



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

May 14, 2018

EA-17-135

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 05000498/2018001 AND  
05000499/2018001

Dear Mr. Powell:

On March 31, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your South Texas Project Electric Generating Station, Units 1 and 2, facility. On May 7, 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 two findings of very low safety significance (Green) in this report. Both of these findings involved violations of NRC requirements. Further, inspectors documented licensee-identified violations which were determined to be of very low safety significance in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

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

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.

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, 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 05000498/2018001  
and 05000499/2018001  
w/Attachment  
1: Supplemental Information  
2: Request for Information

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

Docket Numbers: 05000498, 05000499

License Numbers NPF-76, NPF-80

Report Numbers: 05000498/2018001; 05000499/2018001

Enterprise Identifier: I-2018-001-0004

Licensee: STP Nuclear Operating Company

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

Location: Wadsworth, TX 77483

Inspection Dates: January 1, 2018 to March 31, 2018

Inspectors: A. Sanchez, Senior Resident Inspector  
N. Hernandez, Resident Inspector  
D. Proulx, Senior Project Engineer  
S. Graves, Senior Reactor Inspector  
L. Carson II, Senior Health Physicist  
P. Hernandez, Health Physicist

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

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting a quarterly integrated inspection at South Texas Project’s 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 section 71111.05.

### List of Findings and Violations

Failure to Perform a Maintenance Risk Assessment Prior to Conducting Maintenance			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green NCV 05000498/2018-01 Closed	[H.1] –Human Performance, Resources	71111.13 Maintenance Risk Assessments and Emergent Work Control
<p><u>Introduction:</u></p> <p>The inspectors identified a Green, non-cited violation of 10 CFR 50.65(a)(4) for the failure to perform a maintenance risk assessment prior to performing maintenance that could have resulted in a reactor shutdown. Specifically, maintenance performed to install bird netting on the Unit 1 deaerator structure above the balance of plant 13.8 kV transformers was not evaluated or identified as being a threat to stable power operations.</p>			

Failure to Promptly Identify and Correct a Condition Adverse to Quality Associated with Reactor Containment Fan Coolers			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 050004992018-02 Closed	[H.1] –Human Performance, Resources	71152 Problem Identification and Resolution
<p><u>Introduction:</u></p> <p>The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI for the failure to promptly identify and correct a condition adverse to quality. Specifically, the backdraft damper of the Unit 2, train B reactor containment fan cooler failed to close, as designed, due to a failed closing spring. The backdraft damper had undergone a preventative maintenance activity one month prior to the failure, but the closing spring degradation was not identified.</p>			

## PLANT STATUS

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

Unit 2 began the inspection period at rated thermal power. On March 12, 2018, the unit entered coast down operations for refueling outage 2RE19, which began on March 24, 2018. The unit remained in a refueling outage 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

### 71111.01 - Adverse Weather Protection

#### Seasonal Extreme Weather (1 Sample)

The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal warm weather and the increased likelihood of tornados on February 21, 2018.

#### Impending Severe Weather (1 Sample)

The inspectors evaluated readiness for impending adverse weather conditions for

- (1) Extreme cold weather and ice on January 16, 2018

### 71111.04 - Equipment Alignment

#### Partial Walkdown (6 Samples)

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

- (1) Unit 1, train B steam generator power operated relief valve while train C was out of service for planned maintenance on January 18, 2018
- (2) Unit 2, train C 125 Vdc battery while train B battery was out of service for planned maintenance on January 19, 2018

- (3) Unit 2, train B auxiliary feedwater while train C was out of service for planned maintenance on January 22, 2018
- (4) Unit 1, train B control room envelope Heating, Ventilation, and Air Conditioning while train C was out of service for planned maintenance on February 13, 2018
- (5) Unit 1, train A diesel generator while train C emergency diesel generator was out of service for planned maintenance on February 28, 2018
- (6) Unit 2, train C low head safety injection while train A was out of service for planned maintenance on March 6, 2018

#### 71111.05AQ - Fire Protection Annual/Quarterly

##### Quarterly Inspection (5 Samples)

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

- (1) Turbine generator building 4.16kV and electrical equipment rooms, Unit 1, Fire Area: 90, Fire Zone Z702 on January 2, 2018
- (2) Electrical auxiliary building relay cabinet area of control room, Unit 1, Fire Area: 01, Fire Zone Z032 on January 18, 2018
- (3) Electrical auxiliary building motor generator room, Unit 2, Fire Area: 04, Fire Zone: Z054 on January 22, 2018
- (4) Fuel handling building, emergency core cooling cubicle, train B, Unit 1, Fire Area: 35, Fire Zone: Z306 on January 29, 2018
- (5) Fuel handling building, emergency core cooling cubicle, train B, Unit 2, Fire Area: 35, Fire Zone: Z306 on February 23, 2018

#### 71111.06 - Flood Protection Measures

##### Internal Flooding (1 Sample)

The inspectors evaluated internal flooding mitigation protection:

- (1) Emergency core cooling pump rooms Unit 1 and Unit 2 on January 30, 2018

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

##### Operator Requalification (1 Sample)

The inspectors observed and evaluated simulator training exercises on February 22, 2018

##### Operator Performance (1 Sample)

The inspectors observed and evaluated:

- (1) Unit 1, Containment particulate radiation monitor, RT-8011, failed on February 7, 2018
- (2) Unit 2, Reactor shutdown to Mode 3 for refueling outage on March 24, 2018

#### 71111.12 - Maintenance Effectiveness

##### Routine Maintenance Effectiveness (2 Samples)

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

- (1) Unit 1 technical support center diesel generator following failure of the output breaker to close during a post maintenance test on March 29, 2018
- (2) Unit 1 train A instrument air compressor following high vibrations and a failed post maintenance test on March 30, 2018

