



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

May 8, 2019

Mr. G. T. Powell  
President and Chief Executive Officer  
STP Nuclear Operating Co.  
P.O. Box 330  
Wadsworth, TX 77483

**SUBJECT: SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION, UNITS 1  
AND 2, NRC INTEGRATED INSPECTION REPORT 05000498/2019001;  
05000499/2019001, AND INDEPENDENT SPENT FUEL STORAGE  
INSPECTION 07201041/2019001**

Dear Mr. Powell:

On March 31, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your South Texas Project Electric Generating Station, Units 1 and 2. On April 11, 2019, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented two findings of very low safety significance (Green) in this report. One of these findings involved a violation of NRC requirements.

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

If you contest the violation or significance or severity of the violation documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement; and the NRC resident inspector at South Texas Project Electric Generating Station, Units 1 and 2.

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; and the NRC resident inspector at South Texas Project.

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,

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

Docket Nos. 05000498; 05000499 and  
07201041  
License Nos. NPF-76 and NPF-80

Enclosure:  
Inspection Report 05000498/2019001;  
05000499/2019001 and 07201041/2019001  
w/attachment: NRC Request for Information

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

Docket Number(s): 05000498; 05000499 and 07201041

License Number(s): NPF-76 and NPF-80

Report Number(s): 05000498/2019001; 05000499/2019001, and 07201041/2019001

Enterprise Identifier: I-2019-001-0004 and 1-2019-001-0082

Licensee: STP Nuclear Operating Co.

Facility: South Texas Project Electric Generating Station, Units 1 and 2

Location: Wadsworth, TX 77483

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

Inspectors: B. Baca, Health Physicist  
J. Choate, Resident Inspector  
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Approved By: Nicholas H. Taylor  
Chief, Project Branch B  
Division of Reactor Projects

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting a quarterly inspection at South Texas Project Electric Generating Station, Units 1 and 2, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC’s program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. NRC and self-revealed findings, violations, and additional items are summarized in the table below. Licensee-identified non-cited violations are documented in report sections: 71153.

### List of Findings and Violations

Failure to Implement the Procedure for Equipment Failures			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green FIN 05000499/2019-01 Closed	[H.12] - Avoid Complacency	71152 Problem Identification and Resolution
The inspectors identified a Green finding for the licensee’s failure to implement the procedure for the failure of a plant generation risk high risk component. Specifically, the licensee failed to implement and follow Procedure WCG-0008, “Preventing Recurring Equipment Problems (PREP),” Revision 7, following the failure of the Unit 2 steam generator 2C normal feedwater regulating control valve, FCV-553.			

Failure to Provide Adequate Procedural Guidance for a Surveillance Test			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green NCV 05000499/2019-02 Closed	[H.12] - Avoid Complacency	71152 Problem Identification and Resolution
The inspectors documented a Green self-revealed NCV for the failure to provide an adequate procedure for a Unit 2 qualified display processing system (QDPS) surveillance procedure that resulted in unnecessary troubleshooting, unnecessary replacement of properly operating circuit cards, and placing the loop 2 over-temperature delta-T, over-pressure delta-T, and low T <sub>avg</sub> feedwater isolation bistables into a TRIPPED condition, a half-trip condition for the reactor. Following an investigation, the licensee discovered that incorrect biases were inputted into the QDPS surveillance procedure.			

### Additional Tracking Items

Type	Issue number	Title	Inspection Procedure	Status
LER	05000498/2017-002-00	Unit 1 Condition Prohibited by Technical Specifications due to Inoperable Control Room Envelope Makeup Filtration System Heating Coil	71153 Follow-up of Events	Closed
LER	05000498/2018-001-00	Unit 1 Main Steam Safety Valve As Left Settings Outside of Required Range Contrary to Technical Specifications due to Inadequate Procedure	71153 Follow-up of Events	Closed

## PLANT STATUS

Unit 1 operated at rated thermal power for the entire inspection period.

Unit 2 began the inspection period at rated thermal power. On March 2, 2019, while performing main turbine governor valve testing at 90 percent power, a procedural error resulted in an unexpected decrease in reactor power to 86 percent power. The reactor was returned back to rated thermal power on March 3, 2019, and remained there for the remainder of the inspection period.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515 Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## REACTOR SAFETY

### 71111.04 - Equipment Alignment

#### Partial Walkdown (IP Section 02.01) (5 Samples)

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

- (1) Unit 1, train B chemical and volume control system during train A centrifugal charging pump maintenance on January 2, 2019
- (2) Unit 2, turbine driven auxiliary feedwater system with elevated unit trip risk during north bus outage on March 1, 2019
- (3) Unit 2, train C emergency core cooling system during train B emergency diesel generator maintenance on March 13, 2019
- (4) Unit 2, train A essential chilled water system during train B essential chilled water system maintenance on March 16, 2019
- (5) Unit 2, train A essential cooling water system during train C essential cooling water maintenance on March 22, 2019

### 71111.05Q - Fire Protection

#### Quarterly Inspection (IP Section 03.01) (5 Samples)

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

- (1) Unit 2, safety injection pump cubicles, Fire Area 35 on February 2, 2019
- (2) Units 1 and 2, balance of plant diesel generator rooms and turbine generator building switchgear rooms, Fire Areas 78 and 90 on February 26, 2019
- (3) Unit 1, auxiliary feedwater pump cubicles, Fire Areas 48, 49, 50, and 51 on February 27, 2019
- (4) Unit 1, train C essential cooling water intake structure, Fire Area 55 on March 22, 2019
- (5) Unit 1, train C vital switchgear room, battery room, 125 vdc distribution room, and motor generator room, Fire Areas 52 through 54 on March 26, 2019

### 71111.06 - Flood Protection Measures

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

The inspectors evaluated internal flooding mitigation protections in the Unit 1, train B essential cooling water pump room on March 26, 2019.

### 71111.07A - Heat Sink Performance

#### Annual Review (IP Section 02.01) (1 Sample)

The inspectors evaluated readiness and performance of:

- (1) Unit 1, train C emergency diesel generator jacket water and lube oil heat exchangers the week of January 14, 2019
- (2) Unit 2, train B essential chilled water cooler the week of March 12, 2019

### 71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

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

The inspectors observed and evaluated licensed operator performance in the Unit 1 control room during a secondary side electro-hydraulic leak which resulted in the closure of the 13 west reheat stop valve to the low pressure turbine on January 9, 2019.

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

The inspectors observed and evaluated Unit 1 operations in the simulator during a loss of coolant accident followed by a loss of offsite power on February 27, 2019.

