investigation into the event. The blind flange installed on the reactor vessel head vent piping resulted in localized pressurization in the reactor head due to non-condensable gases coming out of solution with no vent path. As the gas was collected in the head, it displaced RCS inventory, which resulted in the VCT level increase. The estimated number of gallons that were removed from the RCS, over the 6-hour duration that the blind flange was installed, was approximately 3500 gallons. The licensee determined that the contractors followed the written work instructions per preventative maintenance work order model 64344 to remove the reactor vessel head vent rig and installed the blind flange. The written work instructions provided in preventative maintenance work order model 64344 did not describe the installation of the breathable FME cover, which was the goal of the work activity, and therefore were not adequate.

With the reactor in a lowered inventory condition, the licensee was strictly controlling the number of distractions to the control room, ensuring that there were no work activities that might challenge RCS cooling and inventory control, and communicating activities that might challenge the RCS cooling and inventory to the control room. The inspectors interviewed the operator who was responsible for the primary plant, and determined that the operators were not aware that the reactor vessel head vent rig was in the process of being removed. The operators should have been aware of the activity and possible plant response to this work. This information should have led the operators to question their indications and diagnose the inventory control event in a more timely manner.

The licensee performed an evaluation and determined that it would have taken several days in this condition for reactor vessel level to reach mid-loop condition. This condition would be self-limiting because any pressure in the reactor vessel itself would vent out to the pressurizer if the reactor vessel level would have reached the top of the RCS hot leg. The inspectors have reviewed the licensee's evaluation and did not identify any concerns during the review.

Analysis. The failure of the licensee to provide appropriate written work instructions to install a breathable FME cover following the removal of the reactor vessel head vent rig was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it was associated with the configuration control attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the licensee

installed a blind flange, instead of a breathable FME cover on the reactor vessel head vent piping, which resulted in an inadvertent loss of reactor coolant during lowered inventory operations. Using Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," dated May 9, 2014, Attachment 1, Exhibit 2, "Initiating Events Screening Questions," the finding was determined to be of very low safety significance (Green) because the finding would not have resulted in a loss of decay heat removal if undetected for 24 hours, AND was determined to be self-limiting because level would have only lowered to the point at which it would have vented to pressurizer and not lowered to the point of challenging decay heat removal function. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with work management. The licensee failed to implement an adequate process to execute work activities such that nuclear safety is the overriding priority. Specifically, contractors were supplied generic work instructions to remove the RCS head vent rig which resulted in a loss of RCS inventory [H.5].

Enforcement. Technical Specification 6.8.1.a requires, in part, that procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2. Section 9.d(4) of Regulatory Guide 1.33, Revision 2, requires that "Procedures that could be categorized as either maintenance or operating procedure should be developed for draining and refilling the reactor vessel." Contrary to the above, on March 21, 2017, the licensee did not establish and implement adequate procedures for draining and refilling the reactor vessel. Specifically, written work order instructions in preventative maintenance work order model 64344 errantly instructed workers to remove the reactor vessel head vent rig and install a blind flange, which resulted in a 3500 gallon loss of RCS inventory. The finding was entered into the licensee's corrective action program as Condition Report 2017-13155. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000498/2017002-01, "Failure to Establish Procedures to Remove Reactor Vessel Head Vent Rig Results In Loss of Reactor Coolant System Inventory."

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed six risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the SSCs were capable of performing their safety functions:

In-service tests:

- May 3, 2017, Unit 1, train B essential chilled water pump 11B

Containment isolation valve surveillance tests:

- April 15, 2017, Unit 1, local leak rate test of M-89 fuel transfer tube containment penetration

Other surveillance tests:

- April 11, 2017, Unit 1, train A standby diesel generator loss-of-offsite power surveillance test
- April 26, 2017, Unit 1, low power physics testing
- May 10, 2017, Unit 2, train B emergency diesel generator surveillance test
- June 10, 2017, Unit 2, control rod operability testing

The inspectors verified that these tests met technical specification requirements, that the licensee performed the tests in accordance with their procedures, and that the results of the test satisfied appropriate acceptance criteria. The inspectors verified that the licensee restored the operability of the affected SSCs following testing.

These activities constituted completion of six surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors observed an emergency preparedness drill on June 21, 2017, to verify the adequacy and capability of the licensee's assessment of drill performance. The inspectors reviewed the drill scenario, observed the drill from the simulator, technical support center, the emergency operations facility, and attended the post-drill critique. The inspectors verified that the licensee's emergency classifications, off-site notifications, and protective action recommendations were appropriate and timely. The inspectors verified that any emergency preparedness weaknesses were appropriately identified by the licensee in the post-drill critique and entered into the corrective action program for resolution.

These activities constituted completion of one emergency preparedness drill observation sample, as defined in Inspection Procedure 71114.06.

b. Findings

No findings were identified.

.2 Training Evolution Observation

a. Inspection Scope

On June 13, 2017, the inspectors observed simulator-based licensed operator requalification training that included implementation of the licensee's emergency plan. The inspectors verified that the licensee's emergency classifications, off-site notifications, and protective action recommendations were appropriate and timely. The inspectors verified that any emergency preparedness weaknesses were appropriately identified by the evaluators and entered into the corrective action program for resolution.

These activities constituted completion of one training observation sample, as defined in Inspection Procedure 71114.06.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Security

4OA1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures (MS05)

a. Inspection Scope

For the period of May 2016 through May 2017, the inspectors reviewed licensee event reports, maintenance rule evaluations, and other records that could indicate whether safety system functional failures had occurred. The inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, and NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," Revision 3, to determine the accuracy of the data reported.

These activities constituted verification of the safety system functional failures performance indicator for Unit 2 only, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors reviewed the licensee's reactor coolant system chemistry sample analyses for the period of May 2016 through May 2017 to verify the accuracy and completeness of the reported data. The inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the reactor coolant system specific activity performance indicator for Unit 2 only, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Reactor Coolant System Identified Leakage (BI02)

a. Inspection Scope

The inspectors reviewed the licensee's records of reactor coolant system identified leakage for the period of May 2016 through May 2017 to verify the accuracy and completeness of the reported data. The inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the reactor coolant system leakage performance indicator for Unit 2 only, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

a. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review

a. Inspection Scope

Throughout the inspection period, the inspectors performed daily reviews of items entered into the licensee's corrective action program and periodically attended the licensee's condition report screening meetings. The inspectors verified that licensee personnel were identifying problems at an appropriate threshold and entering these problems into the corrective action program for resolution. The inspectors verified that the licensee developed and implemented corrective actions commensurate with the significance of the problems identified. The inspectors also reviewed the licensee's

problem identification and resolution activities during the performance of the other inspection activities documented in this report.

b. Findings

No findings were identified.