#### 71111.13 - Maintenance Risk Assessments and Emergent Work Control (6 Samples)

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

- (1) Unit 2, elevated risk due to train A 125 Vdc battery testing that required entry into the configuration risk management program on January 10-11, 2018
- (2) Unit 1, elevated risk due to train D auxiliary feedwater pump room HVAC supply fan that failed during surveillance testing on January 23, 2018
- (3) Unit 2, elevated risk due to train D 125 Vdc battery testing that required entry into the configuration risk management program on January 31, 2018
- (4) Unit 1, elevated risk due to train C emergency diesel generator and control room envelope HVAC maintenance exceeding planned maintenance window, on February 14, 2018
- (5) Unit 2, elevated risk due to qualified display processing system APC-B1 analog-to-digital card replacement on February 14, 2018
- (6) Unit 1, elevated risk due to low head safety injection sump isolation valve failing to open from the control room on March 8, 2018

#### 71111.15 - Operability Determinations and Functionality Assessments (4 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Unit 2 balance of plant (BOP) diesel generator and the G5 480Vac bus functionality assessment following a blown fuse during the BOP diesel automatic alignment

- (2) Unit 1, train B emergency core cooling system operability assessment following failure of a control room hand switch for the containment sump to safety injection suction header isolation valve
- (3) Unit 1, secondary containment sump level transmitter historical operability assessment following failure to indicate sump level
- (4) Unit 1, train A auxiliary feedwater pump room floor drains due to debris

#### 71111.19 - Post Maintenance Testing (7 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) Unit 1, instrument air compressor 11 after replacement of the air end unit and pneumatic valve on January 22, 2018
- (2) Unit 2, loop 3 reactor coolant system flow channel power supply card replacement on January 26, 2018
- (3) Unit 1, train D turbine-driven auxiliary feedwater pump following planned preventative maintenance on January 26, 2018
- (4) Unit 2, BOP diesel generator following planned preventative maintenance on January 30, 2018
- (5) Unit 1, train C control room envelope makeup damper following corrective maintenance on February 15, 2018
- (6) Unit 1, train C 125 Vdc battery room heater following corrective maintenance on February 15, 2018
- (7) Unit 2, train C control room makeup fan following corrective maintenance February 23, 2018

#### 71111.20 - Refueling and Other Outage Activities (Partial Sample)

The inspectors evaluated refueling outage 2RE19 activities from March 24–31, 2018. The inspectors completed inspection procedure Sections 03.01.a, 03.01.b, and 03.01.c.

#### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

##### Routine (4 Samples)

- (1) 0PSP11-CS-0008, Unit 2, containment spray system, train C, contaminated system leakage test, on January 23, 2018
- (2) 0PSP05-MS-0505T, Unit 2, turbine impulse chamber pressure (P-13) transmitter calibration on January 29, 2018



(3) 0PSP02-NI-0041, Unit 2, NI-41 power range channel surveillance test on February 7, 2018

(4) 2PSP03-ZG-007B, Unit 2, train B remote shutdown system operability test on February 14, 2018

In-service (4 Samples)

(1) 0PSP03-FC-0003, Unit 2, train B spent fuel pool cooling pump, inservice test on January 24, 2018

(2) 0PSP03-SI-0003, Unit 1, train C low head safety injection pump inservice test on February 15, 2018

(3) 0PSP11-MS-0001, Unit 2, train D main steam safety valve inservice test on March 20, 2018

(4) 0PSP03-SI-0039, Unit 2, train B, emergency core cooling system comprehensive pump tests

71114.06 - Drill Evaluation

Emergency Planning Drill (1 Sample)

The inspectors evaluated the licensee's emergency response drill involving a loss of residual heat removal, small break loss-of-coolant accident, and general emergency on March 1, 2018.

**RADIATION SAFETY**

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (1 Sample)

The inspectors evaluated radiological hazards assessments and controls.

Instructions to Workers (1 Sample)

The inspectors evaluated worker instructions.

Contamination and Radioactive Material Control (1 Sample)

The inspectors evaluated contamination and radioactive material controls.

Radiological Hazards Control and Work Coverage (1 Sample)

The inspectors evaluated radiological hazards control and work coverage.

High Radiation Area and Very High Radiation Area Controls (1 Sample)

The inspectors evaluated risk-significant high radiation area and very high radiation area controls.

Radiation Worker Performance and Radiation Protection Technician Proficiency (1 Sample)

The inspectors evaluated radiation worker performance and radiation protection technician proficiency.

71124.02 - Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls

Implementation of ALARA and Radiological Work Controls (1 Sample)

The inspectors reviewed ALARA practices and radiological work controls by reviewing the following activities:

- (1) RWP 2017-2-0196      Transfer of filters from room 333 to room 218J to on-site storage container (OSSC)
- (2) RWP 2017-1-0159      Transfer of filters from room 333 to room 218J to OSSC
- (3) RWP 2018-0111      2RE19 reactor head vessel upper internal movement
- (4) RWP-2018-0118      2RE19 – Disconnect/re-connect seal table (LHRA)
- (5) RWP 2018-0119      2RE19 Retract/re-insert thimble tubes

Radiation Worker Performance (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance.

**OTHER ACTIVITIES – BASELINE**

71151 - Performance Indicator Verification

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

- (1) IE01: Unplanned Scrams per 7000 Critical Hours Sample (Units 1 and 2, January – December 2017)
- (2) IE03: Unplanned Power Changes per 7000 Critical Hours Sample ( Units 1 and 2, January–December 2017)
- (3) IE04: Unplanned Scrams with Complications Sample (Units 1 and 2, January–December 2017)
- (4) PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample (May 1–December 31, 2017)

- (5) OR01: Occupational Exposure Control Effectiveness Sample (May 1–December 31, 2017)

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (2 Samples)

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

- (1) Review of continued water intrusion into the diesel generator rooms, which periodically resulted in moisture accumulating on the control panels, specifically for Unit 2, train B emergency diesel generator
- (2) Failed reactor containment fan cooler, 21B, backdraft damper due to a failed closing spring

