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

November 8, 2012

Mr. Dennis Koehl
Chief Executive Officer and Chief Nuclear Officer
STP Nuclear Operating Company
P.O. Box 289
Wadsworth, TX 77483

Subject: SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION - NRC INTEGRATED INSPECTION REPORT 05000498/2012004 AND 05000499/2012004

Dear Mr. Koehl:

On September 28, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your South Texas Project Electric Generating Station, Units 1 and 2, facility. The enclosed inspection report documents the inspection results which were discussed on October 4, 2012, with Mr. D. Rencurrel, Senior Vice President, and other members of your staff.

The inspections examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Two NRC identified and one self-revealing findings of very low safety significance (Green) were identified during this inspection.

The two NRC identified findings were determined to involve violations of NRC requirements, one of which was determined to be a traditional enforcement Severity Level IV violation. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the United States Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at South Texas Project Electric Generating Station, Units 1 and 2, facility.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV; and the NRC Resident Inspector at South Texas Project Electric Generating Station, Units 1 and 2, facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of

NRC's Agencywide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Wayne C. Walker, Branch Chief
Project Branch A
Division of Reactor Projects

Docket Nos.: 05000498, 05000499
License Nos.: NPF-76, NPF-80

Enclosure: Inspection Report 05000498/2012004 and 05000499/2012004
w/Attachment: Supplemental Information

cc w/ encl: Electronic Distribution

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SRI:DRP/A	RI:DRP/A	SPE:DRP/A	C:DRS/EB1	C:DRS/EB2
JLDixon	BKTharakan	DLProulx	TRFarnholtz	GBMiller
T-Walker	E-Walker	/RA/	/RA/	/RA/Werner for
11/7/12	11/6/12	11/5/12	11/6/12	11/7/12
C:DRS/OB	C:DRS/PSB1	C:DRS/PSB2	C:DRS/TSB	BC:DRP/A
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11/7/12	11/6/12	11/6/12	11/6/12	11/7/12

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000498, 05000499
License:	NPF-76, NPF-80
Report:	05000498/2012004 and 05000499/2012004
Licensee:	STP Nuclear Operating Company
Facility:	South Texas Project Electric Generating Station, Units 1 and 2
Location:	FM521 - 8 miles west of Wadsworth Wadsworth, Texas 77483
Dates:	June 30 through September 28, 2012
Inspectors:	J. Dixon, Senior Resident Inspector B. Tharakan, CHP, Resident Inspector J. Drake, Senior Reactor Inspector N. Hernandez, Operations Examiner J. Laughlin, Emergency Preparedness Inspector, NSIR J. Wingebach, Resident Inspector, Fort Calhoun
Approved By:	Wayne Walker, Chief, Project Branch A Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000498/2012004, 05000499/2012004; 06/30/2012 – 09/28/2012; South Texas Project Electric Generating Station, Units 1 and 2, Integrated Resident and Regional Report; Problem Identification and Resolution, Other Activities.

The report covered a 3-month period of inspection by resident inspectors, region-based inspectors, and an announced baseline inspection by a headquarters-based inspector. One Green non-cited violation, one Severity Level-IV non-cited violation, and one Green finding of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors reviewed a self-revealing finding for the failure to follow Procedure 0POP02-GG-0001, "Generator Hydrogen and Carbon Dioxide Gas System," Revision 43, for a verified alarm on the Unit 2 main generator. On November 26, 2011, the Unit 2 control room received a stator cooling water differential temperature high alarm. The crew responded by reviewing the annunciator response and determined that none of the parameters for contacting system engineering were reached. On November 27, 2011, the control room received multiple generator condition monitor alarms and determined that the generator condition monitor system was malfunctioning, and generated a condition report. The generator condition monitor began to alarm again, on November 29, 2011, but since the control room thought the system was not functioning properly, they did not perform any of the required actions of Procedure 0POP02-GG-0001. Shortly after the alarms were received, the Unit 2 reactor tripped due to a main generator lockout, documented in Condition Report 11-28753. Corrective actions included: replacing all 72 stator cooling coils, refurbishing the stator and rotor, replacing the hydrogen cooler, revising the procedure, and operations training.

  This finding was more than minor because it affected the Initiating Events Cornerstone attribute of Procedure Quality and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions in that it resulted in a turbine/reactor trip. The inspectors performed the significance determination using NRC Inspection Manual Chapter 0609. Because the finding affected the Initiating Events Cornerstone while the plant was at power, Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, evaluates the finding using Appendix A. Using

Appendix A, Exhibit 1, Transient Initiators question, the finding was determined to be of very low safety significance because it did not cause a reactor trip and the loss of mitigation equipment. This finding did not have cross-cutting aspects because the generator condition monitor alarm portion of the procedure was last changed in 2005 and this was the last time that could be reasonably viewed to have identified the deficiency and therefore was not indicative of current licensee performance (Section 4OA2).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify and correct a condition adverse to quality. Specifically, the licensee failed to correct a longstanding leak from the body-to-bonnet gasket on the safety injection system hot leg check valve 1N122XSI0010A, a portion of the reactor coolant system Class 1 pressure boundary.

  This finding was more than minor because it affected the Mitigating Systems Cornerstone. The inspectors performed the significance determination using NRC Inspection Manual Chapter 0609. Because the finding affected the Mitigating Systems Cornerstone while the plant was at power, Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, evaluates the finding using Appendix A. Using Appendix A, Exhibit 2, Mitigating Systems Screening Questions, the finding was determined to be of very low safety significance because it was not a design or qualification issue confirmed not to result in a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; and did not result in the loss of one or more trains of nontechnical specification equipment. This issue has been entered into the licensee's corrective action program as Condition Report 11-23693. Because the licensee evaluated the condition during the recent refueling outage in November 2011 prior to NRC involvement and considered actions to repair the seal cap enclosure weld adequate without considering the condition of the pressure retaining boundary, this issue was considered indicative of current plant performance. In addition, this finding had a human performance cross-cutting aspect associated with decision making, because the licensee failed to use conservative assumptions when making decisions and did not demonstrate that nuclear safety was an overriding priority [H.1(b)] (Section 4OA5).