.2 Semiannual Trend Review

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program, performance indicators, system health reports, and other documentation to identify trends that might indicate the existence of a more significant safety issue. The inspectors verified that the licensee was taking corrective actions to address identified adverse trends.

The inspectors reviewed a series of secondary side plant issues from January through June 2017 that impacted plant operations, as follows:

- Unit 1 Circulating water pump shaft shear
- Unit 1 open loop leak and pipe break (resulted in rapid plant shutdown)
- Unit 1 open loop pump #11 high motor vibration (which eventually required pump swap and challenged the open loop pipe leak)
- Unit 2 Unexpected condenser fouling (clams) that resulted in down powering the plant greater than 20 percent)
- Unexpected grass intrusion in the essential cooling water pond that challenged safety-related cooling from ultimate heat sink on both units
- Damaged and degraded circulating water components (traveling screens and level indicators) that were in need of emergent repair and impacted full power operation for both units

These activities constituted completion of one semiannual trend review sample, as defined in Inspection Procedure 71152.

b. Observations and Assessments

The inspectors' review of the trend identified above produced the following observations and comments:

- The licensee is aware of the trend of secondary side issues and events that have threatened stable plant operations for both Units. The licensee has initiated Condition Report 2017-15461, to evaluate the apparent trend, as well as Condition Report 2017-17879, to document a mid-cycle self-assessment performance gap that operations and engineering have failed to perform aggregate reviews to identify changes in potential vulnerabilities, which have resulted in down powers, train unavailability, and chemistry action levels. The

licensee developed corrective actions and preventative maintenance activities to address the equipment reliability issues. The actions were prioritized and binned into two areas: needing to be performed prior to summer and those actions for long term. The inspectors determined that the licensee is aware of the trend and is developing corrective actions to resolve. The inspectors will continue to evaluate the effectiveness of the corrective actions.

c. Findings

No findings were identified.

.3 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors selected two issues for an in-depth follow-up:

- On July 21, 2016, inspectors identified that operations and maintenance personnel opened a high-energy line barrier protecting train A auxiliary feedwater during maintenance and testing of the train D turbine driven auxiliary feedwater pump, and questioned the operability of train A auxiliary feedwater system.

  The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews and compensatory actions. The inspectors verified that the licensee appropriately prioritized the corrective actions and corrective actions planned to be taken appeared to be adequate to correct the condition.

- On March 17, 2017, the Unit 1 emergency diesel generator access flood panels failed to prevent water intrusion into all three diesel bays following a break of the Unit 1 open loop piping.

  The inspectors assessed the licensee's problem identification threshold and extent of condition reviews. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions appeared to be adequate to correct the condition.

These activities constituted completion of two annual follow-up samples, as defined in Inspection Procedure 71152.

b. Findings

.1 Failure to Establish Procedures for Control of High-Energy Line Break (HELB) Barriers

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for failure to establish adequate procedures for the control of HELB barriers.

Description. On July 21, 2016, the NRC inspectors observed maintenance activities that included an in-service pump test on the Unit 2, train D steam-driven auxiliary feedwater pump. Each of the four auxiliary feedwater pumps (trains A, B, C, and D) are housed in

their own respective rooms that are secured by watertight doors that are credited for HELB event mitigation. The inspectors noted that the maintenance was limited to the train D pump, however, the station personnel propped open the train A door because the temperature in the train A room was much lower. The train D room houses the steam-driven auxiliary feedwater pump, which operates at a much higher temperature than the motor-driven auxiliary feedwater pumps in train A, B, and C rooms. It was discovered that it was common practice to prop open the adjacent door during the summer months or when a cooler environment was desired. The NRC inspectors questioned whether this configuration was accounted for in a 10 CFR 50.65 risk evaluation, or if it affected the operability of the train A auxiliary feedwater pump that would require technical specification actions to be taken.

The licensee presented the inspectors with an engineering evaluation that considered this condition, "CREE-00-9281-1," performed in year 2000. The purpose of CREE-00-9281-1 was to determine the reportability requirements of 10 CFR 50.73, because two of the doors in the auxiliary feedwater pump rooms had been found open. CREE-00-9281-1 stated, in part, that "because of the 2 watertight doors being open, the effect of the main steam line break will be seen in both train A, train D, and the common corridor area. Therefore, there is the potential for losing both the A and D trains." Additionally, it stated that, "for a feedwater line break... part of the water would blow down to the auxiliary feedwater pump room…[which] would cause both auxiliary feedwater pump rooms to be flooded and render 2 auxiliary feedwater pumps inoperable due to the effects of feedwater line break." The evaluation concluded that with two auxiliary feedwater pump doors open, and an active single failure, the one remaining auxiliary feedwater pump would meet the system safety function. As a result, in July 2016, engineering and operations staff believed that the evaluation, CREE-00-9281-1, allowed more than one door open without affecting operability or requiring technical specification actions. However, the purpose of the previous evaluation was to determination if an event report was required for loss of safety function of the auxiliary feedwater pumps, not to evaluate if the operability of the auxiliary feedwater pumps was affected or increased risk management requirements were required due to this condition.

The licensee's procedure for the control of plant barriers against hazards, such as fire protection, flooding, and security is 0PGP03-ZA-0514, "Controlled System or Barrier Impairment," Revision 14. This procedure details steps to ensure the control room shift manager is notified of all unanticipated impairments and how fire protection impairments, flooding protection impairments, and security impairments are controlled. However, the procedure does not have any guidance on the control of barriers used for HELB, despite the fact that the watertight doors are credited in the safety analyses for protection against such breaks.

The NRC issued Regulatory Information Summary (RIS) 2001-09, "Control of Hazard Barriers," to inform addressees that recent changes to the Maintenance Rule 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," have a bearing on plant hazard barriers. RIS 2001-09 states, in part, that prior to removing a hazard barrier for maintenance purposes (either to facilitate plant maintenance or to perform maintenance on the barrier), the risk associated with the maintenance activity must be controlled and managed in accordance with paragraph 50.65(a)(4) of the maintenance rule. The resultant risk management actions may impose time limits for barrier removal. In addition, other considerations, such as the

administrative provisions for controlling fire barriers and the plant technical specifications (TS) may place limitations on continued reactor operation with a hazard barrier removed. For example, an auxiliary feedwater (AFW) pump that is credited with mitigating a HELB event would be rendered inoperable if a barrier that is credited with protecting the AFW pump from the effects of the postulated HELB event is removed to allow maintenance to be performed in the AFW pump room. The licensee can maintain or restore operability of the AFW system by implementing compensatory measures to provide equivalent protection or by removing the hazard (i.e., isolating and depressurizing high-energy piping sections that pose the threat).

