UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

May 28, 2014

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 05000445/2013004 AND 05000446/2013004 ERRATA

Dear Mr. Flores:

On November 6, 2013, the NRC issued NRC Integrated Inspection Report 05000445/2013004 documenting the results of NRC inspection activities for the period June 27 through September 25, 2013. During this inspection, as documented in the report, the NRC identified a self-revealing finding for operation's personnel failure to follow instructions for the removal of the dissimilar metal elbow when installing a pipe cap (FIN 05000445/2013004-03). As a result, the elbow eventually leaked, reactor coolant system leakage increased, and a Unit 1 shutdown was necessary to correct the issue. In a letter dated December 5, 2013, you requested that the NRC change the characterization of the finding from self-revealing to licensee identified and delete assignment of the H.3(a) cross-cutting aspect. Your position was that Comanche Peak Nuclear Power Plant met the NRC's definition of a licensee identified finding in that the source of the increased RCS leakage was identified through a surveillance test followed by weeks of methodical and deliberate/focused observation during the course of performing normal duties (surveillance testing and corrective action program troubleshooting activities); therefore, the finding should be characterized as licensee identified.

NRC reviewed the information provided in your December 5, 2013, letter and the guidance provided in Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," related to identification credit for inspection findings. Based on this review, the NRC determined that (FIN 05000445/2013004-03) should be characterized as a licensee identified finding because it was identified through a licensee program or process and that your staff was proactive in identifying the source of the RCS leakage.

Based on this decision enclosed is the revised Integrated Inspection Report 05000445/2013004 removing finding (FIN 05000445/2013-03). This inspection activity in question was in Section 1R15, "Operability Evaluations and Functionality Assessments". As a result of this correction the entire NRC Integrated Inspection Report 05000445/2013004, dated November 6, 2013, should be replaced with the enclosed corrected report. The NRC public web site will additionally be updated to reflect this change.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

Docket Nos.: 50-445, 50-446
License Nos.: NPF-87, NPF-89

Enclosure:
Inspection Report 05000445/2013004 and 05000446/2013004

cc w/encl: Electronic Distribution for Comanche Peak

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May 28, 2014

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

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT - NRC INTEGRATED INSPECTION REPORT 05000445/2013004 AND 05000446/2013004

Dear Mr. Flores:

On September 25, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Comanche Peak Nuclear Power Plant, Units 1 and 2. On October 2, 2013, the NRC inspectors discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented four findings of very low safety significance (Green) in this report. Three of these findings involved violations of NRC requirements. Further, inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, U.S. 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 or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV; and the NRC resident inspector at the Comanche Peak Nuclear Power Plant, Units 1 and 2.

Enclosure

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding," 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's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

Docket Nos.: 50-445, 50-446
License Nos.: NPF-87, NPF-89

Enclosure:
Inspection Report 05000445/2013004 and 05000446/2013004
w/Attachments:
1. Supplemental Information
2. Request for Information for the Temporary Instruction 2515-182, "Review of Implementation of the Industry Initiative to Control Degradation of Underground Piping and Tanks" Inspection

cc w/encl: Electronic Distribution for Comanche Peak

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	50-445, 50-446
License:	NPF-87, NPF-89
Report:	05000445/2013004 and 05000446/2013004
Licensee:	Luminant Generation Company LLC
Facility:	Comanche Peak Nuclear Power Plant, Units 1 and 2
Location:	FM-56, Glen Rose, Texas
Dates:	June 27 through September 25, 2013
Inspectors:	J. Kramer, Senior Resident Inspector R. Kumana, Resident Inspector S. Alferink, Reactor Inspector I. Anchondo, Senior Reactor Inspector S. Graves, Senior Reactor Inspector D. Proulx, Senior Project Engineer M. Williams, Reactor Inspector
Approved By:	Wayne Walker, Chief, Project Branch A Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000445/2013004, 05000446/2013004; 6/27/2013 - 9/25/2013; Comanche Peak Nuclear Power Plant, Units 1 and 2 Integrated Resident and Regional Report; Equipment Alignments, Maintenance Effectiveness, Plant Modifications, Post-Maintenance Testing

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Three 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 reviewed a self-revealing finding for the licensee's failure to ensure the heat exchanger tube plugging procedure was adequate. As a result, auxiliary condenser plugs were improperly inserted and caused a tube to leak. This caused high sodium levels in the steam generators and a Unit 2 power reduction from 100 percent to less than 50 percent power. The licensee entered the finding into the corrective action program as Condition Report CR-2012-011805.

  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 cause a reactor trip and the loss of mitigation equipment. The finding has a human performance cross-cutting aspect associated with work practices in that the licensee supervision failed to provide appropriate oversight to the tube plugging procedure and plugging activity [H.4(c)]. (Section 1R18)

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 to follow instructions and remove cables from containment as part of a modification. As a result, portions of 12 cables totaling approximately 100 feet in length wrapped with tape on the ends remained in containment and could have been transported to the emergency sumps during an accident. The licensee entered the finding into the corrective action program as Condition Report CR-2013-009443.

The finding was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of the emergency sumps. Using NRC Manual Chapter 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process," Attachment 1, Checklist 2, the finding was determined to be of very low safety significance because the licensee maintained adequate mitigation capability for the current plant state and the finding was not characterized as a loss of control event. The finding has a human performance cross-cutting aspect associated with work practices in that the maintenance personnel did not involve supervision when they had questions concerning the removal of the cables and proceeded in the face of uncertainty [H.4(a)]. (Section 1R04)

- Green. The inspectors identified a non-cited violation of 10 CFR 50.65(a)(1) for the licensee's failure to establish performance goals and perform monitoring to ensure the Unit 1 auxiliary feedwater system was capable of performing its intended function. The licensee entered the finding into the corrective action program as Condition Report CR-2013-010024.

  This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. 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 represent an actual loss of a technical specification train for greater than its allowed outage time. The finding had a human performance cross-cutting aspect associated with decision-making, in that, the licensee failed to demonstrate that nuclear safety is the overriding priority by not obtaining adequate interdisciplinary input when determining the auxiliary feedwater maintenance rule status [H.1(a)]. (Section 1R12)

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to follow procedures that require initiating a condition report for degradation to safety-related equipment. During a surveillance activity, maintenance personnel discovered that a reactor coolant pump under frequency relay was outside the as-found setpoint tolerance for pick-up frequency and failed to enter the condition into the corrective action program. As a result, the cause and effect of the degraded condition was not evaluated and the relay again drifted outside the setpoint tolerance. The licensee entered the finding into the corrective action program as Condition Report CR-2013-010078.