#### 71111.12 - Maintenance Effectiveness

##### Routine Maintenance Effectiveness Inspection (IP Section 02.01) (2 Samples)

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

- (1) Unit 1, turbine driven auxiliary feedwater pump low governor oil level that resulted in inoperability of the train on January 3, 2019
- (2) Unit 1, electro-hydraulic control system leak that resulted in the closure of reheat stop valve 13 on January 9, 2019

#### 71111.13 - Maintenance Risk Assessments and Emergent Work Control

##### Risk Assessment and Management Sample (IP Section 03.01) (4 Samples)

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

- (1) Units 1 and 2, planned north bus outage that resulted in entering the Configuration Risk Management Program on February 26, 2019
- (2) Unit 2, planned turbine driven auxiliary feedwater pump extent of condition maintenance for connecting rod engagement on January 31, 2019
- (3) Unit 1, train B essential cooling water unplanned pump replacement February 13 through 19, 2019
- (4) Unit 1, elevated risk due to unplanned entry into the Configuration Risk Management Program for exceeding the train B essential chilled water system 7 day limiting condition for operation due to maintenance activities on March 10, 2019

#### 71111.15 - Operability Determinations and Functionality Assessments

##### Sample Selection (IP Section 02.01) (5 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Unit 1, turbine driven auxiliary feedwater pump following the identification of a degraded conduit for the remote trip solenoid on January 16, 2019
- (2) Unit 1, train B control room envelope heating, ventilation, and air conditioning damper controller on February 6, 2019



- (3) Unit 2, cask loading pool leakage on February 12, 2019
- (4) Unit 1, train B emergency diesel generator shutdown when taken out of emergency mode on March 11, 2019
- (5) Unit 2, turbine driven auxiliary feedwater pump experiencing high main oil pump discharge pressure on March 15, 2019

#### 71111.19 - Post Maintenance Testing

##### Post Maintenance Test Sample (IP Section 03.01) (6 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) Unit 1, train C emergency diesel generator following fuel oil storage tank level transmitter replacement on January 31, 2019
- (2) Unit 2, turbine driven auxiliary feedwater pump following failure of connecting rod on January 31, 2019
- (3) Unit 1, train B essential cooling water pump following pump replacement on March 4, 2019
- (4) Unit 1, train B emergency diesel generator following replacement of shutdown air solenoid valve on March 13, 2019
- (5) Units 1 and 2, diesel fire pump number 3 following replacement of the pump impeller, diesel starter solenoid, and pump packing on March 18, 2019
- (6) Unit 2, train C residual heat removal pump following control room handswitch replacement on March 19, 2019

#### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

##### In Service Testing (IST) (IP Section 03.01) (2 Samples)

- (1) Unit 1, turbine driven auxiliary feedwater pump surveillance test on January 24, 2019
- (2) Unit 1, train B essential cooling water system surveillance test on February 14, 2019

##### Surveillance Testing (IP Section 03.01) (4 Samples)

- (1) Unit 2, train B emergency diesel generator surveillance test on February 12, 2019
- (2) Unit 2, train A auxiliary feedwater regulating valve dynamic pressure test on March 4, 2019
- (3) Unit 1, train B emergency diesel generator fast start surveillance on March 13, 2019

(4) Unit 1, train C emergency diesel generator fast start surveillance on March 15, 2019

## **RADIATION SAFETY**

### 71124.02 - Occupational ALARA Planning and Controls

#### Radiological Work Planning (IP Section 02.01) (1 Sample)

The inspectors evaluated the licensee's radiological work planning by reviewing the following activities:

- 1RE21 - Reactor Cavity and Head Activities
- 1RE21 - Fuel Transfer Canal Activities
- 2RE19 - Reactor Cavity and Head Activities
- 2RE19 - Steam Generator Activities

#### Verification of Dose Estimates and Exposure Tracking Systems (IP Section 02.02) (1 Sample)

The inspectors evaluated dose estimates and exposure tracking. The inspectors reviewed the following ALARA planning documents:

- 18-276-7 ALARA Review Package: 2RE19 Non-Rapid Refuel, Revision 1
- 18-276-8 ALARA Review Package: 2RE19 Steam Generator Inspections
- 18-7926-4 ALARA Review Package: 1RE21 Non-Rapid Refuel

Additionally, the inspectors reviewed the following radiological outcome evaluations:

- 18-276-7 ALARA Close Out Review Package: 2RE19 Non-Rapid Refuel, Revision 1
- 18-276-8 ALARA Close Out Review Package: 2RE19 Steam Generator Inspections
- 18-7926-4 ALARA Close Out Review Package: 1RE21 Non-Rapid Refuel
- 18-7926-4 ALARA Close Out Review Package Supplement 1: 1RE21 Non-Rapid Refuel

### 71124.04 - Occupational Dose Assessment

#### External Dosimetry (IP Section 02.02) (1 Sample)

The inspectors evaluated the external dosimetry program implementation.

#### Internal Dosimetry (IP Section 02.03) (1 Sample)

The inspectors evaluated the internal dosimetry program implementation.

Three contaminated workers' whole body counts were reviewed for potential uptakes. The licensee had no positive whole body counts indicating an internal uptake of radioactive material.

The licensee had no occurrences to observe or review in-vitro internal monitoring or dose assessments performed using air sampling and DAC-hr. monitoring.

#### Source Term Categorization (IP Section 02.01) (1 Sample)

The inspectors evaluated the licensee's characterization of the source term and use of scaling factors for the use of hard-to-detect radionuclide activity.

#### Special Dosimetric Situations (IP Section 02.04) (1 Sample)

The inspectors evaluated special dosimetric situations, as detailed below.

- The inspectors reviewed approximately five declared pregnant workers' documentation from January 1, 2017, to March 21, 2019.
- The licensee did not perform any EDEX assessments from July 31, 2017, to March 21, 2019.
- The inspectors reviewed one shallow dose equivalent assessment (Condition Report 2019-1215).
- The inspectors reviewed the licensee's use of Mirion neutron thermoluminescent dosimetry and electronic alarming dose meters (Model EPDN2) for neutron dosimetry. The inspector compared radiological surveys, RWP and WAN assignments, and worker exposures to confirm the licensee is appropriately assigning neutron dose to occupational workers.

