



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

July 30, 2013

Rafael Flores, Senior Vice President  
and Chief Nuclear Officer  
Luminant Generation Company, LLC  
Comanche Peak Nuclear Power Plant  
P.O. Box 1002  
Glen Rose, TX 76043

Subject: COMANCHE PEAK NUCLEAR POWER PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000445/2013003 AND 05000446/2013003

Dear Mr. Flores:

On June 26, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Comanche Peak Nuclear Power Plant, Units 1 and 2, facility. The enclosed inspection report documents the inspection results which were discussed on July 10, 2013, with Mr. K. Peters, Site Vice President, and other members of your staff.

The inspection 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 findings and one self-revealing finding of very low safety significance (Green) were identified during this inspection. Two of these findings were determined to involve violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs), consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest 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 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 the Comanche Peak Nuclear Power Plant, Units 1 and 2.

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 the Comanche Peak Nuclear Power Plant, Units 1 and 2.

R. Flores

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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, Chief  
Project Branch A  
Division of Reactor Projects

Docket Nos.: 05000445; 05000446  
License Nos.: NPF-87; NPF-89

Enclosure: Inspection Report 05000445/2013003 and 05000446/2013003  
w/Attachments: 1. Supplemental Information  
2. Request for Information for the Occupational Radiation Safety  
Inspection  
3. Request for Information for the Inservice Inspection

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-445, 50-446  
License: NPF-87, NPF-89  
Report: 05000445/2013003 and 05000446/2013003  
Licensee: Luminant Generation Company LLC  
Facility: Comanche Peak Nuclear Power Plant, Units 1 and 2  
Location: FM-56, Glen Rose, Texas  
Dates: March 28 through June 26, 2013  
Inspectors: J. Kramer, Senior Resident Inspector  
B. Tindell, Resident Inspector  
C. Alldredge, Health Physicist  
I. Anchondo, Senior Reactor Inspector  
L. Carson II, Senior Health Physicist  
K. Hoffman, Nuclear Reactor Regulation  
B. Parks, Reactor Inspector  
M. Williams, Reactor Inspector  
Approved By: Wayne Walker, Chief, Project Branch A  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000445/2013003, 05000446/2013003; 3/28-6/26/2013; Comanche Peak Nuclear Power Plant, Units 1 and 2 Integrated Resident and Regional Report; Operability Evaluations, Problem Identification and Resolution, Event Followup.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Two Green non-cited violations and one Green finding 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 identified a non-cited violation of Technical Specification 5.4.1.a for the failure to follow an auxiliary feedwater system operating procedure. As a result, a water hammer occurred on the condensate storage tank makeup reject line. The licensee entered the finding into the corrective action program as Condition Report CR-2012-012539.

The finding was more than minor because it was associated with the human performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective, in that, it increased the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, it resulted in a system water hammer. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the finding was determined to be of very low safety significance because the finding did not cause a reactor trip and the loss of mitigation equipment. The finding had a human performance cross-cutting aspect associated with resources, in that, the licensee failed to ensure that personnel were adequately trained to perform the activity [H.2(b)] (Section 4OA2.3).

- Green. The inspectors reviewed a self-revealing finding for the licensee's failure to appropriately plan and control work activities during the installation of an air regulator in the heater drain system. As a result, the fitting that connected the air regulator to an adjacent in-line air filter broke and caused a plant transient and an automatic reactor trip. The licensee entered the finding in the corrective action program as Condition Report CR-2012-012183.

The finding was more than minor because it was associated with the equipment performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective in that it increased the likelihood of those events that upset plant stability and challenge critical safety functions during power

operations. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the finding was determined to be of very low safety significance because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment would not be available. The finding had a human performance cross-cutting aspect associated with work control in that the licensee failed to appropriately plan the work activity [H.3(a)] (Section 4OA3).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of the licensee to have documented instructions of a type appropriate to the circumstances for testing the main steam safety valves. Specifically, the procedure for testing the main steam safety valves did not provide direction to declare the valves inoperable when applying pressure to the lifting device. As a result, the licensee failed to declare the main steam safety valves inoperable during testing. The licensee entered the finding in the corrective action program as Condition Report CR-2013-002947.

The finding was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the procedure did not provide guidance to declare a main steam safety valve inoperable with the test rig installed. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the finding was determined to be of very low safety significance because the finding was not a design or qualification deficiency; did not represent an actual loss of safety function of a system or train; and did not result in the loss of one or more trains of non-technical specification trains of equipment. The inspectors determined that the finding was not representative of current licensee performance and no cross-cutting aspect was assigned (Section 1R15).

**B. Licensee-Identified Violations**

None.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 began the inspection period at approximately 100 percent power. On March 30, 2013, the operators shut down Unit 1 to begin a scheduled refueling outage. On April 21, 2013, the outage ended when the main generator output breakers were closed and Unit 1 was placed on the grid. On April 24, 2013, the unit returned to approximately 100 percent power and operated at that power level for the remainder of the inspection period.

Unit 2 began the inspection period at approximately 100 percent power. On May 18, 2013, operators reduced power to approximately 70 percent power for turbine valve testing. The unit returned to approximately 100 percent power the next day and operated at that power level for the remainder of the inspection period.

### 1. REACTOR SAFETY

#### Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R04 Equipment Alignments (71111.04)

##### .1 Partial Equipment Walkdowns (71111.04)

##### a. Inspection Scope

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

- April 9, 2013, Unit 1, diesel generator 1-02 and train B 6.9 kV electrical bus when diesel generator 1-01 was unavailable for maintenance
- April 19, 2013, Unit 2, containment spray system inside containment following a refueling outage
- June 19, 2013, Unit 2, diesel generator 2-02 when diesel generator 2-01 was unavailable for testing

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors focused on discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Final Safety Analysis Report, technical specification requirements, 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 walked down 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.

.2 Complete System Walkdown (71111.01S)

a. Inspection Scope

The inspectors performed a complete system walkdown of the Unit 1 turbine driven auxiliary feedwater system to verify the functional capability of the system. The inspectors selected this system because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line-ups, system pressure and temperature indications, component labeling, component lubrication, hangers and supports, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the systems' function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

**1R05 Fire Protection (71111.05AQ)**

Quarterly Fire Inspection Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns in the following risk-significant plant areas:

- April 9, 2013, fire zone WB104a, service water intake structure
- April 16, 2013, fire area 1CA, Unit 1 containment
- May 16, 2013, fire zone 2SC, turbine driven auxiliary feedwater pump 2-01 room
- May 16, 2013, fire zone 2SB5, motor driven auxiliary feedwater pump 2-01 room
- May 16, 2013, fire zone 2SB6, motor driven auxiliary feedwater pump 2-02 room

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 or their potential to affect equipment that could initiate or mitigate a plant transient. 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.

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

b. Findings

No findings were identified.