  The finding was more than minor because if the licensee continues to fail to document degraded safety-related equipment in the corrective action database, there is a potential that this could lead to a more significant safety concern, in that the cause of the degradation will not be evaluated and corrected. 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 represent an actual loss of a technical specification train for greater than its allowed outage time. The finding has a human performance cross-cutting aspect associated with resources in that the licensee failed to provide adequate training to personnel performing maintenance [H.2(b)]. (Section 1R19)

B. Licensee-Identified Violations

A violation of very low safety significance was identified by the licensee and has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee’s corrective action program. The violation and corrective action tracking numbers are listed in Section 4OA7.

Plant Status

Unit 1 began the inspection period at approximately 100 percent power. On July 26, 2013, the operators initiated a shutdown of Unit 1 to Mode 3 for a scheduled maintenance outage to repair a leak associated with a seal injection drain line. The unit returned to service the following day when the main generator output breakers were closed. On July 28, 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 and operated at that power level for the remainder of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Summer Readiness for Offsite and Alternate-AC Power Systems

a. Inspection Scope

The inspectors reviewed the licensee's preparations for seasonal high grid loading. The inspectors reviewed the licensee's procedures and communications protocols to ensure that they included measures to monitor and maintain availability and reliability of both the off-site and alternate-ac power systems. The inspectors performed a walkdown of the switchyard to observe the material condition of off-site power sources.

The inspectors also reviewed corrective action program items to verify that the licensee was identifying summer readiness issues at an appropriate threshold and entering them into its corrective action program for resolution.

These activities constitute completion of one summer readiness for off-site and alternate-ac power systems sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

.2 Readiness to Cope with External Flooding

a. Inspection Scope

The inspectors performed a review of the Final Safety Analysis Report, the recent Safe Shutdown Impoundment Dam Report, updated list of external flooding protection and mitigation equipment, updated flooding walkdown issues list, and the latest revision of the Post-Fukushima Flooding Reevaluation Report.

The inspectors also reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems. The inspectors' reviews focused

specifically on the turbine building doors below the probable maximum flood level, and adjacent water intake and discharge structures.

These activities constitute completion of one readiness to cope with external flooding sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

1R04 Equipment Alignments (71111.04)

a. Inspection Scope

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

- April 19, 2013, Unit 1, containment lower level for debris transport to the containment sumps following the refueling outage
- July 23, 2013, Unit 2, residual heat removal pump 2-01 when residual heat removal pump 2-02 was unavailable for maintenance
- September 10, 2013, the switchyard, Unit 2 diesel generators, and Units 1 and 2 turbine driven auxiliary feedwater pumps when transformer XST2 was unavailable for maintenance

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.

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

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 follow instructions and remove cables from containment as part of a modification. As a result, portions of 12 cables totaling approximately 100 feet in length wrapped with tape on the ends remained in containment and could have been transported to the emergency sumps during an accident.

Description. On April 19, 2013, the inspectors performed a walkdown of the Unit 1 containment to look for debris and other materials that could be transported to the emergency sumps during an accident. The inspectors observed portions of cables with cut ends wrapped in tape in the lower loop rooms. The inspectors informed the licensee of the observation. The licensee determined that the cables should have been removed as part of a design modification and that maintenance personnel did not follow the work order instructions when removing the cables. The licensee initiated another work order and removed the cables.

The inspectors determined, through discussion with licensee personnel, that the personnel performing the maintenance activity did not involve supervision when they had questions concerning the removal of the cables and proceeded in the face of uncertainty.

Analysis. The failure of the maintenance personnel to follow work order instructions and remove materials from containment was a performance deficiency which resulted in debris remaining in containment. The finding was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of the emergency sumps. Using NRC Manual Chapter 0609, “Significance Determination Process,” Appendix G, “Shutdown Operations Significance Determination Process,” Attachment 1, Checklist 2, the finding was determined to be of very low safety significance because the licensee maintained adequate mitigation capability for the current plant state and the finding was not characterized as a loss of control event. The finding has a human performance cross-cutting aspect associated with work practices in that the maintenance personnel did not involve supervision when they had questions concerning the removal of the cables and proceeded in the face of uncertainty [H.4(a)].

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 and shall be accomplished in accordance with these instructions. Work Order 4575654 implemented a design change to remove cables from containment and Step 4, required, in part, to remove the cable and insulating material from containment. Contrary to the above, on April 10, 2013, maintenance personnel failed to follow documented instructions. Specifically, the maintenance personnel failed to properly disconnect the cables and remove them from containment. The licensee removed the materials before returning the unit to service. Since the violation was of very low safety significance and was documented in the licensee’s corrective action program as Condition Report CR-2013-009443, it is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000445/2013004-01, “Failure to Remove Cable Material from Inside Containment.”

1R05 Fire Protection (71111.05AQ)

.1 Quarterly Fire Inspection Tours (71111.05Q)

a. Inspection Scope

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

- August 26, 2013, fire zone WB104a, service water intake structure
- September 18, 2013, fire zone SD9, Unit 1 train A switchgear room
- September 19, 2013, fire zone 2SD9, Unit 2 train A switchgear room
- September 25, 2013, fire zone EC51, Unit 1 train B inverter room
- September 25, 2013, fire zone EC50, Unit 2 train B inverter 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.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On September 10, 2013, the inspectors observed a fire brigade drill for a simulated fire in Unit 2 centrifugal charging pump 2-02 room. The observation evaluated the readiness of the plant fire brigade and control room staff to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate firefighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) utilization of preplanned strategies; and (8) adherence to the preplanned drill scenario.