- Severity Level IV. The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.59, "Changes, Tests, and Experiments," for the failure to obtain NRC authorization for the installation of seal cap enclosures on nine charging and volume control and safety injection valves in Units 1 and 2. The licensee implemented modifications on each of the valves to control body-to-bonnet gasket leakage. The modification did not shift the pressure retaining boundary of the affected systems and components, and as a result prevented the inspections required by American Society of Mechanical Engineers Boiler and Pressure Vessel Code. Title 10 CFR 50.59 states that prior NRC approval is required for changes resulting in more than a minimal increase in the likelihood of occurrence of a malfunction of a system, structure, or component important to safety previously evaluated in the Final Safety Analysis Report (as updated).

The finding was more than minor because it affected the Mitigating Systems Cornerstone attribute of Equipment Performance and affected the cornerstone objective to ensure the reliability and capability of safety injection to respond to an initiating event. The issue was determined to result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the Updated Final Safety Analysis Report. In accordance with the NRC Enforcement Manual, violations of 10 CFR 50.59 are not processed directly through the significance determination process; as a result, this issue was determined to be applicable to traditional enforcement. A Significance Determination Process screening was performed and the finding was determined to have very low safety significance (Green) because there was no actual loss of the mitigating system safety function. Because the performance deficiency was determined to be of very low safety significance, this finding is considered a Severity Level IV violation in traditional enforcement. Based on discussions with the Office of Nuclear Reactor Regulation staff, the inspectors determined that a request for approval would likely have been granted. The licensee entered this issue into its corrective action program as Condition Report 11-23693 (Section 4OA5).

B. <u>Licensee-Identified Violations</u>

None

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent rated thermal power and essentially remained there for the duration of the inspection period.

Unit 2 began the inspection period at 100 percent rated thermal power and essentially remained there for the duration of the inspection period.

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

The inspectors performed a review of the adverse weather procedures for seasonal extremes (e.g., extreme high temperatures, extreme low temperatures, or hurricane season preparations). The inspectors verified that weather-related equipment deficiencies identified during the previous year were corrected prior to the onset of seasonal extremes; and evaluated the implementation of the adverse weather preparation procedures and compensatory measures for the affected conditions before the onset of, and during, the adverse weather conditions.

During the inspection, the inspectors focused on plant-specific design features and the procedures used by plant personnel to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the UFSAR and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that plant personnel were identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- September 7, 2012, Unit 1, hot weather impact on auxiliary feedwater system trains A through D

These activities constitute completion of one readiness for seasonal adverse weather sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

Since thunderstorms with potential flash flooding, tornados and high winds were forecast in the vicinity of the facility for July 9-11, 2012, the inspectors reviewed the plant personnel's overall preparations/protection for the expected weather conditions. On July 9-13, 2012, the inspectors walked down the auxiliary feedwater and emergency core cooling systems because their safety-related functions could be affected, or required, as a result of flash flooding; high winds or tornado-generated missiles; or the loss of offsite power. The inspectors evaluated the plant staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the UFSAR and performance requirements for the systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. The inspectors also reviewed a sample of corrective action program items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the corrective action program in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one readiness for impending adverse weather condition sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

1R04 Equipment Alignments (71111.04)

Partial Walkdown

a. Inspection Scope

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

- August 9, 2012, Unit 1, spent fuel pool cooling train A
- August 9, 2012, Unit 1, spent fuel pool cooling train B
- September 23, 2012, Unit 2, safety injection train B

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- August 29, 2012, Unit 2, essential cooling water train B, Fire Zone Z604
- August 29, 2012, Units 1 and 2, fire pump house, Fire Zone Z800
- September 6, 2012, Unit 1, component cooling water pump and essential chiller train A, Fire Zone Z128
- September 6, 2012, Unit 1, component cooling water pump and essential chiller train B, Fire Zone Z140

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee’s fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant’s Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On September 20, 2012, the inspectors observed a fire brigade drill activation. The scenario began with a smoke detector alarm in the Unit 1 electrical auxiliary building relay room. The inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) employment of appropriate firefighting techniques; (3) sufficient firefighting equipment brought to the scene; (4) effectiveness of fire brigade leader communications, command, and control; (5) search for victims and propagation of the fire into other plant areas; (6) smoke removal operations; (7) utilization of preplanned strategies; (8) adherence to the preplanned drill scenario; and (9) drill objectives.

These activities constitute completion of one annual fire-protection inspection sample as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

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

.1 Quarterly Review of Licensed Operator Requalification Program

a. Inspection Scope

On August 28, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during requalification testing. The inspectors assessed the following areas:

- Licensed operator performance
- The ability of the licensee to administer the evaluations and the quality of the training provided
- The modeling and performance of the control room simulator
- The quality of post-scenario critiques
- Follow-up actions taken by the licensee for identified discrepancies

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

b. Findings

No findings were identified.

.2 Quarterly Observation of Licensed Operator Performance

a. Inspection Scope

On July 5, 2012, the inspectors observed the performance of on-shift licensed operators in the Unit 1 main control room. At the time of the observations, the plant was in a period of heightened activity due to solid state protection system actuation train B slave relay testing.

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

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- September 13, 2012, Units 1 and 2, rod position indication (RI) and rod control (RS) systems
- September 13, 2012, Units 1 and 2, standby diesel generator and support systems (DG)

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- July 9-13, 2012, Units 1 and 2, planned work week on Unit 1 train C, including control rod and solid state protection system testing; and planned work week on Unit 2 train B, including emergency core cooling system testing and adverse weather impacting both units

- August 6-10, 2012, Units 1 and 2, large planned work week on Unit 1 train C, including control rod testing; additional rod exercising for rod M14; essential cooling water pump breaker cell switch adjustment and emergent medium work risk on feedwater heater level controller; and planned work week on Unit 2 train B, including steam generator power operated relief valve hydraulic pump excessive cycling and solid state protection system testing

- August 13-17, 2012, Units 1 and 2, planned work week on Unit 1 train D, including changing the anticipated transient without scram mitigating system actuation circuitry time delay; and large planned work week on Unit 2 train C, including essential cooling water discharge check valve EW0079 replacement; essential chiller 1 year, 18 month, 3 year, and 4-year preventative maintenance; and standby diesel generator preventative maintenance

- September 10-14, 2012, Units 1 and 2, planned work week on Unit 1 train D, including essential cooling water trains A, B, and C intake screen replacements and high risk activity of cleaning the stator cooling water system; and planned work week on Unit 2 train C, including medium risk activity of valve actuator overhaul for high level dump valve LV-7207