**1R06 Flood Protection Measures (71111.06)**

a. Inspection Scope

The inspectors performed visual underground cable inspections of the following vaults:

- May 23, 2013, underground vault E2A1
- May 23, 2013, underground vault E2A2
- May 23, 2013, underground vault E2A3
- May 23, 2013, underground vault E2A4

The inspectors verified the adequacy of flood control measures. The inspectors reviewed the Final Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one bunker/manhole inspection sample as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

**1R07 Heat Sink Performance (71111.07)**

a. Inspection Scope

The inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the Unit 1 train A diesel generator jacket water to service water heat exchanger and the Unit 2 train B diesel generator jacket water to service water heat exchanger. The

inspectors verified the licensee properly utilized biofouling controls; the licensee’s heat exchanger inspections adequately assessed the state of cleanliness of the tubes; and the heat exchanger was correctly categorized under 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.”

These activities constitute completion of two heat sink inspection samples as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings were identified.

**1R08 Inservice Inspection Activities (71111.08)**

Completion of Sections .1 through .5, below, constitute completion of one inservice inspection activities sample as defined in Inspection Procedure 71111.08-05.

.1 Inspection Activities Other Than Steam Generator Tube Inspection, Pressurized Water Reactor Vessel Upper Head Penetration Inspections, and Boric Acid Corrosion Control (71111.08-02.01)

a. Inspection Scope

The inspectors observed eight nondestructive examination activities and reviewed five nondestructive examination activities that included four types of examinations. The licensee did not identify any relevant indications accepted for continued service during the nondestructive examinations.

The inspectors directly observed the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Residual Heat Removal	Pipe to Elbow Weld TBX-1-4101-9	Ultrasonic Test
Reactor Coolant System	Mechanical Snubber TBX-1-4503	Visual (VT-3)
Safety Injection	Pipe Hanger CP1-SSISSMR-05 TBX-1-4103-MR5	Visual (VT-3)
Safety Injection	Spring Support SI-1-089-007-C4IS TBX-1-4103-H6	Visual (VT-3)
Safety Injection	Spring Support SI-1-089-007-C4IS TBX-1-4103-H6	Dye Penetrant Test
Chemical Volume Control	Horizontal Letdown Heat Exchanger Heat-to-Flange TBX-2-1104-1	Ultrasonic Test
Reactor Coolant System	Hot Leg Nozzle DM Weld Nozzle to Safe-end/Safe-end to Pipe TBX-1-4200-1	Ultrasonic Test

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Reactor Coolant System	Hot Leg Nozzle DM Weld Nozzle to Safe-end/Safe-end to Pipe TBX-1-4300-1	Ultrasonic Test

The inspectors reviewed records for the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Chemical Volume Control	Manual Gate Valve 1-HV-8402A Weld No. FW-20	Radiograph Test
Chemical Volume Control	CS-1-074 Pipe Segment Weld No. TUX-23-2	Radiograph Test
Residual Heat Removal	Pipe to Elbow Weld TBX-1-4401-1	Ultrasonic Test
Reactor Coolant System	Hot Leg Nozzle DM Weld Nozzle to Safe-end/Safe-end to Pipe TBX-1-4100-1	Ultrasonic Test
Reactor Coolant System	Hot Leg Nozzle DM Weld Nozzle to Safe-end/Safe-end to Pipe TBX-1-4400-1	Ultrasonic Test

During the review and observation of each examination, the inspectors verified that activities were performed in accordance with the American Society of Mechanical Engineers Code requirements and applicable procedures. The inspectors also verified the qualifications of all nondestructive examination technicians performing the inspections were current.

The inspectors observed portions of two of the following welding activities on pressure retaining risk significant systems:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>WELD TYPE</u>
Chemical Volume Control	Manual Gate Valve 1-HV-8402A Weld No. FW-20	Gas Tungsten Arc Welding (GTAW)
Chemical Volume Control	CS-1-074 Pipe Segment Weld No. TUX-23-2	Gas Tungsten Arc Welding (GTAW)

The inspectors verified that the welding procedure specifications and the welders had been properly qualified in accordance with American Society of Mechanical Engineers Code, Section IX, requirements. The inspectors also verified that essential variables were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.01.

b. Findings

No findings were identified.

.2 Vessel Upper Head Penetration Inspection Activities (71111.08-02.02)

a. Inspection Scope

The licensee performed a visual inspection per procedure, "Reactor Vessel Closure Head Visual Examination Plan," Revision 4. During refueling outages when a bare metal visual inspection is not required per American Society of Mechanical Engineers Code Case N-729-1, a less detailed general visual assessment is performed. The inspectors reviewed the results of the licensee's visual assessment and verified that there was no evidence of boric acid challenging the structural integrity of the reactor head components and attachments.

These actions constitute completion of the requirements for Section 02.02.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control Inspection Activities (71111.08-02.03)

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's 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 walkdown as specified in Procedure STA-737, "Boric Acid Detection and Evaluation," Revision 6. The inspectors verified that the visual inspections emphasized locations where boric acid leaks could cause degradation of safety-significant components, and that 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 confirmed that corrective actions taken were consistent with the American Society of Mechanical Engineers Code, and 10 CFR 50, Appendix B requirements. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.03.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities (71111.08-02.04)

a. Inspection Scope

The inspectors reviewed the steam generator tube eddy current test examination scope and expansion criteria and verified that it met technical specification requirements,

electric power research institute guidelines, and commitments made to the NRC. The inspectors also verified that the eddy current test inspection scope included areas of degradations that were known to represent potential eddy current test challenges such as the top of tube sheet, tube support plates, and U-bends. The inspectors confirmed that no repairs were required at the time of the inspection. The scope of the licensee's eddy current test examinations included:

- 50 percent bobbin coil testing
- 50 percent Row 1-3 U Bend +Point testing
- 20 percent Top of tube sheet Hot Leg +Point testing
- 50 percent +Point of Dings/Dents > equal to 5 volts testing
- 100 percent Peripheral Tubes (Top of Tube Sheet) +Point
- 100 percent TRA signals from PSI (23 tubes)

No tube degradation mechanisms were identified during refueling outage RF-16.

The inspectors observed portions of the eddy current testing being performed and verified that: (1) the appropriate probes were used for identifying the expected types of degradation, (2) calibration requirements were adhered, and (3) probe travel speed was in accordance with procedural requirements. The inspectors performed a review of the site-specific qualifications for the techniques being used, and verified that eddy current test data analyses were adequately performed per electric power research institute and site specific guidelines. The inspectors compared the inspection results to the previous outage operational assessment to assess the licensee's prediction capabilities with no issues identified. The licensee performed foreign object search and retrieval inspections on top of the tubesheet of all four steam generators. The licensee identified four objects that were left in their respective steam generator and an evaluation was performed to assess the object being left in place. The inspectors reviewed the evaluation and the images of the objects with no issues identified. The licensee made the administrative decision to preventively stabilize and plug a tube in steam generator 4 located in row 13, column 17 adjacent to one of the loose parts that could not be retrieved. The loose part was observed resting between the tube and a stay rod.

Finally, the inspectors review selected eddy current test data and verified that the analytical techniques used were adequate.

These actions constitute completion of the requirements for Section 02.04.

b. Findings

No findings were identified.