These activities constitute completion of one annual fire protection drill observation sample as defined by Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the Final Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected spaces needing compensatory actions in order to protect against internal flooding in cases where the circulating water system lake levels exceed the 778 foot elevation; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also checked the floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits that are integral to the internal flooding mitigation strategy. The inspectors evaluated the following areas:

- July 18, 2013, pathway from the circulating water discharge structure via circulating water tunnels to turbine building and lower level of the electrical and control building

- July 18, 2013, recycle hold up tanks, laundry and hot shower tank, waste holdup tank, and floor drain tanks in the auxiliary building

These activities constitute completion of two flood protection measures samples as defined in Inspection Procedure 71111.06-05.

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 August 12, 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 and training
- 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:

- July 8, 2013, Unit 1, reactivity management during the swapping from a centrifugal charging pump to the positive displacement pump

- July 27, 2013, Unit 1, down-power and manual reactor trip for planned maintenance outage

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 following risk-significant systems, components, and degraded performance issues:

- Main steam safety valves
- Unit 1, auxiliary feedwater system

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

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

b. Findings

Introduction. The inspectors identified a Green non-cited violation of 10 CFR 50.65(a)(1) for the licensee's failure to establish performance goals and perform monitoring to ensure the Unit 1 auxiliary feedwater system was capable of performing its intended function.

Description. On August 29, 2013, the inspectors attended a maintenance rule review panel meeting. As part of the meeting, a system engineer presented two events that had caused the auxiliary feedwater system to exceed its performance criteria of two functional failures in a two year period for the Unit 1 motor driven auxiliary feedwater pumps. The first functional failure, associated with Condition Report CR-2012-011913, documented air blowing from the motor driven auxiliary feedwater pump 1-01 to the condensate recirculation flow valve regulator gauge, 1-FV-2456. The second functional failure, associated with Condition Report CR-2012-013430, documented a failure of the motor driven auxiliary feedwater pump 1-01 flow controller to steam generator 1-01, 1-FK-2453C, at the remote shutdown panel. The engineer presented to the panel an approved and documented evaluation that concluded the cause was known and eliminated and thus, monitoring against goals was unnecessary. The panel agreed with the engineer's presentation and voted to place the system in a maintenance rule (a)(2) status.

The inspectors disagreed with the maintenance rule review panel's determination of the status of the Unit 1 auxiliary feedwater system. The inspectors informed the panel that they had failed to consider a third functional failure of the system. The inspectors described the functional failure, associated with Condition Report CR-2013-003358, where air was blowing from the motor driven auxiliary feedwater pump 1-02 to the condensate recirculation flow valve regulator gauge, 1-FV-2457. Based on the inspectors' comments, the maintenance rule review panel determined the Unit 1 auxiliary feedwater system should remain in an (a)(1) status and goals need to be established.

The inspectors discussed the cause of the event with the licensee. The inspectors determined that the licensee failed to obtain adequate interdisciplinary input when determining the auxiliary feedwater maintenance rule status.

Analysis. The failure to establish goals and monitor the performance of the auxiliary feedwater system was a performance deficiency. This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. 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; did not represent an actual loss of a technical specification train for greater than its allowed outage time; and did not result in the loss of one or more trains of non-technical specification trains of equipment. The finding had a human performance cross-cutting aspect associated with decision-making, in that, the licensee failed to demonstrate that nuclear safety is the overriding priority by not obtaining adequate interdisciplinary input when determining the auxiliary feedwater maintenance rule status [H.1(a)].

Enforcement. Title 10 CFR 50.65(a)(1) requires, in part, that the licensee shall monitor the performance or condition of structures, systems, or components within the scope of the rule against licensee-established goals in a manner sufficient to provide reasonable assurance that such structures, systems, or components are capable of fulfilling their intended safety functions. Title 10 CFR 50.65(a)(2) requires, in part, that monitoring specified in paragraph (a)(1) is not required where it has been demonstrated the performance or condition of a system, structure, and component is being effectively controlled through appropriate preventive maintenance, such that the structure, system, or component remains capable of performing its intended function. Contrary to the above, on February 28, 2013, the licensee failed to monitor the performance or condition of structures, systems, or components within the scope of the rule against licensee-established goals in a manner sufficient to provide reasonable assurance that such structures, systems, or components are capable of fulfilling their intended safety functions. Specifically, the licensee failed to demonstrate that the performance or condition of the Unit 1 auxiliary feedwater system had been effectively controlled through the performance of appropriate preventive maintenance and did not monitor the system against licensee-established goals. Since the violation was of very low safety significance and was documented in the licensee's corrective action program as Condition Report CR-2013-010024, it is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000445/2013004-02, "Failure to Establish Goals and Monitor the Performance of the Auxiliary Feedwater System."

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:

- July 12, 2013, Unit 1, risk assessment associated with the planned unit outage to repair the seal injection leak

- July 25, 2013, Unit 2, service water pump 2-01 out of service for unplanned corrective maintenance on the breaker secondary stab

- July 30, 2013, Unit 2, component cooling water pump 2-02 out of service during testing of service water pump 2-02

- August 8, 2013, Unit 2, emergent switchyard work to repair a failed relay in the 345kV subsystem

- September 10, 2013, Units 1 and 2, transformer XST2 out of service for planned maintenance

- September 18, 2013, Unit 1, diesel generator 1-02 out of service for planned maintenance

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 six maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- CR-2013-001446, Unit 1, inverter IV1PC4 board X40 solder connections

- CR-2013-005376, Unit 1, void in residual heat removal piping

- CR-2013-006795, Unit 1, increased reactor coolant system leak rate

- CR-2013-008323, Unit 1, failure of diesel generator 1-01 starting air compressor 1-01 relief valve

- CR-2013-008552, Unit 2, leak from auxiliary feedwater to service water cross-connect drain line

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

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the plant modification associated with the plugging of the Unit 2 auxiliary condensers. The inspectors reviewed work instructions, and condition reports associated with the modifications.

These activities constitute completion of one plant modification inspection sample as defined in Inspection Procedure 71111.18-05.

b. Findings

Introduction. The inspectors reviewed a Green self-revealing finding for the licensee's failure to ensure the heat exchanger tube plugging procedure was adequate. As a result, auxiliary condenser plugs were improperly inserted and caused a tube to leak. This caused high sodium levels in the steam generators and a unit power reduction from 100 percent to less than 50 percent power.

