



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

February 5, 2018

Mr. G. T. Powell
Interim President, Chief Executive Officer
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 05000498/2017004
AND 05000499/2017004**

Dear Mr. Powell:

On December 31, 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 January 18, 2018, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

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

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 05000498/2017004
and 05000499/2017004

w/Attachments:

1. Supplemental Information
2. Initial Request for Information

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000498; 05000499

License: NPF-76; NPF-80

Report: 05000498/2017004; 05000499/2017004

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: October 1, 2017, through December 31, 2017

Inspectors: A. Sanchez, Senior Resident Inspector
N. Hernandez, Resident Inspector
J. Melfi, Project Engineer
J. Kirkland, Senior Operations Engineer
D. Proulx, Senior Project Engineer
C. Steely, Operations Engineer

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

SUMMARY

IR 05000498/2017004, 05000499/2017004; 10/01/2017 – 12/31/2017; South Texas Project Electric Generating Station, Units 1 and 2; Problem Identification and Resolution

The inspection activities described in this report were performed between October 1 and December 31, 2017, by the resident inspectors at the South Texas Project and inspectors from the NRC's Region IV office. One finding of very low safety significance (Green) is documented in this report. This finding 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. A self-revealed, Green, non-cited violation of Technical Specification 6.8.1.a, "Procedures," was documented for the licensee's failure to follow a procedure for equipment configuration control, which resulted in a plant transient. Specifically, from July 16 to September 17, 2015, the licensee failed to control the configuration of the plant by not including the motor-operated shut-off valves on an equipment clearance order following troubleshooting of the moisture separator reheater output control circuitry, which resulted in an unplanned transient and the unit exceeding 100 percent rated thermal power. Corrective actions to restore compliance included a revision to an equipment clearance order, training for operations department personnel, and a revised maintenance procedure to provide additional instructions to workers on how to document system configuration recommendations. The licensee entered the issue into the corrective action program as Condition Report 2018-1002.

The failure to control equipment configuration was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it is 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 failed to control the configuration of the plant when the motor-operated shut-off valves were not included on an equipment clearance order following troubleshooting of the moisture separator reheater output control circuitry, which resulted in an unplanned transient when the known fault in the circuitry erroneously closed the motor-operated shut-off valves. The inspectors screened this finding using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) For Findings At-Power," dated June 19, 2012. The inspectors determined that the finding had very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition, high energy line-breaks, internal flooding, or fire. The inspectors determined the finding had a cross-cutting aspect of "teamwork" in the human performance

area because individuals and work groups did not communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, operations and maintenance departments did not demonstrate a strong sense of collaboration and cooperation in connection with projects and operational activities [H.4]. (Section 4OA2)

PLANT STATUS

Unit 1 and Unit 2 began the inspection period at 100 percent power and remained there for the entire inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

Readiness to Cope with External Flooding

a. Inspection Scope

On November 3, 2017, the inspectors completed an inspection of the station's readiness to cope with external flooding. After reviewing the licensee's flooding analysis, the inspectors chose four plant areas that were susceptible to flooding:

- Unit 1, essential cooling water intake structure
- Unit 2, essential cooling water intake structure
- Unit 1, mechanical auxiliary building structure
- Unit 2, mechanical auxiliary building structure

The inspectors reviewed plant design features and licensee procedures for coping with flooding. The inspectors walked down the selected areas to inspect the design features, including the material condition of seals, drains, and flood barriers. The inspectors evaluated whether credited operator actions could be successfully accomplished.

These activities constituted one sample of readiness to cope with external flooding, 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:

- October 18, 2017, Unit 1, train C emergency diesel generator while train A emergency diesel generator was out of service for planned maintenance
- November 27, 2017, Unit 2, train B emergency diesel generator while the train C emergency diesel generator 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 two 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 six plant areas important to safety:

- October 3, 2017, Unit 1, emergency diesel generator, train B, Fire Areas 37, 40, 43 and 46, Fire Zones Z501, 504, 507 and 510
- October 3, 2017, Unit 2, emergency diesel generator, train B, Fire Areas 37, 40, 43 and 46, Fire Zones Z501, 504, 507 and 510
- October 10, 2017, Unit 1, control room heating, ventilation, and air conditioning equipment room, train A, Fire Area 02, Fire Zone Z005
- October 11, 2017, Unit 2, FLEX diesel generator enclosure area, Fire Area 79, Fire Zone Z0162
- October 18, 2017, Unit 1, emergency diesel generator, train C, Fire Area 38, Fire Zone Z514
- October 19, 2017, Unit 2, auxiliary feedwater pump room, train D, Fire Area 51, Fire Zone Z403

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 six quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On November 30, 2017, the inspectors completed an inspection of the station's ability to mitigate flooding due to internal causes. After reviewing the licensee's flooding analysis, the inspectors chose two plant areas containing risk-significant structures, systems, and components that were susceptible to flooding:

- Unit 1, train C emergency diesel generator
- Unit 2, train B emergency diesel generator

The inspectors reviewed plant design features and licensee procedures for coping with internal flooding. The inspectors walked down the selected areas to inspect the design features, including the material condition of seals, drains, and flood barriers. The inspectors evaluated whether operator actions credited for flood mitigation could be successfully accomplished.

