



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

February 13, 2017

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

SUBJECT: SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION – NRC
INTEGRATED INSPECTION REPORT 05000498/2016004 AND
05000499/2016004

Dear Mr. Powell:

On December 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your South Texas Project Electric Generating Station, Units 1 and 2, facility. On January 5, 2017, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any findings or violations of more than minor significance.

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

Sincerely,

/RA/

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

Docket Nos.: 05000498, 05000499

License Nos.: NPF-76, NPF-80

G. T. Powell

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Enclosure:

Inspection Report 05000498/2016004
and 05000499/2016004

w/ Attachment 1: Supplemental Information

w/ Attachment 2: Information Request for
Inservice Inspection Activities

w/ Attachment 3: Information Request for
Occupational Radiation Safety Inspection

w/ Attachment 4: Information Request for
Public Radiation Safety Inspection

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION – NRC INSPECTION
REPORT 05000498/2016004 AND 05000499/2016004 DATED FEBRUARY 13, 2017

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000498, 05000499

License: NPF-76, NPF-80

Report: 05000498/2016004, 05000499/2016004

Licensee: STP Nuclear Operating Company

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

Location: FM 521 - 8 miles west of Wadsworth
Wadsworth, Texas 77483

Dates: October 1 through December 31, 2016

Inspectors: C. Smith, Acting Senior Resident Inspector
A. Sanchez, Senior Resident Inspector
N. Hernandez, Resident Inspector
R. Azua, Senior Reactor Inspector
L. Carson, II, Senior Health Physicist
K. Clayton, Senior Operations Engineer
S. Graves, Senior Reactor Inspector
N. Greene, PhD, Health Physicist
J. Melfi, Project Engineer
M. Phalen, Senior Health Physicist
D. Proulx, Senior Project Engineer

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

SUMMARY

IR 05000498/2016004, 05000499/2016004; 10/01/2016 – 12/31/2016; South Texas Project Electric Generating Station, Units 1 and 2, Integrated Inspection Report.

The inspection activities described in this report were performed between October 1 and December 31, 2016, by the resident inspectors at the South Texas Project and inspectors from the NRC's Region IV office. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas." Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

No findings were identified.

PLANT STATUS

Unit 1 began the inspection period at full power and remained there for the remainder of the inspection period.

Unit 2 began the inspection period at full power. On October 1, 2016, the unit commenced coast down for a planned refueling outage. Refueling Outage 2RE18 began with a normal reactor shutdown on October 8, 2016. The unit remained in an outage until November 9, 2016, when the generator breaker was closed and the unit synchronized to the grid. Unit 2 returned to full power on November 14, 2016, and remained at full power for the remainder of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

On November 10, 2016, the inspectors completed an inspection of the station's readiness for seasonal extreme weather conditions. The inspectors reviewed the licensee's adverse weather procedures for cold weather and evaluated the licensee's implementation of these procedures. The inspectors verified that prior to the onset of cold weather, the licensee had corrected weather-related equipment deficiencies identified during the previous winter season.

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

- Essential cooling water intake structure for Unit 1 and Unit 2
- Boric acid storage tanks for Unit 1 and Unit 2

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

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

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

On November 17, 2016, the inspectors completed an inspection of the station's readiness for impending adverse weather conditions. The inspectors reviewed plant design features, the licensee's procedures to respond to tornadoes and high winds, and the licensee's planned implementation of these procedures. The inspectors evaluated operator staffing, and accessibility of controls and indications for those systems required to control the plant.

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

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walk-Down

a. Inspection Scope

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

- November 8, 2016, Unit 2, train A centrifugal charging pump while the positive displacement charging pump was out of service for planned maintenance
- November 30, 2016, Unit 2, train C high head safety injection system while train B high head safety injection system was out of service for planned maintenance

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

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

b. Findings

No findings were identified.

.2 Complete Walk-Down

a. Inspection Scope

On December 12, 2016, the inspectors performed a complete system walk-down inspection of the Unit 1 component cooling water (CCW) system. The inspectors reviewed the licensee's procedures and system design information to determine the

correct CCW system lineup for the existing plant configuration. The inspectors also reviewed outstanding work orders, open condition reports, and other open items tracked by the licensee's operations and engineering departments. The inspectors then visually verified that the system was correctly aligned for the existing plant configuration.

These activities constituted one complete system walk-down sample, as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Inspection

a. Inspection Scope

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

- October 18, 2016, Unit 2, reactor containment building, Fire Area 63, Fire Zone Z208
- October 21, 2016, Unit 2, turbine generator building, Fire Area 90, Fire Zone Z708
- November 8, 2016, Unit 1, mechanical auxiliary building, Fire Area 29, Fire Zone Z140
- November 8, 2016, Unit 1, mechanical auxiliary building, Fire Area 2, Fire Zone Z128
- November 22, 2016, Unit 1, electrical auxiliary building, Fire Area 2, Fire Zone Z005

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

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

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On November 3, 2016, the inspectors completed an inspection of the station's ability to mitigate flooding due to internal causes. After reviewing the licensee's flooding analysis, the inspectors chose one plant area containing risk-significant structures, systems, and components (SSCs) that were susceptible to flooding:

- Unit 1, main control room

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

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

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

On December 13, 2016, the inspectors completed an inspection of the readiness and availability of risk-significant heat exchangers. The inspectors: (1) observed performance tests for the Unit 2 train A, B, and C, component cooling water heat exchangers; (2) reviewed the data from a performance test for the component cooling water heat exchangers; and (3) verified the licensee used the industry standard periodic maintenance method outlined in EPRI NP-7552, "Heat Exchanger Performance Monitoring Guidelines," for the component cooling water heat exchangers. Additionally, the inspectors walked down the heat exchangers to observe its performance and material condition and verified that the heat exchangers were correctly categorized under the Maintenance Rule and were receiving the required maintenance.

These activities constituted completion of one heat sink performance annual review sample, as defined in Inspection Procedure 71111.07.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

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

.1 Non-destructive Examination Activities and Welding Activities

a. Inspection Scope

The inspectors directly observed the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Reactor Coolant System	3-RC-2003-BB1-1	Ultrasonic
Reactor Coolant System	4-RC-2126-BB1-3	Ultrasonic
Reactor Coolant System	6-RC-2009-NSS-7	Ultrasonic
Reactor Coolant System	D2RCTE0420Y and Thermowell	Penetrant
Reactor Coolant System	Reactor Coolant System Loop 2B Hot Leg Thermowell (E) Installation Detail	Penetrant
Reactor Coolant System	Reactor Coolant System Loop 2B Hot Leg Thermowell (E) Installation Detail	Visual 1
Auxiliary Feedwater System	GUIDE/AF-2073-HL5002	Visual 3
Auxiliary Feedwater System	RIGID RESTRAINT / AF-2073-HL5004	Visual 3
Auxiliary Feedwater System	4-AF-2073-GA2-C (WA1-WA2)	Visual 1 and Magnetic Particle
Feedwater System	FW2016 (FW-20)	Radiograph
Feedwater System	FW2016 (FW-21)	Radiograph

The inspectors reviewed records for the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Main Steam System	30-MS-2001-GA2 (Weld 27)	Ultrasonic

During the review and observation of each examination, the inspectors observed whether activities were performed in accordance with the ASME Code requirements

and applicable procedures. The inspectors also reviewed the qualifications of all nondestructive examination technicians performing the inspections to determine whether they were current.

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

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>WELD TYPE</u>
Reactor Coolant System	D2RCTE0420Y and Thermowell	Gas Tungsten Arc Welding

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

b. Findings

No findings were identified.

.2 Vessel Upper Head Penetration Inspection Activities

No vessel upper head penetration inspection activities were scheduled for the South Texas Project, Unit 2, Outage 2RE18.

.3 Boric Acid Corrosion Control Inspection Activities

a. Inspection Scope

The inspectors reviewed the licensee's implementation of its boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walk-down as specified in Procedure OPGP03-ZE-0133, "Boric Acid Corrosion Control Program," Revision 10. The inspectors reviewed whether the visual inspections emphasized locations where boric acid leaks could cause degradation of safety significant components, and whether engineering evaluation used corrosion rates applicable to the affected components and properly assessed the effects of corrosion induced wastage on structural or pressure boundary integrity. The inspectors observed whether corrective actions taken were consistent with the ASME Code and 10 CFR Part 50, Appendix B requirements.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities

No steam generator tube inspection activities were scheduled for the South Texas Project, Unit 2, Outage 2RE18.

.5 Identification and Resolution of Problems

a. Inspection scope

The inspectors reviewed 34 condition reports which dealt with inservice inspection activities and found the corrective actions were appropriate. From this review, the inspectors concluded that the licensee had an appropriate threshold for entering issues into the corrective action program and had procedures that directed a root cause evaluation when necessary. The inspectors also determined the licensee had an effective program for applying industry operating experience. Specific documents reviewed during this inspection are listed in the report attachment.

b. Findings

No findings were identified.

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

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On October 26, 2016, the inspectors observed just-in-time simulator training of an operations crew preparing for Unit 2 reactor start-up following 2RE18. The inspectors assessed the performance of the operators and the evaluators' critique of their performance. The inspectors also assessed the modeling and performance of the simulator during the training event.

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

b. Findings

No findings were identified.

.2 Review of Licensed Operator Performance

a. Inspection Scope

The inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened activity due to the following:

- October 8, 2016, Unit 2, plant shutdown for Refueling Outage 2RE18
- October 11, 2016, Unit 2, reduced inventory operations for planned maintenance
- October 17, 2016, Unit 2, core off-load activities for Refueling Outage 2RE18

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

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

b. Findings

No findings were identified.

.3 Annual Inspection (Units 1 and 2)

The licensed operator requalification program involves two training cycles that are conducted over a two year period. In the first cycle, the annual cycle, the operators are administered an operating test consisting of job performance measures and simulator scenarios. In the second part of the training cycle, the biennial cycle, operators are administered an operating test and a comprehensive written examination. For this annual inspection requirement, the licensee was in the first part of the training cycle.

a. Inspection Scope

The inspector reviewed the results of the operating tests for both units to satisfy the annual inspection requirements.

On November 17, 2016, the licensee informed the lead inspector of the following Unit 1 and 2 operating test results:

- A total of 87 operators took the tests (60 senior reactor operators, 27 reactor operators)
- Fifteen of fifteen crews passed the simulator portion of the operating test
- Eighty-seven of eighty-seven licensed operators passed the simulator portion of the operating test
- Eighty-six of eighty-seven licensed operators passed the job performance measure portion of the examination

There are currently four licensed reactor operators in the current initial training class and are administratively restricted from standing watch until receipt of a senior reactor operator license or successful completion of all requirements to go back on shift as a reactor operator. The individual that failed the job performance measure portion of the operating test was remediated, retested, and passed a retake operating test prior to returning to shift.

The inspector completed one inspection sample of the annual licensed operator requalification program.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed two instances of degraded performance or condition of safety-related SSCs:

- December 14, 2016, Unit 2, power range nuclear instrument 42 declared inoperable due to power supply failure
- December 20, 2016, Unit 2, train A spent fuel pool heat exchanger CCW return pressure relief valve socket weld failure

In addition, the inspectors performed a complete system review (a vertical slice inspection) of:

- December 13, 2016, Unit 1, train A, B, and C component cooling water system

The inspectors reviewed the extent of condition of possible common cause SSC failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the SSCs. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule. For the vertical slice inspection, the inspectors reviewed all of the above and corrective maintenance performed on the component cooling water system during the past year.