.5 Identification and Resolution of Problems (71111.08-02.05)

a. Inspection scope

The inspectors reviewed 17 condition reports associated with inservice inspection activities, and determined that the corrective actions taken were appropriate. The inspectors concluded that the licensee has an appropriate threshold for entering inservice inspection issues into the corrective action program, and has procedures that direct a root cause evaluation when necessary. The licensee also has an effective

program for applying inservice inspection industry operating experience. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements of Section 02.05.

b. Findings

No findings were identified.

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

.1 Quarterly Inspection of Licensed Operator Requalification Program (71111.11Q)

a. Inspection Scope

On May 21, 2013, the inspectors observed a crew of licensed operators in the plant's simulator during requalification training. The inspectors assessed the following areas:

- Licensed operator performance
- The ability of the licensee to administer the evaluations
- 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 inspection of licensed operator requalification program sample as defined in Inspection Procedure 71111.11-05.

b. Findings

No findings were identified.

.2 Quarterly Observation of Licensed Operator Performance (71111.11Q)

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. The inspectors assessed the operators' adherence to plant procedures and other operations department policies. The inspectors observed the operators' performance of the following activities:

- April 10, 2013, Unit 1, reactor coolant system reduced inventory operations
- April 17, 2013, Unit 1, reactor coolant system vacuum fill
- April 20, 2013, Unit 1, reactor startup
- April 21, 2013, Unit 1, sync to the grid and power ascension

These activities constitute completion of one quarterly observation of licensed-operator performance sample as defined in Inspection Procedure 71111.11-05.

b. Findings

No findings were identified.

**1R12 Maintenance Effectiveness (71111.12)**

a. Inspection Scope

The inspectors evaluated the alternate power diesel generators. The inspectors reviewed events where ineffective equipment maintenance had resulted in failures 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)

The inspectors verified 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.

These activities constituted completion of one maintenance effectiveness sample 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 the licensee'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:

- April 9, 2013, spent fuel pool cooling system defense-in-depth following Unit 1 full core offload to the spent fuel pools

- May 8, 2013, Unit 2, diesel generator 2-02 out of service for planned maintenance activities
- June 17, 2013, Units 1 and 2, XST1 transformer out of service for planned maintenance activities

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.

These activities constitute completion of three 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 (71111.15)**

a. Inspection Scope

The inspectors reviewed the following issues:

- CR-2012-011088, Unit 2, station service water pump motor breaker failed to close during outage
- CR-2013-000553, Units 1 and 2, effects of containment pressure on hydrogen detectors, radiation monitors, and storage boxes
- CR-2013-002947, Units 1 and 2, main steam safety valve testing
- CR-2013-004441, Unit 1, emergency core cooling system sump gasket not rated for maximum sump temperature
- CR-2013-004645, Unit 1, residual heat removal pumps' discharge to refueling water storage tank valve, 1-8717, hard to operate

The inspectors selected these operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and 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 Final Safety Analysis Report



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. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. 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. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to have documented instructions of a type appropriate to the circumstances for testing the main steam safety valves. Specifically, the procedure for testing the main steam safety valves did not provide direction to declare the valves inoperable when the applying pressure to the lifting device.

Description. On March 25, 2013, the inspectors observed main steam safety valve testing on Unit 1. The licensee installed a lifting device on the valves and applied air pressure to an air motor to lift the valves and determine the lift setpoint. The inspectors discussed the testing with the unit supervisor and determined that the supervisor was not entering the technical specification action statement for an inoperable main steam safety valve when the air motor was attached and lifting the valve. The supervisor indicated that neither the procedure nor the work week schedule required the valve to be inoperable when being tested. Based on the inspectors questioning, the unit supervisor entered the technical specification statement during each of the main steam safety valve tests. The supervisor initiated Condition Report CR-2013-002947 to document the inspector's concern about the testing.

The inspectors discussed the valve testing with engineering. The inspectors determined when the test rig was installed, the actual system pressure required to cause a main steam safety valve to lift would decrease as air pressure to the air motor was increased. Ultimately during the test, the safety would actually lift at normal operating pressure and not at the technical specification required lift setpoint. When the test rig was removed, the main steam safety valve lift setpoint would return to the pre-test value. Engineering agreed with the inspectors' concern that the valves were inoperable when being tested. The licensee planned to revise Procedure MSM-S0-8702, "Main Steam Safety Valve Testing," Revision 4 to include statements about operability when testing the valves.

The inspectors discussed the finding with the licensee and determined that the inadequate procedure was not representative of current licensee performance.

Analysis. The licensee's failure to have documented instructions of a type appropriate to the circumstances for testing the main steam safety valves was a performance deficiency. The finding was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the capability of systems that respond to initiating

events to prevent undesirable consequences. Specifically, the procedure did not provide guidance to declare a main steam safety valve inoperable with the test rig installed. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the finding was determined to be of very low safety significance (Green) because the finding was not a design or qualification deficiency; did not represent an actual loss of safety function of a system or train; and did not result in the loss of one or more trains of non-technical specification trains of equipment. The inspectors determined that the finding was not representative of current licensee performance and no cross-cutting aspect was assigned.

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions of a type appropriate to the circumstances. Procedure MSM-S0-8702, "Main Steam Safety Valve Testing," Revision 4, provided instructions, precautions, limitations, and notes for the testing of the main steam safety valves. Contrary to the above, on March 25, 2013, the licensee performed an activity affecting quality using documented instructions of a type not appropriate to the circumstances. Specifically, Procedure MSM-S0-8702 did not contain adequate instructions for declaring equipment inoperable and providing instructions to isolate the test rig during a transient. As a result, operations did not declare the main steam safety valves inoperable during testing until prompted by the inspectors. Because the violation was of very low safety significance and was documented in the licensee's corrective action program as Condition Report CR-2013-002947, it is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000445/2013002-01; 05000446/2013002-01, "Inadequate Procedure for Testing the Main Steam Safety Valves."

## **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:

- April 21, 2013, Unit 1, low power physics testing following reactor refueling
- May 9, 2013, Unit 2, diesel generator 2-02 testing following cylinder head replacement
- May 30, 2013, Unit 1, safety injection accumulator 1-04 injection valve 1-8808D testing plan following torqueing
- June 17, 2013, Unit 2, transformer XST1 testing following maintenance

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated the activities to ensure the testing was adequate for the maintenance performed, the acceptance criteria were clear, and the test ensured equipment operational readiness.

The inspectors evaluated the activities against technical specifications, the Final Safety Analysis Report, 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 into 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 four post-maintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

**1R20 Refueling and Other Outage Activities (71111.20)**

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 1 refueling outage, conducted March 30, 2013, through April 21, 2013, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the refueling outage, the inspectors observed portions of the shutdown and cooldown of the reactor and monitored licensee controls over the outage activities listed below:

- Configuration management, including maintenance of defense-in-depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service.
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing.
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error.
- Status and configuration of electrical systems to ensure that technical specifications and outage safety plan requirements were met, and controls over switchyard activities.
- Monitoring of decay heat removal processes, systems, and components.
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system.
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.
- Controls over activities that could affect reactivity.

- Refueling activities including fuel handling.
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the containment to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing.
- Licensee identification and resolution of problems related to refueling outage activities.
- Licensee's management of fatigue.