On July 21, 2016, the licensee simultaneously opened auxiliary feedwater doors for train A and train D and failed to evaluate the effects of removing the hazard barrier in accordance with the Maintenance Rule. In addition, the licensee failed to evaluate the operability of the train A auxiliary feedwater system with the door open that provided protection from HELB. Once the inspectors raised the concern, the control room immediately declared both auxiliary feedwater trains inoperable and took action to closed the train A auxiliary feedwater room door to regain operability. Condition Report 2016-9006 was written to document the issue. The licensee took corrective action to modify Procedure 0PGP03-ZA-0514, "Controlled System or Barrier Impairment," Revision 16, to prohibit two auxiliary feedwater pump room doors from being open at the same time.

Analysis. The failure to prescribe procedures for the control of HELB doors was a performance deficiency. This finding was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Procedure 0PGP03-ZA-0514, "Controlled System or Barrier Impairment," Revision 14, did not provide adequate procedures for the control of hazard barriers, which called the operability of the train A auxiliary feedwater system into question. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. The NRC determined that this finding did not have a cross-cutting aspect because the most significant contributor to the performance deficiency did not reflect current licensee performance. Specifically, the auxiliary feedwater pump evaluation was performed in 2000; therefore, the performance deficiency occurred outside of the nominal 3-year period for "present performance."

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, in part, that activities affecting quality shall be prescribed by procedures of a type appropriate to the circumstance. Contrary to the above, prior to January 24, 2017, the procedure for controlling barriers to internal and external hazards, an activity affecting quality, was not appropriate to the circumstance. Specifically, Procedure 0PGP03-ZA-0514, "Controlled System or Barrier Impairment," Revision 14, did not state that the doors for each of the respective auxiliary feedwater pumps

provide the safety-related functions for HELB mitigation and were required to either be latched shut or have compensatory actions in place in the event they are open. This finding was entered into the licensee's corrective action program as Condition Report 2016-9006. Because this finding was of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000498/2017002-02; 05000499/2017002-02, "Failure to Establish Procedures for Control of High-Energy Line Break Barriers."

.2 Failure To Establish Adequate Procedures To Ensure Emergency Diesel Generator Access Flood Panels Would Meet Their Safety Function

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to provide adequate written instructions for performing preventative maintenance to ensure the emergency diesel generator (EDG) building access flood panels remain capable of performing their safety function. Specifically, the preventative maintenance work order model number 61046 was not adequate to detect degraded seal conditions, which were revealed during the flooding event on March 17, 2017.

Description. On March 17, 2017, the Unit 1 open loop cooling supply pipe ruptured releasing approximately 4.5 million gallons of main cooling reservoir water. The rupture resulted in the rapid shutdown of the reactor and caused localized flooding inside the protected area. The main function of the open loop cooling is to cool heat loads in the turbine building; it is not a safety-related system. Flooding occurred mainly on the south side of the protected area and in several low-lying areas, including EDG access (maintenance) panels. The licensee performed a site wide walk-down and discovered water intrusion into all three EDG equipment bays in Unit 1. The inspectors performed an independent walk-down of the site and identified the same water intrusion conditions. The licensee entered the condition in the corrective action program as Condition Report 2017-12897. Operations initially declared the EDGs operable because the amount of water that entered the EDG equipment bays would not have affected any equipment that affected operability of the EDGs.

The EDG building contains three trains of emergency electrical power, i.e., three EDGs. Each EDG can be accessed for maintenance through one of four interlocked concrete flood panels. Each panel is approximately 32,000 pounds, four feet wide, two feet deep and twenty-one feet tall. The seal between the panels and with the EDG building is comprised of a thick neoprene gasket and bolted together with approximately 70 to 90 pounds of torque. Since the neoprene is susceptible to ultraviolet damage from the sun, another sealant is used to cover all sealing areas around all panels to protect the neoprene. The licensee also applies a third type of sealant at the bottom of the panels and up each panel for approximately five feet as an extra measure to protect the sealing areas from the environment due to being in a low-lying area. During the normal 5-year EDG maintenance activity, one access panel is removed to allow easy access of people and equipment while the EDG train is devitalized. Upon restoration, the seal for that one panel is completely replaced and tested. The post-maintenance test consists of building a sandbag dam outside all four panels, flooding the panels to a level of one foot above the bottom seal, and check for leaks after 1 hour. The upper part of the seal is tested by spraying water (fire water hose and system are normally used) with a pressure of at least 15 psi. In both tests, the acceptance criteria is that there is no leakage through the

panels. The inspectors noted that the most recent performance of the post-maintenance test in each EDG was March 2015, November 2014, and June 2014 for trains A, B, and C, respectively, during which all three sets of flooding panels passed the post-maintenance test. Additionally, the inspectors noted that the most recent performance of the visual inspection for each EDG panel was May, June, and August 2015, respectively, during which no discrepancies were noted, despite the fact that the flooding seals were in fact degraded.

The EDG flood panels are designed for a design basis flood resulting from the failure of the main cooling reservoir and, per the UFSAR Section 3.4.1.1, "External Flood Protection Measures for Seismic Category I Structures," are watertight and designed for hydrostatic forces due to that event. In this design basis flooding event, the maximum water height on the flood panels would be approximately 18.5 feet. In 2014, the licensee performed a CREE 14-20431-22, to determine the maximum water inleakage to accumulate 4 inches of water and challenge EDG operability. The result was approximately 1.5 gpm. The actual event on March 17, 2017, flooded the panels up to two feet and all three trains of EDGs experienced water intrusion, but did not approach the 1.5 gpm limit for operability. The inspectors determined that conservative assumptions in CREE 14-20431-22, such as an assumption that the maximum flood height was sustained for 72 hours, likely resulted in an overly conservative allowable leak rate through the panels. Based on the inspectors' review of the engineering evaluation, and the observed leak rate through the panels, the inspectors determined that the current inleakage in a design basis event was unlikely to challenge the operability of the EDGs.

On March 29, 2017, the inspectors met with engineering and licensing to discuss the water intrusion event. The inspectors questioned the licensee's determination that all three EDGs remained operable, based in part on engineering's initial input into the operability evaluation in Condition Report 2017-12897. The inspectors noted similar concerns during a 2014 inspection activity, during which some water intrusion caused the licensee to declare train A and C EDGs to be operable but degraded as documented in Condition Report 2014-20431. On April 3, 2017, operations declared the EDGs operable but degraded. The inspectors further asked why the access panels were allowing water intrusion after several years when the panels had passed the visual inspections and post-maintenance tests and no maintenance had been performed in the interim. The licensee took the inspector questions for further research.