- September 17-27, 2012, Unit 1, planned work activities on Class 1E 125-volt battery and inverter/rectifiers on trains A and B, which required exceeding the front stop and using the risk management technical specifications configuration risk management program

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following assessments:

- July 6, 2012, Unit 2, safety injection accumulator 2A leakage into train A residual heat removal pump discharge header piping

- July 19, 2012, Unit 1, evaluation of groundwater intrusion into the mechanical auxiliary building and its affect on safety injection system operability

- August 16, 2012, Unit 1, essential cooling water train C through-wall leak in drain valve EW-0282

- August 29, 2012, Unit 1, sequencer train C trouble alarm and failed timing module

- September 21, 2012, Unit 2, 2-inch underground conduit not sealed that penetrates into the 10-foot electrical auxiliary building and has the potential to affect safety related equipment

The inspectors selected these operability and functionality assessments based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure technical specification operability was properly justified and to verify the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and UFSAR to the licensee’s evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. The inspectors also used Operating Experience Smart Sample (OpESS) 2012/02, “Technical Specification Interpretation and Operability Determination,” Revision 1, during the review of the above samples. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five operability evaluations inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

No findings were identified.

1R19 Post-maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following post-maintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- July 13, 2012, Unit 2, train B low head safety injection motor operated valve 18B

- August 15, 2012, Unit 2, essential cooling water train C discharge check valve EW0079 replacement

- August 15, 2012, Unit 1, design change package implementation to change anticipated transient without scram mitigating system actuation circuitry time delay constant

- September 18, 2012, Unit 2, intermediate range nuclear instrument NI-36 compensating voltage power supply replacement

- September 18, 2012, Unit 1, train A 125-volt dc battery and inverter 1201 clean, inspect, and performance testing

- September 26, 2012, Unit 1, train B 125-volt dc battery and inverter 1202 clean, inspect, and performance testing

- September 26, 2012, Unit 1, essential chiller 12B time delay relay, temperature element, temperature current module, hot gas bypass motor, and pre-rotation vane motor replacements

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following (as applicable):

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed

- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of seven post-maintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the UFSAR, procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data

- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- July 5, 2012, Unit 1, solid state protection system actuation train B slave relay testing
- September 14, 2012, Unit 1, auxiliary feedwater pump 14 inservice test
- September 24, 2012, Units 1 and 2, essential cooling pond seepage rate

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The Nuclear Security and Incident Response Headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures and the Emergency Plan located under ADAMS Accession Number ML12208A325, as listed in the attachment.

The licensee determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the plan, and that the revised plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five samples as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on August 15, 2012, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator, technical support center, and the operations support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings were identified.

.2 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on September 26, 2012, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the second quarter 2012 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings were identified.

.2 Safety System Functional Failures (MS05)

a. Inspection Scope

The inspectors sampled licensee submittals for the safety system functional failures performance indicator for Units 1 and 2 for the period from the third quarter 2011 through the second quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73." The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports, and NRC integrated inspection reports for the period of July 2011 through June 2012 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two safety system functional failures samples, one per unit, as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity performance indicator for Units 1 and 2 for the period from the third quarter 2011 through the second quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's reactor coolant system chemistry samples, technical specification requirements, issue reports, event reports, and NRC integrated inspection reports for the period of July 2011 through June 2012 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two reactor coolant system specific activity samples, one per unit, as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Reactor Coolant System Leakage (BI02)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system leakage performance indicator for Units 1 and 2 for the period from the third quarter 2011 through the second quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator logs; reactor coolant system leakage tracking data, issue reports, event reports, and NRC integrated inspection reports for the period of July 2011 through June 2012 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two reactor coolant system leakage samples, one per unit, as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized a corrective action item documenting a potential knowledge deficiency by operations in the operation and understanding of the stator cooling water system and the main generator condition monitor system. The inspectors reviewed the UFSAR, the root cause investigation, the licensee event report and station procedures, interviewed personnel, and reviewed the corrective action program to understand the history of the stator cooling water and generator condition monitor systems and the sequence of events leading to the fault. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one in-depth problem identification and resolution sample as defined in Inspection Procedure 71152-05.

b. Findings

Introduction. The inspectors reviewed a self-revealing Green finding for the failure to follow Procedure 0POP02-GG-0001, "Generator Hydrogen and Carbon Dioxide Gas System," Revision 43, for a verified alarm on the Unit 2 main generator.

Description. On November 26, 2011, the Unit 2 control room received a stator cooling water differential temperature high alarm. The crew responded by reviewing the annunciator response and determined that none of the parameters for contacting system engineering were reached. The crew then contacted maintenance to verify that coil 33T was reading correctly. Coil 33T was the highest reading coil at approximately 161 °F. When maintenance measured the temperature locally it was consistent with the integrated plant computer, however, shortly after maintenance removed their test equipment, the temperature increased to 175 °F. The control room concluded that the thermocouple was not operating properly and removed it from scan thinking it was an invalid indication. The annunciator response requires that system engineering be contacted when the temperature exceeds 174 °F, which was not performed. On November 27, 2011, the control room received multiple generator condition monitor alarms, both warning and verified alarms. The control room determined that the generator condition monitor system was malfunctioning and generated a condition report. They did not follow Procedure 0POP02-GG-0001 for a verified alarm. A verified alarm is a more serious condition which could mean that particles are present in the hydrogen due to main generator core or insulation overheating. The control room removed coil 33T thermocouple from service by substituting a known value; when they performed this, the thermocouple was reading 179 °F.

On November 29, 2011, the generator condition monitor began to alarm again. Since the control room thought the system was not functioning properly, they did not perform any of the required actions of Procedure 0POP02-GG-0001. The system generated 105 warning and 3 verified alarms. Shortly after the alarms were received, the Unit 2 reactor tripped due to a main generator lockout. The licensee documented the event in

Condition Report 11-28753, and performed a root cause evaluation for the technical issues and also an organization effectiveness evaluation for any systematic or process issues. The root cause investigation determined that the most likely cause was a small leak in a hollow strand of stator cooling coil 33T. The leak degraded the resin in the coil over time allowing the conductor strands to move and vibrate, eventually leading to strand to strand shorts until the coil melted and created a violent arc causing coil 33T to catastrophically fail. Additionally, from an organizational standpoint, the licensee determined that the station had a lack of knowledge on the importance of the generator condition monitors alarms, the stator coil thermocouple readings, and that Procedure 0POP02-GG-0001 needed to be enhanced. Corrective actions included: replacing all 72 stator cooling coils, refurbishing the stator and rotor, replacing the hydrogen cooler, revising the procedure, and operations training.