These activities constituted completion of three maintenance effectiveness samples, as defined in Inspection Procedure 71111.12.

.2 Quality Control

a. Inspection Scope

On December 19, 2016, the inspectors reviewed the licensee's quality control activities through a review of parts installed in the Unit 1, train A emergency diesel generator fire damper. These parts were purchased commercial-grade but were dedicated prior to installation in a quality-grade application. The inspectors reviewed the licensee's control of quality parts during maintenance associated with the fire damper replacement.

These activities constituted completion of one quality control sample, as defined in Inspection Procedure 71111.12.

b. Findings

No findings were identified.

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

a. Inspection Scope

On October 16, 2016, the inspectors reviewed the licensee's implementation of the Configuration Risk Management Program, the associated risk assessment, and risk management actions. Specifically, for a transformer replacement activity that affected the Unit 1, 4.16 kV emergency safeguards bus E1A, channel 3 and channel 4 undervoltage and degraded voltage relays the inspectors reviewed the licensee's actions prior to changes in plant configuration that elevated risk.

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

Additionally, the inspectors also observed portions of one emergent work activity that had the potential to cause an initiating event, to affect the functional capability of mitigating systems, or to impact barrier integrity. Specifically, on February 18, 2016, the inspectors observed Unit 2, steam generator feed pump 23 repairs following a failed overspeed test.

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

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

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed four operability determinations and functionality assessments that the licensee performed for degraded or nonconforming SSCs:

- October 19, 2016, operability determination for the Unit 2 equipment hatch in a configuration that was not fully bolted in Mode 4
- November 2, 2016, operability determination of Unit 2, train C essential chilled water electrical auxiliary building main supply air handling unit 11C bypass temperature control valve due to corrosion
- November 12, 2016, operator workaround for Unit 1 volume control tank hydrogen makeup regulator leakage.

- November 30, 2016, operability determination of the reactor coolant pressure boundary following identification of loose or missing bolts on the Unit 2 reactor vessel water level system heated junction thermocouple Grayloc connectors

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

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

These activities constituted completion of four operability and functionality review samples, which included one operator work-around sample, as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

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

- October 12, 2016, installation of test connections at Unit 2 emergency diesel generator train C control panel to facilitate surveillance testing
- December 22, 2016, Unit 1 and Unit 2, trains A, B, and C, installation of a flow orifice in the essential cooling water return line to reduce cavitation and erosion in the piping

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

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

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- October 6, 2016, Unit 2, train C emergency diesel generator circulating water pump discharge check valve replacement
- October 16, 2016, Unit 1, train A, 4.16kV degraded and undervoltage potential transformer replacement following an emergent failure
- November 23, 2016, Unit 2, train A spent fuel pool heat exchanger CCW return pressure relief valve following a weld repair to a through-wall leak
- December 12, 2016, Unit 1, train B, CCW pump common header suction isolation motor operated valve 132 inspection and lubrication
- December 13, 2016, Unit 1, train B steam generator power-operated relief valve 7421 following a drain line repair
- December 15, 2016, Unit 2, reactor coolant system loop 2B hot leg narrow range temperature element following replacement of loop B reactor coolant system thermowell and resistance temperature detector 420Y
- December 22, 2016, Unit 2, train B emergency diesel generator diesel electrical relay testing after blown fuse and dropped start signal

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

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

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

During the station's Refueling Outage 2RE18 that concluded on November 9, 2016, the inspectors evaluated the licensee's outage activities. The inspectors verified that the licensee considered risk in developing and implementing the outage plan, appropriately

managed personnel fatigue, and developed mitigation strategies for losses of key safety functions. This verification included the following:

- Review of the licensee's outage plan prior to the outage
- Review and verification of the licensee's fatigue management activities
- Monitoring of shut-down and cool-down activities
- Verification that the licensee maintained defense-in-depth during outage activities
- Observation and review of reduced-inventory and mid-loop activities
- Observation and review of fuel handling activities
- Monitoring of heat-up and start-up activities

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

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

In-service tests:

- November 16, 2016, Unit 1, component cooling water pump train B in-service test

Containment isolation valve surveillance tests:

- October 19, 2016, Unit 2, local leak rate test of the reactor containment building equipment hatch in a fully bolted configuration and in a four-bolt configuration
- November 23, 2016, Unit 2, feedwater isolation actuation and response time test

Other surveillance tests:

- October 4, 2016, Unit 2, technical support center diesel generator undervoltage test
- October 31, 2016, Unit 2, train A emergency diesel generator 21 loss-of-offsite power test
- November 9, 2016, Unit 2, main turbine overspeed test

The inspectors verified that these tests met technical specification requirements, that the licensee performed the tests in accordance with their procedures, and that the results of

the test satisfied appropriate acceptance criteria. The inspectors verified that the licensee restored the operability of the affected SSCs following testing.

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

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

The inspectors evaluated the licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities. The inspectors assessed the licensee's implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures. During the inspection, the inspectors interviewed licensee personnel, walked down various areas in the plant, performed independent radiation dose rate measurements, and observed postings and physical controls. The inspectors reviewed licensee performance in the following areas:

- Radiological hazard assessment, including a review of the plant's radiological source terms and associated radiological hazards. The inspectors also reviewed the licensee's radiological survey program to determine whether radiological hazards were properly identified for routine and non-routine activities and assessed for changes in plant operations.
- Instructions to workers including radiation work permit requirements and restrictions, actions for electronic dosimeter alarms, changing radiological condition, and radioactive material container labeling.
- Contamination and radioactive material control, including release of potentially contaminated material from the radiologically controlled area, radiological survey performance, radiation instrument sensitivities, material control and release criteria, and control and accountability of sealed radioactive sources.
- Radiological hazards control and work coverage. During walk-downs of the facility and job performance observations, the inspectors evaluated ambient radiological conditions, radiological postings, adequacy of radiological controls, radiation protection job coverage, and contamination controls. The inspectors also evaluated dosimetry selection and placement as well as the use of dosimetry in areas with significant dose rate gradients. The inspectors examined the licensee's controls for items stored in the spent fuel pool and evaluated airborne radioactivity controls and monitoring.
- High radiation area and very high radiation area controls. During plant walk-downs, the inspectors verified the adequacy of posting and physical

controls, including areas of the plant with the potential to become risk-significant high radiation areas.

- Radiation worker performance and radiation protection technician proficiency with respect to radiation protection work requirements. The inspectors determined if workers were aware of significant radiological conditions in their workplace, radiation work permit controls/limits in place, and electronic dosimeter dose and dose rate set points. The inspectors observed radiation protection technician job performance, including the performance of radiation surveys.
- Problem identification and resolution for radiological hazard assessment and exposure controls. The inspectors reviewed audits, self-assessments, and corrective action program documents to verify problems were being identified and properly addressed for resolution.

These activities constitute completion of the seven required samples of radiological hazard assessment and exposure control program, as defined in Inspection Procedure 71124.01.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

The inspectors assessed licensee performance with respect to maintaining individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspectors performed this portion of the attachment during the refueling outage in order to directly observe the licensee's ALARA process activities, including planning, implementation of radiological work controls, execution of work activities, and ALARA review of work-in-progress. During the inspection, the inspectors interviewed licensee personnel, reviewed licensee documents, and evaluated licensee performance in the following areas:

- Implementation of ALARA and radiological work controls. The inspectors observed pre-job briefings, reviewed planned radiological administrative, operational, and engineering controls, and compared the planned controls to field activities.
- Radiation worker and radiation protection technician performance during work activities performed in radiation areas, airborne radioactivity areas, or high radiation areas.
- Problem identification and resolution for ALARA and radiological work controls. The inspectors reviewed audits, self-assessments, and corrective action program documents to verify problems were being identified and properly addressed for resolution.

These activities constitute completion of two of the five required samples of occupational ALARA planning and controls program, as defined in Inspection Procedure 71124.02.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05)

a. Inspection Scope

The inspectors evaluated the accuracy and operability of the radiation monitoring equipment used by the licensee to monitor areas, materials, and workers to ensure a radiologically safe work environment. This evaluation included equipment used to monitor radiological conditions related to normal plant operations, anticipated operational occurrences, and conditions resulting from postulated accidents. The inspectors interviewed licensee personnel, walked down various portions of the plant, and reviewed licensee performance associated with radiation monitoring instrumentation, as described below:

- The inspectors performed walk-downs and observations of selected plant radiation monitoring equipment and instrumentation, including portable survey instruments, area radiation monitors, continuous air monitors, personnel contamination monitors, portal monitors, and small article monitors. The inspectors assessed material condition and operability, evaluated positioning of instruments relative to the radiation sources or areas they were intended to monitor, and verified performance of source checks and calibrations.
- The inspectors evaluated the calibration and testing program, including laboratory instrumentation, whole body counters, post-accident monitoring instrumentation, portal monitors, personnel contamination monitors, small article monitors, portable survey instruments, area radiation monitors, electronic dosimetry, air samplers, and continuous air monitors.
- The inspectors assessed problem identification and resolution for radiation monitoring instrumentation. The inspectors reviewed audits, self-assessments, and corrective action program documents to verify problems were being identified and properly addressed for resolution.

These activities constitute completion of the three required samples of radiation monitoring instrumentation, as defined in Inspection Procedure 71124.05.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

a. Inspection Scope

The inspectors evaluated whether the licensee maintained gaseous and liquid effluent processing systems and properly mitigated, monitored, and evaluated radiological discharges with respect to public exposure. The inspectors verified that abnormal radioactive gaseous or liquid discharges and conditions, when effluent radiation monitors are out of service, were controlled in accordance with the applicable regulatory requirements and licensee procedures. The inspectors verified that the licensee's quality control program ensured radioactive effluent sampling and analysis adequately quantified and evaluated discharges of radioactive materials. The inspectors verified the adequacy of public dose projections resulting from radioactive effluent discharges. The inspectors interviewed licensee personnel and reviewed licensee performance in the following areas:

- During walk-downs and observations of selected portions of the radioactive gaseous and liquid effluent equipment, the inspectors evaluated routine processing and discharge of effluents, including sample collection and analysis. The inspectors observed equipment configuration and flow paths of selected gaseous and liquid discharge system components, effluent monitoring systems, filtered ventilation system material condition, and significant changes to effluent release points.
- Calibration and testing program for process and effluent monitors, including National Institute of Standards and Technology (NIST) traceability of sources, primary and secondary calibration data, channel calibrations, set-point determination bases, and surveillance test results.
- Sampling and analysis controls used to ensure representative sampling and appropriate compensatory sampling. Reviews included results of the inter-laboratory comparison program and effluent releases made with inoperable radiation monitors.
- Instrumentation and equipment, including effluent flow measuring instruments, air cleaning systems, and post-accident effluent monitoring instruments.
- Dose calculations for effluent releases. The inspectors reviewed a selection of radioactive liquid and gaseous waste discharge permits and abnormal gaseous or liquid tank discharges, and verified the projected doses were accurate. The inspectors also reviewed 10 CFR Part 61 analyses and methods used to determine which isotopes were included in the source term. The inspectors reviewed land use census results, off-site dose calculation manual changes, and significant changes in reported dose values from previous years.
- Problem identification and resolution for radioactive gaseous and liquid effluent treatment. The inspectors reviewed audits, self-assessments, and corrective action program documents to verify problems were being identified and properly addressed for resolution.