On June 29, 2017, the licensee began to evaluate methods to prevent water intrusion through the access panels. The licensee assembled a panel of individuals who were familiar with the design and individuals responsible for the maintenance of these access panels, and is still considering options to prevent future leakage.

Analysis. The failure to provide adequate written instructions for performing preventative maintenance to ensure diesel generator building access flood panels remain capable of performing their safety function was a performance deficiency. Specifically, preventative maintenance work order model number 61046 was not adequate to detect degraded seal conditions, which were revealed during the flooding event on March 17, 2017. The performance deficiency is more than minor, and therefore a finding, because it is associated with the protection against external factors attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent

undesirable consequences. Specifically, the failure to identify degrading flood barriers could result in EDG inoperability or failure during a design basis flooding event. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) For Findings At-Power," dated July 1, 2012, Exhibit 2, "Mitigating System Screening Questions," the finding was determined to of very low safety significance (Green). Specifically, the finding was not a deficiency affecting the design or qualification of a mitigating SSC; did not represent a loss of system and/or function; did not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time; and did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high-risk significance for greater than 24 hours. The inspectors determined that this finding did not have a cross-cutting aspect because the most significant contributor to the performance deficiency did not reflect current licensee performance. Specifically, the EDG access panels had not allowed water intrusion due to flooding within the last 3 years and, therefore, the licensee did not have a recent opportunity to understand that the preventative maintenance work order instructions were inadequate.

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, in part, that activities affecting quality shall be prescribed by procedures of a type appropriate to the circumstance. Contrary to the above, prior to March 17, 2017, the procedure for inspecting the EDG access panel sealing areas, an activity affecting quality, was not appropriate to the circumstance. Specifically, work instructions in preventative maintenance work order model number 61059 instructed only visual inspections of the EDG access panel sealing areas. On March 17, 2017, following an open loop cooling pipe break, the visual inspection proved to be inadequate to detect access panel sealing issues as water was discovered leaking into all three EDG bays. The issue was entered into the licensee's corrective action program as Condition Report 2017-12897. Because the finding is of very low safety significance (Green) and has been entered into the licensee's corrective action program, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000498/2017002-03; 05000499/2017002-03, "Failure To Establish Adequate Procedures To Ensure Emergency Diesel Generator Access Flood Panels Would Meet Their Safety Function."

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 3, 2017, regional inspectors presented the inservice inspection results to Mr. G. Powell, Executive Vice President and Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

On June 8, 2017, regional inspectors presented the 10 CFR 50.59 inspection results to Mr. J. Connolly, Site Vice President, and other members of the licensee's staff. The licensee acknowledged the results as presented. While some proprietary information was reviewed during this inspection, no proprietary information was included in this report.

On July 6, 2017, resident inspectors presented the inspection results to Mr. G. Powell, Executive Vice President and Chief Nuclear Officer, and other members of the licensee staff.

The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

R. Aguilera, Manager, Plant Protection/Emergency Response
J. Berrio, Manager, Operations, Production Support & Programs
C. Bowman, Manager, Nuclear Support
W. Brost, Engineer III
A. Capristo, Executive Vice President and Chief Administrative Officer
F. Comeaux, Engineer, Design Engineering
J. Connolly, Site Vice President
R. Dunn Jr., Manager, Nuclear Fuel and Analysis
B. Eller, Manager Communications & External Affairs
R. Engen, Manager, Design Engineering
S. Flaherty, Manager Staff Support & Owner Liaison
M. Foster, Supervisor, Operations Support
T. Frawley, Manager, Corporate Projects
W. Fulton, Spec Staff Engineer, Licensing
C. Gann, Manager, Employee Concerns Program
R. Gibbs, Manager, Operations Division, Unit Operations
R. Gonzales, Senior Licensing Engineer
J. Heil, Engineer Consult
G. Hildebrandt, Manager, Training
Q. Huynh, Engineer, Design Engineering
G. Janak, Operations Training Manager
B. Jefferson, Director, Operations
M. Kistler, Senior Spec Engineer, Licensing
D. Koehl, President and CEO
B. Lane, Manager, Operations Division, Integrated Work Management & Outage
E. Lantz, Engineer III
J. Lovejoy, Manager, I&C Maintenance
E. Matejceck, Manager, Mechanical Maintenance
R. McNeil, Manager, Maintenance Engineering
J. Mertink, Manager, Nuclear Oversight
B. Migl, Supervisor Testing & Programs
J. Milliff, Manager, Security
M. Murray, Manager, Regulatory Affairs
R. Niemann, ANII
M. Page, General Manager, Engineering
C. Pence, Manager, Chemistry
L. Peter, General Manager, Projects
G. Powell, Executive Vice President and Chief Nuclear Officer
K. Regis, Engineer, Design Engineering
D. Rencurrel, Senior Vice President, Operations
R. Richardson, Engineer Spec. Consult
S. Rosales, Engineer, Design Engineering
M. Ruvalcaba, Manager, Strategic Projects

R. Savage, Engineer, Licensing Consult Specialist
R. Scarborough, Manager, Operations Training Mentor
M. Schaefer, Plant General Manager
G. Schinzel, Supervisor, Design Engineering
W. Schulz, Engineer, Design Engineering
S. Shojaei, Engineer Consult Testing & Programs
L. Spiess, Supervisor Testing & Programs Engineering
R. Stastny, Maintenance Manager
L. Sterling, Supervisor, Licensing
C. Stone, Manager, Health Physics
D. Tran, Engineer, Design Engineering
J. Von Suskil, Owner Rep – NRG South Texas LP
K. Wallis, Manager, Systems/Testing and Programs Engineering
D. Wiegand, Spec Engineering Quality Consult
C. Younger, Supervisor Testing & Programs Engineering
D. Zink, Supervising Engineering Specialist

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000498/2017002-01	NCV	Failure to Establish Procedures to Remove Reactor Vessel Head Vent Rig Results In Loss of Reactor Coolant System Inventory (Section 1R20)
05000498/2017002-02 05000499/2017002-02	NCV	Failure to Establish Procedures for Control of High-Energy Line Break Barriers (Section 4OA2.1)
05000498/2017002-03 05000499/2017002-03	NCV	Failure To Establish Adequate Procedures To Ensure Emergency Diesel Generator Access Flood Panels Would Meet Their Safety Function (Section 4OA2.2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Condition Reports (CRs)

17-11521	17-11575	16-7716	16-8167	16-9424
16-14924	16-11515	16-12541	17-696	17-747
17-18166	17-16079	17-11478	17-11542	16-11492
16-12997	17-13461	17-18169		