These activities constituted completion of one flood protection measures sample, as defined in Inspection Procedure 71111.06.

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 December 11, 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. The inspectors also assessed the modeling and performance of the simulator during the requalification activities.

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 November 1 and 2, 2017, the inspectors observed the performance of on-shift licensed operators in the Unit 2 main control room. At the time of the observations, Unit 2 was in a period of heightened risk due to steam generator feedwater pump manipulations to perform a mitigative maintenance activity that could have tripped one or more steam generator feedwater pumps.

In addition, the inspectors assessed the operators' adherence to plant procedures, including conduct of operations procedure 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.

.3 Annual Review

a. Inspection Scope

The inspectors conducted an in-office review of the annual requalification training program to determine if pass/fail results exceeded the thresholds established by Inspection Procedure 71111.11, "Licensed Operator Requalification Program and Licensed Operator Performance," and Inspection Manual Chapter 0609, "Significance Determination Process."

On December 19, 2017, the licensee informed the inspector of the following South Texas Project Electric Generating Station operating and written test results:

- 14 of 14 crews passed the simulator portion of the operating test
- 72 of 72 licensed operators passed the simulator portion of the operating test
- 68 of 72 licensed operators passed the job performance measure portion of the operating test
- 66 of 70 licensed operators passed the written examination portion of the biennial exam

The four individuals that failed the job performance measure portion of the operating test were remediated, retested, and passed their retake examinations. The four individuals that failed the written exam were remediated, retested, and passed their retake examination.

The difference in numbers between operators that took the operating test and written examination is due to one individual leaving the company since completing the operating test and one individual who did not take the written exam after completing the operating test since he is due to retire in January 2018. This individual had his qualifications removed.

b. Findings

No findings were identified.

.4 Biennial Review

During the week of October 16, 2017, the inspectors reviewed both the written examination and operating test quality and, observed licensee administration of an

annual requalification test while onsite. The operating test observation included six job performance measures and two scenarios that were used in the current biennial requalification cycle. These observations allowed the inspectors to assess the licensee's effectiveness in conducting the operating test and to determine if feedback of operator performance was being accomplished.

The inspectors observed examination security measures in place during administration of the exams, reviewed medical records of licensed operators for conformance with operator license conditions, and reviewed simulator performance for fidelity with the actual plant and the overall simulator program of maintenance, testing, and discrepancy correction. As necessary, the inspectors reviewed remedial training and re-examinations for licensed operators who did not pass an NRC required requalification examination.

The inspectors completed one inspection sample of the biennial licensed operator requalification program.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Maintenance Effectiveness

a. Inspection Scope

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

- December 20, 2017, Unit 1, emergency diesel generator system for high number of unavailability hours
- December 26, 2017, Unit 2, emergency diesel generator system for high number of unavailability hours

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 two maintenance effectiveness samples, as defined in Inspection Procedure 71111.12.

b. Findings

No findings were identified.

.2 Quality Control

a. Inspection Scope

On December 22, 2017, the inspectors reviewed the licensee's quality control activities through a review of parts that were purchased as commercial-grade parts and were dedicated prior to installation in a quality-grade application.

These activities constituted completion of one quality control 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 reviewed two risk assessments performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in response to elevated risk:

- October 5, 2017, Unit 2, train C reactor containment fan cooler corrective maintenance to replace backdraft damper closing spring
- October 31 through November 2, 2017, Unit 2, emergent maintenance to lift the steam generator feedwater pump turbine vibration monitoring leads due to a suspected card malfunction

The inspectors verified that these risk assessments were performed timely and in accordance with the requirements of 10 CFR 50.65 (the Maintenance Rule) and plant procedures. The inspectors reviewed the accuracy and completeness of the licensee's risk assessments and verified that the licensee implemented appropriate risk management actions based on the result of the assessments.

Additionally, the inspectors observed two emergent work activities that had the potential to cause an initiating event, to affect the functional capability of mitigating systems, or to impact barrier integrity:

- October 19, 2017, Unit 1, train B extended diesel generator 12 work window due to a human performance error during maintenance restoration
- October 31, 2017, Unit 2, extended maintenance on train B essential cooling water and train B essential chilled water that resulted in exceeding the allowed outage time and entry into the Configuration Risk Management Program

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.

The inspectors also reviewed the licensee's action for entering the Configuration Risk Management Program for determining and implementing the risk-informed allowed outage time for the planned piping replacement activities on the Unit 2, train B essential cooling water system, on October 31, 2017.