**INSPECTION RESULTS**

Licensee Identified Non-Cited Violation, EA-17-135	71111.05AQ - Fire Protection Annual/Quarterly
<p>This violation of very low safety significance was identified by the licensee and has been entered into the licensee’s 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: Title 10 CFR 50.48, “Fire Protection,” requires, in part, that licensees have a fire protection plan that outlines the plans for fire protection, fire detection, suppression capability, and limitation of damage.</p> <p>STP Nuclear Operating Company, Unit 2 Renewed Facility Operating License Condition 2.E. “Fire Protection” states, in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report through Amendment 62. Updated Final Safety Analysis Report Subsection 9.5.1.6.1 “Administrative Controls” states, in part, that the operability/functional capability of the fire protection systems required to protect safe shutdown capability is assured through the implementation of an administrative program. This program includes compensatory actions for systems out-of-service.</p> <p>Procedure OPGP03-ZF-0001, “Fire Protection Program,” Revision 31, Step 4.7.2.14, requires, in part, hourly fire watch personnel must pass through the areas covered by the fire watch and then sign and enter the time on the fire watch log, using the bar code reader, at least once every clock hour.</p> <p>Contrary to the above, on May 25 and 26, 2016, the licensee’s fire watch personnel failed to pass through the areas covered by the fire watch and then sign and enter the time on the fire watch log, using the bar code reader, at least once every clock hour. Specifically, two fire watch individuals documented conducting Unit 2 Fire Watch 10118 for Room 105 starting on May 25, 2016, at 1928 and finishing on May 26, 2016, at 0504 when in fact the individuals did not enter Room 105.</p> <p>Significance/Severity Level: Although this violation is willful, it was brought to the NRC’s attention by the licensee, it involved isolated acts of low-level individuals, and it was addressed by appropriate remedial action. Therefore, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy.</p> <p>Corrective Action References: Condition Reports 16-7305, 16-7089, 16-7344, and 16-9077</p>	

Licensee Identified Non-Cited Violation, EA-17-135	71111.05AQ - Fire Protection Annual/Quarterly
<p>This violation of very low safety significance was identified by the licensee and has been entered into the licensee’s corrective action program and is being treated as a non-cited</p>	

violation, consistent with Section 2.3.2 of the Enforcement Policy.

Violation: Title 10 CFR 50.9, "Completeness and accuracy of information," requires, in part, that information required by the Commission's regulations, orders, or license conditions to be maintained by the licensee shall be complete and accurate in all material respects.

STP Nuclear Operating Company, Unit 2 Renewed Facility Operating License Condition 2.E. "Fire Protection" states, in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report through Amendment 62. Updated Final Safety Analysis Report Subsection 9.5.1.6.1 "Administrative Controls" states, in part that the operability/functional capability of the fire protection systems required to protect safe shutdown capability is assured through the implementation of an administrative program. This program includes compensatory actions for systems out-of-service.

Procedure OPGP03-ZF-0001, "Fire Protection Program," Revision 31, Step 7.3 requires, in part, that completed fire watch logs Form 4 or their equivalent shall be retained for 3 years.

Contrary to the above, the licensee failed to maintained information required by the Commission's regulations, orders, or license conditions that was complete and accurate in all material respects as evidenced by the following two examples:

1. On May 25, 2016, the written fire watch log, documented on Form 4, for Unit 2 Fire Watch 10118, for Room 105, for the hours of 1928 and 2015, indicated that the hourly fire watches were conducted by passing through the areas covered by the fire watch. However, the fire watch never entered Room 105 for these 2 hours. The hourly fire watch patrol data is material to the NRC in that it provides sufficient evidence of compliance with regulatory requirements.
2. On May 25-26, 2016, the electronic fire watch scanned logs for Unit 2 Fire Watch 10118, for Room 105 between the hours of 2105 on May 25, 2016, to 0504 on May 26, 2016, show that the 9 hourly fire watches were conducted by passing through the areas covered by the fire watch. However, a temporary scan point was placed at the base of the ladder in Room 002 to scan for Room 105. The hourly fire watch individuals never entered Room 105. The hourly fire watch patrol data is material to the NRC in that it provides sufficient evidence of compliance with regulatory requirements.

Significance/Severity Level: Although this violation is willful, it was brought to the NRC's attention by the licensee, it involved isolated acts of low-level individuals, and it was addressed by appropriate remedial action. Therefore, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy.

Corrective Action Reference: Condition Report 18-0948

Failure to Perform a Maintenance Risk Assessment Prior to Conducting Maintenance			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green NCV 05000498/2018-01 Closed	[H.1] –Human Performance, Resources	71111.13 Maintenance Risk Assessments and Emergent Work Control

Introduction:

The inspectors identified Green, non-cited violation of 10 CFR 50.65(a)(4) for the failure to perform a maintenance risk assessment prior to performing maintenance that could have resulted in a reactor shutdown. Specifically, maintenance performed to install bird netting on the Unit 1 deaerator structure above the balance of plant 13.8 kV transformers was not evaluated or identified as being a threat to stable power operations.

Description:

On November 3, 2017, the inspectors observed work being performed on the deaerator structure on the roof of the Unit 1 turbine building. The workers were in the process of installing bird netting over the entire structure to help alleviate the bird feces problem on and under that structure. The inspectors observed the use of a man basket machine lift (JLG) to accomplish this work. At the time, the JLG was in operation over two 13.8kV to 4160V transformers 1D1 and 1D2, known as the balance of plant transformers. The transformers provide electrical power to buses that provide power to various loads including open loop cooling pumps. Unit 1 has three open loop cooling pumps. The open loop cooling pumps provide main cooling reservoir water to cool secondary plant loads, most importantly, turbine generator hydrogen coolers. The inspectors inquired as to the risk assessment for the activity over the transformers. After realizing that the control room operators were not aware of the work, the shift manager went out to the work site and stopped the activity and initiated Condition Report 17-22934. The corrective action for issue was to notify the control room prior to beginning work above the transformers until the project was complete.