### **OTHER ACTIVITIES – BASELINE**

#### 71151 – Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below.  
(6 Samples)

- (1) IE01: Unplanned Scrams per 7000 Critical Hours Sample (Units 1 and 2, January – December 2018)
- (2) IE03: Unplanned Power Changes per 7000 Critical Hours Sample (Units 1 and 2, January – December 2018)
- (3) IE04: Unplanned Scrams with Complications Sample (Units 1 and 2, January – December 2018)

#### 71152 - Problem Identification and Resolution

##### Annual Follow-up of Selected Issues (IP Section 02.03) (4 Samples)

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

- (1) Unit 2, pressurizer master controller card failure, Condition Report 2017-658. Inspectors reviewed the plant response to the event, operator actions, corrective actions, and interviewed licensee personnel.
- (2) Unit 1, low head safety injection breaker failure, Condition Report 2017-20444. Inspectors reviewed the apparent cause investigation, operability evaluation, and corrective actions.
- (3) Unit 2, train C steam generator main control valve failed low in automatic mode, Condition Report 2017-17659. Inspectors reviewed the plant response to the event, operator actions, maintenance and engineering troubleshooting repair of the issue, interviewed licensee personnel and corrective actions.
- (4) Unit 2, train D qualified display processing system calibration procedure that resulted in exceeding the Technical Specification allowed outage time and placed the bistables into a trip condition, Condition Reports 2016-11346 and 2016-11257. The inspectors reviewed the prompt investigation, interviewed maintenance and engineering personnel, and evaluated the corrective actions.

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

##### Event Report (IP Section 03.02) (2 Samples)

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

- (1) LER 05000498/2017-002-00, "Unit 1 Condition Prohibited by Technical Specifications due to Inoperable Control Room Envelope Makeup Filtration System Heating Coil," on January 22, 2018:
- (2) LER 05000498/2018-001-00, "Unit 1 Main Steam Safety Valve As Left Settings Outside of Required Range Contrary to Technical Specifications due to Inadequate Procedure," on December 4, 2018:

#### **OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL**

##### 60854 – Preoperational Testing of an Independent Spent Fuel Storage Inspection (ISFSI)

##### 60855 – Operation of an ISFSI at Operating Plants

##### 60857 – Review of 10 CFR 72.48 Evaluations

Inspections of dry cask storage operations were conducted at STP on January 21-25 and on January 28 through February 2, 2019, by inspectors from NRC Regions I, III, and IV. The STP ISFSI was licensed as a general 10 CFR Part 72 license and utilized the Holtec HI-STORM FW Certificate of Compliance (COC) 1032 Amendment 2 and HI-STORM FW Final Safety Analysis Report (FSAR) Revision 5.

In prior NRC ISFSI inspections at STP (ADAMS Accession Nos. ML18221A385 and ML19032A079), the NRC staff documented the observations and evaluations of many of the required pre-operational demonstrations from License Condition No. 9 of the COC performed by STP. Those inspections included an in-depth review of the licensee's dry

cask storage program implementation into existing 10 CFR Part 50 programs to support ISFSI operations at the site. The purpose of the NRC inspections in January and February 2019 were to: (1) observe and evaluate the remaining pre-operational demonstrations and training exercises which STP was required to complete prior to commencing loading operations, and (2) observe and evaluate the licensee's first loading operations. On January 21-25, 2019, the NRC staff observed STP complete the remaining demonstrations listed in License Condition No. 9 of the COC to allow use of the Holtec HI-STORM FW storage system. South Texas Project had successfully completed all the required pre-operations activities and fully demonstrated that the procedures, programs, and training related to those dry cask storage operations had been successfully integrated into its site operations. The subsequent week, from January 28 to February 2, 2019, NRC staff observed the licensee's first canister loading operations.

The ISFSI activities specifically reviewed during the on-site inspections and during in-office review included:

1. Evaluated and observed dry run demonstrations from License Condition No. 9 of the COC, which included: preparation of the canister storage system for fuel loading; loading a dummy fuel assembly into the canister with appropriate independent verification; selection and verification of the specific fuel assemblies to ensure type conformance; remote installation of the canister lid; removal of the canister from the spent fuel pool; and unloading operations that included remotely removing a lid from the canister to support fuel unloading.
2. Reviewed the licensee's structural and seismic calculations for dry cask storage operations which included: over-head spent fuel building crane with loaded Transfer Cask (TC); loaded TC in the spent fuel pool's loading area; loaded TC in the canister wash-down area for processing operations; loaded TC in the stack-up configuration to support downloading of a canister into the concrete over-pack; loaded over-pack on low-profile transporter; and loaded over-pack being carried by the vertical cask transporter to the ISFSI pad.
3. Reviewed two 10 CFR 72.48 safety evaluations performed by the licensee for changes made to the ISFSI program since the previous NRC ISFSI inspection per Inspection Procedure 60857.
4. Reviewed spent fuel documentation for the first canister to verify the fuel met all Appendix B Technical Specifications requirements for storage.
5. Evaluated and observed fuel selection and fuel loading operations associated with dry fuel storage canister No. 1.
6. Evaluated and observed welding of the canister, non-destructive testing of the welds, forced helium drying, helium backfill, and heavy load movements from the spent fuel pool to the site's vertical cask transporter.
7. Reviewed the licensee's loading, processing, and heavy load procedures associated with their current dry fuel storage campaign.
8. Reviewed the licensee's corrective action program's condition reports of issues identified for resolution since the previous NRC ISFSI inspection performed in November 2018.

9. Evaluated and observed the licensee’s radiation protection implementation during the dry run and loading operations.
10. Evaluated and observed the licensee’s implementation of foreign material exclusion process during the dry run and loading operations.

The inspectors did not identify any issues of concerns requiring documentation.

## INSPECTION RESULTS

Failure to Implement the Procedure for Equipment Failures			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green FIN 05000499/2019-01 Closed	[H.12] - Avoid Complacency	71152 Problem Identification and Resolution
<p>The inspectors identified a Green finding for the licensee’s failure to implement the procedure for the failure of a plant generation risk (PGR) high risk component. Specifically, the licensee failed to implement and follow Procedure WCG-0008, “Preventing Recurring Equipment Problems (PREP),” Revision 7, following the failure of the Unit 2 steam generator 2C normal feedwater regulating control valve FCV-553.</p>			
<p><u>Description:</u>  On June 19, 2017, Unit 2 reactor operators responded to control room alarms and indications for steam flow/ feed flow mismatch for steam generator 2C. Operators identified that the steam generator 2C main feedwater regulating valve had failed closed and that steam generator level was decreasing for that steam generator. Operators entered the appropriate off-normal procedure and within 28 seconds regained control of steam generator levels by manually controlling feedwater flow through the main feedwater regulating valve. As a result of the failure, reactor power lowered to approximately 97 percent, average reactor coolant system temperature (<math>T_{avg}</math>) reached a maximum value of 592.9 degrees F (normally <math>T_{avg}</math> is 592.0), and steam generator 2C narrow range level lowered to 52.8 percent (normally 70 percent).</p> <p>Following the failure, engineering and maintenance discussed and implemented changing out a suspected nuclear tracker-driver (NTD) circuit card. This type of activity in the 7300 control cabinets is a high risk evolution and required a work activity risk review to help ensure no mistakes were made and that operations prepared for the worst case outcome. South Texas Project (STP) has site specific operating experience where card calibration and card replacement activities have resulted in reactor trips. Engineering was confident that the NTD circuit card was the problem. Maintenance personnel suggested measuring voltage readings at various locations inside the panel to ensure the faulty card was identified, however these measurements were not taken due to engineering’s position that the NTD card was faulty. The inspectors attended the pre-job brief and observed the field work. Maintenance performed the card replacement successfully, but the issue remained. Maintenance and engineering regrouped and decided to take voltage measurements to identify the circuit card failure. Maintenance identified the nuclear control board (NCB) as the problem and replaced</p>			

the NCB without issue. STP performed the high-risk evolution twice due to inadequate troubleshooting and over-reliance on engineering assumptions.