These activities constituted completion of four maintenance risk assessments and 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 four operability determinations and functionality assessments that the licensee performed for degraded or nonconforming SSCs:

- October 4, 2017, functionality assessment of the Unit 1, technical support center diesel generator due to indicator issues
- November 20, 2017, operability determination of the Unit 1, train C essential cooling water and emergency diesel generator due to 1-ECW-0250 erosion present on valve disk and valve body
- December 28, 2017, operability determination of the Unit 2, train C steam generator power-operated relief valve due to water intrusion in the hydraulic oil
- December 28, 2017, operability determination of the Unit 2, train A essential cooling water pump due to bolt degradation

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.

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

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Permanent Modifications

a. Inspection Scope

The inspectors reviewed three permanent plant modifications that affected risk-significant SSCs:

- December 22, 2017, Unit 1, control room door, 1-EAB-DOOR-206, complete replacement
- December 27, 2017, Unit 1 and Unit 2, cask connecting channel water level indication installation
- December 28, 2017, Unit 1, pressurizer manway cover replacement

The inspectors reviewed the design and implementation of the modifications. The inspectors verified that work activities involved in implementing the modifications did not adversely impact operator actions that may be required in response to an emergency or other unplanned event. The inspectors verified that post-modification testing was adequate to establish the operability of the SSCs as modified.

These activities constituted completion of three samples of permanent modifications, as defined in Inspection Procedure 71111.18.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- October 4, 2017, Unit 1, technical support center diesel generator test following maintenance
- October 30, 2017, Unit 1, train B essential cooling water system test following aluminum bronze piping replacement
- November 4, 2017, Unit 2, train B emergency diesel generator test following the five-year preventative maintenance

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 three post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed three 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:

- December 27, 2017, Unit 2, train A low head safety injection pump and high head safety injection pump inservice tests

Other surveillance tests:

- October 8, 2017, Unit 2, train S reactor trip breaker surveillance testing
- November 21, 2017, Unit 2, train B emergency diesel generator surveillance test

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 three 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)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors observed an emergency preparedness drill on October 25, 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, 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.

The inspectors observed an emergency preparedness drill on November 8, 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, 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 two emergency preparedness drill observation samples, 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

40A1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index: Emergency AC Power Systems (MS06)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of July 2016 through June 2017 to verify the accuracy and completeness of the reported data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the mitigating system performance index for emergency AC power systems for Units 1 and 2, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index: Heat Removal Systems (MS08)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of July 2016 through June 2017 to verify the accuracy and completeness of the reported data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the mitigating system performance index for heat removal systems for Unit 1 only, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index: Residual Heat Removal Systems (MS09)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of October 2016 through September 2017 to verify the accuracy and completeness of the reported data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the mitigating system performance index for residual heat removal systems for Units 1 and 2, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index: Cooling Water Support Systems (MS10)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of October 2016 through September 2017 to verify the accuracy and completeness of the reported data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the mitigating system performance index for cooling water support systems for Units 1 and 2, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

40A2 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 following trends were reviewed:

- Inspectors reviewed a negative trend in supplemental worker performance
- Inspectors identified a negative trend in maintenance workmanship and supervisory oversight issues
- Inspectors reviewed a negative trend in station breaker performance

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

b. Observations and Assessments

Supplemental Worker Performance

The inspectors reviewed a negative trend in supplemental worker performance. The licensee independently noted the adverse trend in a mid-cycle self-assessment and initiated Condition Report 2017-17876 to perform a common cause evaluation. The common cause considered a number of performance errors. Some of the more notable performance errors were: 1) blind flange inadvertently installed on the Unit 1 reactor vessel head vent, which resulted in loss of reactor coolant system inventory while at lowered inventory; 2) damaged fuel bundles during Unit 1 core offload; and 3) dropped 55 gallon oil drum onto Unit 1 reactor coolant pump 1C, which resulted in a large amount of fibrous insulation replacement, clean-up of reactor coolant system piping and challenged reactor cooling pump functionality.

The common cause determined that although the overall number of events attributed to supplemental workers has decreased, the significance had increased. The common cause identified that the station has failed to adequately train the supplemental workers and ensure that supplemental workers consistently apply the station standards and expectations for safety and human performance. The licensee has established and

scheduled to establish corrective actions to: 1) re-tool the training given to the supplemental work force, especially just prior to refueling outages; 2) re-tool the training program for supervisors and a new oral board with higher expectations; 3) provide a dedicated and qualified craft supervisor for all lifting and rigging inside the reactor containment building; and 4) modify several pertinent procedures for lifting and rigging, containment management, and the fuel handling program. The inspectors determined that the licensee's common cause evaluation and corrective actions, taken and proposed, appear to be adequate to address supplemental worker performance. The licensee will also perform an effectiveness review after Refueling Outage 2RE19, scheduled for spring 2018.