Procedures

Number	Title	Revision
0PGP03-ZV-0001	Severe Weather Plan	21

Procedures

Number	Title	Revision
0PGP03-ZV-0002	Hurricane Plan	8
ZV-0029	Site Preparation for Tropical Storm or Hurricane	0
0PGP03-ZO-0045	CenterPoint Energy Real Time Operations Emergency Operations Plan	3
0PGP03-ZG-0002	STP Coordinator Operations	6
0POP04-ZO-0002	Natural or Destructive Phenomena Guidelines	54
0PSP03-EA-0002	ESF Power Availability	37

Section 1R04: Equipment Alignment

Condition Reports (CRs)

17-16842	17-16846	17-16837	17-16838	17-16886
17-16896	17-16934	17-16894		

Drawings

Number	Title	Revision
5N129F05014	Safety Injection System	20
5R219F05028	Spent Fuel Pool Cooling & Cleanup System	29

Procedures

Number	Title	Revision
0POP02-DG-0003	Emergency Diesel Generator 13(23)	69
0POP02-FC-0001	Spent Fuel Pool and Cleanup	83
0POP02-HC-003	Supplementary Containment Purge	26
0POP02-SI-0004	Safety Injection System Operations	7
0PSP03-EW-0012	Essential Cooling Water Pump 1C(2C) Reference Value Measurements	23
0PSP03-EW-0019	Essential Cooling Water Train C Testing	51
0POP02-EW-0001	Essential Cooling Water Operations	73

Section 1R05: Fire Protection

Condition Reports (CRs)

17-18168	17-18151	17-18152	17-18163	17-18155
17-18170	17-18171	17-17674	17-18005	

Procedures

Number	Title	Revision
0MAB03-FP-0119	Fire Preplan Mechanical Auxiliary Building Volume Control Tank and Valve Room	5
0MAB29-FP-0140	Fire Preplan Mechanical Auxiliary Building CCW Pump and Chiller, Train B	3
0FHB35-FP-0307	Fire Preplan Fuel Handling Building Train A SI/CSS Cubicle	2
0FHB35-FP-0310	Fire Preplan Fuel Handling Building Fuel Transfer and Loading Area	3
0FHB35-FP-0319	Fire Preplan Fuel Handling Building Spent Fuel Pool Heat Exchanger A	2
0FHB35-FP-0320	Fire Preplan Fuel Handling Building Spent Fuel Pool Heat Exchanger B	2
0FHB35-FP-0311	Fire Preplan Fuel Handling Building Spent Fuel Aux. Area	3

Section 1R08: Inservice Inspection Activities

Condition Reports (CRs)

15-25253	15-26567	15-26568	15-26810	13-11358
16-01278	16-01185	16-02012	16-07470	16-11296
16-11432	16-14698	16-14700	16-14701	16-15883
17-13228	17-13147			

Design Change Packages

02-17057-3	13-09628-21	15-26567-5

Drawings

Number	Title	Revision
5R149F05001	RCS Primary Coolant Loop	42

Drawings

Number	Title	Revision
2C369PRC457	Reactor Coolant “RC” (Sheet 5)	5
STP-D-9954X02-(1)-B	¾ - 1529 #Y-Globe Valve Stainless Steel	G
5R-14-1-Z-42164	RCS Level Loop A Mid Loop Operation	0

Miscellaneous

Number	Title	Revision/Date
	Examination Plan for 1RE20 ASME Section XI Inservice Inspection Program of Unit 2	March 14, 2017
VTD-K085-0013	Karotest Operation and Maintenance Instruction Manual “Y” Type Globe Valve	2

Procedures

Number	Title	Revision
PDI-UT-2	Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds	G
0PEP10-ZA-0023	Visual Examination of Component Support for ASME Section XI Inservice Inspection	7
0PGP03-ZE-0033	RCS Pressure Boundary Inspection for Boric Acid Leaks	13
0PGP03-ZE-0133	Boric Acid Corrosion Control Program	10
0PGP04-ZA-0310	STPEGS Welding Program	5
0PMP02-ZW-0001	General Welding Requirements	12
0PMP02-ZW-0002	Welding Procedure Specification Preparation and Qualification	7
0PSP11-RC-0015	ASME Section XI Inservice Inspection	17

Work Orders

96003490	530258	537825	569194

Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance

Condition Reports (CRs)

17-18079

Miscellaneous

Number	Title	Revision
RST 217.08	(CPE) Loss of Core Cooling	0

Procedures

Number	Title	Revision
0ERP01-ZV-IN01	Emergency Classification	10
0PEP02-ZG-0007	Post Accident Failed Fuel Guidelines	6
0POP01-ZA-0018	Emergency Operating Procedure User's Guide	21
0POP04-AE-0001	Response to a Loss of Any or All 13.8 KV or 4.16 KV Bus	44
0POP04-AE-0003	Loss of Power to One or More 13.8 KV Standby Bus	12
0POP04-AE-0004	Loss of Power to One or More 4.16 KV ESF Bus	17
0POP04-CR-0001	Loss of Condenser Vacuum	23
0POP04-NI-0001	Nuclear Instrument Malfunction	22
0POP04-RP-0002	Loss of Automatic Pressurizer Level Control	20
0POP05-EO-EO00	Reactor Trip or Safety Injection	24
0POP05-EO-EO10	Loss of Reactor or Secondary Coolant	23
0POP05-EO-FRC1	Response to Inadequate Core Cooling	18
0POP05-EO-FRC2	Response to Degraded Core Cooling	18
0POP05-EO-FRZ1	Response to High Containment Pressure	10

Section 1R12: Maintenance Effectiveness

Condition Reports (CRs)

15-26734	95-3471	13-5521	01-3459

Drawings

Number	Title	Revision
5S209F20002#1	Steam generator Blowdown System	16

Procedures

Number	Title	Revision
SEG-0009	Maintenance Rule Basis Document Guideline	4
0PGP04-ZE-0313	Maintenance Rule Program	7

Procedures

Number	Title	Revision
0PSP03-SB-0001	Steam Generator Blowdown System Valve Operability Test	25, 26, 27, 28
0PSP03-ZG-0001	Valve Remote Position Indicator Verification Test	23

Work Authorization Number (WAN)

530501

Vendor Documents

Number	Title	Revision
VTD-V037-0001	Installation, Operation, Maintenance Instructions for Marck One and Two Control Valves	6
A-34752-8	Actuator Subassembly 200 Square Inch W/Dual Springs	2
A-34752-7	Body Subassembly Mark I, 4 Inch, Class 900, CV 172, SCH120 B/W	2

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Condition Reports (CRs)

17-17568 17-17075

Drawings

Number	Title	Revision
3A010C00012	Concrete- Standard Details- Embeded Plates – Misc. Supports Unit 1&2	3