The licensee evaluated the operators' response to the main feedwater regulating valve failure and engineering and maintenance's response to troubleshooting and repair of the failed circuit card. The inspectors interviewed engineering and maintenance and determined that the licensee should have entered and implemented Procedure WCG-0008 following the failure of the Unit 2 steam generator 2C normal feedwater regulating control valve, FCV-553. The procedure would have ensured the appropriate degree of rigor was applied when pursuing resolution of high risk equipment issues. Specifically, Step 1.3 states, in part, "The PREP process entry criteria are: Loss of Key Equipment function/ Critical Attribute." The failure of the main feedwater regulating valve was a loss of key equipment function. The PREP process would have engaged more management oversight, directed the gathering of facts through Addendum 3, "Preventing Recurring Equipment Problems (PREP) checklist," and may have led to the development of a troubleshooting plan.

Corrective Actions: The licensee replaced the failed card and developed a lessons-learned presentation for engineering to use human performance tools, validate assumptions, and challenge recommendations (use technical conscience).

Corrective Action References: Condition Reports 2017-17659 and 2019-4368

Performance Assessment:

Performance Deficiency: The failure to enter and use station Procedure WCG-0008, "Preventing Recurring Equipment Problems (PREP)," Revision 7, following the failure of the Unit 2 steam generator 2C normal feedwater regulating control valve, FCV-553, was a performance deficiency. Specifically, the licensee failed to enter WCG-0008 upon the failure of the main feedwater regulating valve, a loss of key equipment function due to the component being classified as a high PGR. The result of not implementing this procedure was an increased probability of tripping the reactor due to possible human error while in the 7300 control cabinet.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the human performance attribute and adversely affected the Initiating Events Cornerstone objective to limit the likelihood of events that can upset plant stability during power operations and is therefore a finding. Specifically, engineering relied on past experience and did not consider entering and implementing the PREP process procedure, which would have applied more rigor to troubleshooting and resolving the issue.

Significance: The inspectors used IMC 0609, Appendix A, Exhibit 1, "Initiating Events Screening Questions," issued June 19, 2012, to determine the finding was of very low safety significance, Green. Specifically, one 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.

Cross-cutting Aspect: H.12 - Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools.

**Enforcement:** Inspectors did not identify a violation of regulatory requirements associated with this finding.

**Failure to Provide Adequate Procedural Guidance for a Surveillance Test**

Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green NCV 05000499/2019-02 Closed	[H.12] - Avoid Complacency	71152 Problem Identification and Resolution

The inspectors documented a Green self-revealed NCV for the failure to provide an adequate procedure for a Unit 2 qualified display processing system (QDPS) surveillance procedure that resulted in unnecessary troubleshooting, unnecessary replacement of properly operating circuit cards, and placing the loop 2 over-temperature delta-T (OTDT), over-pressure delta-T (OPDT), and low T<sub>avg</sub> feedwater isolation bistables into a TRIPPED condition, a half-trip condition for the reactor. Following an investigation, the licensee discovered that incorrect biases were inputted into the QDPS surveillance procedure.

**Description:** On September 15, 2016, operations declared the loop 2 OTDT, OPDT, and the low T<sub>avg</sub> feedwater isolation inoperable for loop calibration surveillance testing and bypassed the channel per Technical Specifications 3.3.1, items 8 and 9, action 6, and 3.3.2, item 5F, action 20. If not restored within 72 hours, the channel must be placed into a TRIPPED condition. During the performance of Surveillance Procedure 0PSP05-RC-0420, "Delta T and T average loop 2 Set Calibration (T-0420)," Revision 53, maintenance identified an out-of-tolerance condition. Engineering recommended maintenance perform a QDPS output calibration using Procedure 0PMP08-AM-APCD2, "QDPS Train D SGWLCS/TAS Input/Output Calibration," Revision 10. During this calibration, the licensee again identified an out-of-tolerance condition which could not be resolved. The licensee performed troubleshooting and began to replace circuit boards in the train D QDPS cabinet without success. On September 18, 2016, the bistables for the OTDT, OPDT, and Low T<sub>avg</sub> feedwater isolation were placed into a TRIPPED condition as required by technical specifications.

The licensee subsequently discovered that an engineering error resulted in incorrect biases being placed into the Calibration Procedures 0PSP05-RC-0420 and 0PMP08-AM-APCD2. The two procedures were corrected with the proper biases and completed satisfactorily. The manual substitution of the resistance temperature detector (RTD) biases in the two calibration procedures had never been performed before and, due to the complex nature of the QDPS system, only three people on site could perform and peer check these biases. The licensee performed a prompt investigation and a review for organizational learnings. The licensee determined that the engineer made changes to the procedure to account for the two RTD operation, but failed to get the values peer checked for accuracy. This failure led to excessive out-of-service time, unnecessary QDPS maintenance, and having to place the loop 2 protection bistables into a TRIPPED condition, i.e. half reactor trip.

**Corrective Actions:** The licensee immediately corrected the procedures and re-performed the calibrations and satisfactorily performed analog channel operational testing. The licensee also developed a lessons-learned document and has an outstanding action to develop an engineering guideline when either unit is in two RTD operation.



Corrective Action References: Condition Reports 2016-11346, 2016-11257, 2019-4367

Performance Assessment:

Performance Deficiency: The failure to provide adequate procedures for maintenance on safety-related equipment was a performance deficiency. Specifically, engineering supplied inaccurate information to calibration procedures for the Unit 2 loop 2 and train D QDPS that resulted in unnecessary maintenance in QDPS and TRIPPED bistables associated with OTDT, OPDT, and low  $T_{avg}$  feedwater isolation which caused Unit 2 to be in a half reactor trip.

Screening: The inspectors determined the performance deficiency was more than minor because it is associated with the Procedure Quality attribute and adversely affected the Initiating Event Cornerstone objective to limit the likelihood of events that can upset plant stability during power operations and is therefore a finding. Specifically, the loop 2 bistables associated with OTDT, OPDT, and low  $T_{avg}$  were placed into a TRIPPED condition which placed Unit 2 one spurious reactor trip signal away from a true reactor trip due to the performance deficiency.