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

These activities constitute completion of one refueling and other outage activities inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings were identified.

**1R22 Surveillance Testing (71111.22)**

a. Inspection Scope

The inspectors reviewed the Final Safety Analysis Report, procedure requirements, technical specifications, and corrective action documents to ensure that the surveillance activities listed below demonstrated that the systems, structures, and components tested were capable of performing their intended safety functions.

Pump or Valve Inservice Test

- May 16, 2013, Unit 2, turbine driven auxiliary feedwater pump testing in accordance with Procedure OPT-206B, "AFW System Surveillance Test," Revision 21

Containment Isolation Valve Test

- May 31, 2013, Unit 1, containment isolation valve testing in accordance with Procedure OPT-503A, "Containment Isolation Valves ASME Testing," Revision 14

Reactor Coolant System Leakage Detection Surveillance Testing

- April 25, 2013, Unit 1, water inventory balance in accordance with Procedure OPT-303, "Reactor Coolant System Water Inventory," Revision 13

### Routine Surveillance Testing

- April 16, 2013, Unit 1, emergency core cooling system sump inspection in accordance with Procedure OPT-306, "Containment Sump Inspection," Revision 7
- June 19, 2013, Unit 2, diesel generator testing in accordance with Procedure OPT 214B, "Diesel Generator Operability Testing," Revision 16

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 and 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
- Reference setting data
- Annunciators and alarms setpoints

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

These activities constitute completion of five surveillance testing inspection samples (one pump or valve inservice test, one containment isolation valve test sample, one reactor coolant system leakage detection surveillance test sample, and two routine surveillance testing samples) as defined in Inspection Procedure 71111.22-05.

#### b. Findings

No findings were identified.

### **Cornerstone: Emergency Preparedness**

#### **1EP6 Drill Evaluation (71114.06)**

##### a. Inspection Scope

On June 12, 2013, the inspectors evaluated the conduct of licensee emergency drills to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator and the emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also compared 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.

These activities constituted completion of one drill and/or training evolution sample as defined in Inspection Procedure 71114.06-05.

## **2. RADIATION SAFETY**

### **Cornerstones: Public Radiation Safety and Occupational Radiation Safety**

#### **2RS01 Radiological Hazard Assessment and Exposure Controls (71124.01)**

##### **a. Inspection Scope**

This area was inspected to: (1) review and assess licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures, (2) verify the licensee is properly identifying and reporting occupational radiation safety cornerstone performance indicators, and (3) identify those performance deficiencies that were reportable as a performance indicator and which may have represented a substantial potential for overexposure of the worker.

The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed walkdowns of various portions of the plant, performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator events and associated documentation reported by the licensee in the occupational radiation safety cornerstone
- The hazard assessment program, including a review of the licensee's evaluations of changes in plant operations and radiological surveys to detect dose rates, airborne radioactivity, and surface contamination levels
- Instructions and notices to workers, including labeling or marking containers of radioactive material, radiation work permits, actions for electronic dosimeter alarms, and changes to radiological conditions
- Programs and processes for control of sealed sources and release of potentially contaminated material from the radiologically controlled area, including survey performance, instrument sensitivity, release criteria, procedural guidance, and sealed source accountability
- Radiological hazards control and work coverage, including the adequacy of surveys, radiation protection job coverage, and contamination controls; the use of electronic dosimeters in high noise areas; dosimetry placement; airborne radioactivity monitoring; controls for highly activated or contaminated materials

(non-fuel) stored within spent fuel and other storage pools; and posting and physical controls for high radiation areas and very high radiation areas

- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements
- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection

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

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.01-05.

b. Findings

No findings were identified.

**2RS03 In-plant Airborne Radioactivity Control and Mitigation (71124.03)**

a. Inspection Scope

This area was inspected to verify in-plant airborne concentrations are being controlled consistent with ALARA principles and the use of respiratory protection devices on-site does not pose an undue risk to the wearer. The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed licensee personnel, performed walkdowns of various portions of the plant, and reviewed the following items:

- The licensee's use, when applicable, of ventilation systems as part of its engineering controls
- The licensee's respiratory protection program for use, storage, maintenance, and quality assurance of National Institute for Occupational Safety and Health certified equipment, qualification and training of personnel, and user performance
- The licensee's capability for refilling and transporting self-contained breathing apparatus air bottles to and from the control room and operations support center during emergency conditions, status of self-contained breathing apparatus staged and ready for use in the plant and associated surveillance records, and personnel qualification and training
- Audits, self-assessments, and corrective action documents related to in-plant airborne radioactivity control and mitigation since the last inspection

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

These activities constitute completion of the one sample as defined in Inspection Procedure 71124.03-05.

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES**

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

**40A1 Performance Indicator Verification (71151)**

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the first quarter 2013 performance indicators for any obvious inconsistencies prior to its public release in accordance with NRC 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 second quarter 2012 through the first quarter 2013. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," definitions and guidance were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, condition reports, and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee's condition 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.

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



b. Findings

No findings were identified.

.3 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the third quarter 2012 through the first quarter 2013. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed corrective action program records associated with high radiation area (greater than 1 rem/hr) and very high radiation area non-conformances. The inspectors reviewed radiological, controlled area exit transactions greater than 100 mrem. The inspectors also conducted walkdowns of high radiation areas (greater than 1 rem/hr) and very high radiation area entrances to determine the adequacy of the controls of these areas.

These activities constitute completion of one occupational exposure control effectiveness sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed performance indicator data for the third quarter 2012 through the first quarter 2013. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed the licensee's corrective action program records and selected individual annual or special reports to identify potential occurrences, such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose.

These activities constitute completion of one radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

#### **40A2 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, so these reviews did not constitute any separate inspection samples.

###### **b. Findings**

No findings were identified.

.3 Selected Issue Follow-up Inspection

a. Inspection Scope

The inspectors performed a review of Condition Report CR-2011-009966 from the licensee's corrective action program. The inspectors reviewed documents and interviewed personnel to determine if the licensee completely and accurately identified problems in a timely manner commensurate with its significance, evaluated and dispositioned operability issues, considered the extent of condition, prioritized the problem commensurate with its safety significance, and completed corrective actions in a timely manner commensurate with the safety significance of the issue.

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

b. Findings

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a for the failure to follow an auxiliary feedwater system operating procedure. As a result, a water hammer occurred on the condensate storage tank makeup reject line.

Description. The inspectors reviewed Condition Report CR-2011-009966, which documented a water hammer on the Unit 1 condensate storage tank makeup reject line. The inspectors noted that the only action from the condition report was for an engineer to inspect the line for damage.

The condensate storage tank makeup reject line provides water to and from the hotwell to the tank. Therefore, if the line broke, it could flood safety-related equipment and cause a loss of condenser vacuum. While no damage was identified following the water hammer, the inspectors were concerned that there was a potential for a larger water hammer in the future that could break the line.

The inspectors reviewed Procedure SOP-304A, "Auxiliary Feedwater System," Revision 17, the procedure being used when the water hammer occurred. The procedure contained a note about the potential for a water hammer. Step 5.5.6.E directed the operator to slowly pressurize the makeup reject header manually by slightly opening condensate storage tank 1-01 discharge valve 1-HV-2484. The inspectors interviewed the operators involved in the evolution and determined that they did not follow this step because a water hammer occurred when the valve was later fully opened electronically.