Analysis. The failure to follow the Generator Hydrogen and Carbon Dioxide Gas System procedure was a performance deficiency. This finding was more than minor because it affected the Initiating Events Cornerstone attribute of Procedure Quality and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions in that it resulted in a turbine/reactor trip. The inspectors performed the significance determination using NRC Inspection Manual Chapter 0609. Because the finding affected the Initiating Events Cornerstone while the plant was at power, Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, evaluates the finding using Appendix A. Using Appendix A, Exhibit 1, Transient Initiators question, the finding was determined to be of very low safety significance (Green) because it did not cause a reactor trip and the loss of mitigation equipment. This finding did not have cross-cutting aspects because the generator condition monitor alarm portion of the procedure was last changed in 2005 and this was the last time that could be reasonably viewed to have identified the deficiency and therefore was not indicative of current licensee performance.

Enforcement. This finding does not involve enforcement action because no regulatory requirement violation was identified. The licensee entered this issue into the corrective action program as Condition Report 11-28753. Because this finding does not involve a violation and is of very low safety significance, it is identified as FIN 05000499/2012004-01, "Inadequate Procedure Results in Stator Cooling Water Coil Damage and Main Generator Trip."

4OA3 Followup of Events and Notices of Enforcement Discretion (71153)

(Closed) Licensee Event Report 05000499/2011-002-00, "Unit 2 Reactor Trip on Main Generator Lockout"

On November 26, 2011, Unit 2 received a stator cooling water differential temperature high alarm. It was determined that stator coil 33T was reading higher than the others, but still within band. On November 27, 2011, multiple generator condition monitoring alarms were received, and it was determined by the operating crew to be associated with the 33T coil reading slightly higher, but still within band. As a result, the control room removed 33T coil from service by substituting a known value. On November 29, 2011, Unit 2 tripped due to a main generator lockout. Inspection of the generator during the forced outage revealed significant damage to the stator; approximately 3 feet of stator coil 33T was melted or missing and several inches of iron core plates were melted. Additional damage occurred to the rotor and the hydrogen cooler. The root cause investigation determined that the most likely cause was a very small leak in a hollow strand of stator coil 33T. This condition allowed moisture to degrade the resin in the coil allowing individual conductor strands to move and vibrate. Eventually, this resulted in strand to strand shorts resulting in excessive heating until the coil arced across the missing melted area and resulted in the generator experiencing a ground fault and tripping on a main generator lockout. The enforcement aspects of this licensee event report are documented in Section 4OA2.3. This licensee event report is closed.

4OA5 Other Activities

(Closed) Unresolved Item 05000499/2011005-01, "Seal Cap on Safety Injection System Hot Leg Check Valve"

a. Inspection Scope

An unresolved item pertaining to seal cap enclosures installed on nine valves at South Texas Project, Units 1 and 2 was identified during the inservice inspection performed in November 2011. This issue was documented as Unresolved Item 05000499/2011005-01 in NRC Integrated Inspection Report 05000498/2011005 and 05000499/2011005 (ML120440682). The inspectors reviewed various design documents, work packages, condition reports, engineering evaluations, and information notices pertaining to the seal cap enclosures, bolting material characteristics, and ASME Code requirements.

b. Findings

.1 Failure to Promptly Correct a Condition Adverse to Quality

Introduction. The inspectors identified a Green non-cited violation, with nine examples, of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," associated with the licensee's failure to promptly correct a condition adverse to quality. Specifically, the licensee failed to correct longstanding leakage from the body-to-bonnet gasket on safety injection system hot leg check valve 1N122XSI0010A, which is a portion of the reactor coolant system Class 1 pressure boundary, and eight other valves in the chemical and volume control system in Units 1 and 2.

Description. During Refueling Outage 2RE15, reactor coolant system leakage was detected on the insulation of valve 1N122XSI0010A during the inspection of this component in accordance with Procedure 0PGP03-ZE-0033, "RCS (Reactor Coolant System) Pressure Boundary Inspection for Boric Acid Leaks." After the insulation was removed, water and boric acid crystals were identified on top of the seal cap on the valve bonnet. Subsequently, weld defects (slag inclusion and porosity) were identified in the seal cap to bonnet seal weld, which was reworked per the licensee's ASME Code Section XI Program during refueling outage 2RE15.

On February 8, 1997, Condition Report 97-2156 was issued to document steam coming from the valve bonnet of valve 1N122XSI0010A with boric acid buildup under the valve, while the system was at normal operating temperature and pressure. Condition Report 97-2156 was classified as a condition adverse to quality and the corrective action was to add a seal cap enclosure. Work Package 336951 installed a seal cap enclosure per Westinghouse Vendor Technical Document VTD-W120-0652. However, the licensee stated in the work package, “The actual pressure boundary is still considered the gasket seating area of the body to bonnet and not the enclosure. Therefore, the enclosure is not a pressure retaining component as defined in ASME (code) for this application.” In addition to this valve the licensee also installed the seal cap enclosures on eight other valves in the chemical and volume control system in Units 1 and 2. The licensee failed to recognize that the installation of the seal cap enclosure restricted access to portions of the reactor coolant system pressure boundary that were required to be inspected per the ASME Code. Because the licensee failed to get NRC approval to install the seal cap enclosure, the licensee failed to correct the condition adverse to quality and the design change served only as a housekeeping measure which hid the condition. The seal cap enclosures had been installed on the other eight valves since approximately 1988, prior to commercial operation of the units.