Maintenance Workmanship and Supervisory Oversight Issues

The inspectors identified an on-going negative trend in maintenance workmanship and supervisory oversight. The inspectors noted the following examples: 1) material conditions following work on Unit 2 train A electrical auxiliary building heating ventilation and air conditioning motor replacement such as motor grounding wire not reconnected, lack of adequate thread engagement on ductwork bolting, a loose bolt on the support structure, and housekeeping issues; 2) damaged door seal and broken screws in door jamb following the Unit 1 control room door replacement; 3) Unit 1 train A sequencer test module unnecessarily replaced because of a test key issue; 4) Unit 1, train B, 4160 under voltage relay was retested until the relay became in tolerance; and 5) Unit 2, train C auxiliary feedwater pump relay replacement where maintenance lack of engagement resulted in being in the technical specification action statement for approximately an extra four hours. After a couple of meetings with the maintenance manager, Condition Report 2017-18609 was written to perform a common cause evaluation of recent human performance issues. The common cause reviewed 25 relevant events.

The common cause identified a gap regarding maintenance workers failing to follow and properly implement station procedures (16 of 25 issues). Corrective actions included: 1) issuing a maintenance communication bulletin that briefly covered three of the more pertinent issues and emphasized the need to adhere to station procedures; 2) requirement for supervisors to perform field observations of all the workers, document and discuss with maintenance management; 3) modify conduct of maintenance to outline action to take for a human performance event or repetitive events; and 4) small group briefs on the common cause evaluation. The inspectors determined that the licensee's common cause evaluation and corrective actions, taken and proposed, appear to be adequate to address the maintenance workmanship and supervisory oversight issues. The licensee will perform an effectiveness review in February 2018.

Breaker Performance

The inspectors reviewed an apparent trend in breaker issues at the station. Since the beginning of 2017, the station had experienced several breaker issues. Although the breakers had different failure mechanisms, spanned various breaker types, sizes, and manufacturers, station management commissioned a deep dive into the breaker issues to identify, improve, and correct any common deficiencies. Condition Report 2017-20177 was initiated to keep track of the assessment and any corrective actions or recommended enhancements. The deep dive team considered issues with breaker operation, racking practices, maintenance practices, training practices,

preventative maintenance strategies and breaker procedures since January 1, 2016. The deep dive team met every week for ten weeks and produced an evaluation and numerous recommendations.

Some of the more significant recommendations included: 1) handswitch replacement efforts in the control room; 2) improving maintenance procedures for breaker teardowns; 3) improve breaker training for both maintenance and operations by having more hands on training, which would require purchasing breaker mockups for common types of breakers used in the plant; 4) just-in-time breaker training prior to infrequent or new breaker installation in the field; and 5) enhance troubleshooting guidance for operations to preserve as-found conditions when a failure occurs.

The inspectors attended the initial meeting of the deep dive team and spoke with several members throughout the review. The inspectors concluded that the team composition was appropriate, diverse, and members were subject matter experts from their respective departments. The inspectors were given a copy of the evaluation and the recommended improvement items. The inspectors also met with the deep dive management sponsors and discussed the results. The inspectors concluded that the effort was well supported, and team members were dedicated to the effort. Furthermore, the inspectors determined that the deep dive effort was effective and if fully supported and implemented by station management, should improve the breaker program and reduce the overall number of issues at the station.

c. Findings

No findings were identified.

.3 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors selected one issue for an in-depth follow-up on September 17, 2015, an inadequate equipment clearance order failed to control plant configuration allowing the Unit 2 moisture separator reheater motor-operated shut-off valves to go closed and caused the plant to exceed 100 percent rated thermal power.

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 that these actions were adequate to correct the condition.

This activity constituted completion of one annual follow-up sample, as defined in Inspection Procedure 71152.

b. Findings

Introduction. A self-revealed, Green, non-cited violation of Technical Specification 6.8.1.a, "Procedures," was documented for the licensee's failure to follow a procedure for equipment configuration control, which resulted in a plant transient. Specifically, from July 16 to September 17, 2015, the licensee failed to control the configuration of the plant by not including the motor-operated shut-off valves on an equipment clearance order following troubleshooting of the moisture separator reheater

output control circuitry, which resulted in an unplanned transient and the unit exceeding 100 percent rated thermal power.

Description. On July 16, 2015, Unit 2 moisture separator reheater temperature control valves and the motor-operated shut-off valves closed due to an unknown malfunction in the moisture separator reheater output control circuitry. The closure of these valves caused a down power to 93.5 percent rated thermal power. To support continued plant operation an equipment clearance order was used to control equipment configuration. This clearance order directed operators to take the temperature control valves and the motor-operated shut-off valves out of “auto” and place the components in the “open” position with caution tags hanging on them (manually opened). For determining the cause of the malfunction, the equipment clearance order for plant operation was removed and another equipment clearance order for troubleshooting and maintenance was hung. This new clearance order required the temperature control valves to remain in the “open” position with caution tags hanging on them, but the motor-operated shut-off valves were returned to the automatic or “auto” position.