The inspectors discussed the results of the inspection with the licensee. The licensee agreed with the inspectors that the operator did not follow the procedure. The licensee initiated Condition Report CR-2012-012539 to address the inspectors' observations and to identify further corrective actions. The inspectors concluded that, without inspector added value, human performance errors that led to the water hammer event would not have been identified.

The inspectors discussed the cause of the event with the licensee. The inspectors determined that the operator performing the evolution was inadequately trained to perform the activity.

Analysis. The licensee's failure to follow procedure when pressurizing the condensate makeup rejects line and causing a water hammer was a performance deficiency. The finding was more than minor because it was associated with the human performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective, in that, it increased the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the performance deficiency resulted in a system water hammer. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the finding was determined to be of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment. The finding had a human performance cross-cutting aspect associated with resources, in that, licensee personnel failed to ensure that personnel were adequately trained to perform the activity [H.2(b)].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Regulatory Guide 1.33, Revision 2, Appendix A, Item 3.I, requires, in part, instructions for filling the auxiliary feedwater system. Procedure SOP-304A, "Auxiliary Feedwater System," Revision 17, Step 5.5.6.E, stated, in part, to slowly pressurize the makeup/reject header manually by slightly opening 1-HV-2484, condensate storage tank 1-01 discharge valve. Contrary to the above, on September 11, 2011, the licensee failed to implement Procedure SOP-304A for the auxiliary feedwater system. Specifically, the licensee failed to slowly pressurize the makeup/reject header. As a result, a water hammer occurred when the valve was electrically opened. The licensee corrected the condition by clarifying the procedure. Since the violation was of very low safety significance and was documented in the licensee's corrective action program as Condition Report CR-2012-012539, it is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000445/2013003-02, "Failure to Follow Procedure Results in Water Hammer."

#### .4 Operator Workarounds

##### a. Inspection Scope

The inspectors reviewed the Units 1 and 2 cumulative effects of operator workarounds and burdens to determine the reliability, availability, and potential for incorrect operation of systems or components. The inspectors verified the ability of operators to respond in a correct and timely manner to plant transients and accidents, and if the licensee has identified and implemented appropriate corrective actions associated with operator workarounds.

These activities constitute completion of one operator workarounds sample as defined in Inspection Procedure 71152-05.

##### b. Findings

No findings were identified.

#### 4OA3 Event Followup (71153)

The activities documented below constitute completion of one event followup sample as defined in Inspection Procedure 71153.

(Closed) Licensee Event Report 05000446/2012-002-00, Unit 2 Automatic Reactor Trip due to Low Steam Generator Water Level

a. Inspection Scope

The licensee event report documented a low steam generator water level and Unit 2 reactor trip event. The inspectors performed a review of the event. The inspectors examined maintenance work orders, replacement item evaluations, written procedures, condition reports, and the licensee's root cause analysis.

b. Findings

Introduction. The inspectors reviewed a self-revealing Green finding for the licensee's failure to appropriately plan and control work activities during the installation of an air regulator in the heater drain system. As a result, the fitting that connected the air regulator to an adjacent in-line air filter broke and caused a plant transient and an automatic reactor trip.

Description. On November 17, 2012, with Unit 2 operating at 100 percent power, the fitting between the air regulator for heater drain pump discharge valve 2-LV-2592 and its adjacent in-line air filter failed. The loss of air pressure caused the heater drain pump discharge valve to close, which resulted in a total loss of heater drain flow and a reactor trip on low steam generator water level.

The licensee's root cause analysis concluded that the work order did not provide adequate instruction on how to install the regulator. The regulator was a replacement component and was not compatible with the mounting bracket of the original regulator. This incompatibility was not addressed in the worker order. Subsequently, maintenance personnel installed the regulator and only supported it with the fittings and not a mounting bracket.

The inspectors determined that form MG-10-1, "Work Order Pre-Work Review Form," was a self-imposed licensee standard that required that work order steps address the work and that procedures are adequate in their level of detail. The inspectors determined that the licensee failed to follow this standard. The work order was inadequate and did not address a key aspect of the work, specifically, how the regulator was to be mounted given its incompatibility with the bracket.

The inspectors discussed the finding with the licensee and reviewed the licensee's root cause analysis. The inspectors determined that the work package was inadequate because the licensee failed to appropriately plan the work activity. The planner was unaware of the fact that the mounting bracket was incompatible with the new regulator.

Analysis. The licensee's failure to incorporate significant details of a maintenance activity in a work package was a performance deficiency. The finding was more than minor because it was associated with the equipment performance attribute of the

Initiating Events cornerstone and adversely affected the cornerstone objective, in that, it increased the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the finding was determined to be of very low safety significance (Green) because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment would not be available. The finding has a human performance cross-cutting aspect associated with work control in that the licensee failed to appropriately plan the work activity [H.3(a)].

Enforcement. This finding does not involve enforcement action because no regulatory requirements were violated. The licensee documented the finding in the corrective action program as Condition Report CR-2012-012183. The issue is being characterized as finding FIN 05000446/2013003-03, "Failure to Properly Install an Air Regulator Causes Heater Drain Valve Closure and Reactor Trip."

#### **40A6 Meetings**

##### Exit Meeting Summary

On April 4, 2013, the inspectors presented the results of the radiation safety inspections to Mr. R. Flores, Senior Vice President and Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On April 9, 2013, the inspectors presented the inspection results of the review of inservice inspection activities to Mr. K. Peters, Site Vice President, 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 July 10, 2013, the inspectors presented the resident inspection results to Mr. K. Peters, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors acknowledged review of proprietary material during the inspection. No proprietary information was identified.

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee Personnel

R. Flores, Senior Vice President and Chief Nuclear Officer  
K. Peters, Site Vice President  
S. Bradley, Manager, Radiation Protection  
T. Gilder, Director, Performance Improvement  
D. Goodwin, Director, Work Management  
T. Hope, Manager, Nuclear Licensing  
B. Kidwell, Manager, Emergency Preparedness  
F. Madden, Director, Oversight and Regulatory Affairs  
B. Mays, Vice President, Engineering  
B. Moore, Director, Training  
K. Nickerson, Director, Engineering Support  
B. Patrick, Director, Maintenance  
B. Reppa, Director, Site Engineering  
S. Sewell, Director, Organizational Effectiveness  
M. Smith, Director, Operations  
S. Smith, Plant Manager  
K. Tate, Manager, Security  
D. Wilder, Director, Plant Support

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened and Closed

05000445/2013003-01	NCV	Inadequate Procedure for Testing the Main Steam Safety Valves (Section 1R15)
05000446/2013003-01		
05000445/2013003-02	NCV	Failure to Follow Procedure Results in Water Hammer (Section 4OA2.3)
05000446/2013003-03	FIN	Failure to Properly Install an Air Regulator Causes Heater Drain Valve Closure and Reactor Trip (Section 4OA3)