On November 7, 2017, the inspectors again observed work activities to install bird netting over the Unit 1 balance of plant transformers. The inspectors asked the Unit 1 shift manager about a risk assessment for the maintenance activity. Again, the control room operators were not aware of the work activity. Contrary to the corrective action for the November 3 issue, the facilities work group mistakenly called the security department instead of the control room to communicate their work activities. The work activity was shut down by the Unit 1 shift manager, who then initiated Condition Report 17-23022. Operations subsequently put together a very specific plan, with diagrams, expectations, and specific contact information for the facilities department to follow work the bird netting installation until completion of the project. Facilities reviewed and accepted the plan and no other incidents were noted.

The inspectors reviewed the prompt investigation and the human performance checklist. The prompt investigation named several flawed or missing tools, such as situational awareness

and questioning attitude. The prompt human performance checklist concluded lack of communication between departments and the failure to recognize risk resulted in work being performed without a risk assessment or operations knowledge.

Corrective Action: The main corrective action included a question in the facilities work order process (when an individual fills out a work order request on line) to prompt consideration of plant impact and plant status control and to approval through the work start authority when identified.

Corrective Action References: Condition Reports 18-4707, 17-23022, 17-22934

#### Performance Assessment:

Performance Deficiency: The failure to assess and manage the increase in risk for planned maintenance that could have affected stable plant operations was a performance deficiency.

Screening: The performance deficiency was more than minor, and therefore a finding, because it can be viewed as a precursor to a more significant event. Specifically, not performing a risk assessment for maintenance activities to install bird netting on the deaerator structure, which involved the use of a man basket (JLG) over the balance of plant (BOP) transformers could have caused a loss of one or both BOP transformers and would have resulted in a plant shutdown without operations being aware of the vulnerability or being able to take risk mitigating actions. In this case the licensee would not have allowed the work without extra precautions on the work platform to protect from foreign material falling off the platform and into the transformers. Furthermore, operations would not have allowed the work activity on November 7, 2017, because open loop pump 11 was out of service for maintenance, which was a loss in redundancy, and would result in a reactor trip if one pump were to have failed.

Significance: The inspectors assessed the significance of the finding using Inspection Manual Chapter 0609 Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," to determine the significance. This process involved working with the Senior Reactor Analyst (SRA) and your probabilistic risk assessment (PRA) group to perform a risk assessment to determine the incremental core damage probability (ICDP), or in this case, the risk deficit because a risk assessment was not initially performed. The analyst determined that the ICDP was roughly equivalent to a turbine trip ( $7 \times 10^{-7}$ ), which at full reactor power, would also result in a reactor trip. The analyst noted that this value was bounding because a turbine trip did not actually occur; the duration of the condition was not taken into account; and the zero-maintenance core damage frequency was not deducted from the risk deficit. The dominant core damage sequences for a plant transient involved anticipated transient without scram combined with either: 1) a failure to relieve reactor coolant system; 2) successful pressure control with failure of the main feedwater system and reactor coolant system boration; or a consequential failure of offsite power. Because the bounding ICDP was less than  $1 \times 10^{-6}$ , in accordance with Appendix K, Flowchart 1, "Assessment of Risk Deficit," the finding was determined to be of very low safety significance, Green.

Cross-cutting Aspect: The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with resources. Licensee personnel failed to ensure that procedures were available and adequate to support nuclear safety. Specifically, the maintenance work activity performed on November 3 and November 7, 2017 was not

recognized as affecting plant operations because the facilities work order process did not prompt planners to consider plant impact [H.1].

Enforcement:

Violation: Title 10 CFR 50.65(a)(4) states, in part, that the licensee shall assess and manage the increase in risk that may result from proposed maintenance activity.

Contrary to the above, on November 3 and 7, 2017, the licensee failed to assess and manage the increase in risk that resulted from a maintenance activity. Specifically, the licensee failed to assess and manage the risk of the maintenance activity to install bird netting on the deaerator structure, which involved the use of a man basket (JLG) over the balance of plant transformers. The loss of one or both BOP transformers would have resulted in a plant shutdown without operations being aware of the vulnerability or being able to take risk mitigating actions.

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

Failure to Promptly Identify and Correct a Condition Adverse to Quality Associated with Reactor Containment Fan Coolers

Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000499/2018-02 Closed	[H.1] –Human Performance, Resources	71152 Problem Identification and Resolution

Introduction:

The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI for the failure to promptly identify and correct a condition adverse to quality. Specifically, the backdraft damper of the Unit 2, train B reactor containment fan cooler failed to close, as designed, due to a failed closing spring. The backdraft damper had undergone a preventative maintenance activity one month prior to the failure, but the closing spring degradation was not identified.

Description:

The reactor containment fan coolers (RCFC) are safety related containment cooling systems that are designed to remove heat from the containment building in normal and design basis accidents. Each containment building contains three trains of coolers and each train is comprised of two cooling fans. Each fan has a backdraft damper on the exhaust side of the fan. This damper is designed to automatically close to prevent cooled air from flowing through the secured fan and reducing the cooling efficiency in containment. The backdraft



damper is designed with a coiled ribbon spring to provide the initial momentum to close under the weight of the damper blades themselves.

On August 2, 2017, a preventative maintenance activity (work authorization number 526002) to lube and inspect the backdraft damper for the RCFC Fan 21B was completed with no discrepancies noted. On August 30, 2018, Unit 2 control room operators identified a discrepancy in the inlet temperature for RCFC Fan 21C reading approximately 20 degrees lower than all other similar temperature indicators. The shift manager declared the temperature indicator inoperable and removed it from the calculation to determine average containment temperature, a technical specification surveillance (Technical Specification 4.6.1.5). On September 5, 2018 Unit 2 operators wrote a condition report concerning RCFC Fan 21B backdraft damper remaining open based on an engineering evaluation of the inlet temperature for the RCFC Fan 21C. The Unit 2 shift manager declared RCFC Fan 21B operable but degraded based on a 2014 condition report engineering evaluation (CREE).