Description. On November 6, 2012, with Unit 2 operating at 100 percent power, a condenser tube leak occurred in the main feedwater pump auxiliary condenser 2A. This failure caused the sodium levels in all four steam generators to rise. In accordance with plant procedures, the licensee reduced power to less than 50 percent until the sodium levels improved. The licensee's root cause analysis concluded that the plugs were improperly installed during the recent refueling outage in October, 2012, as a result of inadequate procedure guidance. The instructions did not consider the thickness of the auxiliary condenser and resulted in the plugs being inserted too far into the tube sheet and damaging the actual tube. On November 9, 2012, the licensee identified two tubes that were damaged by improper plug insertion depth. The licensee replaced a total of 42 plugs in the condensers.

The licensee had several opportunities to prevent incorrect installation of the tube plugs. In May 2011, licensee personnel in a heat exchanger lab training session recognized that tubes were damaged when the plugs were inserted the length specified in Procedure MSM-G0-5870, “Heat Exchanger Tube Plugging,” Revision 0. Condition Report CR-2011-006610 was initiated to document that Procedure MSM-G0-5870 needed to be changed to prevent inserting tubes too far in a condenser tube sheet and causing tube distortion or tube breakage. The condition report was reviewed by the station ownership committee and the management review committee and was closed the following day based on the initiation of a procedure change submittal. The procedure change submittal classified the change as a procedure enhancement. The change was not completed prior to use on the auxiliary condenser.

During the plugging evolution, a vendor that performed a portion of the tube plugging activities recognized that the procedure was incorrect in the insertion location of the plug. The vendor marked up the procedure to annotate the correct location of the plug and inserted the plug in the correct location. The corrected location was discussed in the post-job debrief, but the procedure was not revised and a condition report was not initiated. In addition, the licensee did not change the incorrect plugging of the condenser that was performed by licensee maintenance personnel a few days earlier.

The inspectors determined that MSM-G0-5870, “Heat Exchanger Tube Plugging,” Revision 0 was revised in 2005 when the auxiliary condensers were added to the procedure. Procedure STA-202, “Nuclear Generation Procedure Change Process,” Revision 31, Step 6.3.8, requires, in part, that a technical review be performed when changing a procedure. The instructions in Procedure MSM-G0-5870 were not changed to account for the differences in tubesheet thickness when the auxiliary condenser was added to the procedure and therefore the plugs were inserted in the wrong location. The inspectors concluded that the licensee failed to follow Procedure STA-202 and failed to perform an adequate technical review of Procedure MSM-G0-5870.

The inspectors discussed the finding with the licensee and reviewed the licensee’s root cause analysis. Although Procedure MSM-G0-5870 was revised to incorporate the auxiliary condenser in 2005, the inspectors concluded that the finding is indicative of current plant performance. The inspectors determined that within 18 months prior to the event, the licensee had identified several instances where Procedure MSM-G0-5870 was inadequate and missed all of the opportunities to correct the procedure and install the plugs in the correct location before returning the condenser to service.

Analysis. The licensee’s failure to ensure the heat exchanger tube plugging procedure was adequate was a performance deficiency. As a result, an auxiliary condenser tube failed causing a high sodium level in the steam generators and a unit power reduction. 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 cause a reactor trip and the loss of mitigation equipment. The finding has a human performance cross-cutting aspect associated with

work practices in that licensee supervision failed to provide appropriate oversight to the tube plugging procedure and plugging activity [H.4(c)].

Enforcement. This finding does not involve enforcement action because no violation of a regulatory requirement was identified. The licensee documented the finding in the corrective action program as Condition Report CR-2012-011805. Because the finding does not involve a violation and is of very low safety significance, it is being characterized as a finding FIN 05000446/2013004-03, "Failure to Properly Install Auxiliary Condenser Tube Plugs Causes Steam Generator Chemistry Excursion and Unit Power Reduction."

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- July 23, 2013, Unit 2, residual heat removal pump 2-02 testing following motor oil change and breaker maintenance
- August 26, 2013, Unit 2, reactor coolant pump under frequency relay testing following under frequency relay replacement
- September 12, 2013, Unit 1, turbine driven auxiliary feedwater pump post-maintenance verification following governor valve stroke
- September 18, 2013, Unit 1, diesel generator 1-02 testing following tachometer and valve maintenance
- September 19, 2013, Unit 2, motor driven auxiliary feedwater post-maintenance testing following pressure gauge replacement.
- September 20, 2013, Unit 1, containment spray pump 1-04 post-maintenance testing following hand switch and light socket maintenance

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these 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 in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

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

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 follow procedures that require initiating a condition report for degradation to safety-related equipment. During a surveillance activity, maintenance personnel discovered that a reactor coolant pump under frequency relay was outside the as-found setpoint tolerance for pick-up frequency and failed to enter the condition into the corrective action program. As a result, the cause and effect of the degraded condition was not evaluated and the relay again drifted outside the setpoint tolerance.

Description. On November 2, 2012, maintenance personnel performed a calibration of under frequency relay 81/2A2 in accordance with Procedure MSE-S2-0665X, “Unit 2 RCP Under Frequency Relay TADOT and Channel Calibration Surveillance,” Revision 4. The inspectors reviewed the work order that documented the as-found setpoint criteria out of tolerance for the reactor coolant pump under frequency relay. The maintenance personnel adjusted and retested the relay. The relay as-left frequency was within the calibration limits. The inspectors verified that the work order documentation for the surveillance test was complete and had been signed by a work supervisor and operations shift management. The inspectors noted that none of the personnel involved in the testing of the relay or the review of the work order package initiated a condition report for the relay being outside the as-found setpoint criteria as required by Procedure STA-421, “Initiation of Condition Reports,” Revision 18.

The inspectors determined, through discussion with licensee personnel, that the personnel involved with the performance of the maintenance activity were not adequately trained in the management expectation and procedure requirement to initiate condition reports for as-found setpoints outside the tolerance band, a degraded condition.

Analysis. The licensee’s failure to follow procedure and initiate a condition report for degraded safety-related equipment was a performance deficiency. The finding was more than minor because if the licensee continues to fail to document degraded safety-related equipment in the corrective action database, there is a potential that this could lead to a more significant safety concern, in that the cause of the degradation will not be evaluated and corrected. 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; did not represent an actual loss of a technical specification train for greater than its allowed outage time; and did not result in the loss of one or more trains of non-technical specification trains of equipment. The finding has a human performance cross-cutting aspect associated with resources in that the licensee failed to provide adequate training to personnel performing maintenance [H.2(b)].