Troubleshooting failed to determine the cause of the malfunction and the decision was made to recommence troubleshooting in the upcoming refueling outage, 2RE18, scheduled to begin on October 27, 2015. At the conclusion of troubleshooting, maintenance and engineering personnel communicated with the control room that the moisture separator reheater was to be left in “manual.” Maintenance and engineering departments understood this to mean that the motor-operated shut-off valves would be returned to the “manual” and “open” position with caution tags hanging on them. However, operations department personnel assumed that leaving the moisture separator reheater controller in “manual” was the desired equipment configuration. The equipment clearance order in effect was once again removed and another equipment clearance order for continued operation was hung, which did not require that the motor-operated shut-off valves be placed in “manual” and “open.”

Plant Procedure 0PGP03-ZO-0051, “Operational Configuration Control for Online Maintenance Program,” Revision 0, step 6.2.2, directs the licensee to, “Verify affected equipment is secured or the restoration of equipment will not affect plant operations.” Adherence to this step would have required that the motor-operated shut-off valves be placed in “manual” and in the “open” position to prevent the error in the control circuitry from affecting plant operation. On September 17, 2015, the motor-operated shut-off valves spuriously closed and caused reactor power to lower from 100 percent to 98.9 percent then rise to 100.5 percent before steadying at 99.9 percent rated thermal power. During the next maintenance outage, the licensee discovered that the extended memory card in the control circuitry was not operating properly and replaced that card.

Analysis. The failure to control equipment configuration was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it is 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 failed to control the configuration of the plant, per Procedure 0PGP03-ZO-0051, “Operational Configuration Control for Online Maintenance Program,” Revision 0, when the motor-operated shut-off valves were not included on an equipment clearance order following troubleshooting of the moisture separator reheater output control circuitry, which resulted in an unplanned transient

when the known fault in the circuitry erroneously closed the motor-operated shut-off valves. The inspectors screened this finding using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) For Findings At-Power," dated June 19, 2012. The inspectors determined that the finding had very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition, high energy line-breaks, internal flooding, or fire. The inspectors determined the finding had a cross-cutting aspect of "teamwork" in the human performance area because individuals and work groups did not communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, operations and maintenance departments did not demonstrate a strong sense of collaboration and cooperation in connection with projects and operational activities [H.4].

Enforcement. Technical Specification 6.8.1.a. requires in part that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2. Section 1.c of Appendix A to Regulatory Guide 1.33, Revision 2, requires procedures for the "control of equipment," including lockouts and tagouts. The licensee established Procedure 0PGP03-ZO-0051, "Operational Configuration Control for Online Maintenance Program," Revision 0, to meet the Regulatory Guide 1.33 requirement. Step 6.2.2 of Procedure 0PGP03-ZO-0051 directs the licensee to verify that affected equipment is secured or that the restoration of equipment will not affect plant operations. Contrary to the above, from July 16 to September 17, 2015, the licensee failed to verify that affected equipment was secured or that the restoration of equipment did not affect plant operations. Specifically, the licensee failed to implement the operational configuration control procedure when the moisture separator reheater motor-operated shut-off valves were not appropriately caution tagged open and placed in manual to mitigate a malfunction in the control system, which caused a plant transient and exceeding of the licensed thermal power limit of the plant. The licensee restored compliance when the crew revised the equipment clearance order and placed the motor-operated shut-off valves in the open position with caution tags hung on them. Additional corrective actions taken included 100 percent operations' department personnel training on the lessons learned from this event, and the maintenance department revised Work Control Guideline 008, "Preventing Recurring Equipment Problems," Revision 7, to include instructions on how to document system configuration recommendations. The issue was entered into the licensee's corrective action program as Condition Report 2018-1002. This violation is being treated as a non-cited violation (NCV), consistent with Section 2.3.2.a of the NRC Enforcement Policy. NCV 05000499/2017004-01, "Failure to Control Equipment Configuration in Accordance with Procedures."

40A6 Meetings, Including Exit

Exit Meeting Summary

On December 20, 2017, the licensed operator requalification program inspectors briefed Mr. J. Connolly, Site Vice President and Chief Nuclear Officer, and other members of the licensee's staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