On September 8, 2017, the inspectors accompanied the mechanics into containment as they re-performed the lube and inspect preventative maintenance. A troubleshooting work order was not developed. During the inspection of RCFC Fan 21B and backdraft damper, the cause for the failure to close was determined to be a failed ribbon spring. After the maintenance technicians completed their inspection, the inspectors felt the spring and confirmed that the spring had lost all tension and was not capable of applying the required closing force on the backdraft damper. The inspectors communicated the observations to the control room and following notification by the mechanics who performed the maintenance, operations declared the RCFC Fan 21B inoperable due to the failed spring. The inspectors reviewed the preventative maintenance instructions and interviewed the mechanics that had performed the maintenance on August 2, 2017 and asked if they had noticed the backdraft damper in the open position or if the spring was identified as degraded. The mechanics did not note any abnormalities. The inspectors focused on the instructions, and based on the inspector's field observations, questioned the adequacy of the instructions provided for the preventative maintenance. The preventative maintenance did not mention inspecting or testing the spring to look for degradation, did not specifically prescribe observing the shutdown of the fan to observe that the backdraft damper would close, and did not prescribe a post maintenance test to ensure that the maintenance did not affect the function of the backdraft damper to close.

Corrective Actions: The failed spring was discovered on September 8, 2017, and was replaced on September 13, 2017. The licensee modified the preventative maintenance instructions to include inspection of the closing spring, and performed a series of lesson learned discussions with the maintenance, engineering and operations departments.

Corrective Action References: Condition Reports 18-4708, 17-20917, 17-20798, 17-20764, 17-21176

Performance Assessment:

Performance Deficiency: The failure to promptly identify a condition adverse to quality associated with degraded backdraft closing springs was a performance deficiency. Specifically, the preventative maintenance activity performed on the RCFC 21B fan backdraft damper failed to identify a degraded closing spring on the damper that did not ensure that the damper would perform its safety function to close when the fan was secured to ensure that

the air coolers were cooling containment in a design basis accident.

Screening: The performance deficiency was determined to be more than minor because it is associated with the Mitigating System cornerstone attribute of equipment performance and adversely affect the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events, and therefore a finding.

Significance: The inspectors assessed the significance of the finding using Inspection Manual Chapter 0609, Appendix A, Exhibit 3 Barrier Integrity, the finding was determined to be very low safety significance, Green. Specifically, the finding was not a deficiency that represented an open pathway from containment and did not affect the function of the hydrogen recombiners.

Cross-cutting Aspect: The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with resources. Licensee personnel failed to ensure that procedures were available and adequate to support nuclear safety. Specifically, the instructions for the preventative maintenance work activity performed on August 2, 2017, lacked sufficient guidance to ensure the identification of the failed ribbon spring that caused the failure of the RCFC backdraft damper on September 8, 2017 [H.1].

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action" states, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviation, defective material and equipment, and nonconformances are promptly identified and corrected.

Contrary to the above, on August 2, 2017, while performing a preventative maintenance activity of the backdraft damper, the licensee failed to promptly identify and correct a condition adverse to quality associated with a degraded coiled ribbon spring used to ensure the closure of the reactor containment fan cooler 21B backdraft damper.

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

## **EXIT MEETINGS AND DEBRIEFS**

The inspectors confirmed that proprietary information was controlled to protect from public disclosure.

On January 24, 2018, a senior reactor inspector presented the final inspection results to Mr. G. Powell, Interim President and Chief Executive Officer/Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented.

On March 30, 2018, the health physicist inspectors presented the radiation safety inspection results to Mr. G. Powell, Interim President and Chief Executive Officer/Chief Nuclear Officer, and other members of the licensee staff.

On May 7, 2018, the inspectors presented the final inspection results to Mr. G. Powell, Interim President and Chief Executive Officer/Chief Nuclear Officer, and other members of the licensee staff.

## **DOCUMENTS REVIEWED**

### **Section 1R01: Adverse Weather Protection** **Condition Reports (CRs)**

18-725                      17-727                      17-729

#### **Procedures**

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0POP01-ZO-0004	Extreme Cold Weather Guidelines	37
0PSP03-EA-0002	ESF Power Availability	38

### **Section 1R04: Equipment Alignment**

#### **Procedures**

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0POP02-AF-0001	Auxiliary Feedwater	48
0POP02-SI-0002	Safety Injection System Initial Lineup	45

### **Section 1R05: Fire Protection**

#### **Procedures**

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0TGB90-FP-0702	Fire Preplan for Turbine Generator Building 4.16KV and Electrical Equipment Rooms	3
0EAB01-FP-0032	Fire Preplan Electrical Auxiliary Building Relay Cabinet Area of Control Room	4
0EAB04-FP-0054	Fire Preplan Electrical Auxiliary Building Motor Generator Room	3
0FHB35-FP-0306	Fire Preplan Fuel Handling Building Train B SI/CSS Cubicle	3
0FHB35-FP-0305	Fire Preplan Fuel Handling Building Train C SI/CS Cubicle	3
0FHB35-FP-0307	Fire Preplan Fuel Handling Building Train A SI/CS Cubicle	2
ZFG-0001	Fire Watch Program Guidelines	14
0PGP03-ZF-0001	Fire Protection Program	31

#### **Condition Reports**

16-7089                      16-7344                      16-7305                      16-9077                      18-0948

**Section 1R06: Flood Protection Measures**

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CC08044	Flood Load Analysis Fuel Handling Building	1
MC05365	Fuel Handling Building Flooding Calculation	11
NC09708	Facility Response Analysis Fuel Handling Building Flooding/Spray Effects	3

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

Condition Reports

18-1595	18-1005	18-1010
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**Section 1R12: Maintenance Effectiveness**

Condition Reports (CRs)

18-1804	17-21794	18-806	18-866	16-2663
17-21792	17-21789	14-6080	16-9833	17-22021
17-21798	17-20762	17-22942	17-23630	17-1512

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SEG-0009	Maintenance Rule Basis Document Guideline	4
WAN 574409	TSC Diesel Generator Jacket Water Leak	0
WAN 537846	TSC Diesel Generator Lube Generator Outboard Bearing	9
WAN 574402	TSC DG Troubleshoot Failed to Secure After Cooldown	0
WAN 493636	IA Compressor 11 Inspect Motor Bearings	0
WAN 580365	Replace Compressor Airend Unit	0