These activities constitute completion of the six required samples of radioactive gaseous and liquid effluent treatment program, as defined in Inspection Procedure 71124.06.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08)

a. Inspection Scope

The inspectors evaluated the effectiveness of the licensee's programs for processing, handling, storage, and transportation of radioactive material. The inspectors interviewed licensee personnel and reviewed the following items:

- Radioactive material storage, including waste storage areas including container labeling/marketing and monitoring containers for deformation or signs of waste decomposition.
- Radioactive waste system, including walk-downs of the accessible portions of the radioactive waste processing systems and handling equipment. The inspectors also reviewed or observed changes made to the radioactive waste processing systems, methods for dewatering and waste stabilization, waste stream mixing methodology, and waste processing equipment that was not operational or abandoned in place.
- Waste characterization and classification, including radio-chemical sample analysis results for radioactive waste streams and use of scaling factors and calculations to account for difficult-to-measure radionuclides, and processes for waste classification including use of scaling factors and 10 CFR Part 61 analyses.
- Shipment preparation, including packaging, surveying, labeling, marking, placarding, vehicle checking, driver instructing, and preparation of the disposal manifests.
- Shipping records for LSA I, II, III, SCOI, II, Type A, or Type B radioactive material or radioactive waste shipments.
- Problem identification and resolution for radioactive solid waste processing and radioactive material handling, storage, and transportation. The inspectors reviewed audits, self-assessments, and corrective action program documents to verify problems were being identified and properly addressed for resolution.

These activities constitute completion of the six required samples of radioactive solid waste processing, and radioactive material handling, storage, and transportation program, as defined in Inspection Procedure 71124.08.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

40A1 Performance Indicator Verification (71151)

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

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of April 1, 2015, through September 30, 2016, to verify the accuracy and completeness of the reported data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

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

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of April 1, 2015, through September 30, 2016, to verify the accuracy and completeness of the reported data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

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

b. Findings

No findings were identified.

.3 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors verified that there were no unplanned exposures or losses of radiological control over locked high radiation areas and very high radiation areas during the period

of April 1, 2015, to September 30, 2016. The inspectors reviewed a sample of radiologically controlled area exit transactions showing exposures greater than 100 mrem. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the occupational exposure control effectiveness performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.4 Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed corrective action program records for liquid or gaseous effluent releases that occurred between April 1, 2015, and September 30, 2016, and were reported to the NRC to verify the performance indicator data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the radiological effluent technical specifications (RETS)/offsite dose calculation manual (ODCM) radiological effluent occurrences performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

40A2 Problem Identification and Resolution (71152)

.1 Routine Review

a. Inspection Scope

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

b. Findings

No findings were identified.

.2 Semiannual Trend Review

a. Inspection Scope

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

- Inspectors reviewed five electrical breaker failures that occurred from March 2016 to October 2016 for a potential trend
- Inspectors reviewed a licensee identified trend in equipment clearance order issues that occurred from July 2016 to December 2016

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

b. Observations and Assessments

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

- For the potential trend involving electrical breaker malfunctions that occurred from March 2016 to October 2016, the inspectors reviewed the licensee's investigations and causal analysis of each failure. The licensee experienced one instance of a Westinghouse type DS-206 breaker failure to open, two instances of a Siemens HKR breaker failure to close, one instance of a Westinghouse type DS-206 breaker failure to close, and one instance of a Cutler Hammer molded case circuit breaker failed in the tripped open condition. After reviewing these five instances of breaker failures, the licensee concluded that while different types and sizes of breakers had failed for various reasons in various states, no common cause or trend in a particular type of breaker or maintenance practice existed. The licensee did take action to improve maintenance procedures for overhauling Westinghouse type DS-206 breakers and to include additional site acceptance testing for Siemens HKR medium voltage breakers. The inspectors concluded that in response to these breaker failures, the licensee had completed an appropriate evaluation and had developed appropriate planned corrective actions.
- For a negative trend involving equipment clearance orders, the licensee identified five equipment clearance order performance issues that occurred between July 2016 and December 2016. The licensee is conducting a common cause investigation and conducting corrective actions under Condition Report 16-13975. The licensee has initiated action to re-establish the focus on equipment clearance order procedural compliance and strengthening worker engagement. At the end of the inspection period, these actions were ongoing. Specifically, the licensee performed a safety stand down, briefed crews on safety expectations, and are working on a common cause analysis. The inspectors

concluded that in response to this trend, the licensee had developed and planned appropriate corrective actions.

c. Findings

No findings were identified.

.3 Annual Follow-up of Selected Issues

a. Inspection Scope

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

- On November 14, 2016, inspectors completed an in-depth review of the failure of Unit 1, control rod D-6, to fully insert into the core during control rod drop testing activities on November 18, 2015.

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

The licensee entered the issue into the corrective action program as Condition Report 15-25420. The licensee submitted and received a one-time license amendment to operate Unit 1 without control rod D-6 on December 11, 2015. The associated safety evaluation report for this issue is available in ADAMS with Accession No. ML15343A128. The licensee removed the control rod, installed a flow restrictor, and modified the digital rod position indicator input and output. Since reaching full power, Unit 1 has not experienced any issues with the modification. The licensee submitted a license amendment request dated April 7, 2016, to make the change permanent as the licensee has decided to forgo the rapid refuel function, the function in which the control rod drive mechanism was damaged and led to the control failure to operate properly. The licensee received the license amendment on December 21, 2016 to operate Unit 1 with 56 full-length control rods, with no full-length control rod in core location D-6. The associated safety evaluation report for this issue is available in ADAMS with Accession No. ML16319A010.

- During an in-office inspection from November 28 through November 30, 2016, the inspector reviewed the three cyber security-related findings documented in Inspection Report 05000498/2014406 and 05000499/2014406, "INSPECTION OF IMPLEMENTATION OF INTERIM CYBER SECURITY MILESTONES 1-7," (ML15033A104) for in-depth follow-up review. The inspectors reviewed a sample of updated program documents and procedures, updated critical digital asset listings, causal evaluations, training documents, and corrective action documents.

The inspectors assessed the licensee's extent of condition reviews, causal evaluations, compensatory actions, and pending and completed corrective actions. The inspectors verified that the licensee appropriately prioritized the corrective actions and that these actions were appropriate.

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

b. Findings

No findings were identified.

40A6 Meetings, Including Exit

Exit Meeting Summary

On October 27, 2016, the inspectors presented the in-service inspection results to Mr. G. Powell, Executive Vice President and Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

On October 28, 2016, the inspectors presented the radiation safety inspection results to Mr. G. Powell, Executive Vice President and Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

On November 30, 2016, the inspector presented the annual follow-up of selected issues inspection results to Mr. W. Bankston, General Manager, Corporate Services, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector did not review any proprietary information.

On December 1, 2016, the inspectors presented the radiation safety inspection results to Mr. B. Jefferson, Operations Director and Acting Plant Manager, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

The lead inspector obtained the final annual examination results for licensed operator requalification and telephonically exited with Mr. G. Janak, Operations Training Manager, on December 12, 2016. The inspector did not review any proprietary information during this inspection.

On January 5, 2017, the inspectors presented the inspection results to Mr. G. Powell, Executive Vice President and Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Aguilar, Radiation Protection
R. Aguilera, Manager, Health Physics
J. Atkins, Manager, Systems Engineering
M. Berg, Manager, Design Engineering
J. Berrio, Manager, Operations, Production Support & Programs
C. Bowman, Manager, Nuclear Support
W. Brost, Engineer III
A. Capristo, Executive Vice President and Chief Administrative Officer
C. Clinton, Supervisor, Chemistry
J. Connolly, Site Vice President
I. Duncanson, Chemist, Chemistry
R. Dunn Jr., Manager, Nuclear Fuel and Analysis
G. Ferrigno, General Supervisor, Radiation Protection
T. Frawley, Manager, Plant Protection/Emergency Response
C. Gann, Manager, Employee Concerns Program
T. Gardner, Technician, Chemistry
R. Gibbs, Manager, Operations Division, Unit Operations
R. Gonzales, Senior Licensing Engineer
M. Hellman, Supervisor, Cyber Security Program
G. Hildebrandt, Manager, Operations
K. Hilscher, Manager, Training
G. Janak, Operations Training Manager
B. Jefferson, Director, Operations, and Acting Plant Manager
L. Kauffman, ALARA Supervisor, Radiation Protection
K. Kawabata, Technician, Health Physics
C. Kinman, Radiation Protection
M. Kistler, Inspection Lead
D. Koehl, President and CEO
B. Lane, Manager, Operations Division, Integrated Work Management & Outage
J. Lovejoy, Manager, I&C Maintenance
E. Matejcek, Manager, Mechanical Maintenance
J. McLeod, Analyst, Internet Technology Security
R. McNeil, Manager, Maintenance Engineering
B. Migl, Supervisor, Testing and Programs
J. Milliff, Manager, Security
P. Murphy, Operations
M. Murray, Manager, Regulatory Affairs
K. Nigmatullina, Effluent Primary Chemist, Chemistry
A. Otto, Radiation Protection
M. Page, General Manager, Engineering
C. Pence, Manager, Chemistry
L. Peter, General Manager, Projects
M. Pilgreen, Technical Supervisor, Radiation Protection
G. Powell, Executive Vice President and Chief Nuclear Officer
D. Rencurrel, Senior Vice President, Operations

Licensee Personnel

R. Richardson, Welding Engineer
P. Rodriguez, Radiation Protection
M. Ruvalcaba, Manager, Strategic Projects
R. Savage, Engineer, Licensing Consult Specialist
R. Scarborough, Manager, Quality Assurance
M. Schaefer, Plant General Manager
L. Spiess, Supervisor, Engineering Testing/Programs
R. Stastny, Maintenance Manager
L. Sterling, Supervisor, Licensing
L. Stoicescu, Health Physicist, Radiation Protection
C. Stone, RMC Supervisor, Health Physicist
J. Von Suskil, Owner Rep – NRG South Texas LP
J. Williams, Spec Engineering Consultant Testing/Programs (SE)
P. Williams, Spec Engineering Consultant Testing/Programs (SE)
D. Zink, Supervising Engineering Specialist

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Condition Reports (CRs)

15-17727 16-4787

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
WCG-0013	Winter Peak Period Readiness	0

Work Orders

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RO-1-91000555	Cold Weather Preparations	10
RO-2-91000556	Cold Weather Preparations	10

Section 1R04: Equipment Alignment

Condition Reports (CRs)

07-17718 14-02704 14-03724 14-04953 14-05559

14-05683	14-06251	14-07917	14-08917	14-10584
14-11071	14-17022	14-21867	14-21968	14-22640
14-22987	15-01103	15-23181	15-23393	15-24271
15-24274	15-24277	15-24278	15-24325	15-25462
15-26575	16-01483	16-05824	16-07179	16-07803
16-08007	16-10480	16-15574	16-15575	16-15576