Configuration Risk Management (CRM) Guidelines

Number	Title	Revision
CRM1240	EAB HVAC System	10

Procedures

Number	Title	Revision
0PGP03-ZA-0091	Configuration Risk Management Program	14
0POP01-ZO-0006	Risk Management Actions (RMAs)	24
0PGP03-ZO-0055	Protected Components	11

RAsCal Calculations (RA Sequence Number)

2958	2941	2922

Section 1R15: Operability Determinations and Functionality Assessments

Condition Reports (CRs)

17-16760	14-8657	17-18060	16-15908	13-15680
14-9660	13-8323	17-15108	17-15376	16-11338
16-11895	17-16409	16-7835	09-4914	14-7904
16-15908	16-4749			

Miscellaneous

Title	Revision
Operations Departmental Business Practices	18

Procedures

Number	Title	Revision
0PGP03-ZO-9900	Operability Determinations and Functionality Assessments Program	7
WCG-0001	Work Screening and Processing	27
0PGP03-ZO-0039	Operations Configuration Management	29

Section 1R17: Evaluations of Changes, Tests, and Experiments

Condition Reports (CRs) Issued

17-16703	17-16708	17-16689	17-16694	17-16517

Condition Reports (CRs) Reviewed

17-15141	16-9780	16-11283	14-8780	12-25797
14-10951	13-11489	16-2197	15-14072	15-15117-1

Design Change Packages

Number	Title	Revision
02-5326-153	Revise Post LOCA Sump Solution pH Calculation With Corrected Tech Spec Basis	0

Design Change Packages

Number	Title	Revision
03-14479-8	Unit 1 Train 'C' SI Test Header AOV Replacement	3
10-16302-11	SCW Temperature Control Valve (TV6100) High Temperature Interlock Implementation (Unit 2)	0
14-10844-3	Revise EQ documents to Reflect New Qualified Life (QL) of the Nuclear Instrument Power Range Detector Assemblies in Unit 1	0
14-26759-5	Additional Allowance for RHR Pump Alignment	0
16-6457-6	T-Drain Requirement at the Limit Switch Compartment (LSC) of Limitorque MOVs	0

Drawings

Number	Title	Revision
5N129F0501640	Safety Injection System	15
00000E0AAAA, Sh. 1	Single Line Diagram, Main One line Diagram Unit No. 1 & 2	29
1ZXX294309001-PM6	Rating Plate	4
00009E0VAAA, #1	Single Line Diagram, Vital 120V AC Distribution Panels DP001, DP1201, Channel 1 (EAB)	26

10 CFR 50.59 Evaluations

Number	Title	Revision
11-12472-20	USFAR Revision Due to Revised RCB LOCA M&E	0
13-11489-4	Replace Unit 1 Main Transformer 1A and Replace Unit 1 Main Transformer 1B	0
04-11502-62-63	Replace ESF Transformers Train A and Train C With New Load Tap Changing Transformers and Voltage Regulating Controller	0
14-8780-308	Apply In-Situ “Normalized” Values to Main Feedwater Flow Transmitters	0
USQE-99-9946-1	Change in the Mild/Harsh Radiation Cutoff Limit	0

Miscellaneous

Number	Title	Revision/Date
	Clarification of Information Related to the Environmental Qualification of Limitorque Motorized Valve Operators	August 1989

Miscellaneous

Number	Title	Revision/Date
17-1658	10 CFR 50.59 Program Self-Assessment Report	January 1, 2015, through March 1, 2017
9201653-936	Horizontally-Installed Motor-Operated Gate Valves	March 21, 1995
P004 EL3586-017	Nuclear Utility Group on Equipment Qualification (NUGEQ) Document on Limitorque Actuator Environmental Qualification	May 7, 1986
	COLR Unit 2 Cycle 19	0
WCAP-15697	Crossflow Out of Service Power Calorimetric Uncertainties for South Texas Nuclear Operating Company, Units 1 and 2	0
13-DJ-006	125 VDC Battery Four Hour Coping Analysis	1
63615	ABB Test Report for Test Plan TP230510 (XFMR 2A)	1

Procedures

Number	Title	Revision
0PAP01-ZA-0102	Plant Procedures	16
0PGP03-ZO-0003	Temporary Modifications	30
0PGP04-ZA-0002	Condition Report Engineering Evaluation	24
0POP01-ZO-0011	Operability, Functionality, and Reportability Guidance	10
0PSP02-RC-0410	Delta T and T Average ACOT	71
0POP09-AN-01M2	Annunciator Lampbox 1M02 Response Instructions	32
0P0P05-EQ-EC00	Loss of All AC Power	29
0PGP05-ZN-0004	Changes to Licensing Basis Documents and Amendments to Operating License	25
0PGP05-ZA-0002	10CFR50-59 Evaluations	16
0PGP04-ZA-0307	Preparation of Calculation	8
0POP01-ZO-0011	Operability, Functionality, and Reportability Guidance	10

10 CFR 50.59 Screenings

Number	Title	Revision
02-5326-153	Revise Post LOCA Sump Solution pH Calculation with Corrected Tech Spec Basis	0
03-14479-8	Unit 1, Train “C” SI Test Header AOV Replacement	0

10 CFR 50.59 Screenings

Number	Title	Revision
10-16302-11	SCW Temperature Control Valve (TV6100) High Temperature Interlock Implementation (Unit 2)	0
13-15128-5	RHR Low Flow Trip Energize to Actuate Modification	0
14-10844-3	Revise EQ Documents to Reflect New Qualified Life (QL) of the Nuclear Instrument Power Range Detector Assemblies in Unit 1	0
14-26759-5	Additional Allowance for RHR Pump Alignment	0
14-8780-1	Feedwater LEFM Venturi Replacement Modification	0
14-8780-10	LEFM ICS Interface Modifications	0
14-8780-11	LEFM ICS Interface Modifications	0
14-8780-2	Feedwater LEFM Venturi Replacement Modification	0
14-8780-4	Feedwater Flow Measurement Improvement: Electrical and I&C Installation of LEFM	0
15-18927-1	Change the Qualified Life of the Steam Generator Reference Leg RTDs	0
15-20782-1	Update Harsh and Mild Environment Criteria in EQ DBD	0
1522944-4	Steam Generator Feedwater Pump Turbine Control Replacement Project	0
16-6457-6	T-Drain Requirement at the Limit Switch Compartment (LSC) of Limitorque MOVs	0
17-13297-2	Pressurizer Backup Heater Group 1B Heater #82 Material Deficiency Disposition	0
13-11489-4	Replace Unit 1 Main Transformer	0
09-13781-29, Sup. 0	LK Circuit Breaker Replacement for TPNS No. N2PESG001T5C (EMAX)	0
09-13781-29, Sup. 2	LK Circuit Breaker Replacement for TPNS No. N2PESG001T5C (EMAX)	0
09-13781-29, Sup. 3	LK Circuit Breaker Replacement for TPNS No. N2PESG001T5C (EMAX)	0
04-11502-303	Replace ESF Train B Transformer With New Load Tap Changing Transformers and Voltage Regulating Controller	0
TI-16-1185-1	Perform Furmanite Leak Repair to Stop Seat Leakage for Valve 9T121TGS0081 and to Stop Leak from Downstream Pipe Cap	0