Miscellaneous

<u>Title</u>	<u>Date</u>
Performance Criteria, Goals, and Monitoring List	March 21, 2018
Kaeser Compressors Service Order 72032474	

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Condition Reports (CRs)

17-20311	18-2773
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Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PSP06-DJ-0007B	Train B – 125 Volt Class 1E Battery Modified Performance Surveillance Test	1
0PGP02-ZA-003	Comprehensive Risk Management Program	14
0PSP03-SI-0024	Safety Injection System Valve Operability Test	25
0POP11-DJ-0002	Online Class 1E 125V DC Battery and Inverter Removal from Service and Restoration	13
0PSP06-DJ-0007A	Train A – 125 Volt Class 1E Battery Modified Performance Surveillance Test	1

RasCal Calculation Sequence Number

3115                      3086                      3114                      3074                      3100

RICTCal Calculation Sequence Number

3105

Work Authorization Number (WAN)

572804                      519663

Work Activity Risk (WAR) Plan of Action

2457

Work Order No.

96011552

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CRM0590	Class 1E 120 VAC System	2

**Section 1R15: Operability Determinations and Functionality Assessments**

Condition Reports (CRs)

18-3094                      18-2395

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PSP03-SI-0024	Safety Injection System 1B(2B) Valve Operability Test	25

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PSP03-SP-008B	SSPS Train B Quarterly Slave Relay Test	28

Work Authorization Number (WAN)

96011552	583742	584964
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Miscellaneous

<u>Title</u>	<u>Date</u>
Operation and Installation Manual, Multipoint Level Sensors, Model 8-66MA	August 1984

**Section 1R19: Post-Maintenance Testing**

Condition Reports (CRs)

17-24786	17-21431	18-2295	18-1170	18-1005
18-0995	18-1905	18-1327	18-2036	

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PSP02-RC-0417	RCS Flow ACOT	11
0POP02-AF-0001	Auxiliary Feedwater	48
0PSP03-AF-0007	Auxiliary Feedwater Pump 14(24) Inservice Test	50
0POP02-DB-0003	Balance of Plant Diesel Generator	33
0POP07-DB-0003	BOP Diesel Generator Performance Test	20
0PSP03-HE-0001	Control Room Emergency Ventilation System	16

Work Authorization Number (WAN)

580365	559188	448682	583634	581430
579810	540499	581240	540033	536591
528272	583052	566033		

**Section 1R20: Refueling Outage**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PGP03-ZR-0051	Radiological Access Controls/Standards	40
0POP03-ZG-0006	Plant Shutdown From 100% to Hot Standby	68

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0POP03-ZG-0007	Plant Cooldown	83

Miscellaneous

<u>Title</u>	<u>Date</u>
2RE19 Shutdown Risk Assessment Report	March 8, 2018

**Section 1R22: Surveillance Testing**

Condition Reports (CRs)

17-21040

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PSP11-CS-0008	Containment Spray System Train 2C Containment System Leakage Test	23
0PSP11-MS-0001	Main Steam Safety Valve Inservice Test	23
0PSP03-FC-0003	Spent Fuel Pool Cooling Pump 1B(2B) Inservice Test	19
2PSP03-ZG-0007B	Train B Remote Shutdown System Operability Test	5
0PSP03-SI-003	Low Head Safety Injection Pump 1C(2C) Inservice Test	17
0PSP02-NI-0041	Power Range Neutron Flux Channel I ACPT (N-0041)	20

**Inspection Procedure 71124.01: Radiological Hazard Assessment and Exposure Controls**

Condition Reports (CRs)

17-13843	17-13942	17-14100	17-14172	17-14267
17-14945	17-15006	17-16057	17-17174	17-17816
17-17957	17-19506	17-21806	17-24212	17-24235
18-00483	18-01607			

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PGP03-ZR-0048	Personnel Dosimetry Program	20
0PGP03-ZR-0050	Radiation Protection Program	14
0PGP03-ZR-0051	Radiological Access Controls/Standards	40
0PGP03-ZR-0053	Radioactive Material Control Program	20



## Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PRP01-ZA-0010	Radiation Protection Task Schedule	16
0PRP03-ZR-0004	Inventory and Leak Testing of Radioactive Sources	9
0PRP03-ZR-0012	Processing, Tracking, and Loading of Spent Radioactive Filters	8
0PRP04-ZR-0004	Release of Materials From Radiologically Controlled Areas	28
0PRP04-ZR-0013	Radiological Survey Program	38
0PRP04-ZR-0015	Radiological Postings, Warning Devices and High Radiation Area Access Controls	35
0PRP04-ZR-0016	Radiological Air Sampling and Analysis	30
0PRP05-RA-0007	Grab Sample Collection on the (PIG) Continuous Atmospheric Monitors	16
0PRP05-ZR-0010	Health Physics Instrumentation Program	26
0PRP05-ZR-0030	Portable Air Monitoring Instruments (AMS-4)	22
0PRP07-ZR-0034	Radiological Risk Management	4
0PRP08-ZR-0001	Personnel Decontamination	20
0PRP08-ZR-0015	Tool and Equipment Decontamination	14

## Audits and Self-Assessment

<u>Number</u>	<u>Title</u>	<u>Date</u>
0PGP03-ZX-0003	Snapshot Self-Assessment Report - 71124.01/.02 Pre-Inspection	March 12, 2018

## Radiation Work

<u>Permits Number</u>	<u>Title</u>	<u>Revision</u>
2018-2-0100	2RE19 – Replace Reactor Coolant Pump 2B Seal Package (HRA)	0
2018-2-0108	2RE19 – Repair/Replace Lights in the Spent Fuel Pool, Reactor Cavity, and Transfer Canals	0
2018-2-0116	2RE19 – Maintenance and Support Work – Room 001 (LHRA)	0
2018-2-0118	2RE19 – Disconnect/Re-Connect Seal Table (LHRA)	0
2018-2-0119	2RE19 – Retract/Re-Insert Thimble Tubes (LHRA)	0
2018-2-0122	2RE19 – Install/Remove RCS Loop Drain Spool (HRA)	0