#### Closed

05000446/2012-002-00	LER	Unit 2 Automatic Reactor Trip due to Low Steam Generator Water Level (Section 4OA3)
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## LIST OF DOCUMENTS REVIEWED

### Section 1R04: Equipment Alignments

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SOP-609B	Diesel Generator System	2
WCI-110	Guarded Equipment Management Program	2
SOP-304A-AF-V03	TDAFW Pump Lineup	17

#### MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CPNPP FSAR	Chapter 10: Auxiliary Feedwater System	105

### Section 1R05: Fire Protection

#### MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
FPI-201A	Unit 1 Containment Building Elevation 808'-0"	4
FPI-202A	Unit 1 Containment Building Elevation 832'-6"	4
FPI-203A	Unit 1 Containment Building Elevation 860'-0"	4
FPI-204A	Unit 1 Containment Building Elevation 905'-0"	4
FPI-102B	Unit 2 Safeguards Building Elevation 790'-0"	4

### Section 1R06: Flood Protection Measures

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
MSG-0212	Concrete Expansion Anchor Installation	0

#### CONDITION REPORTS

2010-009215-01

#### WORK ORDERS

4581070          4516445



## Section 1R07: Heat Sink Performance

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
MSM-P0-3357	Emergency Diesel Engine Jacket Water Cooler Cleaning	1

### WORK ORDERS

4400105

### MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPRI NP-7552	Heat Exchanger Performance Monitoring Guidelines	1
MEB-391	Calculation of Required Service Water Flow	5

## Section 1R08: Inservice Inspection Activities

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
WDI-STD-1049	Computed Radiographic Examination	2
TX-ISI-8	VT-1 and VT-3 Visual Examination Procedure for Comanche Peak Steam Electric Station	6
PDI-ISI-254-SE-NB	Remote Inservice Examination of Reactor Vessel Nozzle to Safe End, Nozzle to Pipe Welds Using the Nozzle scanner	2
STA-737	Boric Acid Detection and Evaluation	6
TX-ISI-11	Liquid Penetrant Examination for Comanche Peak Nuclear Power Plant	13
TX-ISI-302	Ultrasonic Examination of Austenitic Piping Welds	3
TX-ISI-214	Ultrasonic Examination Procedure for Welds in Piping Systems and Vessels	5
WLD-105	Welding Material Storage and Control	6
WLD-106	ASME/ANSI General Welding Requirements	2
NQA 3.09-8.61	Requirements for ASME and ANSI B31.1 Visual Inspection	8
EPG-731	ASME Section XI Repair/Replacement Activities	2
	RCS Materials Management Strategic Plan	4

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RC-1-147-009-C81S	Large Bore Piping Support	CP-3

CONDITION REPORTS

2011-14050	2013-03167	2011-11351	2012-11633	2011-08872
2012-12025	2012-12490	2012-13320	2013-01855	2012-02117
2011-09629	2011-10561	2011-11352	2012-09111	2012-11633
2013-03440	2013-03505			

WORK ORDERS

4297690	4297623	4443682
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**Section 1R11: Licensed Operator Requalification Program**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
IPO-002A	Plant Startup from Hot Standby	20

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

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
WCI-202	Maintenance Risk Assessment	0
WCI-203	Weekly Surveillances/Work Scheduling	27
WCI-110	Guarded Equipment Management Program	2

**Section 1R15: Operability Evaluations**

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>DATE</u>
MEQSP Database, Thermal Aging and Radiation Effects for Ethylene-Propylene Rubber	February 28, 1989
FDA-2005-3364-03 Seal Material Review	October 7, 2006

WORK ORDERS

3692628

CONDITION REPORTS

2013-004073

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

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OPT-214-B	Diesel Generator Operability Test	15
MSM-CO-3831	Emergency Diesel Generator Cylinder Head Maintenance	3
IST-301	Inservice Testing of Motor-Operated Valves	4
OPT 510-A	SI Valves Surveillance Testing	9

WORK ORDERS

4574692                      4612766

CONDITION REPORTS

2012-008955                      2013-005393                      2013-005474

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
NUC-301	Low Power Physics Testing	19
NUC-101	Zero Power and Power Ascension Tests Sequence	34
NUREG 1482	Guidelines for Inservice Testing at Nuclear Power Plants	1

**Section 1R20: Refueling and Other Outage Activities**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
IPO-010B	Reactor Coolant Systems Reduced Inventory Operations	13
OPT-305	Containment Close Out Inspection	12

**Section 1R22: Surveillance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OPT-206B	Operations Testing Manual – AFW System	21
OPT-503A	CNTMNT ISOL Valves ASME Testing	14

WORK ORDERS

4596235                      4589830

**2RS01 Radiological Hazard Assessment and Exposure Controls**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RPI-110	Radiation Protection Shift Activities	23
RPI-212	Radioactive Source Control	12
RPI-602	Radiological Surveillance and Posting	51
RPI-606	Radiation Work and General Access Permits	27
RPI-623	Radiological Briefings	5
RPI-700	Sealed Source Leak Testing	11
RWS-302	NSSS Spent Resin Handling System	19
STA-421	Initiation of Condition Reports	18
STA-422	Processing Condition Reports	30
STA-652	Radioactive Material Control	17
STA-656	Radiation Work Control	18
STA-660	Control of High Radiation Areas	15

CONDITION REPORTS

2012-010631	2012-010694	2012-010835	2012-011361	2012-011323
2012-011018	2012-010171	2012-012669	2013-000314	2013-000540
2013-000212	2013-000212	2013-001195	2013-001203	

RADIOLOGICAL SURVEYS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
13-03-0707	U-1 Reactor Bldg. Piping 808' X-154	March 30, 2013
13-03-0707	U-1 Reactor Bldg. Pressurizer Relief Tank Rm. X-155B	March 30, 2013
13-03-072B	U-1 Reactor Bldg. 849' Incore Instrument Rm. X-159	March 30, 2013
13-03-0736	U-1 Refueling Cavity Survey	March 30, 2013
13-03-0710	U-1 Steam Generator, Platform 2	March 30, 2013

## RADIATION WORK PERMITS

<u>NUMBER</u>	<u>TITLE</u>
1215	1RF16 Scaffold Activities
1600	1RF16 WEC Refuel Activities
1228	Modifications
1300	Steam Generator Secondary Side Work Activities
1400	Steam Generator Primary Side Work Activities
1404	1RF 16 In-Service Inspection Activities

## AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
2012-012261	Tactical Self-Assessment of Radiation Exposure Records	November 14, 2012
2012-012257	Calibration record for instrument HP-7A-002	November 21, 2012
2012-012256	Source check records unavailable from 2002 to 2007	January 16, 2013
2013-001928	Strategic Self-Assessment Branching in Radiation Protection Procedures	February 26, 2013

## MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>DATE</u>
1R16 Refueling Outage Exposure	March 30, 2013 – April 4, 2013
1R16 Refueling Crud Burst Data	March 31, 2013