The licensee closed out Condition Report 97-2156 as completed, and the leakage from the body-to-bonnet joint on valve 1N122XSI0010A was no longer tracked in the corrective action program. The licensee documented leakage from the seal cap enclosure on multiple occasions between 1997 and 2011; these were captured in Condition Reports 99-1108, 10-10120, and 11-22991. Despite repeated indications that there was an active boric acid leak from the pressure retaining bolted connection, the leak was not entered into the boric acid corrosion control program. Additionally, an inspection or evaluation of the joint was not completed as required by ASME Code IWA-5250, CORRECTIVE ACTION, (a) (2), which states, in part, “If leakage occurs at a bolted connection in a system borated for the purpose of controlling reactivity, one of the bolts shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100. The bolt selected shall be the one closest to the source of leakage. When the removed bolt has evidence of degradation, all remaining bolting in the connection shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100.” When the inspectors challenged the licensee on performing an evaluation of the pressure boundary obscured by the seal cap enclosure, the licensee stated that the ASME Code does not require inaccessible portions of the reactor coolant system pressure boundary to be inspected. Therefore, they were not required to perform inspections on those portions of the pressure boundary under the seal cap enclosures. The inspectors informed the licensee that the exemption regarding access requirements pertains to any access limitations that may exist when the edition and addenda of the ASME Code becomes applicable. It does not permit the restriction of access which would prevent fulfilling the inspection and testing requirements of the applicable edition or addenda of the code.

The inspectors also informed the licensee that ASME Code, Section XI, Subsection IWA-1400(b), states, in part, “as part of the owner’s responsibilities, the design and arrangement of system components is to include allowances for adequate access and clearances for conduct of the examination and tests.” Additionally, the inspectors informed the licensee that the installation of the seal cap enclosures on valve 1N122XSI0010A and the other eight valves at South Texas Project, Units 1 and 2 restricted access to portions of the valve body, bonnet, studs and nuts such that it was no longer possible to inspect the pressure boundary of the entire valve during required code pressure tests. The licensee entered this issue into their corrective action program as Condition Report 11-23693.

Analysis. The failure to promptly correct longstanding leakage from the body-to-bonnet gasket on safety injection system hot leg check valve 1N122XSI0010A and eight other valves in the chemical and volume control system in Units 1 and 2, as required by 10 CFR Part 50, Appendix B, Criterion XVI, was a performance deficiency. The finding was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors performed the significance determination using NRC Inspection Manual Chapter 0609. Because the finding affected the Mitigating Systems Cornerstone while the plant was at power, Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, evaluates the finding using Appendix A. Using Appendix A, Exhibit 2, Mitigating Systems Screening Questions, the finding was determined to be of very low safety significance because it was not a design or qualification issue confirmed not to result in a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; and did not result in the loss of one or more trains of nontechnical specification equipment. In addition, this finding had a human performance cross-cutting aspect associated with decision making, because the licensee failed to use conservative assumptions when making decisions and did not demonstrate that nuclear safety was an overriding priority [H.1(b)].

Enforcement. Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." Contrary to the above, from February 8, 1997, to the present, the licensee failed to promptly correct a condition adverse to quality. Specifically, the licensee failed to correct longstanding leakage from the body-to-bonnet gasket on safety injection system hot leg check valve 1N122XSI0010A, which is a portion of the reactor coolant system Class 1 pressure boundary, and eight other valves in the chemical and volume control systems of Units 1 and 2. This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy because it was of very low safety significance and was entered into the corrective action program as Condition Report 11-23693 to address recurrence. (NCV 05000498/2012004-02 and 05000499/2012004-02, "Failure to Promptly Correct a Condition Adverse to Quality.)"

.2 Permanent Modification to Valve 1N122XSI0010A and Eight Others Without Prior NRC Approval

Introduction. A Severity Level IV non-cited violation, with two examples, was identified for the failure to obtain NRC approval prior to implementing a modification to safety injection system hot leg check valve 1N122XSI0010A and eight other valves at South Texas Project, Units 1 and 2.

Description. During Refueling Outage 2RE15, the licensee identified reactor coolant system leakage on the insulation of Unit 2 valve 1N122XSI0010A, Condition Report 11-22991. When the insulation was removed, water and boric acid crystals were found on top of the seal cap enclosure and on the valve bonnet. Multiple defects were identified in the seal cap enclosure to bonnet seal weld, which was reworked in Refueling Outage 2RE15 per the licensee's ASME Code Section XI Program. The seal cap enclosure was originally installed in 1997 due to identified leakage from the body-to-bonnet gasket of check valve 1N122XSI0010A.

On February 8, 1997, Condition Report 97-2156 documented steam coming from the valve bonnet of valve 1N122XSI0010A with boric acid buildup under the valve. The condition was documented while the system was at normal operating temperature and pressure, and was classified as a condition adverse to quality and the corrective action was to add a seal cap enclosure. Work Package 336951 installed a seal cap enclosure per the Westinghouse Vendor Technical Document VTD-W120-0652. However, the licensee stated in the work package, "The actual pressure boundary is still considered the gasket seating area of the body to bonnet and not the enclosure. Therefore, the enclosure is not a pressure retaining component as defined in ASME (code) for this application." The licensee failed to recognize that the installation of the seal cap enclosures restricted access to portions of the reactor system pressure boundary that were required to be inspected per the ASME Code.

The first example was a 10 CFR 50.59 evaluation performed in March 1988 to install eight seal cap enclosures in Units 1 and 2 on valves in the chemical and volume control systems. This 10 CFR 50.59 evaluation contained the following errors:

a. Item 11 of the design check list stated that no external design constraints were affected by the modification.

b. Item 12 j stated that maintainability and accessibility were not impacted.

c. Item 12 q stated that Failure Mode and Effects Analysis (FMEA) Evaluation was not affected.

d. In the preliminary screening portion of the 10 CFR 50.59, the licensee assessed that the change did not constitute a configuration change within the existing design specifications.

e. Item 4 of the final screening section: The licensee determined that the change did not affect any conditions or bases assumed in the safety analysis report.

In the second example, a seal cap enclosure was installed on Unit 2 valve 1N122XSI0010A using Design Change Package 97-2156-2. This design change package checklist contained the following errors:

a. Item 6 f), "Accident analyses Impacted?" was answered, No.

b. Item 11, “External design constraints?” was answered, No.

c. Item 12 j), “Maintainability / Accessibility?” was answered, No.

d. Item 12 q), “Failure Mode and Effects Analysis (FMEA) Evaluation?” was answered, No.

The 10 CFR 50.59 Final Screening Form contained the following errors:

a. Item 1 “Does the subject of this review involve a change to the facility as described In the Safety Analysis Report?” was answered, No.

b. Item 4 “Does the proposed change affect conditions or bases assumed in the Safety Analysis Report, safety-related functions of equipment/systems, even though the proposed change does not entail any physical change in existing structures, systems, or procedures as described in the SAR?” was answered, No.