<u>Radiation Work Permits Number</u>	<u>Title</u>	<u>Revision</u>
2018-2-0139	2RE19 – Maintenance on C2PSFV4451B	0

<u>Radiation Surveys Number</u>	<u>Title</u>	<u>Date</u>
97172	+68' Detailed Walkway	March 24, 2018
97191	+52' Detailed Walkway	March 25, 2018
97192	+37' Detailed Walkway	March 25, 2018
97196	+19' Detailed Walkway	March 25, 2018
97193	-002' Detailed Walkway	March 25, 2018
97197	-011' Detailed Walkway	March 25, 2018
97246	Inside Secondary Shield Wall	March 26, 2018
97246	Above Room 003	March 26, 2018
89698	+19' Detailed Walkway	October 28, 2016
97356	Inside Secondary Shield Wall	March 28, 2018
97259	RCP Platforms	March 26, 2018
97400	Inside Secondary Shield Wall	March 29, 2018
97384	+68' Detailed Walkway	March 29, 2018
97368	Equipment Hatch	March 28, 2018
97339	+68' RCB North of Cavity	March 28, 2018
97185	S/G Platform	March 25, 2018
97185	S/G Sludge Lance at Elev+38'	March 25, 2018
21381	2-RCB-68	March 26, 2018

<u>Miscellaneous Documents</u>	<u>Title</u>	<u>Date</u>
	Sealed Source Leak Test	January 29, 2018
	Sealed Source Leak Test	July 13, 2017

<u>Miscellaneous Documents Title</u>	<u>Date</u>
Spent Fuel Pool Inventory – Non-Fuel Items	July 3, 2107
NSTS Annual Inventory Reconciliation Report	January 6, 2011
Radioactive Source Surveillance	July 19, 2017
Radioactive Source Surveillance	March 8, 2018

**Inspection Procedure 71124.02 Occupational ALARA Planning and Controls**  
Condition Reports (CRs)

17-22623	17-23768	17-24348	17-24405
18-1634	17-1136	17-14629	

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPGP03-ZR-0050	Radiation Protection Program	06
OPGP03-ZR-0052	ALARA Program	17
OPRP07-ZR-0004	Shielding	20
OPRP07-ZR-0007	Radiation Shield Verification and Trending Surveys	06
OPGP03-ZR-0048	Personnel Dosimetry Program	18
OPRP07-ZR-0033	Radiological Briefings	07
OPRP07-ZR-0034	Radiological Risk Management	04
OPRP07-ZR-0010	Radiation Work Permits Radiological Work ALARA Reviews	37
OPRP03-ZR-0014	Onsite Staging Facility Operations	10
OPRP07-ZR-0013	Filter Replacement (Filters Stored in Room 218J)	07
OPRP07-ZR-0014	Filter Replacement (Alternate Locations)	09
OPRP07-ZR-0026	Transfer of Filters from Cubicles in MAB Room 333 To MAB 218J to Radwaste Truck Bay	03

Audits and Self-Assessment

<u>Number</u>	<u>Title</u>	<u>Date</u>
OPGP03-ZX-0003	Snapshot Self-Assessment Report - 71124.01 and 71124.02	March 12, 2018

WANs, ALARA Planning, and TEDE ALARA Evaluations 2RE19

<u>Number</u>	<u>Title</u>
18-276-7	Reactor Head Disassembly/Reassembly
18-276-5	Withdraw/insert BMI Thimbles Room 003
18-276-9	Replace NI Power Range Detectors
18-276-8	Steam Generator Inspections

Radiation Work Permits/ALARA Reviews

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RWP 2017-2-0196	Transfer of Filters from Rm 333 to Rm 218J to OSSC	0
RWP 2017-1-0159	Transfer of Filters from Rm 333 to Rm 218J to OSSC	0
RWP 2018-0111	2RE19 Reactor Head Vessel Upper Internal Movement	0
RWP 2018-0118	2RE19 - Disconnect/Re-Connect Seal Table (LHRA)	0
RWP 2018-0119	2RE19 Retract/Re-Insert Thimble Tubes	0
RWP 2017-2-0196	Transfer of Filters from Rm 333 to Rm 218J to OSSC	0
RWP 2017-1-0159	Transfer of Filters from Rm 333 to Rm 218J to OSSC	0

Miscellaneous Documents Title

<u>Miscellaneous Documents Title</u>	<u>Date</u>
2017 Long-Term Dose Report	September 25, 2017
2018 U-2 Shielding	March 2018
2018 Crud Burst Data	March 2018

**Inspection Procedure 71151: Performance Indicator Verification**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
PI-0002	NRC & INPO Performance Indicator: Initiating Events Cornerstone (by Unit) and Barrier Integrity Cornerstone (by Unit) Guidelines	6

**Section 4OA1: Performance Indicator Verification**Condition Reports (CRs)

13-3103	15-23019	17-539	17-15685
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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	17-22934	17-21176	17-20463	17-20617
14-1102	17-21012	17-20764	17-20798	17-20955
17-20917	17-23022			

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPOP04-CD-0001	Loss of Condensate Flow	23

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
9-E-PDAA-01#1	Single Line Diagram 4.16KV Switchgear	10
5-V-14-9-V-0084	HVAC Reactor Containment Building	9
5V149V00016#2	HVAC Reactor Containment Building Fan Coolers	10
13304-1	Constant Spring Assembly	B
13304	Modified DAA-P-7900 Backdraft Damper	N

Work Authorization Number (WAN)

528270	528271	573745	573744	573741
573742	573743	573740	573746	573747

**Initial Request for Information  
Integrated Inspection Report 2018-001  
South Texas Project**

Inspection Report: 05000498/2018001; 05000499/2018001

Inspection Dates: January 1 – March 31, 2018

Inspection Procedure: Baseline Inspection Procedures

Lead Inspector: Alfred Sanchez, Senior Resident Inspector

- **Information Due Date: January 11, 2018**
- **System of Interest: High Head, Low Head Safety Injection (SI), and Containment Spray (CS)**