## **Section 2RS03: In-plant Airborne Radioactivity Control and Mitigation**

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SAF-106	Testing of Breathing Air Systems	3
STA-659	Respiratory Protection Program	18
STA-704	Respiratory Health Screen Program	13
TRA-103	Respiratory Protection Training	11
RPI-602	Radiological Surveillance and Posting	51
RPI-606	Radiation Work and General Access Permits	27
RPI-902	Issue and Control of Respiratory Protection Equipment	14

## PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RPI-903	Decontamination, Cleaning, and Disinfection of Respiratory Protection equipment	11
RPI-904	Accountability and Inspection of Respiratory Protection Equipment (Maintenance and Repair)	11

## CONDITION REPORTS

2008-003305	2009-006325	2013-002700	2012-005819	2012-010694
2012-010726	2012-010727	2012-010797	2012-011025	2012-011757
2012-012256	2012-013118	2013-002323	2013-002633	2013-003218
2013-003474	2013-003475			

## SURVEYS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
12-10-0912	U-2 RB 808' NW Corridor 2-154A	October 16, 2012
12-10-0916	Airborne Radioactivity Survey 2-154A 808' U-2 Containment 2-8160	October 16, 2012
12-10-0940	U-2 RB 808' NW Corridor 2-154A	October 16, 2012
12-10-0866	Airborne Radioactivity Survey 2-8160 (808' above train A trash rack)	October 16, 2012
13-04-0191	U-1 RB 860' All Rooms	April 3, 2013
13-04-0189	Airborne Radioactivity Survey U-1 RB 860' Cavity Area	April 3, 2013
13-04-0186	Airborne Radioactivity Survey U-1 Cavity South – HEPA/HECA Area	April 3, 2013
13-04-0187	Airborne Radioactivity Survey U-1 RB 860' Refuel Control Point Area	April 3, 2013
13-04-0188	Airborne Radioactivity Survey U-1 RB 860'	April 3, 2013

## MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
FB-28	Inspection and Maintenance Checklist for SCBA	2011
FB-33	Inspection and Maintenance Checklist for SCBA	2011
FB-38	Inspection and Maintenance Checklist for SCBA	2011
FB-40	Inspection and Maintenance Checklist for SCBA	2011
FB-41	Inspection and Maintenance Checklist for SCBA	2011

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
IND 46	Inspection and Maintenance Checklist for SCBA	2011
IND 58	Inspection and Maintenance Checklist for SCBA	2011
IND 57	Inspection and Maintenance Checklist for SCBA	2012
4139961	Maintenance Work Order U2 Letdown Containment IRC Isolation Valve	
	Respiratory Protection Training – SCBA	February 17, 2011
PCE 2012-0016	Personnel Contamination Log Entry	October 16, 2012
PCE 2012-0017	Personnel Contamination Log Entry	October 16, 2012
PCE 2012-0018	Personnel Contamination Log Entry	October 16, 2012
PCE 2012-0019	Personnel Contamination Log Entry	October 16, 2012
	Air Quality Test Log Sheet	April 2013
	Trace Analytics	July 24, 2012
	Trace Analytics	October 26, 2012
	Trace Analytics, LLC Analysis Certificate	January 31, 2013
RWP 20122212	2RF13 Maintenance Activities in Rooms 2-154 A & D	2
RWP 20122212	2RF13 Maintenance Activities in Rooms 2-154 A & D	1
RWP 20122212	2RF13 Maintenance Activities in Rooms 2-154 A & D	0

**Section 40A1: Performance Indicator Verification**

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Radiation Safety NRC Performance Indicators	April 2013

## **REQUEST FOR INFORMATION – OCCUPATIONAL RADIATION SAFETY INSPECTION**

The following items are requested to support the occupational radiation safety inspection conducted during the week of April 1-4, 2013. The areas of inspection are listed below in the attachment.

Please provide the requested information on or before March 25, 2013. 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](http://ims.certrec.com), please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates so the inspectors will have access to the information while writing the report.

In addition to the corrective action document lists provided for each inspection procedure listed below, please provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

Since more than one inspection procedure is to be conducted and if 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, contact Louis C. Carson II at 817-200-1221 or [Louis.Carson@nrc.gov](mailto:Louis.Carson@nrc.gov). The other inspector will be Natasha Greene at 817-200-1547 or [Casey.Alldredge@nrc.gov](mailto:Casey.Alldredge@nrc.gov).

### **1. Radiological Hazard Assessment and Exposure Controls (71124.01)**

The date of the last inspection was October 15, 2012.

- a. List of contacts and telephone numbers for the radiation protection organization staff and technicians
- b. Applicable organization charts
- c. Audits, self-assessments, and licensee event reports written since date of last inspection, related to this inspection area
- d. Procedure indexes for the radiation protection procedures
- e. Specific procedures related to the following areas noted below. Additional procedures may be requested by number after the inspector reviews the procedure indexes.
  - Radiation protection program description
  - Radiation protection conduct of operations
  - Personnel dosimetry program
  - Posting of radiological areas
  - High radiation area controls
  - Radiological controlled area access controls and radworker instructions
  - Conduct of radiological surveys
  - Radioactive source inventory and control
  - Declared pregnant worker program



- f. List of corrective action documents (including corporate and subtiered systems) since date of last inspection
- Initiated by the radiation protection organization
  - Assigned to the radiation protection organization

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide documents 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 Inspection Procedure 71151.

- g. List of radiologically significant work activities scheduled to be conducted during the inspection period. Since the inspection is scheduled during an outage, also include a list of work activities greater than 1 rem with the dose estimate for the work activity.
- h. List of active radiation work permits
- i. Radioactive source inventory list
- 2. In-Plant Airborne Radioactivity Control and Mitigation (71124.03)**  
The date of the last inspection was September 12, 2011.
- a. List of contacts and telephone numbers for the following areas:
- Respiratory Protection Program
  - Self contained breathing apparatus
- b. Applicable organization charts
- c. Copies of audits, self-assessments, and licensee event reports, written since date of last inspection related to:
- Installed air filtration systems
  - Self contained breathing apparatuses
- d. Procedure index for:
- use and operation of continuous air monitors
  - use and operation of temporary air filtration units
  - Respiratory protection
- e. Specific procedures related to the following areas noted below. Additional procedures may be requested by number after the inspectors review the procedure indexes.
- Respiratory protection program
  - Use of self-contained breathing apparatuses

- Air quality testing for self contained breathing apparatuses
- f. A summary list of corrective action documents including corporate and subtiered systems written since date of last inspection, related to the Airborne Monitoring program including:
- continuous air monitors
  - Self contained breathing apparatuses
  - respiratory protection program

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide documents which are "searchable."

- g. List of self contained breathing apparatus qualified personnel, reactor operators, and emergency response personnel
- h. Inspection records for self contained breathing apparatuses staged in the plant for use since date of last inspection.
- i. Self contained breathing apparatus training and qualification records for control room operators, shift supervisors, shift technical advisors, and operational support center personnel for the last year. A selection of personnel may be asked to demonstrate proficiency in donning, doffing, and performance of functionality check for respiratory devices.

## REQUEST FOR INFORMATION – INSERVICE INSPECTION

The following items are requested to support the inservice inspection conducted April 1 through April 12, 2013. The inspection procedure being used will be Inspection Procedure 71111.08 "Inservice Inspection (ISI) Activities." In an effort to keep the requested information organized, please submit the information using the same request designation. For example, the names and phone numbers for the program leads should be in a file/folder titled A.5.b.