Contrary to the above, Section 3.1.2.4.3.1, “Evaluation Against Criterion 32,” of the UFSAR in effect at the time of the 10 CFR 50.59 screenings states, in part, “The design of the RCPB (reactor coolant pressure boundary) provides the capability for accessibility during service life to the entire internal surfaces of the reactor vessel, certain external zones of the vessel including the nozzles to reactor coolant piping welds and certain portions of the top and bottom heads, and external surfaces of the reactor coolant piping except for the area of pipe within the primary shielding concrete. The inspection capability complements the Leakage Detection Systems in assessing the RCPB components’ integrity. The RCPB is periodically inspected under the provisions of ASME Section XI.”

Section 5.2.4.1, System Boundary Subject to Inspection states, in part, “The ASME Section III Class 1 components (and their supports) that make up the RCPB are subject to preservice inspection and testing by rules of the ASME Section XI Code.” The system boundary includes all Class 1 pressure retaining components such as pressure vessels, piping, pumps, and valves that are part of or are connected to the reactor coolant system, up to and including the following:

1. The outermost containment isolation valve in system piping that penetrates the primary reactor containment

2. The second of two valves normally closed during normal reactor operation in system piping that does not penetrate primary reactor containment

3. The reactor coolant system safety and relief valves

Section 5.2.4.2, Access Provisions states, in part, “Access is provided for the inspector and for examination personnel and equipment in accordance with Subarticle IWA-1500 of Section XI of the ASME B&PV Code, 1974 edition including the Summer 1975 Addenda Access for some systems and parts thereof is designed in accordance with the requirements of later editions and addenda up to the code used for preservice examination." Provisions for the removal and storage of structural members, shielding, insulation materials, etc., that would restrict access for examination are included in the plant design and operating procedures. More specifically, access is provided for visual, surface, and volumetric examinations of welds and their adjacent base metal by means of removable insulation, removable shielding, and installation of permanent tracks for remote inspection devices in areas where personnel access is restricted by space, temperature, and/or high-radiation environments.

Section 5.2.4.4, Inspection Intervals states, in part, "The scheduling of inspection programs is in accordance with paragraph IWA-2400 and Tables IWB-2500-1 of ASME Section XI. The frequency and extent of examinations within each inspection interval are defined in Table IWB-2500-1 of Section XI."

The installation of the seal cap enclosures restricted access to previously accessible reactor coolant system pressure boundary that was required to be inspected by ASME Code to which the licensee had committed in the safety analysis report. In addition, the seal cap enclosure changed the environment that the bolted connection was subjected to and resulted in an environment that rendered the material susceptible to primary water stress corrosion cracking. The overall effect of these changes was the addition of more than a minimal likelihood of a malfunction of the equipment, with a concurrent reduction in system reliability and capability. The inspectors questioned whether this modification required prior NRC approval under both 10 CFR 50.59, "Changes, Tests, and Experiments," guidance at the time, or with current guidance. The Office of Nuclear Reactor Regulation staff determined that prior NRC approval was required for the installation of the seal cap enclosures.

<u>Analysis</u>. The finding was more than minor because it affected the Mitigating Systems Cornerstone attribute of Equipment Performance and affected the cornerstone objective to ensure the reliability and capability of safety injection to respond to an initiating event. The issue was determined to result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the Updated Final Safety Analysis Report. In accordance with the NRC Enforcement Manual, violations of 10 CFR 50.59 are not processed directly through the significance determination process; as a result, this issue was determined to be applicable to traditional enforcement. A Significance Determination Process screening was performed and the finding was determined to have very low safety significance (Green) because there was no actual loss of the mitigating system safety function. Because the performance deficiency was determined to be of very low safety significance, this finding is considered a Severity Level IV violation in traditional enforcement. Based on discussions with the Office of Nuclear Reactor Regulation staff, the inspectors determined that a request for approval would likely have been granted. The licensee entered this issue into its corrective action program as Condition Report 11-23693.

<u>Enforcement</u>. Title 10 CFR 50.59 states that prior NRC approval is required for changes resulting in more than a minimal increase in the likelihood of occurrence of a malfunction of a system, structure, or component important to safety previously evaluated in the Final Safety Analysis Report (as updated). Contrary to this, from February 8, 1997, to

the present, the licensee implemented nine modifications to valves in safety related or important to safety systems without obtaining prior NRC approval. This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy because it was a Severity Level IV violation and was entered into the corrective action program as Condition Report 12-14982 to address recurrence. (NCV 05000498/2012004-03 and 05000499/2012005-03, "Permanent Modification to Valve 1N122XSI0010A and Eight Others Without Prior NRC Approval.)"

4OA6 Meetings, Including Exit

Exit Meeting Summary

On September 12, 2012, the inspectors presented the results of the review of the seal cap enclosure unresolved item to Mr. G. Powell, Vice President, Generation, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On October 4, 2012, the inspectors presented the inspection results to Mr. D. Rencurrel, Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

R. Aguilera, Manager, Health Physics
M. Berg, Manager, Design Engineering
C. Bowman, General Manager, Engineering and Regulatory Affairs
R. Dunn Jr., Manager, Fuels and Analysis
R. Engen, Site Engineering Director
T. Frawley, Manager, Operations
J. Hartley, Manager, Mechanical Maintenance
G. Hildebrandt, Manager, EP/Plant Protection
G. Janak, Manager, Unit 1 Operations
B. Jenewein, Manager, Systems Engineering
D. Koehl, Chief Executive Officer and Chief Nuclear Officer
J. Lovejoy, Manager, I&C Maintenance
G. MacDonald, Manager, Training Support
R. McNiel, Manager, Engineering Support
J. Mertink, Manager, Training and Knowledge Transfer
J. Milliff, Manager, Unit 2 Operations
M. Murray, Manager, Regulatory Affairs
J. Paul, Supervisor, Licensing
L. Peter, Plant General Manager
J. Pierce, Manager, Operations Training
G. Powell, Vice President, Generation, Units 1 and 2
D. Rencurrel, Chief Nuclear Officer
M. Ruvalcaba, Manager, Testing and Programs
R. Savage, Engineer, Licensing Staff Specialist
M. Schaefer, Manager, Maintenance
S. Sovizral, Manager, Security Operations
K. Taplett, Senior Engineer, Licensing Staff
C. Younger, Engineering Programs
D. Zink, Supervising Engineering Specialist