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
5R209F05017	Component Cooling Water System	20
5R209F05018	Component Cooling Water System	18
5R209F05019	Component Cooling Water System	17
5R209F05020	Component Cooling Water System	18
5R209F05021	Component Cooling Water System	15
5R209Z42040	Component Cooling Water Pumps Logic Diagram	13

Miscellaneous

<u>Title</u>	<u>Revision</u>
Design Basis Document 5R209MB1018, Component Cooling Water System	3
Calculation NC-9703, MAB Flooding Analysis	
CCW System 3 rd quarter 2016 System Health Report	

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0POP02-CC-0001	Component Cooling Water	49
0POP02-SI-0002	Safety Injection System Initial Lineup	45
0PSP03-CV-0014	CVCS Equipment Verification	26

Section 1R05: Fire Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0MAB02-FP-0128	Fire Preplan Mechanical Auxiliary Building CCW Pump and Chiller, Train A	4

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0MAB29-FP-0140	Fire Preplan Mechanical Auxiliary Building CCW Pump and Chiller, Train B	3
0RCB63-FP-0208	Fire Preplan Reactor Containment Building NW Peripheral Area	3
0TGB90-FP-0702	Fire Preplan Turbine Generator Building 4.16kV and Electrical Equipment Rooms	3
0EAB02-FP-0005	Fire Preplan Electrical Auxiliary Building Control Room HVAC Equipment Room, Train A	4

Section 1R06: Flood Protection Measures

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
NC 9701	Flooding Analysis Electrical Auxiliary Building	5

Section 1R07: Heat Sink Performance

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
MC-6219	NRC Generic Letter 89-013	2
MC-6084	CCW HX Tube Plugging	1

Condition Reports (CRs)

08-7910 10-15780

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
ST-P2-HS-583	Response to IEN 86-096	June, 25, 1987
ST-P2-HS-605	Response to SOER 84-001, Revision 1	July 20, 1987
ST-HL-AE-3341	Response to NRC Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment	January 29, 1990

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PEP07-EW-0001	Performance Test for Essential Cooling Water Heat Exchangers	8
0PGP03-ZE-0080	Essential Cooling Water System Reliability Program	1

Work Authorization Number (WAN)

508549

Section 1R08: Inservice Inspection Activities

Condition Reports (CRs)

15-12024	15-12691	15-17763	15-17764	15-20733
15-21002	15-22714	15-26312	16-05990	16-07377
16-07766	16-08367	16-08728	16-10995	16-11576
16-13170	16-11677	16-11682	16-12236	16-12237
16-12239	16-12241	16-12242	16-12246	16-12428
16-12429	16-12430	16-12431	16-12432	16-12434
16-12448	16-12450	16-12451	16-12452	16-13342

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
Westinghouse 1218E54 (R/3)	Reactor Coolant System Loop 2	July 10, 1978
Westinghouse 2D33357	Reactor Coolant System Fast Response Thermowell Installation Detail – Hot Leg	1
Westinghouse 1847E84	Reactor Coolant System Fast Response RTD Thermowell Detail – Hot Leg	2

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PEP10-ZA-0001	Non-Destructive Examination Written Practice	10
0PEP10-ZA-0002	Inservice Inspection Ultrasonic Non-Destructive Examination Written Practice	6
0PEP10-ZA-0004	General Ultrasonic Examination	8

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PEP10-ZA-0009	Recording Data from Direct Visual, Liquid Penetrant, and Magnetic Particle Examinations	2
0PEP10-ZA-0010	Liquid Penetrant Examination (Color Contrast Solvent Removable)	6
0PEP10-ZA-0017	Magnetic Particle Examination (Dry Powder Yoke Method)	6
0PEP10-ZA-0023	Visual Examination of Component Supports for ASME Section XI Inservice Inspection	7
0PEP10-ZA-0024	ASME XI Examination for VT-1 and VT-3	4
0PEP10-ZA-0054	ASME Section XI VE Visual Examination	4
0PGP03-ZA-0014	Foreign Material Exclusion Program, Implementing Procedure	31
0PGP03-ZA-0014A	Foreign Material Exclusion Program, Administrative Procedure	0
0PGP03-ZE-0133	Boric Acid Corrosion Control Program	10
0PGP03-ZX-0002A	CAQ [Condition Adverse to Quality] Resolution Process	5
0PGP04-ZE-0304	Inservice Inspection Program for Welds and Component Supports	13
0PSP11-RC-0015	ASME Section XI Inservice Inspection	17

Work Orders

486958 508156 508303 513622 520246
523346

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

Miscellaneous

<u>Title</u>	<u>Date</u>
Operating Test Results	November 17, 2016

Section 1R12: Maintenance Effectiveness

Condition Reports (CRs)

16-8007	16-7803	16-7684	16-7179	16-5824
16-2121	16-1483	15-26575	15-25462	15-24278
15-24941	15-23747	15-23393	15-1103	14-21867
14-12769	15-13166	16-14555	16-14777	

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
DCP 15-518-332	Design Change Package: Alternative Ruskin Fire Damper	September 8, 2016
N-666	Cases of ASME Boiler and Pressure Vessel Code Case N-666	April 18, 2006

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SEG-0009	Maintenance Rule Basis Document Guideline	4
OPGP04-ZE-0313	Maintenance Rule Program	7
OPGP05-ZA-002	10 CFR 50.59 Evaluations	16

Work Authorization Number (WAN)

516182 552285

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Condition Reports (CRs)

16-12732 16-14257 16-14258 16-14259

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPGP03-ZA-0091	Configuration Risk Management Program	13
OPGP03-ZG-RMTS	Risk-Managed Technical Specifications Program	2
OPSP03-CC-0001	Component Cooling water Pump 1A(2A) Inservice Test	18

Work Activity Risk (WAR)

2673

Work Authorization Number (WAN)

508525

Section 1R15: Operability Determinations and Functionality Assessments

Condition Report Engineering Evaluation (CREE)

16-12260-24 16-13368 16-12244-9 16-14462 16-15688

Condition Reports (CRs)

16-12260 16-12244

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
WCAP-10857	Stress Report for RVLMS Head Adapter	1
5R179MB1017	Design Basis Document Chemical Volume and Control	3

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PEP10-ZA-0005	Ultrasonic Thickness Examination	5
0PGP03-ZE-0023	System Pressure Testing Program	22
0PGP03-ZO-9900	Operability Determinations and Functionality Assessments Program	7
0PGP04-ZA-0002	Condition Report Engineering Evaluation	24
0PMP04-ZG-0012	Equipment Hatch Removal and Installation	27
0POP01-ZA-0049	Condition Report Operations Evaluation Program	7
0POP01-ZO-0011	Operability, Functionality, and Reportability Guidance	10
SEG-0001	System Engineering Administrative Guideline	15

Work Authorization Number (WAN)

550153 488047

Section 1R18: Plant Modifications

Condition Reports (CRs)

05-11049 05-8601 13-11301 16-5320 16-3502
13-0079

Design Basis Document (DBD)

<u>Number</u>	<u>Title</u>	<u>Revision</u>
5R289MB1006	Essential Cooling Water System	7

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
5R289F05038#2	Essential Cooling Water System Train 2C	20
5R289F05039#1	Essential Cooling Water System	16
5R289F05039#2	Essential Cooling Water System	16
5R289F05038#2	Essential Cooling Water System Train 2B	18
5R289F05038#1	Essential Cooling Water System Train 1C	20
5R289F05039#1	Essential Cooling Water System	16
5R289F05039#2	Essential Cooling Water System	16

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
0PGP04-ZE-0309/R15	Design Change Package Install Test Connections at Emergency Standby Diesel Generator Control Panels to Facilitate Surveillance Testing	November 16, 2006
0PGP04-ZE-0309/R15	Design Change Package Install Test Connections at Emergency Standby Diesel Generator Control Panels to Facilitate Surveillance Testing	December 19, 2007
0PGP04-ZE-0309/R15	Design Change Package Install Test Connections at Emergency Standby Diesel Generator Control Panels to Facilitate Surveillance Testing	April 13, 2009
0PGP04-ZE-0309/R15	Design Change Package Install Test Connections at Emergency Standby Diesel Generator Control Panels to Facilitate Surveillance Testing	March 30, 2011
0PGP04-ZE-0309/R15	Design Change Package Install Test Connections at Emergency Standby Diesel Generator Control Panels to Facilitate Surveillance Testing	July 18, 2011

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
0PGP04-ZE-0309/R15	Design Change Package Install Test Connections at Emergency Standby Diesel Generator Control Panels to Facilitate Surveillance Testing	January 17, 2013
0PGP04-ZE-0309/R15	Design Change Package Install Test Connections at Emergency Standby Diesel Generator Control Panels to Facilitate Surveillance Testing	December 1, 2015
0POP02-DG-0003	Emergency Diesel Generator 13(23)	68
0POP02-EW-0001	Essential Cooling Water Operations	68
0PSP03-EW-0019	Essential Cooling Water System Train C Testing	49
0PGP03-ZE-0022	Inservice Testing Program for Pumps	23
0PGP04-ZE-0311	Post Modification Acceptance Tests	3
0PGP04-ZE-0309	Design Change Package	35
0PSP03-EW-0012	Essential Cooling Water Pump 1C(2C) Reference Values Measurement	23
0PMP07-DG-0001	Standby Diesel Recording M&TE Installation	1

Work Authorization Number (WAN)

549219	467920	475940	475863	475864
475941	474650	474716		

Section 1R19: Post-Maintenance Testing

Condition Reports (CRs)

16-12076	16-12732	16-14555	16-15651	16-15846
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Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
05S109F00016#1	Piping and Instrumentation Diagram Main Steam	33

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PMP04-ZG-0058	Mission Split Disc/Clow Dual Plate Check Valve Maintenance	17
0PMP05-ZE-0206	Potential Transformer Test	7

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
PMT Matrix 4.11	Electrical Miscellaneous	0
0PSP03-MS-0001	Main Steam System Valve Operability Test	47
0PSP11-ZE-0001	Check Valve Inspection	11
0POP02-DG-002	Emergency Diesel Generator 22	75

Work Authorization Number (WAN)

540664	550283	552285	517224	487060
554394				

Section 1R20: Refueling and Other Outage Activities

Condition Reports (CRs)

16-12244	16-12593	15-24053
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Miscellaneous

<u>Title</u>	<u>Date</u>
Shutdown Risk Assessment Report	August 31, 2016

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PGP03-ZA-0101	Shutdown Risk Assessment	30
0PGP03-ZA-0114	Fatigue Rule Management	9
0PMP04-RX-0018A	Non-Rapid Refueling Mechanical Support	15
0POP03-ZG-0007	Plant Cooldown	78
0POP03-ZG-0008	Power Operations	64
0POP03-ZG-0010	Refueling Operations	71
0POP08-FH-0001	Refueling Machine Operation Instruction	45
0POP08-FH-0009	Core Refueling	45
0PSP03-XC-0002A	Containment Entry and Partial Inspection (Containment Integrity Established)	56

Section 1R22: Surveillance Testing

Condition Report Engineering Evaluation (CREE)

16-12260-24

Condition Reports (CRs)