Significance: The inspectors used IMC 0609, Appendix A, Exhibit 1, "Initiating Events Screening Questions," issued June 19, 2012, to determine the finding was of very low safety significance, Green. Specifically, one 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.

Cross-cutting Aspect: H.12 - Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools. The inspectors determined that the finding had a crosscutting aspect in the area of human performance associated with avoiding complacency. Specifically, engineering provided inaccurate biases for the procedure changes without utilizing appropriate error reduction tools [H.12].

Enforcement:

Violation: Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained in accordance with Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, Section 8.b.(L) reactor protection system tests and calibrations. The licensee established Procedure 0PSP05-RC-0420, "Delta T and T average loop 2 Set Calibration (T-0420)," Revision 53 to meet the Regulatory Guide 1.33 requirement. The Unit 2 data package loop 2 set 2 (T-0420) provides appropriate biases to be used to test and calibrate the loop.

Contrary to the above, on September 15, 2016, the licensee failed to ensure that the Unit 2 data package loop 2 set 2 (T-0420) provided the appropriate biases to be used to test and calibrate the loop. Specifically, engineering failed to provide accurate biases for procedures used for surveillance and calibration of the OTDT, OPDT, and low  $T_{avg}$  feedwater isolation trip setpoints.

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

Minor Violation	71153 Follow-up of Events
<p>Minor Violation: Technical Specification 3.7.7, "Control Room Makeup and Cleanup Filtration System," states, in part, that if one Control Room Makeup and Cleanup Filtration System is inoperable, it must be restored to operable in Modes 1, 2, 3, and 4 within 7 days, or be in at least hot standby within the next 6 hours and in cold shutdown within the following 30 hours. Contrary to the above, between September 27 and November 24, 2017, the licensee failed to restore one control room makeup and cleanup filtration system to operable. Specifically, the licensee failed to properly jumper a circuit board for the control room makeup and cleanup filtration system heating coil.</p> <p>Screening: The inspectors determined the performance deficiency was minor. The inspectors found this violation to be minor in accordance with IMC 0612 Appendix B, "Issue Screening," issued December 13, 2017, because the violation did not satisfy any of the four More-than-Minor screening questions.</p> <p>Enforcement: This failure to comply with Technical Specification 3.7.7 constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.</p>	

Licensee-Identified Non-Cited Violation	71153 Follow-up of Events
<p>This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a Non-Cited Violation, consistent with Section 2.3.2 of the Enforcement Policy.</p> <p>Violation: Technical Specification 3.7.1.1, "Safety Valves," states, in part, that if one or more main steam line code safety valves are inoperable, they must be restored to operable status within 24 hours or reduce the Power Range Neutron Flux High Trip Setpoint or be in at least hot standby within the next 6 hours. Contrary to the above, between October 2 and 6, 2018, the licensee failed to restore two of the Unit 1 steam generator B main steam safety valves to operable status within 24 hours, failed to reduce the Power Range Neutron Flux High Trip Setpoint, and failed to be in at least hot standby within the next 6 hours. Specifically, the licensee failed to identify that two of the Unit 1 Steam Generator B main steam safety valves were left outside of their Technical Specification required lift settings following testing.</p> <p>Significance: Green.</p> <p>The inspectors determined the performance deficiency was more than minor because it adversely affected the equipment performance attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors assessed the significance of the finding using Exhibit 2, "Mitigating Systems Screening Questions," of IMC 0609, Appendix A, "Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and determined this finding did not represent an actual loss of function. Therefore, the inspectors determined the finding was of very low safety significance (Green).</p> <p>Corrective Action References: Condition Reports 2018-11811 and 2019-4374</p>	

## **EXIT MEETINGS AND DEBRIEFS**

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

- On April 11, 2019, the inspector presented the quarterly resident inspector inspection results to Mr. G. T. Powell, President and Chief Executive Officer, and other members of the licensee staff.
- On March 21, 2019, the inspector presented the baseline radiation safety inspection to Mr. J. Connolly, Executive Vice President and Chief Nuclear Officer, and other members of the licensee staff.
- On March 21, 2019, the inspector presented the pre-operational dry run and first loading inspection to Mr. J. Connolly, Executive Vice President and Chief Nuclear Officer, and members of the licensee staff.

## DOCUMENTS REVIEWED

### 71111.01-Adverse Weather

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

### 71111.04-Partial Equipment Alignment

#### Condition Reports

CR-2018-2825

Procedures Number	Title	Revision
0POP02-AF-0001	Auxiliary Feedwater	52
0POP02-SI-0002	Safety Injection System Initial Lineup	45
0PSP03-CH-0001	Essential Chilled Water Pump 11A(21A) Inservice Test	22
0POP02-EW-0001	Essential Cooling Water Operations	80

Drawings Number	Title	Revision
5R179F05007#1	Chemical and Volume Control System	52
5S142F00024#1	Auxiliary Feedwater	13
5N129F05015#2	Safety Injection System	21
5V119V10001#2	HVAC Essential Chilled Water System	33
5R289F05038#2	Essential Cooling Water System Train 2B	20

### 71111.05-Fire Protection

Procedures Number	Title	Revision
0FHB35-FP-0306	Fire Preplan Fuel Handling Building Train B SI/CSS Cubicle	2
0FHB35-FP-0307	Fire Preplan Fuel Handling Building Train A SI/CSS Cubicle	2
0PGP03-ZF-0011	STPEGS Fire Brigade	18
0DMB99-FP-0920	Fire Preplan for Make-Up Demineralizer Building	2
0TGB78-FP-0703	Fire Preplan Turbine Generator Building BOP Diesel Generator Building	3
0TGB90-FP-0702	Fire Preplan for Turbine Generator Building 4.16 KV and Electrical Equipment Rooms	3

Procedures Number	Title	Revision
0TGB90-FP-0710	Fire Preplan Turbine Generator Building 13.8 KV Switchgear Room and Cable Vault	3
0IVC48-FP-0403	Fire Preplan Isolation Valve Cubicle Pump Room Train C	3
0IVC49-FP-0402	Fire Preplan Isolation Valve Cubicle Pump Room Train B	3
0IVC50-FP-0401	Fire Preplan Isolation Valve Cubicle, Pump Room Train A	2
0IVC51-FP-0400	Fire Preplan Isolation Valve Cubicle, Pump Room Train D	2
0EAB-FP-0052	Fire Preplan Electrical Auxiliary Building ESF Switchgear Room Train C	4
0EAB-FP-0053	Fire Preplan Electrical Auxiliary Building, Channel IV Battery and Distribution Room	3
0EAB-FP-0054	Fire Preplan Electrical Auxiliary Building, Motor Generator Room	3
1ECW55-FP-0602	Fire Preplan Essential Cooling Water Intake Structure Pump Room Train C	5