NRC Personnel

J. Dixon, Senior Resident Inspector
B. Tharakan, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000499/2012004-01	FIN	Inadequate Procedure Results in Stator Cooling Water Coil Damage and Main Generator Trip (Section 4OA2)
05000498/2012004-02 05000499/2012004-02	NCV	Failure to Promptly Correct a Condition Adverse to Quality (Section 4OA5)
05000498/2012004-03 05000499/2012004-03	SL-IV	Permanent Modification to Valve 1N122XSI0010A and Eight Others Without Prior NRC Approval (Section 4OA5)

Closed

05000499/2011-002-00	LER	Unit 2 Reactor Trip on Main Generator Lockout (Section 4OA3)
05000499/2011005-01	URI	Seal Cap on Safety Injection System Hot Leg Check Valve (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

CONDITION REPORTS

12-24006	12-24044	12-24089	12-24178
12-24030	11-14080		

PROCEDURES

NUMBER	TITLE	REVISION
0ERP01-ZV-IN01	Emergency Classification	9
0PGP01-ZV-0001	Severe Weather Plan	17
0POP04-ZO-0002	Natural and Destructive Phenomena Guidelines	41

Section 1R04: Equipment Alignment

CONDITION REPORTS

05-12504	11-6228	11-24175	12-25242
08-1529			

DRAWINGS

NUMBER	TITLE	REVISION
5N129F05013#2	Piping and Instrument Diagram Safety Injection System	31
5N129F05014#2	Piping and Instrument Diagram Safety Injection System	18
5R219F05028#1	Piping & Instrumentation Diagram Spent Fuel Pool Cooling & Cleanup System	28
5R219F05029#1	Piping and Instrumentation Diagram Spent Fuel Pool Cooling & Cleanup System	18

MISCELLANEOUS

NUMBER	TITLE	REVISION
JCO 940005	Boraflex Degradation in the Spent Fuel Racks	3

PROCEDURES

NUMBER	TITLE	REVISION
0POP02-FC-0001	Spent Fuel Pool Cooling and Cleanup System	1, 2, 65
0POP02-SI-0002	Safety Injection System Initial Lineup	32

Section 1R05: Fire Protection

FIRE PREPLANS

NUMBER	TITLE	REVISION
2ECW57-FP-0604	Fire Preplan Essential Cooling Water Intake Structure Pump Room Train B	4
0FPH59-FP-0800	Fire Preplan For Fire Pump House	1
0MAB02-FP-0128	Fire Preplan Mechanical Auxiliary Building CCW Pump and Chiller, Train A	3

NUMBER	TITLE	REVISION
0MAB29-FP-0140	Fire Preplan Mechanical Auxiliary Building CCW Pump and Chiller Train B	3

PROCEDURES

NUMBER	TITLE	REVISION
0PGP03-ZA-0514	Controlled System or Barrier Impairment	8
0PGP03-ZF-0001	Fire Protection Program	25
0PGP03-ZF-0018	Fire Protection System Functionality Requirements	16
0PGP03-ZF-0019	Control of Transient Fire Loads and Use of Combustible and Flammable Liquids and Gases	9

Section 1R12: Maintenance Effectiveness

CONDITION REPORTS

06-5575	11-11588	12-11077	12-21519
10-13316	11-13413	12-11256	12-23963
10-17622	11-19289	12-13560	

MISCELLANEOUS

NUMBER	TITLE	REVISION/DATE
	Maintenance Rule System Scoping Basis Report	March 8, 2012
	System Health Report Standby D/G (DG, JW, LU, DO,SD, DI, DX)	First Quarter 2011 – Second Quarter 2012
	System Health Report Rod Control/Indication (RS,RI)	First Quarter 2011 – Second Quarter 2012
5A050GADG01	Risk Significance Basis Document Standby Diesel Generator (DG) System	5

PROCEDURES

NUMBER	TITLE	REVISION
0PGP03-ZE-0004	Plant Surveillance Program	26

WORK AUTHORIZATION NUMBERS

441628	443224	443857

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

CONDITION REPORTS

11-3756	12-23870	12-23994	12-24143
12-19236	12-23913		

MISCELLANEOUS

NUMBER	TITLE	REVISION
Work Activity Risk 2381	Replace Corroded Mega Block and Wiring for Feedwater Heater 15B Level Control	0
Work Activity Risk 2389	Perform an Online Cleaning of the Unit 1 Main Generator Stator Coil Water Passageways	0
Work Activity Risk 2336	RHDT 21A High Level Dump LV-7207 Overhaul Actuator/Repack Valve	0

PROCEDURES

NUMBER	TITLE	REVISION
0PGP03-ZA-0091	Configuration Risk Management Program	12
0PGP03-ZG-RMTS	Risk-Managed Technical Specification Program	1
0PGP03-ZO-0039	Operations Configuration Management	26
0POP01-ZO-0006	Risk Management Actions (RMAs)	19
0POP02-AE-0004	120 VAC ESF Vital Distribution Power Supplies	48
0POP07-GC-0002	Generator Stator Cooling Water System EDTA Cleanup Online	4

Section 1R15: Operability Evaluations and Functionality Assessments

CONDITION REPORTS

98-2722	11-3897	12-19637	12-24605
09-11458	11-11096	12-22004	12-25749
09-20681	11-13415	12-22876	12-25789
10-17957	11-24978	12-24143	12-25804
11-3756	12-17220		

MISCELLANEOUS

NUMBER	TITLE	REVISION
120021	South Texas Project Units 1 and 2 Flood Analysis	0
OpESS 2012/02	Technical Specification Interpretation and Operability Determination	1
VTD-S637-0009	ESF Load Sequencer for South Texas Project Electric Generating Station	0, 1

PROCEDURES

NUMBER	TITLE	REVISION
0PGP02-ZA-0003	Comprehensive Risk Management Program	13
0PGP02-ZA-0062	Integrated Working Group Process	1
0PMP04-ZG-0071	Westinghouse Swing Check Valve Maintenance – 3 to 18 Inch	11
0POP09-AN-03M3	Annunciator Lampbox 3M03 Response Instructions	30