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 and shall be accomplished in accordance with these instructions. Procedure STA-421, “Initiation of

Condition Reports," Revision 18, Attachment 8.A, Step 6.2 required, in part, that equipment malfunctions, damage, or degradation, other than anticipated wear will be documented in a condition report. Contrary to the above, on November 2, 2012, the licensee performed an activity affecting quality and failed to accomplish the activity in accordance with the instructions. Specifically, the licensee did not initiate a condition report for an under frequency relay with an as-found setpoint outside the tolerance band. Since the violation was of very low safety significance and was documented in the licensee's corrective action program as condition report CR-2013-010078, it is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000446/2013004-04, "Failure to Initiate a Condition Report for a Degraded Under Frequency Relay."

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

- July 30, 2013, Unit 2, service water pump 2-02 testing in accordance with Procedure OPT-207B, "Service Water System," Revision 14

Routine Surveillance Testing

- August 6, 2013, Unit 1, residual heat removal and safety injection train A testing in accordance with Procedure OPT-512A, "RHR and SI Subsystem Valve Test," Revision 10

- September 5, 2013, Unit 2, steam generator 2-03 wide range level calibration in accordance with Procedure INC-7412B, "Channel Calibration Steam Generator 3 Wide Level, Protection Set II, Channel 0503," Revision 2

- September 5, 2013, Unit 2, containment pressure calibration in accordance with Procedure INC-7856B, "Channel Operability Test and Channel Calibration Containment Channel 0935, Protection Set III," Revision 5

- September 11, 2013, Unit 2, diesel generator 2-01 testing in accordance with Procedure OPT-214B, "Diesel Generator Operability Test," Revision 16

- September 18, 2013, off-site power sources verification in accordance with Procedure OPT-215, "Class 1E Electrical Systems Operability," Revision 15

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 six surveillance testing inspection samples (one pump or valve inservice test, and five 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 July 31, 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 71114.06-06.

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

4OA1 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 second 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 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity performance indicator for Units 1 and 2 for the period from the 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, was used. The inspectors reviewed the licensee's reactor coolant system chemistry samples, technical specification requirements, 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 reactor coolant system specific activity samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Reactor Coolant System Leakage (BI02)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system leakage performance indicator for Units 1 and 2 for the period from the 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, was used. The inspectors reviewed the licensee’s operator logs, reactor coolant system leakage tracking data, 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.

These activities constitute completion of two reactor coolant system leakage samples as defined by Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Emergency ac Power System (MS06)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index emergency-ac power system performance indicator for Units 1 and 2 for the period from the third quarter 2012 through the second quarter 2013. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 6. The inspectors reviewed the licensee’s operator narrative logs, mitigating systems performance index derivation reports, condition reports, and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable Nuclear Energy Institute guidance. 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 mitigating systems performance index emergency-ac power system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.5 Mitigating Systems Performance Index - High Pressure Injection Systems (MS07)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index high pressure injection systems performance indicator for Units 1 and 2 for the period from the third quarter 2012 through the second quarter 2013. To determine the

accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 6. The inspectors reviewed the licensee’s operator narrative logs, condition reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable Nuclear Energy Institute guidance. 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 mitigating systems performance index high pressure injection system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.6 Mitigating Systems Performance Index - Heat Removal System (MS08)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index heat removal system performance indicator for Units 1 and 2 for the period from the third quarter 2012 through the second quarter 2013. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 6. The inspectors reviewed the licensee’s operator narrative logs, condition reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable Nuclear Energy Institute guidance. 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 mitigating systems performance index heat removal system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused on the corrective action program and maintenance

backlogs. 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, identified appropriate corrective actions, and completed corrective actions in a timely manner commensurate with the safety significance of the issue.

These activities constitute completion of one semi-annual trend review inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified.

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

The inspectors reviewed the licensee's long-term corrective actions taken and planned to resolve fire protection program noncompliances associated with unapproved operator manual actions and multiple spurious operations. The licensee's long-term corrective actions spanned several outages and involved modifications designed to prevent or mitigate adverse impacts to plant equipment identified as necessary to safely shutdown the reactor in the event of fire. These corrective actions included a regulatory commitment to complete the operator manual action and multiple spurious operations implementation plan by the end of the first quarter of 2015.

The inspectors reviewed the licensee's modification plans, schedules, and documentation; revised training program for the licensee staff and contractors involved with the modifications; compensatory measures associated with the planned corrective actions; and justification for exceeding the period of enforcement discretion provided in Enforcement Guidance Memorandum 09-002, "Enforcement Discretion for Fire Induced Circuit Faults," dated May 14, 2009. The inspectors walked down a sample of the plant modifications that were in progress and a sample of the plant modifications that were completed.

The inspectors interviewed the managers, engineers, and contractor personnel responsible for developing and managing the schedule for the planned modifications. The inspectors ensured the proposed schedule was achievable and discussed potential actions if adverse impacts affected the timely completion of the modifications. The inspectors assessed the timeliness of the planned corrective actions in accordance with the guidance in Regulatory Issue Summary 2005-20, "Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety."

The inspectors also discussed the guidance for alternative compensatory measures contained in Information Notice 97-48, "Inadequate or Inappropriate Interim Fire Protection Compensatory Measures;" Regulatory Issue Summary 2005-07, "Compensatory Measures to Satisfy the Fire Protection Program Requirements;" and Inspection Procedure 71111.05T, "Fire Protection (Triennial)."

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

b. Findings

Introduction. The inspectors identified an unresolved item associated with fire-induced single spurious operations. The inspectors were concerned that a single hot short could cause the spurious operation of motor-operated valves and bypass their torque/limit switch, resulting in damage to the pressure boundary.

Description. On February 28, 1992, the NRC issued Information Notice 92-18, "Potential for Loss of Remote Shutdown Capability During a Control Room Fire," to alert licensees of conditions that could result in the loss of capability to maintain the reactor in a safe shutdown condition in the event that a control room fire forced operators to evacuate the control room (i.e., alternative shutdown scenarios).