16-12026	16-12023	16-11925	16-12032	16-12035
16-12025	16-12260			

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PEP02-ZX-0010	Reload Initial Start Up Testing	28
0PEP07-TM-0007	Main Turbine Generator Startup Following Major Outage	18
0PGP03-ZA-0010	Performing and Verifying Station Activities	37
0PGP07-DB-0005	TSC Diesel Generator Performance Test	31
0PMP04-ZG-0012	Equipment Hatch Removal and Installation	27
0POP03-ZG-0001	Plant Heatup	69
0POP03-ZG-0005	Plant Startup to 100%	101
0PSP03-CC-0002	Component Cooling Water Pump 1B(2B) Inservice Test	16
0POP07-TM-0001	Main Turbine Overspeed Test	14
0PSP11-XC-0001	LLRT: M-92 Equipment Hatch	11
2TEP07-XC-0001	Leak Rate Test: M-92 Equipment Hatch	0
0PSP03-DG-0007	Standby Diesel 11(21) LOOP Test	39
0PSP03-SP-0023	Feedwater Isolation Actuation and Response Time Test	18

Work Authorization Number (WAN)

550153 486498

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

ALARA Work Packages

<u>Number</u>	<u>Title</u>
WAN 504894	Proportional Counter Detector – Source Range
16-4031-7	Non-Rapid Refuel 2RE18 Reactor Disassembly

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
16-02	Radiological Control Quality Audit Report	April 12, 2016
16-679	Self-Assessment - STP Radiation Worker Training Program	June 16, 2016
15-13617	Self-Assessment - Contamination Control	December 17, 2017
15-1253	Self-Assessment – IP 71124.01 Radiological Hazards & IP 71124.03 In-Plant Airborne Mitigation	April 1, 2015

Condition Reports (CRs)

15-23681	15-23921	15-24455	16-13284	16-03202
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Miscellaneous

<u>Title</u>	<u>Revision/Date</u>
2015 STP Annual ALARA Report	May 30, 2016
1RE19 Refueling Outage ALARA Report	June 1, 2016
2RE18 ALARA Update Report	October 26, 2016
STPNOC Daily Operational Focus Meeting Package	October 24 – 28, 2016
STPNOC ALARA Strategic Planning Guide 2016-2020	July 24, 2016
STPEGS UFSAR – Chapter 12, “Radiation Protection”	18
SFP Storage & Work Inventory 2016	October 2016
STP Radioactive Source Surveillance	July 2016
STP Tech Spec Source Inventory	July 28, 2016

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STI 34206291	Conduct of Operations Radiation Protection	92
OPGP03-ZR-0048	Personnel Dosimetry Program	17
OPGP03-ZR-0050	Radiation Protection Program	13
OPGP03-ZR-0051	Radiological Access Controls/Standards	33
OPRP03-ZR--0004	Inventory and Leak Testing of Radioactive Sources	9
OPRP04-ZR-0004	Release of Materials from Radiologically Controlled Areas	23
OPRP04-ZR-0011	Radiation Protection Key Control	31
OPRP04-ZR-0013	Radiological Survey Program	32

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PRP04-ZR-0015	Radiological Posting and Warning Devices	32
0PRP07-ZR-0033	Radiological Briefings	6
0PRP07-ZR-0016	Lockdown and Posting of Transfer of Spent Fuel Irradiated Material through Transfer Tube	7

Radiation Work Permits

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2016-2-0078	2RE18-Radiation Protection Maintenance and Support	0
2016-2-0079	2RE18 Radiation Protection Support (HRA)	1
2016-2-0080	2RE18 Radiation Protection Support (LHRA)	1
2016-2-0091	2RE18-Major Decon of Reactor Cavity 2	0
2016-2-0131	RE18-O-Ring Groove Cleaning	0
2016-2-0130	2RE18- Reactor Head Lift	0
2016-2-0109	2RE18-Maintenance and Support Work	0
2016-2-0120	2RE18-Radiography Activities Inside the RCA (HRA)	0
2016-2-0129	2RE18-Refuel Perform Fuel Movement in RCB	0

Section 2RS2: Occupational ALARA Planning and Controls

ALARA Work Packages

<u>Number</u>	<u>Title</u>
15-2020-9	2RE17 Non-Rapid Refuel
15-17755-3	1RE19 Room 001 Activities
15-17755-5	1RE19 Non-Rapid Refuel
15-17755-6	1RE19 Reactor Coolant Pump Maintenance
15-17755-7	1RE19 Room 003 Activities
15-17755-8	1RE19 Snubber Inspections
15-17755-9	1RE19 Steam Generator Inspections
15-17755-10	1RE19 D-6 Reactor Head Dis-Assembly and Re-Assembly
16-4031-7	2RE18 Non-Rapid Refuel

Audits, Self-Assessments, and Surveillances

<u>Number</u>	<u>Title</u>	<u>Date</u>
15-212	STPNOC Self-Assessment of the Respiratory Protection Program	October 12, 2015
16-002	STPNOC Radiological Controls Quality Audit Report	April 13, 2016
16-771	STPNOC Snapshot Self-Assessment of Access to Radiologically Significant Areas	August 23, 2016

Condition Reports (CRs)

15-15896	15-18425	15-18787	15-21218	15-21254
15-23436	15-23900	15-24082	15-24195	15-24369
15-24953	15-24990	16-04859	16-04968	16-07321
16-09821	16-10241	16-10562	16-10566	

Miscellaneous

<u>Title</u>	<u>Revision/Date</u>
1RE19 Refueling Outage ALARA Report	June 1, 2016
2RE18 ALARA Update Report	October 26, 2016
STPNOC Daily Operational Focus Meeting Package	October 24 – 28, 2016
STPNOC ALARA Strategic Planning Guide 2016-2020	July 24, 2016
STPEGS UFSAR – Chapter 12, “Radiation Protection”	18

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PGP03-ZR-0050	Radiation Protection Program	13
0PGP03-ZR-0051	Radiological Access Controls/ Standards	33
0PGP03-ZR-0052	ALARA Program	17
0PRP07-ZR-0001	ALARA Engineering and Procedure Review	3
0PRP07-ZR-0004	Shielding	20
0PRP07-ZR-0010	Radiation Work Permits / Radiological Work ALARA Reviews	37
0PRP07-ZR-0023	Radiography Activities	7
0PRP08-ZR-0020	Installation and Operation of Underwater Filtration Equipment	24

Radiation Work Permits

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2015-1-0176	1RE19 Radiation Protection Support (HRA)	0
2015-1-0238	1RE19 Retract/Re-Insert Thimble Tubes	0

Radiological Surveys

<u>Number</u>	<u>Title</u>	<u>Date</u>
83857	S/G 1D Platform at Elev. +027'	November 2, 2015
84204	Solid Waste Process Aisle	November 10, 2015
89337	Inside Secondary Shield Wall	October 20, 2016
89424	Inside Secondary Shield Wall	October 22, 2016

Temporary Shielding Requests

<u>Number</u>	<u>Title</u>	<u>Date</u>
2016-2-005	'A' 4" PZR Sprayline Vertical	October 16, 2016
2016-2-009	Room 002 Rolling Shield	October 12, 2016
2016-2-013	Room 307, Multiple RC Letdown Lines	October 14, 2016

Section 2RS5: Radiation Monitoring Instrumentation

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
14-02	Radiological Controls Quality Audit Report	March 31, 2014
16-02	Radiological Controls Quality Audit Report	April 13, 2016
23474	NUPIC Audit	November 21, 2013
MN-14-1-103131	QA Monitor Report: Radiological Instruments	April 2, 2014
MN-15-0-103859	QA Monitor Report: Radwaste & Radiological	February 19, 2015
MN-15-2-104056	QA Monitor Report: Radiological Instruments	April 13, 2015
	First Quarter Sample Results	March 2016

Condition Reports (CRs)

16-15042	16-08717	16-08610	16-08096	16-08717
16-7276	16-7450	15-21708	15-15486	

Effluent Instrument Calibration

<u>Number</u>	<u>Title</u>	<u>Date</u>
RT-8010B	Unit 2 Vent Particulate and Iodine Effluent Monitor	February 25, 2014
RT-8010B	Unit 2 Vent Wide Range Gas Monitor	January 28, 2014
RT-8010B	Unit 2 Vent Wide Range Gas Monitor	July 15, 2015
RT-8038	Unit 1 Liquid Waste Processing Discharge Monitor	May 16, 2016
RT-8038	Unit 2 Liquid Waste Processing Discharge Monitor	March 1, 2016
RT-8038	Unit 1 Liquid Waste Processing Discharge Monitor	November 5, 2014
RT-8040	Unit-2 Component Cooling Water Radiation Transmitter	November 9, 2016
RT-8040	Unit-1 Component Cooling Water Radiation Transmitter	June 15, 2016
RT-8041	Unit-1 Turbine Generator Building Drain Monitor	August 26, 2014
RT-8041	Unit-1 Turbine Generator Building Drain Monitor	October 10, 2013

Miscellaneous

<u>Title</u>	<u>Date</u>
National Source Tracking Transaction Report	January 27, 2009

Post-Accident Monitor Calibration

<u>Number</u>	<u>Title</u>	<u>Date</u>
RT 8050	Unit 2 Reactor Containment Building High Range Monitor	January 6, 2016
RT 8050	Unit 1 Reactor Containment Building High Range Monitor	January 21, 2016
RT 8050	Unit 1 Reactor Containment Building High Range Monitor	November 17, 2015

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PCP01-ZQ-0007	Quality Assurance for Radioanalysis Instrumentation	4
0PGP03-ZC-0001	Radiological Instrumentation Control Program	8
0PSP05-RA-8038	Liquid Waste Processing System No. 1 Monitor Calibration (RT-8038)	15
0PSP05-RA-8010A	MAB Unit Vent Wide Range Gas Monitor Calibration	16
0PSP05-RA-8010B	MAB Unit Vent Wide Range Gas Monitor Calibration	14
0PSP05-WL-4078	Plant Liquid Waste Discharge Flow Calibration	6
0PSP05-RA-8050	RCB High Range Area Monitor Calibration	14
0PTP04-ZC-0036	Calibration of the Eberline AMS-4 Air Monitoring System	6

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PTP04-ZC-0044	Calibration of Counting Instruments	9
0PTP04-ZC-0053	Calibration of Handheld Survey Meters/Ion Chambers	2
0PTP04-ZC-0054	Calibration of Area Monitors and Underwater Meters	0
0PTP04-ZC-0057	Maintenance Calibration of Eberline PCM-1C Personnel Contamination Monitors	0
0PTP04-ZC-0058	Maintenance Calibration of Eberline PM-7 Portal Monitors	0
0PTP04-ZC-0062	Maintenance Calibration of SAM Series Small Article Monitors	1
0PTP04-ZC-0064	Calibration of Canberra Argos-5AB Whole Body Monitor	2
0PTP04-ZC-0065	Calibration of Canberra GEM-5 Gamma Exit Monitor	0
0PRP10-ZL-0015	RL Preparation of Radioactive Standard Solutions and Calibration Sources	13
0PRP03-ZR-0004	Inventory and Leak Testing of Radioactive Sources	9
0PSP03-ZQ-0028	Operator Logs	142
0PGP03-ZV-0005	Equipment Important to Emergency Response	5
PMI-IC-RA-8040	Component Cooling Water System Monitor	4
PMI-IC-RA-8039	Failed Fuel Liquid Monitor	4