WORK AUTHORIZATION NUMBERS

412789	429020	455184

Section 1R19: Post-maintenance Testing

CONDITION REPORTS

10-3630	12-25449	12-26799	12-27101
11-13155	12-25503	12-26962	12-27109
11-30283	12-26712	12-27100	

DRAWINGS

NUMBER	TITLE	REVISION
5N129F05014#2	Piping and Instrumentation Diagram Safety Injection System	18
00009E0PMAE#2	Single Line Diagram 480V Class-IE Motor Control Center E2B2 (EAB)	17
00009E0SI02#2	Elementary Diagram LHSI Pump 2A, 2B & 2C Discharge MOVs 0018A, 0018B, & 0018C	14

PROCEDURES

NUMBER	TITLE	REVISION
0PGP03-ZE-0027	ASME Section XI Repair/Replacement Activities	29
0PGP03-ZE-0082	ASME Section XI Repair/Replacement Activity Pressure Testing	0
0PMP04-ZG-0058	Mission Split Disc/Clow Dual Plate Check Valve Maintenance	14
0PMP05-CH-0003	York Chiller Inspection & Maintenance 300 Tons	6
0PMP05-VA-0006	120 VAC NSSS Vital 10KVA Inverter/Rectifier Maintenance	13
0PMP05-VA-0007	120 VAC NSSS Vital Inverter/Rectifier (10KVA) Performance Test	11
0PMP05-ZE-0100	Panel Meter Calibration	18
0PMP08-AM-0001	AMSAC Calibration	5
0POP11-DJ-0002	Class 1E 125V DC Battery Online Test Discharge Setup and Restoration	3
0PSP03-EW-0019	Essential Cooling Water System Train C Testing	45
0PSP03-SI-0024	Safety Injection System 1B(2B) Valve Operability Test	22
0PSP05-NI-0036	Intermediate Range Neutron Flux Channel II Calibration (N-0036)	19
0PSP06-DJ-0002	125 Volt Class 1E Battery Quarterly Surveillance Test	23
0PSP06-DJ-0007	125 Volt Class 1E Battery Modified Performance Surveillance Test	8

WORK AUTHORIZATION NUMBERS

404012	413695	422779	427243
404347	417906	424640	444224
409298	420308	426246	448617

Section 1R22: Surveillance Testing

CONDITION REPORTS

05-15710	12-1474	12-23878	12-23888
06-520			

MISCELLANEOUS

NUMBER	TITLE	REVISION
7Y310YS1000	Geotechnical Monitoring	9
12-YU-002	2012 Essential Cooling Pond (ECP) Seepage Calculation	0

PROCEDURES

NUMBER	TITLE	REVISION
0PSP03-AF-0007	Auxiliary Feedwater Pump 14(24) Inservice Test	38
0PSP03-SP-0009B	SSPS Actuation Train B Slave Relay Test	39

WORK AUTHORIZATION NUMBERS

418788	430100	430101	430105

Section 1EP4: Emergency Action Level and Emergency Plan Changes

MISCELLANEOUS

NUMBER	TITLE
ICN #20-11	Emergency Plan

PROCEDURES

NUMBER	TITLE	REVISION
OERP01-ZV-EF01	EOF Director	14
OERP01-ZV-IN01	Emergency Classification	9
OERP01-ZV-OF03	Alternate TSC/OSC	0
OERP01-ZV-SH01	Shift Manager	26

Section 4OA1: Performance Indicator Verification

CONDITION REPORTS

11-27377	11-28753	12-13333

MISCELLANEOUS

NUMBER	TITLE	REVISION
AD-0007	Collection of NRC Performance Indicator Data – Reactor Coolant System Specific Activity	3
LDG-01	NRC Performance Indicator: Safety System Functional Failures	1
PI-0002	NRC & INPO Performance Indicator: Initiating Events Cornerstone (by Unit) and Barrier Integrity Cornerstone (by Unit) Desktop Guidelines	5

PROCEDURES

NUMBER	TITLE	REVISION
0PCP07-ZS-0001	Sampling at Primary Sample Panel ZLP-131	13
0PSP07-ZQ-0001	Weekly Chemistry Surveillance Logs	16

Section 4OA2: Problem Identification and Resolution

CONDITION REPORTS

98-7753	11-28496	11-28573	11-28753
03-12029	11-28567	11-28610	

PROCEDURES

NUMBER	TITLE	REVISION
0POP02-GG-0001	Generator Hydrogen and Carbon Dioxide Gas System	43
0POP02-GG-0001	Generator Hydrogen and Carbon Dioxide Gas System	45

Section 4OA3: Followup of Events and Notices of Enforcement Discretion

CONDITION REPORTS

11-28753

Section 4OA5: Other Activities

CONDITION REPORTS

97-2156	08-15989	11-22991	11-24637
99-1108	08-15991	11-22994	11-24638
06-15596	10-8498	11-23503	11-24641
08-15735	11-17459-1	11-23693	11-24872
08-15984	11-21297	11-24215	

MISCELLANEOUS

NUMBER	TITLE	REVISION/DATE
DCP-97-2156-2	Check Valve 1N122XSI0010A Bonnet Enclosure	February 11, 1997
WCAP-15988-NP	Generic Guidance for an Effective Boric Acid Inspection Program for Pressurized Water Reactors	1
VTD-W120-0652	Westinghouse Motor Operated Gate Valves, Manually Operated Gate Valves, Swing Check Valves Instruction Book	3
5N129F05013	Piping and Instrumentation Diagram Safety Injection System	28
Information Notice 90-68	Stress Corrosion Cracking of Reactor Coolant Pump Bolts	October 30, 1990
AECL/EACL 153-03210-450-001	Failure Examination of Two ASTM A453 Grade 660 Studs from a Check Valve Bonnet at Callaway Nuclear Power Plant	0
	ASME, Boiler & Pressure Vessel Code Committee Correspondence Code Case N-616, Alternate to Insulation Removal	May 3, 2000

PROCEDURES

NUMBER	TITLE	REVISION
UTI-025	Manual Ultrasonic Examination of Threaded Bolting	2
0PEP10-ZA-0004	General Ultrasonic Examination	6
0PMP04-ZG-0071	Westinghouse Swing Check Valve Maintenance- 3 to 18 Inch	11

WORK ORDERS

336951