Section 1R19: Post-Maintenance Testing

Condition Reports (CRs)

17-17317	17-15182	17-17146	17-17106	17-16003
14-27253	17-16219	16-9355	17-16217	17-17075
17-16221				

Procedures

Number	Title	Revision
0PMP05-SI-0001	High Head Safety Injection Pump Motor Inspection	11
0POP01-ZA-0001	Plant Operations Department Administrative Guidelines	49
0POP02-AF-0001	Auxiliary Feedwater	46
0POP02-DG-0003	Emergency Diesel Generator 13(23)	69
0PSP03-DG-0003	Standby Diesel 13(23) Operability Test	58
0PSP03-CH-0002	Essential Chilled Water Pump 11B(21B) Inservice Test	20

Work Authorization Number (WAN)

440565	509452	561548	545897	510644
520863	565616			

Section 1R20: Refueling and Other Outage Activities

Procedures

Number	Title	Revision
0PEP02-ZX-0002	Initial Criticality Low Power Physics Testing	132
0PEP02-ZX-0010	Reload Initial Startup Testing	28
0PGP03-ZI-0007	Confined Space Entry Program	20
0PGP03-ZI-0026	Lifting, Rigging, and Material Handling	21
0PGP03-ZM-0028	Erection and Use of Scaffolding	22
0POP03-ZG-0001	Plant Heatup	7
0POP03-ZG-0005	Plant Start-up to 100%	103
0POP03-ZG-0014	Mode Change Checklist	2
0PSP03-XC-0001	Refueling Containment Penetration Status	29
0PSP03-ZQ-0028	Operators Logs	144

Procedures

Number	Title	Revision
0PSP04-XC-0001	Inspection of Containment Emergency Sumps and Strainers	22

Work Authorization Number (WAN)

56881

Section 1R22: Surveillance Testing

Condition Reports (CRs)

17-15638 17-242 17-14802 17-17315 17-15913
17-15914

Procedures

Number	Title	Revision
0PGP03-ZA-0506	Tests or Evolutions Requiring Additional Controls	6
0PGP03-ZO-0049	Conduct of Tests or Evolutions Requiring Additional Controls	3
0PSP03-CH-0002	Essential Chilled Water Pump 11B(21B) Inservice Test	20
0PSP03-DG-0007	Standby Diesel 11(21) LOOP Test	40
0PSP03-RS-0001	Control Rod Operability	39
0PSP11-XC-0007	LLRT: M-89 Fuel Transfer Tube	15
0PSP11-ZA-0005	Local Leakage Rate Test Calculations, Guidelines, and Program	20
0PSP03-DG-0002	Standby Diesel 12(22) Operability Test	58
0PEP02-ZX-0002	Initial Criticality Low Power Physics Testing	132

Work Authorization Number (WAN)

200913 222650 478401 491233 486552
482375

Section 1EP6: Drill Evaluation

Condition Reports (CRs)

17-17871

Miscellaneous

Title	Date
Combined Functional Drill (Blue Team) Scenario Manual	June 21, 2017

Procedures

Number	Title	Revision
ZV-19	Scenario Design and Development	3
ZS-11	ICS Problems and Resolutions	0
ZV-27	Drill and Exercise Performance Objectives And Demonstration Criteria	3
0ERP01-ZV-IN01	Emergency Classification	10
0ERP01-ZV-IN02	Notifications to Offsite Agencies	34
0ERP01-ZV-IN03	Emergency Response Organization Notification	18
0PGP05-ZV-0013	Performance Indicator Tracking Guide	7
0POP04-ZO-SEC2	Response to a “Credible Threat” of Sabotage or Tampering Guideline	12
0ERP01-ZV-SH01	Shift Manager	31
0POP10-SG-0001	Maximizing the SGS Heat Sink Coping Time Using Firewater Feed	13

Section 4OA1: Performance Indicator Verification

Condition Reports (CRs)

17-15639

Procedures

Number	Title	Revision
PI-002	NRC & INPO Performance Indicator: Initiating Events Cornerstone (by unit) Desktop Guidelines	6
AD-0007	Collection of NRC Performance Indicator Data – Reactor Coolant System Specific Activity	3
LDG-01	NRC Performance Indicator: Safety System Functional Failures	2

Section 4OA2: Problem Identification and Resolution

Condition Reports (CRs)

17-14217	16-9006	17-12897	17-14068	17-12891
14-20431	14-21449	17-12919	17-12920	17-15376
16-14320	17-16497	17-17059	17-17068	17-17400
17-15461	17-11747	17-14594	17-15296	17-15923
17-15943	17-16216	17-16120	17-317	17-12482

Drawings

Number	Title	Revision
3D229C35000, SHT #1, #2	Diesel Generator Building Removable Panel Details Unit 1 & 2	0

Procedures

Number	Title	Revision
0PGP03-ZA-0514	Controlled System or Barrier Impairment	14, 15, 16
0PEP04-ZE-0001	Structures Monitoring	4
0PMP04-XG-0001	Removal and Reinstallation of Diesel Generator Building Removable Panels	6
SEG-0009	Maintenance Rule Basis Document Guideline	4

Work Authorization Number (WAN)

508043

PAPERWORK REDUCTION ACT STATEMENT

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, Control Number 3150-0011. The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).
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Information Request
January 6, 2017
Notification of Inspection and Request for Information
South Texas Project
NRC Inspection Report 05000498/2017002

On March 20, 2017, reactor inspectors from the Nuclear Regulatory Commission's (NRC) Region IV office will perform the baseline inservice inspection at South Texas Project, Unit 1, using NRC Inspection Procedure 71111.08, "Inservice Inspection Activities." Experience has shown that this inspection is a resource intensive inspection both for the NRC inspectors and your staff. In order to minimize the impact to your onsite resources and to ensure a productive inspection, we have enclosed a request for documents needed for this inspection. These documents have been divided into two groups. The first group (Section A of the enclosure) identified information to be provided prior to the inspection to ensure that the inspectors are adequately prepared. The second group (Section B of the enclosure) identifies the information the inspectors will need upon arrival at the site. It is important that all of these documents are up to date and complete in order to minimize the number of additional documents requested during the preparation and/or the onsite portions of the inspection.