Radiation Protection Instrument Calibrations

<u>Number</u>	<u>Title</u>	<u>Date</u>
1306-145	Canberra Argos 5AB Whole Body Monitor	December 2, 2013
1306-146	Canberra GEM-5 Gamma Exit Monitor	July 15, 2016
97-015	Eberline RO-20 Ion Chamber	January 5, 2016
97-021	Eberline RO-20 Ion Chamber	January 5, 2016
31-018	Ludlum 3 Survey Meter	April 18, 2016
17-015	Ludlum 1000 Decade Scaler	March 16, 2016
SAM12128	Thermo Electronic Corporation Small Article Monitor	February 25, 2016
S5E5196	Tennelec Alpha-Beta Proportional Counter Calibrations	November 11, 2016
S5E16546	Tennelec Alpha-Beta Proportional Counter Calibrations	October 31, 2016

Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
14-02	STPNOC Radiological Controls Quality Audit Report	March 31, 2014
MN-15-0-104304	Quality Monitoring Report	May 6, 2015
14-47	STPNOC Assessment Report of Chemistry Effluent Report	July 13, 2015
16-02	STPNOC Radiological Controls Quality Audit Report	April 13, 2016
MN-16-0-105225	Quality Monitoring Report	May 4, 2016

Condition Reports (CRs)

14-04529	14-17935	14-22739	15-02576	15-05805
15-05991	15-07953	15-11681	15-13698	15-14826
15-14827	15-16645	15-19120	15-22392	16-04256
16-05312	16-10431			

Gaseous and Liquid Release Permits

<u>Number</u>	<u>Title</u>	<u>Date</u>
438	Unit 2 – Unit Vent and RCB (Gaseous)	June 1, 2014
469	Unit 1 – Unit Vent and RCB (Gaseous)	September 1, 2015
2175	Unit 1 – Waste Monitor Tank 1E (Liquid)	February 16, 2014
2287	Unit 2 – Waste Monitor Tank 2F (Liquid)	January 2, 2015
2289	Unit 2 – Waste Monitor Tank 2D (Liquid)	January 8, 2015
2497	Unit 1 – Waste Monitor Tank 1F (Liquid)	December 29, 2015

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
2014	Radioactive Effluent Release Report	April 2015
2015	Radioactive Effluent Release Report	April 2016
2014	Annual Radiological Environmental Operating Report	April 2015
2015	Annual Radiological Environmental Operating Report	April 2016
	Offsite Dose Calculation Manual	19
	STP 2 nd Quarter 2016 System Health Report	June 30, 2016

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	10 CFR 50.75(g) Entries – CAP Query Report	November 9, 2016

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PCP07-ZS-0010	Waste Monitor Tank Sampling	4
0PCP07-ZS-0016	Continuous Atmospheric Monitors	44
0PCP09-ZO-0002	Liquid Scintillation Counting System – Analysis, Operation and Calibration	14
0PCP09-ZR-0016	Off-Normal and Abnormal Radiological Effluent Monitoring	3
0PGP03-ZO-0053	Radiological Groundwater Protection Program	5
0PGP03-ZX-0007	Preparation of the Radioactive Effluent Release Report	12
0POP02-WG-0001	Gaseous Waste Processing System Operations	28
0POP02-WL-0100	Liquid Waste Release	21
0PRP10-ZL-0030	Interlaboratory Radioassay Measurement Assurance Program	3
0PSP07-VE-0002	Gaseous Effluent Particulate and Iodine Sampling and Analysis	17
0PSP07-WL-LDP1	Liquid Effluent Permit	18
0PSP07-WL-LDP2	Liquid Effluent Permit with RT-8038 Inoperable	12
0PSP07-ZR-0004	Total Dose	3
0PSP11-ZH-0008	CRE and FHB HVAC In-Place HEPA Filter Leak Test	20
0PSP11-ZH-0009	EAB and FHB HVAC In-Place Adsorber Leak Test	23

Section 2RS8: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
16-002	Radiological Controls Quality Audit Report	April 13, 2016
14-002	Radiological Controls Quality Audit Report	March 31, 2014
14-072	Quality Department Audit Report, Low Level Radioactive Waste Disposal	May 20, 2014
04215	NUPIC Joint Audit of WMG Inc., Peekskill, NY	March 18, 2016

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
23931	NUPIC Joint Audit of Energy Solutions, Columbia, SC	00, 01, 02
14-02	Radiological Controls Quality Audit Report	March 31, 2014

Condition Reports (CRs)

14-03474	14-24763	15-11263	15-21774	16-06459
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Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
2014	Annual Radioactive Effluent Release Report	April 29, 2015
2015	Annual Radioactive Effluent Release Report	April 12, 2016

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPGP03-ZA-0090	Work Process Program	41
OPGP03-ZA-0115	Hazardous Material Transportation Incident Response	02
OPGP03-ZO-0017	Radioactive Waste Process Control Program	08
OPGP03-ZR-0053	Radioactive Material Control Program	19
OPOP02-WS-0002	High Integrity Container (HIC) Dewatering for Shipment and Burial	14
OPOP02-WS-0003	Waste Transfer to the Portable Solidification System	22
OPRP03-ZR-0001	Determination of Radioactive Material Curie Content, Reportability, DOT Sub-Type, and Waste Classification	11
OPRP03-ZR-0002	Radioactive Waste Shipments	23
OPRP03-ZR-0004	Inventory and Leak Testing of Radioactive Sources	09
OPRP03-ZR-0009	10 CFR 61 Sampling and Analysis Program	08
OPRP03-ZR-0010	Sorting and Processing of Radioactive Material	16
OPRP03-ZR-0011	Shipment of Radioactive Material	19
OPRP03-ZR-0012	Processing, Tracking, and Loading of Spent Radioactive Filters	08
OPRP03-ZR-0013	Receipt of Radioactive Material	14
OPRP03-ZR-0014	On-Site Staging Facilities Operations	10

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPRP03-ZR-0016	Receipt Inspection of Polyethylene Reusable Waste Containers	00
OPRP04-ZR-0010	Radiological Monitoring for New Fuel	09
OPRP04-ZR-0015	Radiological Posting and Warning Devices	33
OPRP07-ZR-0013	Filter Replacement (Filters Stored in Room 218-J)	07
OPRP07-ZR-0014	Filter Replacement (Alternate Storage Locations)	09
OPRP07-ZR-0025	Preparation and Shipment of High Integrity Containers and Polyethylene Reusable Waste Containers	10
OPRP11-ZR-0003	Radioactive Material Transportation Accidents	05
SEG-0001	System Engineering Administrative Guideline	15
WCG-0001	Work Screening and Processing	27
WGC-0002	Work Management Scheduling	37

Radioactive Material Shipments

<u>Number</u>	<u>Title</u>	<u>Date</u>
STP-0-16-038	N-16 Detector / MGP Instruments; Smyrna, GA	October 18, 2016
STP-1-16-007	Cask Resin / WCS; Andrews, Texas	February 17, 2016
STP-1-16-022	Cask Resin / WCS; Andrews, Texas	June 8, 2016
STP-2-16-014	Cask Class B Resin / WCS; Andrews, Texas	April 27, 2016
STP-2-16-015	Cask Class B Resin / WCS; Andrews, Texas	May 4, 2016
STP-2-16-045	DAW / Energy Solutions; Oak Ridge, Tennessee	October 21, 2016
STP-2-16-051	40' Overpack / UniTech, Oak Ridge, Tennessee	October 26, 2016

Section 40A1: Performance Indicator Verification

Miscellaneous

<u>Title</u>	<u>Revision/Date</u>
Mitigating System Performance Index [MSPI] Bases Document	21
MSPI Data Report (Raw Data) April 2015- September 2016	September 2016
MSPI Derivation Report URI and UAI for Unit 1 & 2 Cooling Water Systems	September 2016
MSPI Derivation Report URI and UAI for Unit 1 & 2 Residual Heat Removal System	September 2016

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPGP05-ZV-0013	Performance Indicator Tracking Guide	7
SEG-0007	Mitigating System Performance Indicator Collection, Processing and Maintenance of Data	5

Section 40A2: Problem Identification and Resolution

Condition Reports (CRs)

11-23150	12-28460	12-30720	13-0102	15-25420
14-5140	14-17941	14-19256A	14-19590	14-19972
16-2648	16-11751	16-12538	16-13975	16-3503
16-10169	16-11357	16-10971	16-14557	

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
STI 34246503	CRDM and CETNA Evaluation Due to Removal of CRDM Drive Rod and RCCA for South Texas Unit 1	A
ML15343A128	South Texas Project Unit 1: Issuance of Amendment RE: Revision to Technical Specifications for One Operating Cycle Operation with 56 Control Rods (Emergency Circumstances)	December 11, 2015
	Integrity Check Training Presentation	0
NTD521	Systems Cyber Security Training Presentation	3
STI: 34048616	STP Cyber Security Plan For Units 1 & 2	1
	STP Cyber Security Network Overview	NA
	Updated Critical Digital Asset Listing Spreadsheet	0
	Cyber Security Program Changes	NA

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
WCG-0008	Preventing Recurring Equipment Problems (PREP)	7
OPSP10-DM-0003	Automatic Multiple Rod Drop Measurement	24
OPMP06-ZS-0002	Portable Device Management	8
OPGP03-ZS-0012	Cyber Security Program	8

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0PGP03-ZS-0013	Cyber Security Assessment of Digital Assets (Partial Review)	14
0PGP03-ZS-0017	Control of Portable Devices for Cyber Security	8
0PGP03-ZS-0023	Cyber Security Assessment Team (CSAT)	2
CS-007	Cyber Security System and Information Integrity	1
STP-0721	Cyber Security Program	1
0PGP03-ZO-ECO1A	Equipment Clearance Order Instructions	27
0PGP03-ZO-ECO1	Equipment Clearance Order Program	21

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.

**Information Request
September 8, 2016
Notification of Inspection and Request for Information
South Texas Project, Unit 2
NRC Inspection Report 05000313/2016004**

On October 11, 2016, reactor inspectors from the Nuclear Regulatory Commission's (NRC) Region IV office will perform the baseline in-service inspection at South Texas Project, Unit 2, using NRC Inspection Procedure 71111.08, "Inservice Inspection Activities." Experience has shown that this inspection is a resource intensive inspection both for the NRC inspectors and your staff. In order to minimize the impact to your onsite resources and to ensure a productive inspection, we have enclosed a request for documents needed for this inspection. These documents have been divided into two groups. The first group (Section A of the enclosure) identified information to be provided prior to the inspection to ensure that the inspectors are adequately prepared. The second group (Section B of the enclosure) identifies the information the inspectors will need upon arrival at the site. It is important that all of these documents are up to date and complete in order to minimize the number of additional documents requested during the preparation and/or the onsite portions of the inspection.

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

Preparation week: October 3, 2016

Onsite weeks: October 11, 2016 – October 21, 2016

Our inspection dates are subject to change based on your updated schedule of outage activities. If there have any questions about this inspection or the material requested, please contact the lead inspector, Ray Azua at 817-200-1445, or Ray.Azua@nrc.gov.