Information Notice 92-18 was primarily concerned with the loss of control of valves required for alternative shutdown. Specifically, the Information Notice was concerned with the potential for hot shorts to cause the spurious operation of these motor-operated valves and bypass their torque/limit switch, potentially damaging the valves before operators could transfer control to the remote shutdown panel. In this situation, the valves may not be able to be operated manually or from the remote shutdown panel.

The licensee evaluated this issue in Engineering Report ER-ME-089, "Resolution of NRC Information Notice 92-18, 'Potential Loss of Remote Shutdown Capability Following Control Room Fire,'" Revision 0, dated December 29, 1993. The licensee evaluated the population of motor-operated valves that were required to be operated manually or remotely from the remote shutdown panel for alternative shutdown scenarios. This population consisted of 86 motor-operated valves. The licensee made modifications as necessary to ensure that these valves could be operated manually or remotely from the remote shutdown panel for all alternative shutdown scenarios.

In 2010, the licensee began their evaluation of multiple spurious operations in accordance with Nuclear Energy Institute Document NEI 00-01, "Guidance for Post-Fire Safe-Shutdown Circuit Analysis," Revision 2. Appendix G to NEI 00-01 contained the generic list of multiple spurious operations scenarios applicable to pressurized water reactors. This appendix contained a scenario (MSO-55) that considered valve failure due to a spurious motor-operated valve operation in conjunction with a short that bypassed the torque/limit switch. This scenario was described as follows:

- General scenario is that fire damage to motor-operated valve circuitry causes spurious operation. If the same fire causes wire-to-wire short(s) such that the valve torque and limit switches are bypassed, then the valve motor may stall at the end of the valve cycle. This can cause excess current in the valve motor windings as well as valve mechanical damage. This mechanical damage may be sufficient to prevent manual operation of the valve.

- Scenario only applies to motor-operated valves. Note this generic issue may have already been addressed during disposition of the NRC Information Notice 92-18. This disposition should be reviewed in the context of multiple spurious operations and multiple hot shorts.

The licensee formed a multiple spurious operations expert panel, which met in March 2010, to review the generic list of multiple spurious operations contained in NEI 00-01. The multiple spurious operations expert panel meeting results were documented in Engineering Report ER-ME-130, "Summary of Expert Panel Activities Related to Postulation of Multiple Spurious Operations for the CPNPP Fire Safe Shutdown Analysis," Revision 0, dated April 2010. The licensee initially concluded that scenario MSO-55 was already addressed in the fire safe shutdown analysis.

On August 17, 2010, the licensee convened a supplemental meeting of the multiple spurious operations expert panel. The expert panel reconsidered multiple spurious operations scenario MSO-55 and concluded that a nonconformance existed. Specifically, the expert panel concluded that the licensee had addressed the concerns raised in Information Notice 92-18 for alternative shutdown scenarios, but did not address the concerns for scenarios where operators did not need to evacuate the control room.

The licensee subsequently evaluated the larger population of motor-operated valves that are used or must remain intact for post-fire safe shutdown. The licensee concluded that modifications were needed for 57 valves. Ten of the valves required a mechanical modification, while the remaining 47 valves required an electrical modification.

The licensee entered this issue into their corrective action program as Condition Report CR-2010-007806 and implemented compensatory measures. The inspectors identified an issue of concern with the potential for single spurious operations to damage the pressure boundary. The inspectors determined that additional inspection is required to determine if a performance deficiency exists. This issue of concern is being treated as an unresolved item URI 05000445/2013004-05; 05000446/2013004-05, "Potential Motor-Operated Valve Single Spurious Operation Vulnerability."

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

(Closed) Licensee Event Report 05000445/2011-003-00, Unsuitable Material on Containment Airlock

The inspectors reviewed the licensee event report that documented several aluminum components in the personnel and emergency airlocks, which were not compatible with the post-accident environment in containment. The containment design specifications limited the use of exposed aluminum and prohibited the use of aluminum in pressure gauges. However, the containment airlock system included one aluminum body hydraulic valve and two aluminum pressure gauges in each unit. The use of aluminum in containment was restricted to limit the potential for chemical reaction with the sodium hydroxide that would be present during post-accident conditions, which could impact the physical integrity of the affected components. The inspectors examined maintenance work orders, written procedures, condition reports, and the licensee's root cause analysis of the event. The licensee removed the affected pressure gauges and replaced the hydraulic valves. The enforcement aspects of this finding are discussed in Section 4OA7. This licensee event report is closed.

These activities constitute completion of one follow-up of events and notices of enforcement discretion sample as defined in Inspection Procedure 71153-05.

4OA5 Other Activities

(Closed) NRC Temporary Instruction 2515/182, "Review of the Implementation of the Industry Initiative to Control Degradation of Underground Piping and Tanks"

Leakage from buried and underground pipes has resulted in groundwater contamination incidents with associated heightened NRC and public interest. The industry issued a guidance document, Nuclear Energy Institute 09-14, "Guideline for the Management of Buried Piping Integrity," (ADAMS Accession No. ML1030901420) to describe the goals and required actions (commitments made by the licensee) resulting from this underground piping and tank initiative. On December 31, 2010, Nuclear Energy Institute issued Revision 1 to Nuclear Energy Institute 09-14, "Guidance for the Management of Underground Piping and Tank Integrity," (ADAMS Accession No. ML110700122) with an expanded scope of components which included underground piping that was not in direct contact with the soil and underground tanks. Nuclear Energy Institute later issued Nuclear Energy Institute 09-14, Revision 2 in November 2012 (ADAMS Accession No. ML13086A086 and ML13086A089) and Revision 3 in April 2013 (ADAMS Accession No. ML13130A322). On November 17, 2011, the NRC issued Temporary Instruction 2515/182, "Review of the Implementation of Industry Initiative to Control Degradation of Underground Piping and Tanks," to gather information related to the industry's implementation of this initiative.

a. Inspection Scope

The licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraph 03.02.a of the temporary instruction and it was confirmed that activities which correspond to completion dates specified in the program which have passed since the Phase 1 inspection was conducted, have been completed. Additionally, the licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraph 03.02.b of the temporary instruction and responses to specific questions found in http://www.nrc.gov/reactors/operating/ops-experience/buried-pipe-ti-phase-2-insp-req-2011-11-16.pdf were submitted to the NRC headquarters staff. Based upon the scope of the review described above, Temporary Instruction 2515/182 was completed and will be closed.

c. Findings

No findings were identified.