We have discussed the schedule for these inspection activities with your staff and understand that our regulatory contact for this inspection will be Ms. Wendy Brost, of your licensing organization. The tentative inspection schedule is as follows:

Preparation week: March 13 – March 17, 2017
Onsite weeks: March 20 – March 24, 2017

Our inspection dates are subject to change based on your updated schedule of outage activities. If there are any questions about this inspection or the material requested, please contact the lead inspector Isaac Anchondo at (817) 200-1152 (isaac.anchondo@nrc.gov).

A.1 ISI/Welding Programs and Schedule Information

a) A detailed schedule (including preliminary dates) of:

i. Nondestructive examinations planned for ASME Code Class Components performed as part of your ASME Section XI, risk informed (if applicable), and augmented inservice inspection programs during the upcoming outage.

ii. Examinations planned for Alloy 82/182/600 components that are not included in the Section XI scope (If applicable)

iii. Examinations planned as part of your boric acid corrosion control program (Mode 3 walkdowns, bolted connection walkdowns, etc.)

iv. Welding activities that are scheduled to be completed during the upcoming outage (ASME Class 1, 2, or 3 structures, systems, or components)

b) A copy of ASME Section XI Code Relief Requests and associated NRC safety evaluations applicable to the examinations identified above.

i. A list of ASME Code Cases currently being used to include the system and/or component the Code Case is being applied to.

c) A list of nondestructive examination reports which have identified recordable or rejectable indications on any ASME Code Class components since the beginning of the last refueling outage. This should include evaluations associated with the previous Section XI pressure test(s) conducted during start-up from the previous outage.

d) A list including a brief description (e.g., system, code class, weld category, nondestructive examination performed) associated with the repair/replacement activities of any ASME Code Class component since the beginning of the last outage and/or planned this refueling outage.

e) If reactor vessel weld examinations required by the ASME Code are scheduled to occur during the upcoming outage, provide a detailed description of the welds to be examined and the extent of the planned examination. Please also provide reference numbers for applicable procedures that will be used to conduct these examinations.

f) Copy of any 10 CFR Part 21 reports applicable to structures, systems, or components within the scope of Section XI of the ASME Code that have been identified since the beginning of the last refueling outage.

g) A copy of the most current revision of the inservice inspection program manual and plan for the current interval.

h) A list of any temporary noncode repairs in service (e.g., pinhole leaks).

i) Please provide copies of the most recent self-assessments for the inservice inspection, welding, and Alloy 600 programs

A.2 Boric Acid Corrosion Control Program

a) Copy of the procedures that govern the scope, equipment and implementation of the inspections required to identify boric acid leakage and the procedures for boric acid leakage/corrosion evaluation.

b) Please provide a list of leaks (including code class of the components) that have been identified since the last refueling outage and associated corrective action documentation. If during the last cycle, the unit was shutdown, please provide documentation of containment walkdown inspections performed as part of the boric acid corrosion control program.

A.3 Additional Information Related to all Inservice Inspection Activities

a) A list with a brief description of inservice inspection, and boric acid corrosion control program related issues (e.g., Condition Reports) entered into your corrective action program since the beginning of the last refueling outage. For example, a list based upon data base searches using key words related to piping such as: inservice inspection, ASME Code, Section XI, NDE, cracks, wear, thinning, leakage, rust, corrosion, boric acid, or errors in piping examinations.

b) Provide training (e.g. Scaffolding, Fall Protection, FME, Confined Space) if they are required for the activities described in A.1 through A.4.

c) Please provide names and phone numbers for the following program leads:

Inservice inspection (examination, planning)
Containment exams
Reactor pressure vessel head exams
Snubbers and supports
Repair and replacement program
Licensing
Site welding engineer
Boric acid corrosion control program
Steam generator inspection activities (site lead and vendor contact)

B. Information to be Provided Onsite to the Inspector(s) at the Entrance Meeting:

B.1 Inservice Inspection / Welding Programs and Schedule Information

a) Updated schedules for inservice inspection/nondestructive examination activities, including planned welding activities, and schedule showing contingency repair plans, if available.

b) For ASME Code Class welds selected by the inspector from the lists provided from section A of this enclosure, please provide copies of the following documentation for each subject weld:

i. Weld data sheet (traveler).

ii. Weld configuration and system location.

iii. Applicable Code Edition and Addenda for weldment.

iv. Applicable Code Edition and Addenda for welding procedures.

v. Applicable welding procedures used to fabricate the welds.

vi. Copies of procedure qualification records (PQRs) supporting the weld procedures from B.1.b.v.

vii. Copies of welder's performance qualification records (WPQ).

viii. Copies of the nonconformance reports for the selected welds (If applicable).

ix. Radiographs of the selected welds and access to equipment to allow viewing radiographs (if radiographic testing was performed).

x. Copies of the preservice examination records for the selected welds.

xi. Readily accessible copies of nondestructive examination personnel qualifications records for reviewing.

c) For the inservice inspection related corrective action issues selected by the inspectors from section A of this enclosure, provide a copy of the corrective actions and supporting documentation.

d) For the nondestructive examination reports with relevant indications on ASME Code Class components selected by the inspectors from Section A above, provide a copy of the examination records, examiner qualification records, and associated corrective action documents.

e) For the nondestructive examinations selected by the inspectors from section A of this enclosure, provide a copy of the nondestructive examination procedures used to perform the examinations (including calibration and flaw characterization/sizing procedures). For ultrasonic examination procedures qualified in accordance with ASME Code, Section XI, Appendix VIII, provide documentation supporting the procedure qualification (e.g. the EPRI performance demonstration qualification summary sheets). Also, include qualification documentation of the specific equipment to be used (e.g., ultrasonic unit, cables, and transducers including serial numbers) and nondestructive examination personnel qualification records.

B.2 Boric Acid Corrosion Control Program

a) Please provide boric acid walk down inspection results, an updated list of boric acid leaks identified so far this outage, associated corrective action documentation, and overall status of planned boric acid inspections.

b) Please provide any engineering evaluations completed for boric acid leaks identified since the end of the last refueling outage. Please include a status of corrective actions to repair and/or clean these boric acid leaks. Please identify specifically which known leaks, if any, have remained in service or will remain in service as active leaks.

B.3 Codes and Standards

a) Copy of the performance demonstration initiative (PDI) generic procedures with the latest applicable revisions that support site qualified ultrasonic examinations of piping welds and components (e.g., PDI-UT-1, PDI-UT-2, PDI-UT-3, PDI-UT-10, etc.).

b) Boric Acid Corrosion Guidebook Revision 1 – EPRI Technical Report 1000975.