A. Information Requested for the In-Office Preparation Week

The following information should be sent to the Region IV office in hard copy or electronic format (ims.certrec.com preferred), in care of Ray Azua, by September 26, 2016, to facilitate the selection of specific items that will be reviewed during the onsite inspection week. The inspector will select specific items from the information requested below and then request from your staff additional documents needed during the onsite inspection week (Section B of this enclosure). We ask that the specific items selected from the lists be available and ready for review on the first day of inspection. Please provide requested documentation electronically if possible. If requested documents are large and only hard copy formats are available, please inform the inspector(s), and provide subject documentation during the first day of the onsite inspection. If you have any questions regarding this information request, please call the inspector as soon as possible.

A.1 ISI/Welding Programs and Schedule Information

- a) A detailed schedule (including preliminary dates) of:
 - i. Nondestructive examinations planned for ASME Code Class Components including containment, performed as part of your ASME Section XI, risk informed (if applicable), and augmented in-service inspection programs during the upcoming outage.
 - ii. Reactor pressure vessel head examinations required by 10CFR50.55a(g)(6)(ii)(D) and Code Case N-729-1.
 - iii. Examinations planned for Alloy 82/182/600 components that are not included in the Section XI scope (if applicable).
 - iv. Examinations planned as part of your boric acid corrosion control program (mode 3 walk downs, bolted connection walk downs, etc.).
 - v. Welding activities that are scheduled to be completed during the upcoming outage (ASME Class 1, 2, or 3 structures, systems, or components). Include the weld identification number, description of weld, category, class, type of exam and procedure number, and date of examination.
- b) A copy of ASME Section XI, Code Relief Requests and associated NRC safety evaluations applicable to the examinations identified above.
 - i. A list of ASME Code Cases currently being used to include the system and/or component the Code Case is being applied to.
- c) A list of nondestructive examination reports which have identified relevant indications on any ASME Code Class components since the beginning of the last refueling outage.
- d) A list including a brief of repair/replacement activities of any ASME Code Class components since the beginning of the last outage and/or planned this refueling outage.
- e) If reactor vessel weld examinations required by the ASME Code are scheduled to occur during the upcoming outage, provide a detailed description of the welds to be examined and the extent of the planned examination. Please also provide reference numbers for applicable procedures that will be used to conduct these examinations.
- f) Copy of any 10 CFR Part 21 reports applicable to structures, systems, or components within the scope of Section XI of the ASME Code that have been identified since the beginning of the last refueling outage.
- g) A list of any temporary non-code repairs in service (e.g., pinhole leaks).
- h) Please provide copies of the most recent self-assessments for the inservice

inspection, welding, and Alloy 600 programs.

- i) Copies of the following procedures:
 - a. All NDE procedures required to be followed for the examinations scheduled
 - b. The site general welding procedure
 - c. The site inservice inspection program procedure

A.2 Reactor Pressure Vessel Head (If Applicable)

- a) Provide a detailed scope of the planned bare metal visual examinations (e.g., volume coverage, limitations, etc.) of the vessel upper head penetrations and/or any nonvisual nondestructive examination of the reactor vessel head including the examination procedures to be used.
 - i. Provide the records recording the extent of inspection for each penetration nozzle including documents which resolved interference or masking issues that confirm that the extent of examination meets 10 CFR 50.55a(g)(6)(ii)(D).
 - ii. Provide records that demonstrate that a volumetric or surface leakage path examination assessment was performed.
- b) Copy of current calculations for EDY, and RIY as defined in Code Case N-729-1 that establish the volumetric and visual inspection frequency for the reactor vessel head and J-groove welds.

A.3 Boric Acid Corrosion Control Program

- a) Copy of the procedures that govern the scope, equipment and implementation of the inspections required to identify boric acid leakage and the procedures for boric acid leakage/corrosion evaluation.
- b) Please provide a list of leaks (including code class of the components) that have been identified since the last refueling outage and associated corrective action documentation. If during the last cycle, the unit was shut down, please provide documentation of containment walk down inspections performed as part of the boric acid corrosion control program.

A.4 Steam Generator Tube Inspections (If Applicable)

- a) A detailed schedule of:
 - i. Steam generator tube inspection, data analyses, and repair activities for the upcoming outage (if occurring).
 - ii. Steam generator secondary side inspection activities for the upcoming outage (if occurring).
- b) Copy of SG history documentation given to vendors performing eddy current (ET) testing of the SGs during the upcoming outage.

- c) Copy of procedure containing screening criteria used for selecting tubes for in-situ pressure testing and the procedure to be used for in-situ pressure testing.
- d) Copy of previous outage SG tube operational assessment completed following ET of the SGs. Also include a copy of the following documents as they become available:
 - i. Degradation assessment
 - ii. Condition monitoring assessment
- e) Copy of the document defining the planned SG ET scope (e.g., 100 percent of unrepaired tubes with bobbin probe and 20 percent sample of hot leg expansion transition regions with rotating probe) and identify the scope expansion criteria, which will be applied. Also identify and describe any deviations in this scope or expansion criteria from the EPRI Guidelines.
- f) Copy of the document describing the ET acquisition equipment to be applied including ET probe types. Also identify the extent of planned tube examination coverage with each probe type (e.g. rotating probe -0.080 inches, 0.115 inches pancake coils and mid-range +point coil applied at the top-of-tube-sheet plus 3 inches to minus 12 inches).
- g) Identify and quantify any SG tube leakage experienced during the previous operating cycle. Also provide documentation identifying which SG was leaking and corrective actions completed and planned for this condition.
- h) Copy of steam generator eddy current data analyst guidelines and site validated eddy current technique specification sheets. Additionally, please provide a copy of EPRI Appendix H, "Examination Technique Specification Sheets," qualification records.
- i) Provide past history of the condition and issues pertaining to the secondary side of the steam generators (including items such as loose parts, fouling, top of tube sheet condition, crud removal amounts, etc.).
- j) Indicate where the primary, secondary, and resolution analyses are scheduled to take place.

A.5 Additional Information Related to all Inservice Inspection Activities

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

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

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

Inservice inspection (examination, planning)

Containment exams

Reactor pressure vessel head exams

Snubbers and supports

Repair and replacement program

Licensing

Site welding engineer

Boric acid corrosion control program

Steam generator inspection activities (site lead and vendor contact)

B. Information to be Provided Onsite to the Inspector(s) at the Entrance Meeting (September 26, 2016):

B.1 Inservice Inspection / Welding Programs and Schedule Information

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

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

- i. Weld data sheet (traveler).
- ii. Weld configuration and system location.
- iii. Applicable Code Edition and Addenda for weldment.
- iv. Applicable Code Edition and Addenda for welding procedures.
- v. Applicable welding procedures used to fabricate the welds.
- vi. Copies of procedure qualification records (PQRs) supporting the weld procedures from B.1.b.v.
- vii. Copies of welder's performance qualification records (WPQ).
- viii. Copies of the nonconformance reports for the selected welds (If applicable).
- ix. Radiographs of the selected welds and access to equipment to allow viewing radiographs (if radiographic testing was performed).
- x. Copies of the preservice examination records for the selected welds.
- xi. Readily accessible copies of nondestructive examination personnel

qualifications records for reviewing.

- c) For the inservice inspection related corrective action issues selected by the inspectors from section A of this enclosure, provide a copy of the corrective actions and supporting documentation.
- d) For the nondestructive examination reports with relevant conditions on ASME Code Class components selected by the inspectors from Section A above, provide a copy of the examination records, examiner qualification records, and associated corrective action documents.
- e) A copy of (or ready access to) most current revision of the inservice inspection program manual and plan for the current interval.
- f) For the nondestructive examinations selected by the inspectors from section A of this enclosure, provide a copy of the nondestructive examination procedures used to perform the examinations (including calibration and flaw characterization/sizing procedures). For ultrasonic examination procedures qualified in accordance with ASME Code, Section XI, Appendix VIII, provide documentation supporting the procedure qualification (e.g. the EPRI performance demonstration qualification summary sheets). Also, include qualification documentation of the specific equipment to be used (e.g., ultrasonic unit, cables, and transducers including serial numbers) and nondestructive examination personnel qualification records.

B.2 Reactor Pressure Vessel Head (RPVH)

- a) Provide drawings showing the following (if performing any RPVH inspection activities):
 - i. RPVH and control rod drive mechanism nozzle configurations.
 - ii. RPVH insulation configuration.

Note: The drawings listed above should include fabrication drawings for the nozzle attachment welds as applicable.

- b) Copy of the documents which demonstrate that the procedures to be used for volumetric examination of the reactor vessel head penetration J-groove welds were qualified by a blind demonstration test in accordance with 10 CFR 50.55a(g)(6)(ii)(D).
- c) Copy of volumetric, surface and visual examination records for the prior inspection of the reactor vessel head and head penetration J-groove welds.

B.3 Boric Acid Corrosion Control Program

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

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

B.4 Steam Generator Tube Inspections

- a) Copies of the Examination Technique Specification Sheets and associated justification for any revisions.
- b) Please provide a copy of the eddy current testing procedures used to perform the steam generator tube inspections (specifically calibration and flaw characterization/sizing procedures, etc.).
- c) Copy of the guidance to be followed if a loose part or foreign material is identified in the steam generators.
- d) Identify the types of SG tube repair processes which will be implemented for defective SG tubes (including any NRC reviews/evaluations/approvals of this repair process). Provide the flaw depth sizing criteria to be applied for ET indications identified in the SG tubes.
- e) Copy of documents describing actions to be taken if a new SG tube degradation mechanism is identified.
- f) Provide procedures with guidance/instructions for identifying (e.g. physically locating the tubes that require plugging) and plugging SG tubes.
- g) List of corrective action documents generated by the vendor and/or site with respect to steam generator inspection activities.

B.5 Codes and Standards

- a) Ready access to (i.e., copies provided to the inspector(s) for use during the inspection at the onsite inspection location, or room number and location where available):
 - i. Applicable Editions of the ASME Code (Sections V, IX, and XI) for the inservice inspection program and the repair/replacement program.
 - ii. EPRI and industry standards referenced in the procedures used to perform the steam generator tube eddy current examination.
- b) Copy of the performance demonstration initiative (PDI) generic procedures with the latest applicable revisions that support site qualified ultrasonic examinations of piping welds and components (e.g., PDI-UT-1, PDI-UT-2, PDI-UT-3, PDI-UT-10, etc.).

- c) EPRI and industry standard references in the site procedures used to perform the SG tube eddy current examination, which includes EPRI documents: TR-107621-R1, "Steam Generator Integrity Assessment Guidelines," TR-107620-R1, "Steam Generator In-Situ Pressure Test Guidelines," Steam Generator Management Program: Steam Generator Integrity Assessment Guidelines, Part 10, and 1003138, "Pressurized Water Reactor Steam Generator Examination Guidelines." Boric Acid Corrosion Guidebook Revision 1 – EPRI Technical Report 1000975.

**The following items are requested for the
Occupational Radiation Safety Inspection
at South Texas Project Electric Generating Station
October 24 – 28, 2016
Integrated Report 2016004**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **October 7, 2016**.

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 on-site 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 the lead inspector, Louis Carson at (817) 200-1221 or louis.carson@nrc.gov. Or, you may reach out to Natasha Greene at (817) 200-1154 or natasha.greene@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.