4OA6 Meetings

Exit Meeting Summary

On September 12, 2013, the inspectors presented the multiple spurious operations inspection results to Mr. K. Peters, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that some of the materials examined during the inspection were considered proprietary. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

On September 12, 2013, the inspectors presented the Temporary Instruction 2515/182 inspection results to Mr. K. Peters, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. No proprietary information was reviewed during the inspection.

On October 2, 2013, the inspectors presented the resident inspection results 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 acknowledged review of proprietary material during the inspection. No proprietary information was documented in the report.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as a non-cited violation.

Title 10 CFR 50, Appendix B, Criterion III, “Design Control,” requires, in part, that design control measures shall assure that appropriate quality standards are specified and that deviations from such standards are controlled. Contrary to the above, from initial plant operation until October 2011, the licensee failed to control deviations from standards of material applications inside containment. Specifically, the licensee failed to identify and prevent the use of aluminum in multiple containment airlock valve bodies and pressure gauges in containment. The finding was more than minor because it was associated with the containment configuration control attribute of the Barrier Integrity cornerstone and adversely affected the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) For Findings At-Power,” the inspector determined that the violation is of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment. The violation was entered into the licensee’s corrective action program as Condition Report CR-2011-005686. The licensee subsequently removed the affected pressure gauges and replaced the hydraulic valves. This is the enforcement aspect of the licensee event report discussed in Section 4OA3.

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
D. Goodwin, Director, Work Management
T. Hope, Manager, Regulatory Affairs
B. Kidwell, Manager, Emergency Preparedness
F. Madden, Director, External Affairs
B. Mays, Vice President, Engineering
T. McCool, Vice President, Station Support
D. McGaughey, Director, Performance Improvement
B. Moore, Director, Nuclear Training
K. Nickerson, Director, Engineering Support
B. Patrick, Director, Maintenance
B. Reppa, Director, Site Engineering
S. Sewell, Plant Manager
M. Smith, Director, Nuclear Operations
S. Smith, Plant Manager
K. Tate, Manager, Security
D. Wilder, Director, Plant Support

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000445/2013004-01	NCV	Failure to Remove Cable Material from Inside Containment (Section 1R04)
05000445/2013004-02	NCV	Failure to Establish Goals and Monitor the Performance of the Auxiliary Feedwater System (Section 1R12)
05000446/2013004-03	FIN	Failure to Properly Install Auxiliary Condenser Tube Plugs Causes Steam Generator Chemistry Excursion and Unit Power Reduction (Section 1R18)
05000446/2013004-04	NCV	Failure to Initiate a Condition Report for a Degraded Under Frequency Relay (Section 1R19)

Opened

05000445/2013004-05 05000446/2013004-05	URI	Potential Motor-Operated Valve Single Spurious Operation Vulnerability (Section 4OA2)

Closed

05000445/2011-003-00	LER	Unsuitable Material on Containment Airlock (Section 4OA3)

Closed

2515/182	TI	Review of the Implementation of the Industry Initiative to Control Degradation of Underground Piping and Tanks (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R05: Fire Protection

Procedures

Number	Title	Revision
ABN-805B	Response to Fire in the Auxiliary Building or the Fuel Building	6
FPI-403	Auxiliary Building Elevation 810'-6"	4

Miscellaneous Documents

Number	Title	Revision
	Fire Protection Report	29
M1-1921	Fire Hazard Analysis - Unit 1 Containment and Safeguards Buildings	CP-4

Section 1R06: Flood Protection Measures

Condition Report

2013-007696

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

Procedure

Number	Title	Revision
ABN-601	Response to a 138/345 KV System Malfunction	12

Section 1R12: Maintenance Effectiveness

Condition Report

2012-009694

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

Number	Title	Revision
STA-629	Switchyard Control and Transmission Grid Interface	7
WCI-202	Maintenance Risk Assessment	0
WCI-203	Weekly Surveillance / Work Scheduling	27
STI-600.01	Guarded Equipment Management Program	0

Condition Report

2013-009613

Section 1R15: Operability Evaluations and Functionality Assessments

Procedure

Number	Title	Revision
SOP-108A	Reactor Coolant Pump	12

Miscellaneous Documents

Number	Title	Revision/Date
EVAL-2008-000640-09-00	Discharge Piping Acceptance Criteria for Allowable Void Fraction	August 31, 2008
2323-MS-24	Specification; Diesel Generator Sets	5
DBD-ME-011	Design Basis Document; Diesel Generator Sets	35
DO-2-S008	Pipe Stress/Pipe Support Final Reconciliation Report	1
M1-0215	Flow Diagram Starting Air Piping CP1-MEDGEE-01	CP-24
554	Starting Air Receivers DeLaval Part No. 76001-125	7

Work Order

3748865

Condition Reports

2013-008323	2013-008325	2013-008384	2011-007105	2013-008552
2013-004502	2013-005376	2013-008070	2013-006795	

Section 1R19: Post-Maintenance Testing

Procedures

Number	Title	Revision
OPT-602B	Train B Motor Driven Auxiliary Feedwater Accumulator Check Valve Leak Test	4
OPT-206B	Auxiliary Feedwater System	21
OPT-214B	Diesel Generator Operability Test	17

Work Orders

4636007	4469522	4356139	4356150	4645979

Condition Report

2013-005723

Miscellaneous Documents

Number	Title	Revision
M2-0206	Flow Diagram Auxiliary Feedwater	CP-14
M2-2206	Instrumentation & Control Diagram Auxiliary Feedwater System Channel 2455/2458	CP-4

Section 1R22: Surveillance Testing

Procedures

Number	Title	Revision
OPT-512A	RHR and SI Subsystem Valve Test	10
MSM-P0-3374	Emergency Diesel Generator Monthly Run Related Inspections	3
INC-7412B	Channel Calibration Steam Generator 3 Wide Level, Protection Set II, Channel 0503	2
INC-7856B	Channel Operability Test and Channel Calibration Containment, Channel 0935, Protection Set III	5