On January 18, 2018, the resident inspectors presented the inspection results to Mr. G. Powell, Interim President, Chief Executive Officer, 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. Atkins, Manager Performance Improvement
- L. Blaylock, Owner Representative, CPS Energy
- J. Bodnar, Manager, Security
- W. Brost, Engineer, Senior Licensing
- A. Capristo, Executive Vice President and Chief Administrative Officer
- J. Connolly, Site Vice President and Chief Nuclear Officer
- R. Dunn Jr., Manager, Nuclear Fuel and Analysis
- R. Jackson, Manager, Employee Concerns Program
- R. Gibbs, Manager, Operations Division, Unit Operations
- M. Glover, Manager Projects
- R. Gonzales, Senior Licensing Engineer
- G. Hildebrandt, Manager, Training
- T. Hurley, Supervisor, Simulator Support and Exam Team
- G. Janak, Operations Training Manager
- B. Jefferson, Director, Operations
- B. Lane, Manager, Operations Division, Unit Operations
- J. Lovejoy, Manager, I&C Maintenance
- E. Matejcek, Manager, Mechanical Maintenance
- R. McNeil, Manager, Maintenance Engineering
- M. Murray, Manager, Regulatory Affairs
- M. Ortiz, Manager, Instrumentation and Controls Maintenance
- M. Page, General Manager, Engineering
- G. Powell, Executive Vice President and Chief Nuclear Officer
- D. Rencurrel, Senior Vice President, Operations
- R. Savage, Engineer, Licensing Consult Specialist
- R. Stastny, Maintenance Manager
- L. Sterling, Supervisor, Licensing
- C. Stone, Manager, Health Physics
- M. Uribe, Manager, Operations, Production Support & Programs

LIST OF ITEMS OPENED AND CLOSED

Opened and Closed

05000499-2017-01 NCV Failure to Control Equipment Configuration in Accordance with Procedures (Section 4OA2.3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Condition Reports (CRs)

17-20529 17-22914 17-23037 17-22910

Work Authorization Number (WAN)

499716

Section 1R04: Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0POP02-DG-0002	Emergency Diesel Generator 12(22)	76
0POP02-DG-0003	DG 13 Standby Operation Checklist	69

Section 1R05: Fire Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0DGB38-FP-0514	Fire Preplan Diesel Generator Building Diesel Air Intake/Exhaust, Train C	3
0EAB02-FP-0005	Fire Preplan Electrical Auxiliary Building Control Room HVAC Equipment Room, Train A	4
0IVC49-FP-0400	Fire Preplan Isolation Valve Cubicle Pump Room, Train D	2
0MAB79-FP-0162	Fire Preplan FLEX Diesel Generator Enclosure	1

Section 1R06: Flood Protection Measures

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
NC 9710	Facility Response Analysis for DGB Flooding and Spray Effects	2
MC 05044	Flooding Calculation for the DGB	3

Condition Reports (CRs)

17-22910 17-22914 11-10908

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0POP01-ZQ-0022	Plant Operations, Shift Routines	65

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
6M18-9-N-05025	General Arrangement Mechanical and Electrical Auxiliary Building Plan El. 41'-0" Area L	6
6M18-9-N-05025	General Arrangement Mechanical and Electrical Auxiliary Building Plan El. 41'-0" Area M	11
6P20-0-M-00031	General Arrangement Essential Cooling Water Intake and Discharge Structures	5
7M09-9-A80021	Architectural Penetration Seals Mechanical & Electrical Auxiliary Building Interior Elevations	10

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

Condition Reports

14-1635-18 14-9857-1 14-22947-1 14-26133-5 15-448-84
16-1609 16-4923-3

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
LOR-GL-0001	LOR Training Program Guidelines	30
LOR-GL-0002	LOR Annual and Biennial Evaluation Guidelines	24
LOR-GL-0003	LOR Exam Bank Guidelines	9
LOR-GL-0004	LOR Two-Year Training Plan Guidelines	11
LOR-GL-0006	LOR Conduct of Simulator Training Guidelines	29
0PGP03-ZA-0119	Management Oversight of Training Programs	22
0PGP03-ZT-0132	Licensed Operator Requalification	12
0PNT01-ZA-0037	Simulator Configuration Control	12
0PNT01-TQ-1000	Training System Development Process	1

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PNT01-TQ-1100	Analysis Phase	3
0PNT01-TQ-1200	Design Phase	2
0PNT01-TQ-1300	Development Phase	1
0PNT01-TQ-1400	Implementation Phase	2
0PNT01-TQ-1500	Evaluation Phase	3
0PGP03-ZA-0128	Medical Examinations	15
0POP02-FW-0001	Main Feedwater	9

Work Authorization Number (WAN)

572804

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
001.02	Locally Start Essential Chiller	16
002.02A	Place RWST On Recirculation	2
004.01a	Re-establish Letdown	5
009.01	Perform Operator Action for Reactor Trip With SI	9
010.02	Place Rod Control MG Set in Service	5
011.02	Fill the AFWST Using the Howell Dump Sump	10
022.01	Perform an Emergency Boration	1
022.03	Locally Open Instrument Air to Containment	2
024.02	Reset Mode I Sequencer Logic	11
026.01	Isolate SI Accumulators	6
	2017 Annual Operating Test Scenario 18	
	2017 Annual Operating Test Scenario 19	
	2017 Annual Operating Test Scenario 20	
	2017 Annual Operating Test Scenario 21	
	2017 Annual Operating Test Scenario 22	
	2017 Annual Operating Test Scenario 23	
	Simulator Scenario – Based Testing Data Package	
	Transient Test 1, 5, 8	