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

Date of Last Inspection: **April 13, 2015**

- 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 Radworker Instructions
 - 7. Conduct of Radiological Surveys
 - 8. Radioactive Source Inventory and Control
 - 9. Declared Pregnant Worker Program
- F. List of corrective action documents/condition reports (including corporate and subtiered 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
- I. Radioactive source inventory list
 - a. All radioactive sources that are required to be leak tested
 - b. All radioactive sources that meet the 10 CFR Part 20, Appendix E, Category 2 and above threshold. Please indicate the radioisotope, initial and current activity (w/assay date), and storage location for each applicable source.

- J. The last two leak test results for the radioactive sources inventoried and required to be leak tested. If applicable, specifically provide a list of all radioactive source(s) that have failed its leak test within the last two years
- K. A current listing of any non-fuel items stored within your pools, and if available, their appropriate dose rates (Contact / @ 30cm)
- L. Computer printout of radiological controlled area entries greater than 100 millirems since the previous inspection to the current inspection entrance date. The printout should include the date of entry, some form of worker identification, the radiation work permit used by the worker, dose accrued by the worker, and the electronic dosimeter dose alarm setpoint used during the entry (for Occupational Radiation Safety Performance Indicator verification in accordance with IP 71151).

2. Occupational ALARA Planning and Controls (71124.02)
Date of Last Inspection: June 27, 2015

- A. List of contacts and telephone numbers for ALARA program personnel
- B. Applicable organization charts
- C. Copies of audits, self-assessments, and LERs, written since date of last inspection, focusing on ALARA
- D. Procedure index for ALARA Program
- 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 Committee
 3. Radiation Work Permit Preparation
- F. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection, related to the ALARA program. In addition to ALARA, the summary should also address Radiation Work Permit violations, Electronic Dosimeter Alarms, and RWP Dose Estimates

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.

- G. List of work activities greater than 1 rem, since date of last inspection
Include original dose estimate and actual dose.
- H. Site dose totals and 3-year rolling averages for the past 3 years (based on dose of record)
- I. Outline of source term reduction strategy
- J. If available, provide a copy of the ALARA outage report for the *most recently* completed outages for each unit
- K. Please provide your most recent Annual ALARA Report.

**The following items are requested for the
Public Radiation Safety Inspection
at South Texas Project
November 28 – December 2, 2016
Integrated Report 2016004**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **November 14, 2016**.

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 on-site 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 Carson at (817) 817-200-1221 or Louis.Carson@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.

5. Radiation Monitoring Instrumentation (71124.05)

Date of Last Inspection: **February 7, 2014**

- A. List of contacts and telephone numbers for the following areas:
1. Effluent monitor calibration
 2. Radiation protection instrument calibration
 3. Installed instrument calibrations
 4. Count room and laboratory instrument calibrations
- B. Applicable organization charts
- C. Copies of audits, self-assessments, vendor or NUPIC audits for contractor support and LERs, written since date of last inspection, related to:
1. Area radiation monitors, continuous air monitors, criticality monitors, portable survey instruments, electronic dosimeters, teledosimetry, personnel contamination monitors, or whole body counters
 2. Installed radiation monitors
- D. Procedure index for:
1. Calibration, use, and operation of continuous air monitors, criticality monitors, portable survey instruments, temporary area radiation monitors, electronic dosimeters, teledosimetry, personnel contamination monitors, and whole body counters.
 2. Calibration of installed radiation monitors
- E. Please provide specific procedures related to the following areas noted below. Additional specific procedures will be requested by number after the inspector reviews the procedure indexes.
1. Calibration of portable radiation detection instruments (for portable ion chambers)
 2. Whole body counter calibration
 3. Laboratory instrumentation quality control
- F. A summary list of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, related to the following programs:
1. Area radiation monitors, continuous air monitors, criticality monitors, portable survey instruments, electronic dosimeters, teledosimetry, personnel contamination monitors, whole body counters
 2. Installed radiation monitors
 3. Effluent radiation monitors
 4. Count room radiation instruments
- 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.
- G. Offsite dose calculation manual, technical requirements manual, or licensee-controlled specifications which lists the effluent monitors and calibration requirements.
- H. Current calibration data for the whole body counters.

- I. Primary to secondary source calibration correlation for effluent monitors.
- J. A list of the point of discharge effluent monitors with the two most recent calibration dates and the work order numbers associated with the calibrations.
- K. Radiation Monitoring System health report for the previous 12 months
- 6. Radioactive Gaseous and Liquid Effluent Treatment (71124.06)**
Date of Last Inspection: **February 7, 2014**
- A. List of contacts and telephone numbers for the following areas:
 - 1. Radiological effluent control
 - 2. Engineered safety feature air cleaning systems
- B. Applicable organization charts
- C. Audits, self-assessments, vendor or NUPIC audits of contractor support, and LERs written since date of last inspection, related to:
 - 1. Radioactive effluents
 - 2. Engineered safety feature air cleaning systems
- D. Procedure indexes for the following areas
 - 1. Radioactive effluents
 - 2. Engineered safety feature air cleaning systems
- E. Please provide specific procedures related to the following areas noted below. Additional specific procedures will be requested by number after the inspector reviews the procedure indexes.
 - 1. Sampling of radioactive effluents
 - 2. Sample analysis
 - 3. Generating radioactive effluent release permits
 - 4. Laboratory instrumentation quality control
 - 5. In-place testing of HEPA filters and charcoal adsorbers
 - 6. New or applicable procedures for effluent programs (e.g., including ground water monitoring programs)
- F. List of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, associated with:
 - 1. Radioactive effluents
 - 2. Effluent radiation monitors
 - 3. Engineered safety feature air cleaning systems

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.
- G. 2014 and 2015 Annual Radioactive Effluent Release Report or the two most recent reports.
- H. Current copy of the Offsite Dose Calculation Manual
- I. Copy of the 2014 and 2015 inter-laboratory comparison results for laboratory quality control performance of effluent sample analysis or the two most recent results.
- J. Effluent sampling schedule for the week of the inspection

- K. New entries into 10 CFR 50.75(g) files since date of last inspection
- L. Operations department (or other responsible dept.) log records for effluent monitors removed from service or out of service
- M. Listing or log of liquid and gaseous release permits since date of last inspection
- N. A list of the technical specification-required air cleaning systems with the two most recent surveillance test dates of in-place filter testing (of HEPA filters and charcoal adsorbers) and laboratory testing (of charcoal efficiency) and the work order numbers associated with the surveillances
- O. System health report for radiation monitoring instrumentation. Also, please provide a specific list of all effluent radiation monitors that were considered inoperable for 7 days or more since November 2011. If applicable, please provide the relative Special Report and condition report(s).
- P. A list of all radiation monitors that are considered § 50.65/Maintenance Rule equipment.
- Q. A list of all significant changes made to the gaseous and liquid effluent process monitoring system since the last inspection. If applicable, please provide the corresponding UFSAR section in which this change was documented.
- R. A list of any occurrences in which a non-radioactive system was contaminated by a radioactive system. Please include any relative condition report(s).

7. Radiological Environmental Monitoring Program (71124.07)

Date of Last Inspection: **February 7, 2014**

- A. List of contacts and telephone numbers for the following areas:
 - 1. Radiological environmental monitoring
 - 2. Meteorological monitoring
- B. Applicable organization charts
- C. Audits, self-assessments, vendor or NUPIC audits of contractor support, and LERs written since date of last inspection, related to:
 - 1. Radiological environmental monitoring program (including contractor environmental laboratory audits, if used to perform environmental program functions)
 - 2. Environmental TLD processing facility
 - 3. Meteorological monitoring program
- D. Procedure index for the following areas:
 - 1. Radiological environmental monitoring program
 - 2. Meteorological monitoring program
- E. Please provide specific procedures related to the following areas noted below. Additional specific procedures will be requested by number after the inspector reviews the procedure indexes.
 - 1. Environmental program description
 - 2. Sampling, collection and preparation of environmental samples
 - 3. Sample analysis (if applicable)
 - 4. Laboratory instrumentation quality control
 - 5. Procedures associated with the Offsite Dose Calculation Manual

- 6. Appropriate QA audit and program procedures, and/or sections of the station's QA manual (which pertain to the REMP)
- F. A summary list of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, related to the following programs:
 - 1. Radiological environmental monitoring
 - 2. Meteorological monitoring

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.
- G. Wind rose data and evaluations used for establishing environmental sampling locations
- H. Copies of the two most recent calibration packages for the meteorological tower instruments
- I. Copy of the 2014 and 2015 Annual Radiological Environmental Operating Report and Land Use Census, and current revision of the Offsite Dose Calculation Manual, or the two most recent reports.
- J. Copy of the environmental laboratory's inter-laboratory comparison program results for 2014 and 2015, or the two most recent results, if not included in the annual radiological environmental operating report
- K. Data from the environmental laboratory documenting the analytical detection sensitivities for the various environmental sample media (i.e., air, water, soil, vegetation, and milk)
- L. Quality assurance audits (e.g., NUPIC) for contracted services
- M. Current NEI Groundwater Initiative Plan and status
- N. Technical requirements manual or licensee controlled specifications which lists the meteorological instruments calibration requirements
- O. A list of regulatory guides and/or NUREGs that you are currently committed to relative to the Radiological Environmental Monitoring Program. Please include the revision and/or date for the committed item and where this can be located in your current licensing basis/UFSAR.
- P. If applicable, per NEI 07-07, provide any reports that document any spills/leaks to groundwater since the last inspection

8. Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation (71124.08)

Date of Last Inspection: **February 7, 2014**

- A. List of contacts and telephone numbers for the following areas:
 - 1. Solid Radioactive waste processing
 - 2. Transportation of radioactive material/waste
- B. Applicable organization charts (and list of personnel involved in solid radwaste processing, transferring, and transportation of radioactive waste/materials)
- C. Copies of audits, department self-assessments, and LERs written since date of last inspection related to:

1. Solid radioactive waste management
 2. Radioactive material/waste transportation program
- D. Procedure index for the following areas:
1. Solid radioactive waste management
 2. Radioactive material/waste transportation
- E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures will be requested by number after the inspector reviews the procedure indexes.
1. Process control program
 2. Solid and liquid radioactive waste processing
 3. Radioactive material/waste shipping
 4. Methodology used for waste concentration averaging, if applicable
 5. Waste stream sampling and analysis
- F. A summary list of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection related to:
1. Solid radioactive waste
 2. Transportation of radioactive material/waste

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.

- G. Copies of training lesson plans for 49 CFR 172, Subpart H, for radwaste processing, packaging, and shipping.
- H. A summary of radioactive material and radioactive waste shipments made from date of last inspection to present
- I. Waste stream sample analyses results and resulting scaling factors for 2014 and 2015, or the two most recent results.
- J. Waste classification reports if performed by vendors (such as for irradiated hardware)
- K. A listing of all on-site radwaste storage facilities. Please include a summary *or* listing of the items stored in each facility, including the *total* amount of radioactivity and the *highest* general area dose rate.

Although it is not necessary to compile the following information, the inspector will also review:

- L. Training, and qualifications records of personnel responsible for the conduct of radioactive waste processing, package preparation, and shipping