If there are any questions about this inspection or the material requested, please contact the lead inspector Isaac Anchondo at (817) 200-1152 (isaac.anchondo@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 Isaac Anchondo, by April 1, 2013, to facilitate the selection of specific items that will be reviewed during the onsite inspection week. The inspectors 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 attachment). 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.

#### **.1 ISI/Welding Programs and Schedule Information**

a. A detailed schedule (including preliminary dates) of:

- Nondestructive examinations planned for ASME Code Class Components performed as part of your ASME Section XI, risk informed (if applicable), and augmented inservice inspection programs during the upcoming outage.
- Examinations planned for Alloy 82/182/600 components that are not included in the Section XI scope (If applicable)
- Examinations planned as part of your boric acid corrosion control program (Mode 3 walkdowns, bolted connection walkdowns, etc.)
- Welding activities that are scheduled to be completed during the upcoming outage (ASME Class 1, 2, or 3 structures, systems, or components)

b. A copy of ASME Section XI Code Relief Requests and associated NRC safety valuations applicable to the examinations identified above.

- 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 recordable or rejectable indications on any ASME Code Class components since the beginning of the last refueling outage. This should include the previous Section XI pressure test(s)

conducted during start up and any evaluations associated with the results of the pressure tests.

- d. A list including a brief description (e.g., system, code class, weld category, nondestructive examination performed) associated with the repair/replacement activities of any ASME Code Class component 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 noncode 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

.2 Reactor Pressure Vessel Head

- a. Provide a detailed scope of the planned nondestructive examinations of the reactor vessel head replacement which identifies the types of nondestructive examination methods to be used. Also, include the contingency plans to be implemented if relevant indications are found.
- b. A list of the standards and/or requirements that will be used to evaluate indications identified during NDE of the reactor vessel head replacement.

.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 shutdown, please provide documentation of containment walkdown inspections performed as part of the boric acid corrosion control program.
- c. Please provide a copy of the most recent self-assessment performed for the boric acid corrosion control program.

#### .4 Steam Generator Tube Inspections

- a. A detailed schedule of:
  - Steam generator tube inspection, data analyses, and repair activities for the upcoming outage.
  - Steam generator secondary side inspection activities for the upcoming outage.
- b. Please provide a copy of your steam generator inservice inspection program and plan. Please include a copy of the operational assessment from last outage and a copy of the following documents as they become available:
  - Degradation assessment
  - Condition monitoring assessment
- c. If you are planning on modifying your Technical Specifications such that they are consistent with Technical Specification Task Force Traveler TSTF-449, "Steam Generator Tube Integrity," please provide copies of your correspondence with the NRC regarding deviations from the standard technical specifications.
- d. Copy of steam generator history documentation given to vendors performing eddy current testing of the steam generators during the upcoming outage.
- e. 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.
- f. Identify and quantify any steam generator tube leakage experienced during the previous operating cycle. Also provide documentation identifying which steam generator was leaking and corrective actions completed or planned for this condition (if applicable).
- g. 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.)
- h. Provide copies of your most recent self-assessments of the steam generator monitoring, loose parts monitoring, and secondary side water chemistry control programs.
- i. Indicate where the primary, secondary, and resolution analyses are scheduled to take place.
- j. Provide a summary of the scope of the steam generator tube examinations, including examination methods such as Bobbin, Rotating Pancake, or Plus Point, and the percentage of tubes to be examined. Do not provide these documents separately if already included in other information requested.

.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 Unit 1). 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. 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)
- c. Please provide a copy of NDE procedures, the boric acid corrosion control program and related procedures, and the welding program.

**B. Information to be Provided Onsite to the Inspector(s) at the Entrance Meeting (April 1, 2013):**

.1 Inservice Inspection / Welding Programs and Schedule Information

- a. Updated schedules for inservice inspection/nondestructive examination activities, 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:
  - Weld data sheet (traveler)
  - Weld configuration and system location
  - Applicable Code Edition and Addenda for weldment
  - Applicable Code Edition and Addenda for welding procedures
  - Applicable weld procedures (WPS) used to fabricate the welds
  - Copies of procedure qualification records supporting the WPS from B.1.b.v
  - Copies of mechanical test reports identified in the procedure qualification records above

- Copies of the nonconformance reports for the selected welds (If applicable)
  - Radiographs of the selected welds and access to equipment to allow viewing radiographs (If radiographic testing was performed)
  - Copies of the preservice examination records for the selected welds.
  - Copies of welder performance qualifications records applicable to the selected welds, including documentation that welder maintained proficiency in the applicable welding processes specified in the weld procedures (at least 6 months prior to the date of subject work)
  - Copies of nondestructive examination personnel qualifications (Visual Inspection, penetrant testing, ultrasonic testing, radiographic testing), as applicable
- 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 systems 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.

.2 Reactor Pressure Vessel Head

- a. Provide the nondestructive personnel qualification records for the examiners who will perform examinations of the reactor pressure vessel head.
- b. Provide drawings showing the following: (If a visual examination is planned for the upcoming refueling outage)
- Reactor pressure vessel head and control rod drive mechanism nozzle configurations
  - Reactor pressure vessel head insulation configuration

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

- c. Copy of nondestructive examination reports from the last reactor pressure vessel head examination.
- d. Copy of evaluation or calculation demonstrating that the scope of the visual examination of the upper head will meet the 95 percent minimum coverage required by NRC Order EA-03-009 (If a visual examination is planned for the upcoming refueling outage).
- e. Provide a copy of the procedures that will be used to identify the source of any boric acid deposits identified on the reactor pressure vessel head. If no explicit procedures exist which govern this activity, provide a description of the process to be followed including personnel responsibilities and expectations.
- f. Provide a copy of the updated calculation of effective degradation years for the reactor pressure vessel head susceptibility ranking.
- g. Provide copy of the vendor qualification report(s) that demonstrates the detection capability of the nondestructive examination equipment used for the reactor pressure vessel head examinations. Also, identify any changes in equipment configurations used for the reactor pressure vessel head examinations which differ from that used in the vendor qualification report(s).

.3 Boric Acid Corrosion Control Program

- a. Please provide boric acid walkdown 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.

.4 Steam Generator Tube Inspections

- a. Copies of the Examination Technique Specification Sheets and associated justification for any revisions.
- b. Copy of the guidance to be followed if a loose part or foreign material is identified in the steam generators.
- c. 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.). Also include documentation for the specific equipment to be used.
- d. Please provide copies of your responses to NRC and industry operating experience communications such as Generic Letters, Information Notices, etc. (as applicable to



steam generator tube inspections) Do not provide these documents separately if already included in other information requested such as the degradation assessment.

- e. List of corrective action documents generated by the vendor and/or site with respect to steam generator inspection activities.

.5 Codes and Standards

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):

- Applicable Editions of the ASME Code (Sections V, IX, and XI) for the inservice inspection program and the repair/replacement program.
- EPRI and industry standards referenced in the procedures used to perform the steam generator tube eddy current examination.