### **71111.07A – Annual Heat Sink**

Procedures Number	Title	Revision
0PMP05-CH-0003	York Chiller Inspection & Maintenance 300 Tons	13
0PGP03-ZE-0080	Essential Cooling Water System Reliability Program	2

### **Work Authorization Numbers**

443062

### **71111.11-Simulator/Control Room Observation**

#### **Condition Reports**

CR-2019-364	CR-2019-423
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Procedures Number	Title	Revision
0POP02-EH-0001	Main Turbine EHCS	77
0POP07-MS-0003	Main Turbine Steam Inlet Valve Test	29

P&ID Number	Title	Revision
6S109F00017#1	P&ID Main Steam	28

P&ID Number	Title	Revision
7T089F10001#1	P&ID EH Fluid System	57

### **71111.12-Maintenance Effectiveness**

#### Condition Reports

CR-2015-18885	CR-2017-15182	CR-2017-23544	CR-2018-995
CR-2018-8533	CR-2018-1108	CR-2018-12813	CR-2018-15270
CR-2018-15273			

#### Work Authorization Numbers

499003	519391	521829	532330
540499	548908	568084	603714

#### Procedures

Number	Title	Revision
0PMP04-AF-0002	Auxiliary Feedwater Pump Turbine Maintenance	41
0PMP04-AF-0003	Auxiliary Feedwater Turbine Trip Throttle Valve Maintenance	36
0PSP03-AF-0007	Auxiliary Feedwater Pump 14(24) Inservice Test	5

#### Drawings

Number	Title	Revision
6S109F00017#1	Piping and Instrumentation Diagram Main Steam	28
7T089F10001#1	Piping and Instrumentation Diagram Electro Hydraulic Fluid System	51

### **71111.13-Maintenance Risk and Emergent Work**

#### Procedures

Number	Title	Revision
0PGP03-ZA-0091	Configuration Risk Management Program	14
0POP01-ZO-0006	Risk Management Actions (RMAs)	27

#### Work Activity Risk (WAR)

2804

#### RasCal Sequences

3331	3336	3337
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**71111.15-Operability Determinations and Functionality Assessments**

Condition Reports

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CR-2019-47 19-637	CR-2019-347	CR-2019-1377	19-2777
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Drawings

STI. Number	Title	Date
31390502	Cabinet-Control (Assembly Engine Control)	02/27/1978
31298485	Control Schematic (Starting Sequence Control)	09/29/1977

**71111.19-Post Maintenance Testing**

Condition Reports

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CR-2018-7676	CR-2018-9443	CR-2018-14727	CR-2019-111
CR-2019-893	CR-2019-1762	CR-2019-2357	CR-2019-2435
CR-2019-2777	CR-2019-1020		

Work Authorization Numbers

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545649	565703	571744	571827
572175	576480	602665	604208
604273	606453	573948	605423

Procedures

Number	Title	Revision
0PSP04-DG-0004	Standby Diesel Generator Fuel Oil Storage Tank Inspection	9
0PMP08-DO-9109	ESF Diesel Generator Fuel Oil Storage Tank Level Calibration	3
0PSP03-EW-0011	Essential Cooling Water Pump 1B(2B) Reference Values Measurement	27
0PSP03-AF-0007	Auxiliary Feedwater Pump 14(24) Inservice Test	51
0POP07-FP-0001	Diesel Fire Pump Test	18
0PTP03-FP-0106	Fire Protection Water System Functional Test	20
0PSP03-DG-0002	Standby Diesel 12(22) Operability Test	64

Miscellaneous Documents		
Number	Title	Revision
VTD-T343-0001	Installation and Service Instructions for Tuthill Cartridge Pumps	1
VTD-P104-0011	Patterson Operation and Maintenance Manual for Double Suction Split Case Pumps	0

### **71111.22-Surveillances**

Condition Reports	
CR-2019-975	CR-2019-1762

Procedures Number	Title	Revision
0POP02-AF-0001	Auxiliary Feedwater	52
0PSP03-AF-0007	Auxiliary Feedwater Pump 14(24) Inservice Test	51
0PMP05-ZE-0425	MOV Diagnostic Testing (VOTES) – Rising Stem Valves	2
0PEP07-AF-0003	Dynamic Stroke Testing of Train A Auxiliary Feed Motor Operated Feed Regulating Valve	3
0PSP03-DG-0003	Standby Diesel 13(23) Operability Test	63
0PMP07-DG-0001	Standby Diesel Recording M&TE Installation	5
0PSP03-DG-0002	Standby Diesel 12(22) Operability Test	64
0PSP03-EW-0018	Essential Cooling Water System Train B Testing	55

### **71124.02 – Occupational ALARA Planning and Controls**

Condition Reports			
CR-2018-3840	CR-2018-3991	CR-2018-4050	CR-2018-4125
CR-2018-4555	CR-2018-4860	CR-2018-5849	CR-2018-6071
CR-2018-8097	CR-2018-9179	CR-2018-9284	CR-2018-11217
CR-2018-12339	CR-2018-13572	CR-2019-234	CR-2018-1066

Procedures Number	Title	Revision
0PGP03-ZR-0050	Radiation Protection Program	14
0PGP03-ZR-0052	ALARA Program	18
0PRP07-ZR-0001	ALARA Engineering and Procedure Review	4
0PRP07-ZR-0010	Radiation Work Permits/Radiological Work ALARA Reviews	38



Procedures Number	Title	Revision
OPRP07-ZR-0033	Radiological Briefings	7
OPRP07-ZR-0034	Radiological Risk Management	5
	Conduct of Operations for Radiation Protection, Chapter 18: ALARA Planning	4

#### Audits and Self-Assessments

Number	Title	Date
18-15289-1	Snapshot Self-Assessment using NRC 71124, Att. 2	02/28/2019
MN-19-0-107465	Radiation Protection Department Annual Evaluation	02/26/2019
SOER 85-3/ SOER 01-1	Excessive Personnel Radiation Exposures; Unplanned Radiation Exposures	12/05/2018

#### Radiation Work Permits

Number	Title	Revision
2018-1-296	1RE21 - Transfer Cart Repair in the FHB / RCB Fuel Transfer Canals including RP Surveys and Decontamination	0
2018-1-296	1RE21 - Transfer Cart Repair in the FHB / RCB Fuel Transfer Canals including RP Surveys and Decontamination	1
2018-2-129	2RE19 – Steam Generator-Primary Side Support and Equipment Setup/Tear Down (HRA) – Medium Radiological Risk	0
2018-2-130	2RE19 – Steam Generator-Primary Side Manway/Inserts Removal (LHRA) – High Radiological Risk	0
2018-2-131	2RE19 – Steam Generator-Primary Side Nozzle Dams (LHRA) – High Radiological Risk	0
2018-2-131	2RE19 – Steam Generator-Primary Side Nozzle Dams (LHRA) – High Radiological Risk	1
2018-2-132	2RE19 – Steam Generator-Eddy Current Testing (LHRA) – High Radiological Risk	0
2018-2-133	2RE19 – Steam Generator-Re-Install Primary Side Manway (HRA) – Medium Radiological Risk	0
2018-2-135	2RE19 – Steam Generator-Secondary Side Inspections (HRA)	0