*The following information should be provided in electronic format (Certrec IMS preferred), to the attention of Alfred Sanchez by **January 11, 2018**. 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 High Head/ Low Head Safety Injection (SI) and Containment Spray (CS) system licensee contacts with phone numbers.
2. Any pre-existing evaluation or list of SI/CS system components and associated calculations with low design margins.
3. A list of SI/CS system related operating experience evaluations for the last 3 years.
4. A list of all SI/CS system time-critical operator actions in procedures.
5. Copies of the initial operator licensed operators training materials.
6. List of drawings for the system (P&ID)-number and title
7. SI/CS maintenance work windows schedules (all trains) and summary of the work to be performed in those windows.
8. List and schedule of surveillance tests scheduled for the quarter
9. Complete copies of normal operating, abnormal operating, emergency operating, surveillance, and alarm response procedures associated with the SI/CS system

10. A list of permanent and temporary modifications related to the SI/CS system sorted by component for the last 3 years
11. A list of current SI/CS system related “operator work arounds/burdens.”
12. A list of the SI/CS system design calculations, which provide the design margin information for components.
13. Flooding calculations for the SI/CS area (Fuel Handling Building)
14. List of SI/CS system root cause evaluations associated with component failures or design issues initiated/completed in the last 5 years.
15. A list of any SI/CS system common-cause failures of components in the last 3 years.
16. A list of condition reports (with descriptions) for the last 2 years
17. An electronic copy of the SI/CS 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 SI/CS system.
19. A copy of SI/CS system related audits completed in the last 3 years.
20. A list of SI/CS system motor operated valves (MOVs) in the program, design margin, and risk ranking.
21. A list of SI/CS system air operated valves (AOVs) in the valve program, design margin, and risk ranking.
22. SI/CS system structure, system, and components’ maintenance rule category, scoping, functional failure evaluations, (a)(1) determinations, (a)(1) goals, and any supporting basis documentation.
23. SI/CS system unavailability and unreliability raw data, and CDE sheets for the last 18 months
24. A list of high risk SI/CS system maintenance rule systems/components and functions, based on engineering or expert panel judgement.
25. Copies of surveillance packages (last four performances) for all three trains of SI/CS systems on both Units.
26. An Excel spreadsheet of SI/CS 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.

27. In so far as there are recent or pending changes, please provide an Excel spreadsheet of SI/CS 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.



**The following items are requested for the  
Occupational Radiation Safety Inspection  
South Texas Project  
March 26 – March 30, 2018  
Integrated Report 2018001**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **March 16, 2018**.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.01 should be in a file/folder titled "1- A," applicable organization charts in file/folder "1- B," etc.

If information is placed on *ims.certrec.com*, 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 Louis C. Carson II at (817) 200-1221, [Louis.Carson@nrc.gov](mailto:Louis.Carson@nrc.gov) or Shawn Money at (817) 200-1466, [Shawn.Money@nrc.gov](mailto:Shawn.Money@nrc.gov).

**1. Radiological Hazard Assessment and Exposure Controls (71124.01) and Performance Indicator Verification (71151)**

Date of Last Inspection: **March 31, 2017**

- A. List of contacts and telephone numbers for the Radiation Protection Organization Staff and Technicians
- B. Applicable organization charts
- C. Audits, self-assessments, and LERs written since date of last inspection, related to this inspection area
- D. Procedure indexes for the radiation protection procedures
- 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. Radiation Protection Program Description
  - 2. Radiation Protection Conduct of Operations
  - 3. Personnel Dosimetry Program

4. Posting of Radiological Areas
5. High Radiation Area Controls
6. RCA Access Controls and Radiation Worker Instructions
7. Conduct of Radiological Surveys
8. Radioactive Source Inventory and Control
9. Declared Pregnant Worker Program

- F. List of corrective action documents (including corporate and sub-tiered systems) since date of last inspection
- a. Initiated by the radiation protection organization
  - b. Assigned to the radiation protection organization

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are "searchable" so that the inspector can perform word searches.

If not covered above, a summary of corrective action documents since date of last inspection involving unmonitored releases, unplanned releases, or releases in which any dose limit or administrative dose limit was exceeded (for Public Radiation Safety Performance Indicator verification in accordance with IP 71151)

- G. List of radiologically significant work activities scheduled to be conducted during the inspection period (If the inspection is scheduled during an outage, please also include a list of work activities greater than 1 rem, scheduled during the outage with the dose estimate for the work activity.)
- H. List of active radiation work permits

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION - NRC INTEGRATED  
INSPECTION REPORT 05000498/2018001 AND 05000499/2018001 – MAY 14, 2018

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 AMoreno, RIV/CAO  
 BMaier, RSLO  
 EUribe, IPAT  
 MHerrera, DRMA  
 R4Enforcement

**ADAMS ACCESSION NUMBER: ML18131A014**

SUNSI Review      ADAMS:       Non-Publicly Available       Non-Sensitive      Keyword:  
 By: NHT/rdr       Yes    No       Publicly Available       Sensitive      NRC-002

OFFICE	SRI:DRP/B	RI:DRP/B	C:DRS/EB2	C:DRS/PSB2	C:DRS/OB	C:DRS/EB1
NAME	ASanchez	NHernandez	JDrake	HGepford	VGaddy	TFarnholtz
SIGNATURE	/RA/	/RA/	/RA/	/RA/	/RA/	/RA/
DATE	5/8/18	5/9/18	5/8/18	5/4/18	5/7/18	5/4/18
OFFICE	C:DRS/IPAT	SPE:DRP/B	TL:ACES	BC:DRP/B		
NAME	GGeorge	DProulx	MVasquez	NTaylor		
SIGNATURE	/RA/	/RA/	/RA-JKramer for/	/RA/		
DATE	5/4/2018	5/8/18	5/4/18	5/14/18		

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