Section 1R12: Maintenance Effectiveness

Condition Reports (CRs)

12-27664	12-11256	14-19640	15-22777	16-5964
17-18728	12-24408	14-18575	06-7158	17-24586
17-17535	13-12711			

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SEG-0002	Maintenance Rule Equipment History Review Guideline	5
SEG-0005	System Health Reporting Guideline	10
SEG-0009	Maintenance Rule Basis Document Guideline	5
SEG-0014	Maintenance Rule Program Users Guideline	1
SEG-0013	Performance Monitoring Guideline	7
OPGP04-ZE-0313	Maintenance Rule Program	8
OPGP03-ZP-0014	Safety/Quality Classification and Dedication of Parts	5
OPGP03-ZP-0011	Procurement of Material	24

Miscellaneous

<u>Title</u>	<u>Date</u>
Maintenance Rule Expert Panel Meeting	November 15, 2017
Maintenance Rule Expert Panel Meeting	December 13, 2017
System Health Report	September 20, 2017
STP QA System Engineering Audit Report 16-06	August 24, 2016
Operations Quality Assurance Plan	February 1, 2014

Technical Evaluation

<u>Number</u>	<u>Title</u>	<u>Date</u>
584-491	Cartridge, Filter, Oil 10 Micron	August 8, 2017
501-88101	Fuse Block	August 7, 2017
501-85928	Proportional Electric Actuator Driver 120V for Nutherm Explosion Electric Duct Heater	October 12, 2016
589-69	Ammeter, 0-400A, Type AB-40	November 1, 2017

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Condition Reports (CRs)

17-20311

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPGP03-ZA-0090	Work Process Program	41
OPOP02-FW-0001	Main Feedwater	97
WCG-0001	Work Screening and Processing	
OPGP03-ZG-RMTS	Risk-Managed Technical Specifications Program	2
OPOP01-ZO-0011	Operability, Functionality, and Reportability Guidance	10
OPOP01-ZA-0001	Plant Operations Department Administrative Guidelines	50
OPOP01-ZO-0006	Risk Management Actions (RMAs)	24

RasCal Calculation Sequence Number

3033 3046

Work Authorization Number (WAN)

572804

Work Activity Risk (WAR) Plan of Action

2740

Section 1R15: Operability Determinations and Functionality Assessments

Condition Reports (CRs)

17-22483 14-16643 17-22545 17-22542 17-22540
17-20762 17-20846

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPGP03-ZA-0515	Design and Operating Margin Management	3
OPSP03-MS-0001	Main Steam Valve Operability Test	48

Work Authorization Number (WAN)

572817

Section 1R18: Plant Modifications

Condition Reports (CRs)

17-18220	17-18502	13-12760	04-3098	12-13915
17-13147	16-9853	17-19998	17-24353	09-9000

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PGP04-ZE-0309	Design Change Package	30/38
0PGP04-ZE-0312	Design Change Implementation	11
0PGP05-ZA-0002	10CFR50.59 Evaluations	17
0PGP03-ZA-0109	Configuration Management Program	18
0PGP04-ZE-0409	Standard Design Process Interface Procedure	1

Work Authorization Number (WAN)

442107	560560	560988	519564
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Section 1R19: Post-Maintenance Testing

Condition Reports (CRs)

17-22479	16-3944	17-13147	560560	560988
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Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PSP03-DG-0002	Standby Diesel 12(22) Operability Test	58
0PSP03-EW-0018	Essential Cooling Water System Train B Testing	53
0PSP03-CH-0002	Essential Chilled Water Pump 11B(21B) Inservice Test	20
0PGP03-ZE-0133	Boric Acid Corrosion Control Program	10

Work Authorization Number (WAN)

575578	559188	448682
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Section 1R22: Surveillance Testing

Condition Reports (CRs)

17-21040

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PGP03-ZI-0021	Electrical Safety	23
0PSP03-SP-0005S	SSPS Logic Train S Functional Test	44
0PSP03-SP-0006S	Train S Reactor Trip Breaker TADOT	35
0PSP03-SI-0001	Low Head Safety Injection Pump 1A(2A) Inservice Test	20
0PSP03-SI-0004	High Head Safety Injection Pump 1A(2A) Inservice Test	18
0PSP03-DG-0002	Standby Diesel Generator 12(22) Operability Test	58

Section 1EP6: Drill Evaluation

Condition Reports (CRs)

17-22721 17-22719 17-22743

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0ERP01-ZV-IN01	Emergency Classification	10
0ERP01-ZV-IN02	Notifications to Offsite Agencies	34
0ERP01-ZV-IN03	Emergency Response Organization Notification	18
0ERP01-ZV-SH01	Shift Manager	31
0PGP03-ZO-0057	Operator Time Critical Action Program	2
0POP04-AE-0001	First Response to Loss of Any or All 13.8 KV or 4.16 KV Bus	44
0POP05-EO-EC00	Loss of All AC Power	30
0POP05-EO-EO00	Reactor Trip or Safety Injection	24
0POP05-EO-EO10	Loss of Reactor or Secondary Coolant	23
0POP05-EO-ES02	Natural Circulation Cooldown	18
0POP12-ZO-FSG05	Initial Assessment and FLEX Equipment Staging	4