#### ALARA In-Progress Reviews

Review Number	Title	Date
249	Stud Detensioning	10/11/2018
250	HP Job Coverage	10/12/2018

### ALARA In-Progress Reviews

Review Number	Title	Date
254	HP Job Coverage in High Radiation Areas	10/21/2018
255	Request PMPI to provide craft support for the removal and installation of mechanical snubbers per 0PMP04-SN-0001 in support of snubber testing	10/22/2018
257	Contingency for Repairs to Unit 1 Fuel Handling Building Side Fuel Transfer System	10/25/2018
259	Fuel Movement/Reactor Containment Building (RCB)	10/28/2018

### ALARA Reviews

Number	Title	Date
18-276-4	ALARA Review: 2RE19 Snubber Inspections	03/02/2018
18-276-4	ALARA Close Out Review: 2RE19 Snubber Inspections	05/24/2018
18-276-8	ALARA Review: 2RE19 Steam Generator Inspections, Revision 1	04/04/2018
18-276-8	ALARA Close Out Review: 2RE19 Steam Generator Inspections	05/24/2018
18-7926-4	ALARA Review: 1RE21 Non-Rapid Refuel	10/02/2018
18-7926-5	ALARA Review: 1RE21 Flow Accelerated Corrosion Inspections – In Service Inspections	09/12/2018
18-7926-6	ALARA Review: 1RE21 Room 003 Activities	09/26/2018
19-234	ALARA Review: Dry Cask Storage	01/16/2019
19-234	ALARA Review: Initial DCS Campaign – Dry Cask Storage Supplement 1	01/25/2019

### Miscellaneous Documents

Number	Title	Date
	Refuel Outage 1RE20: ALARA Report	09/06/2017
	Refuel Outage 2RE18: ALARA Report	05/18/2017
	Refuel Outage 2RE19: ALARA Report	07/18/2018

### **71124.04—Occupational Dose Assessment**

#### Condition Reports

CR-2017-21141	CR-2018-2745	CR-2018-3052	CR-2018-4574	CR-2018-6875
CR-2018-8097	CR-2018-8247	CR-2018-10111	CR-2018-10591	CR-2018-10771
CR-2018-14460	CR-2018-14735	CR-2018-15144	CR-2019-1215	CR-2019-1254

Procedures Number	Title	Revision
OPGP03-ZR-0048	Personnel Dosimetry Program	20
OPGP03-ZR-0050	Radiation Protection Program	14
0PRP02-ZR-0007	Evaluation of Intakes	15
0PRP02-ZR-0010	Personnel Exposure Investigation	11
0PRP02-ZR-0013	Determination of Skin Dose	10
0PRP02-ZR-0017	Dose to the Embryo/Fetus	3
0PRP02-ZX-0022	Non-Routine Dosimetry Issue and Control	12
0PTP04-ZC-0047	Calibration of the Siemens Environmental Systems Limited / Thermo Electron Corporation Electronic Personal Dosimeter	15

#### Audits and Self-Assessments

Number	Title	Date
100555-0	Mirion Technologies (GDS), Inc. Onsite NVLAP Assessment Report	01/09/2018
	Snapshot Assessment: Dosimetry Program 2018	12/04/2018
	Snapshot Self-Assessment using NRC Inspection Procedure 71124.04 Occupational Dose Assessment Criteria	02/19/2019

#### Personnel Exposure Records

2017-07	2017-28	2017-29	2017-30	2017-49
2018-08	2018-09	2018-10	2018-11	2018-23
2018-24	2018-35	2018-40	2018-41	2018-42
2018-43	2018-44	2018-45		

#### **71152-Issue Follow-up**

##### Condition Reports

CR-2008-9639	CR-2019-893	CR-2019-1762	CR-2019-1954
CR-2019-2357			

##### Work Authorization Numbers

335148	572175	576480	604273
606453	607307		

Procedures Number	Title	Revision
OPMP04-EW-0001A	Essential Cooling Water Pump Maintenance (Product-Lubricated Bearing Design)	7
OPOP02-EW-0001	Essential Cooling Water Operations	79
Miscellaneous Documents Number	Title	Revision or Date
VTD-H127-0006	24 VSN Centrifugal Pump Installation and Operation Manual	6
DCP 06-15147-45	Replace Essential Cooling Water Pump 2B	02/26/2009

#### **40A5.1 Other Activities (IP 60854, IP 60855, IP 60857)**

##### Condition Reports

CR-2018-14418	CR-2018-14718	CR-201814770	CR-2019-540
CR-2019-630	CR-2019-631	CR-2019-665	CR-2019-706
CR-2019-816			

Procedures Number	Title	Revision
OPEP02-ZM-0012	Fuel Selection for Dry Cask Storage	0
0DCS03-ZO-0002	HI-STORM and MPC Pre-Use Inspections	1
0DCS03-ZO-0003	MPC Loading Operations	4
0DCS03-ZO-0004	MPC Closure Operations	1
0DCS03-ZO-0005	MPC Transfer Operations	2
0DCS03-ZO-0007	MPC Unloading Operations	1
0DCS03-ZO-0001	HI-STORM Transport Operations	2
0DCS03-ZO-0008	DCS Abnormal Response	1
PI-OP-HLTC-H-01	PCI Closure Welding of MPC Procedure	3
GQP – 9.2	PCI Liquid Penetrant Procedure	10
GQP – 9.6	PCI Visual Examination of Welds Procedure	18
OPGP03-ZX-0002	Condition Reporting Process	52
0PQP01-ZA-0003	Vendor Overview Activities (numerous)	9
0PRP07-ZR-0036	Radiological Controls for Dry Cask Storage	0
N/A	ALARA Review Package	0
0DCS01-ZA-0001	Dry Cask Storage Program Implementation	0