Section 4OA1: Performance Indicator Verification

Condition Reports (CRs)

13-3103 15-23019 17-539 17-15685

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPGP05-ZN-0007	Preparation and Submittal of NRC Performance Indicators	8
SEG-0007	Mitigating System Performance Indicator Collection, Processing and Maintenance of Data	10

Section 4OA2: Problem Identification and Resolution

Condition Reports (CRs)

17-20177	17-14594	17-18609	17-17537	17-17607
17-17610	17-17613	17-16109	17-16636	17-12616
17-17659	16-6491	17-17075	17-15589	17-17876
17-13662	17-14786	17-14510	17-14919	17-18220
17-17857				

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SEG-0011	System/Component Deep Dive Review Process	0

Miscellaneous

<u>Title</u>	<u>Date</u>
Projects Department Excellence Plan	October 25, 2017

**Initial Request for Information
Integrated Inspection Report 2017-004
South Texas Project**

Inspection Report: 05000498/2017004; 05000499/2017004

Inspection Dates: October 1 – December 31, 2017

Inspection Procedure: Baseline Inspection Procedures

Lead Inspector: Alfred Sanchez, Senior Resident Inspector

Information Due Date: September 28, 2017

System of Interest: EMERGENCY DIESEL GENERATOR

The following information should be provided in electronic format (Certrec IMS preferred), to the attention of Alfred Sanchez by **September 28, 2017**. The specific items selected from the lists shall be available and ready for review on the day indicated in this request. *Please provide requested documentation electronically in “pdf” files, Excel, or other searchable formats, if possible. The information should contain descriptive names, and be indexed and hyperlinked to facilitate ease of use. Information in “lists” should contain enough information to be easily understood by someone who has knowledge of pressurized water reactor technology. If requested documents are large and/or only hard copy formats are available, please inform me and provide subject documentation.

1. A list of Emergency Diesel Generator (DG) system licensee contacts with phone numbers.
2. Any pre-existing evaluation or list of DG system components and associated calculations with low design margins.
3. A list of high risk DG system maintenance rule systems/components and functions, based on engineering or expert panel judgment.
4. A list of DG system related operating experience evaluations for the last 3 years.
5. A list of all DG system time-critical operator actions in procedures.
6. Copies of the initial operator licensed operators training materials.
7. List of drawings for the system (P&ID)-number and title
8. EDG maintenance work windows schedules (all trains) and summary of the work to be performed in those windows.
9. List and schedule of surveillance tests scheduled for the quarter

10. Complete copies of normal operating, abnormal operating, emergency operating, surveillance, and alarm response procedures associated with the DG system
11. A list of permanent and temporary modifications related to the DG system sorted by component for the last 3 years
12. A list of current DG system related "operator work arounds/burdens."
13. A list of the DG system design calculations, which provide the design margin information for components.
14. Flooding calculations for the EDG buildings
15. List of DG system root cause evaluations associated with component failures or design issues initiated/completed in the last 5 years.
16. A list of any DG system common-cause failures of components in the last 3 years.
17. An electronic copy of the DG system Design Bases Documents and any open, pending, or recently completed changes. Please include any open, pending, or recently completed changes to emergency operating, abnormal operating, normal operating, alarm response, system alignment, surveillance, or other procedure.
18. An electronic copy of the System Health Report for the DG system.
19. A copy of DG system related audits completed in the last 3 years.
20. A list of DG system motor operated valves (MOVs) in the program, design margin, and risk ranking.
21. A list of DG system air operated valves (AOVs) in the valve program, design margin, and risk ranking.
22. DG system structure, system, and components' maintenance rule category, scoping, unavailability data, unreliability data, functional failure evaluations, (a)(1) determinations, (a)(1) goals, and any supporting basis documentation.
23. Copies of surveillance packages (last four performances) for all three trains of DG systems on both Units.
24. An Excel spreadsheet of DG system related probabilistic risk assessment (PRA) human action basic events or risk ranking of operator actions from your site specific PSA sorted by risk achievement worth (RAW) and Fussell-Vesely (FV). Provide copies of your human reliability worksheets for these items.
25. In so far as there are recent or pending changes, please provide an Excel spreadsheet of DG system related equipment basic events (with definitions), including importance measures sorted by RAW and FV from your internal events PRA. Include basic events with RAW value of 1.3 or greater.

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION – NRC INTEGRATED
INSPECTION REPORT 05000498/2017004 AND 05000499/2017004 DATED FEBRUARY 5,
2018

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