Procedures		
Number	Title	Revision
ODCS02-ZN-0002	10CFR72.48 Screening and Evaluations	0
WPS 8 MN-GTAW	ASME Section XI Welding Procedure Specification	7
WPS 8 MC-GTAW	ASME Section XI Welding Procedure Specification	16
PI-CNSTER-OP-HLTC-H-01	Closure Welding of Holtec Multi-Purpose Canisters	3
OPEP02-ZM-012	Fuel Selection for Dry Cask Storage	0
Design Basis Documents		
Number	Title	Revision
HI-2114830	Final Safety Analysis Report on the HI-STORM FW MPC Storage System	5
N/A	Certificate of Compliance No. 1032	2
72.212	STP ISFSI 10 CFR 72.212 Report	0
Miscellaneous Documents		
Number	Title	Revision or Date
72.48 Screen	Initial Issue of STP ISFSI 10 CFR 72.212 Report	0
72.48 Eval	Initial Issue of STP ISFSI 10 CFR 72.212 Report	0
72.48 Eval	Non-Mechanistic Tipover Analysis for STP	0
VTI B056404	Design Report Stainless Steel Gate Cask Channel	0
58171-14-107	Whiting Corp Seismic Analysis Derived Values for 150 ton Crane	04/13/2015
5817-14-050	Seismic Analysis for STP 150 ton Crane	0
CC09978	FHB Crane Seismic Analysis Decoupling Evaluation	0
B05315-0005	Seismic Stability HI-STORM/HI-TRAC Stack-up at STP	8
B05315-0003	STP Low Profile Transporter Analysis	4
B05315-00062	Time History Generation for STP	5
B05315-00066	Dynamic Analysis of HI-TRAC in Cask Wash-down area	3
B05315-00068	Dynamic Analysis of HI-TRAC in Cask Loading Pool	2
B05315-00069	Structural evaluation of Cask Loading and wash-down areas	1
B05315-00071	Structural evaluation of Cask Loading Pool Pedestal	3
B05315-00073	Structural analysis of FHB Truck Bay Slab	1
B05315-00076	Safety Analysis of VCT Stability and Structural Evaluation	0

Miscellaneous Documents Number	Title	Revision or Date
N/A	CK0001 – Fuel Selection for Dry Cask Storage	08/30/2018
N/A	CK0002 – Fuel Selection for Dry Cask Storage	08/30/2018
N/A	CK0003 – Fuel Selection for Dry Cask Storage	08/30/2018
N/A	CK0004 – Fuel Selection for Dry Cask Storage	08/30/2018
N/A	CK0005 – Fuel Selection for Dry Cask Storage	08/30/2018
RRTI 2319-11R0	Response to Request for Technical Information	02/12/2019
50.59 Screen 13-6991-1 Supp 5 & 13-6991-2 Supp 6	Fuel Handling Building Cask Loading Pool (CLP) and Cask Connecting Channel (CCC) Gate and Liner Modification	02/27/2018
DCP 13-6991-1 Supp. 0	Design Report Stainless Steel Gate Cask Connecting Channel	10/08/2015
WO No. 96009469	HI Storm Overpack #6	01/15/2019

**The following items are requested for the  
Occupational Radiation Safety Inspection  
at South Texas Project**

**Dates of Inspection: 03/18/2019 to 03/22/2019**

**Integrated Report 2019001**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **Monday, March 04, 2019**.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.02 should be in a file/folder titled "2-A," applicable organization charts in file/folder "2-B," etc.

The information should be provided in electronic format or a secure document management service. If information is placed on a *secured document management system*, please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates, so the inspectors will have access to the information while writing the report. In addition to the corrective action document lists provided for each inspection procedure listed below, please provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

If more than one inspection procedure is to be conducted and the information requests appear to be redundant, there is no need to provide duplicate copies. Enter a note explaining in which file the information can be found.

If you have any questions or comments, please contact Bernadette Baca at 817-200-1235 or via e-mail at [Bernadette.Baca@nrc.gov](mailto:Bernadette.Baca@nrc.gov).

**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.

## 2. Occupational ALARA Planning and Controls (71124.02)

Date of Last Inspection: **March 26, 2018**

- A. List of contacts and telephone numbers for ALARA program personnel, as well as the Licensing/Regulatory Affairs staff. Please include area code and prefix. If work cell numbers are appropriate, then please include them as well.
- B. Applicable organization charts including position or job titles. Please include as appropriate for your site, Site Management, RP, Chemistry, Maintenance (I&C), Engineering, and Emergency Protection. (Recent pictures are appreciated.)
- C. Copies of audits, self-assessments, LARs, and LERs, written since the date of last inspection, focusing on ALARA
- D. Procedure index for ALARA Program procedures and other related disciplines.
- E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
  - 1. ALARA Program
  - 2. ALARA Planning
  - 3. ALARA Reviews
  - 4. ALARA Committee
  - 5. Radiation Work Permit Preparation
- F. Please provide a list of NRC Regulatory Guides and NUREGs that you are currently committed to relative to this program. Please include the revision and/or date for the commitment and where this may be located in your current licensing basis documents.
- G. Please provide a summary list of corrective action documents (including corporate and sub-tiered systems) written since the date of last inspection, related to the ALARA program, including exceeding RWP Dose Estimates.

NOTE: These lists should include a description of the condition that provides sufficient detail that the inspectors can ascertain the regulatory impact, the significance level assigned to the condition, the status of the action (e.g., open, working, closed, etc.) and the search criteria used. Please provide in document formats which are "sortable" and "searchable" so that inspectors can quickly and efficiently determine appropriate sampling and perform word searches, as needed. (Excel spreadsheets are the preferred format.) If codes are used, please provide a legend for each column where a code is used.
- H. List of work activities (RWPs) greater than 1 rem, since date of last inspection, including the original dose estimates and actual doses accrued. (Excel format preferred). Please provide all revisions/changes, as well as any related RWPs that support the work activity.



SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION, UNITS 1 AND 2, NRC  
 INTEGRATED INSPECTION REPORT 05000498/2019001; 05000499/2019001, AND  
 INDEPENDENT SPENT FUEL STORAGE INSPECTION 07201041/2019001 – May 8, 2019

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 MLearn, RIII  
 MKunowski, RIII  
 RPowell, RI  
 WAllen, DSFM

Electronic Distribution for South Texas Project

**ADAMS ACCESSION NUMBER: ML19128A334**

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

OFFICE	SRI:DRP/B	RI:DRP/B	C:DRS/OB	C:DRS/IPAT	C:DRS/EB1	C:DRS/EB2
NAME	ASanchez	JChoate	GWerner	RKellar	VGaddy	JDrake
SIGNATURE	AAS	JMC	GEW	RLK	VGG	JFD
DATE	05/08/19	05/03/2019	04/30/2019	04/30/2019	04/30/2019	04/29/2019
OFFICE	C:DNMS/CHP	C:DRS/RCB	BC:DRP/B			
NAME	GWarnick	NMakris	NTaylor			
SIGNATURE	GXW	NJM	NHT			
DATE	05/06/2019	4/29/19	5/8/19			

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