Work Orders

4464533	4528096	4575548	4638141	3751148
4050269	3438649	4364545	4386207	4385158

Miscellaneous Document

Title	Revision
Inservice Test Plan for Pumps and Valves	12

Section 1EP6: Drill Evaluation

Procedures

Number	Title	Revision
ABN-915	Security Events	14
EPP-201	Assessment of Emergency Action Level Emergency Classification and Plan Activation	12

Condition Report

CR-2013-008383

Miscellaneous Documents

Number	Title	Revision/Date
	Comanche Peak Emergency Plan	39
	Exercise Final Report	
EPP-201	Emergency Action Level Technical Basis Document	November 4, 2010

Section 4OA1: Performance Indicator Verification

Condition Reports

2013-004387 2013-007278

Section 4OA2: Problem Identification and Resolution

Drawings

Number	Title	Revision
SK-0001-10-000172-03-00	Motor Operated Valve 1-8351A Seal Water Injection Isolation	0
SK-0001-10-000172-48-00	Motor Operated Valve 1-8716A Residual Heat Removal Cross Connect	0
SK-0006-10-000172-48-00	Motor Operated Valve 1-8804A Residual Heat Removal Pump-1 to Charging Pumps Schematic Diagram	0
SK-0010-10-000172-48-00	Motor Operated Valve 1-8809A Residual Heat Removal System to Cold Leg Isolation Valve	0

Drawings

Number	Title	Revision
SK-0012-10-000172-48-00	Motor Operated Valve 1-8811A Sump to Number 1 Residual Heat Removal Pump Schematic/Ext Conn Diagram	0
SK-0015-10-000172-48-00	Motor Operated Valve 1-8812A Refueling Water Storage Tank to RHR Pump 1 Isolation Schematic/Ext Conn Diagram	0

Engineering Reports

Number	Title	Revision
ER-ME-089	Resolution of the NRC Information Notice IN-92-18, "Potential Loss of Remote Shutdown Capability Following Control Room Fire"	0
ER-ME-129	Identification of Fire Safe Shutdown Manual Action Resolution Requirements on the Protected Shutdown Train	3
ER-ME-130	Summary of Expert Panel Activities Related to Postulation of Multiple Spurious Operations for the CPNPP Fire Safe Shutdown Analysis	0

Modification

Number	Title	Revision
FDA-2010-000172-48	MSO-55 (3C) – Mechanical Damage to Pressure Boundary MOV's	4

Procedures

Number	Title	Revision/Date
MSG-1060	Electrical Terminations (Wire Sizes 26 AWG thru 10 AWG)	2
NMP-16-40-02	CB&I Nuclear Maintenance Procedure Conduct of Electrical Work	July 30, 2013
STA-729	Control of Transient Combustibles, Ignition Sources, and Fire Watches	10

Vendor Documents

Number	Title	Date
WPT-17595	Motor Operated Valve Hot Short Evaluations	April 26, 2012
LTR-SEE-III-11-320	Comanche Peak 1 & 2 Hot Short Evaluation Results – Phase 2 Westinghouse Valves	December 21, 2011

Vendor Documents

Number	Title	Date
LTR-SEE-III-12-51	Comanche Peak 1 & 2 Hot Short Evaluation Results – Phase 4 Westinghouse and Copes-Vulcan Valves	April 25, 2012

Miscellaneous Documents

Number	Title	Date
	Initial Notification of 10CFR Part 21 Defect/Failure to Comply; RSCC Wire & Cable, LLC	May 30, 2012
	OMA/MSO Implementation Plan	August 6, 2013
	Presentation: Condition Report Stand-down	September 10, 2013
	Spreadsheet for 2RF14 Mod Team Design Modifications	
	Training Presentation: Fire Safe Shutdown Analysis – Multiple Spurious Operations Issues for OPS	Nov 2012
	Training Presentation: Print and Schematic Reading – Initial Training	N/A
10 CFR Part 21 Report	Westinghouse Reactor Coolant Pump Shutdown Seal Deficiencies	July 26, 2013
CP-201201332	Letter from Luminant Power to NRC, Subject: Comanche Peak Nuclear Power Plant (CPNPP) Docket Nos. 50-445 and 50-446 Request for Extension of Enforcement Discretion for Multiple Spurious Operation Circuit Interactions Resolution	November 8, 2012
EM13.GEL.EW4	Training Presentation: Terminations and Splices, Wire Size 26 AWG – 10 AWG	N/A
ML12347A046	Letter from M. Evans, Director Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation to Mr. R. Flores, Senior Vice President and Chief Nuclear Officer, Luminant Generation Company; Subject: Comanche Peak Nuclear Power Plant, Units 1 And 2 - Denial of Request for Extension of Enforcement Discretion for Multiple Spurious Operation Circuit Interactions Resolution (TAC Nos. MF0303 and MF0304)	February 22, 2013
SM06.JPM.ELE	Training Material: JPM-Maintenance Service/Mods Electrician (Qual Card)	April 23, 2013

Condition Reports

2010-007806	2012-005653	2013-004082	2013-007901	2013-009429
2011-002717	2013-000140	2013-004125	2013-008463	2013-009439

Condition Reports

2011-002807	2013-002903	2013-005186	2013-009265
2012-003193	2013-003971	2013-006721	2013-009408

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion

Drawings

Number	Title	Revision
M2-0245	Flow Diagram Personnel Air Lock	CP-11
M1-0245	Flow Diagram Airlocks	CP-11

Procedures

Number	Title	Revision
SOP-907A	Containment Personnel Airlocks	15
SOP-907B	Containment Personnel Airlocks	10
ECE-5.01-08	Electronic Design Change Process	19
ECE-5.01	Design Control Program	23
STA-602	Temporary Modifications and Transient Equipment Placements	17
STI-422.02	Compensatory Actions and Transient Equipment Placements	1

Work Orders

4271384	4269660	4271392	4271397	4457537
4164122				

Miscellaneous Documents

Number	Title	Revision/Date
FDA-2012-000230-01-01	Replace the IRC PAL and EAL Pressure Gauges	June 3, 2013
18.18056.12.204	Evaluation of Pressure Boundary Integrity of 1BS-0053	August 2, 2013
2323-SS-15	Containment Personnel Air Lock, Equipment Hatch, and Emergency Air Lock	3
2323-MS-614	Pressure Gauges	1
DBD-CS-074	Containment Liner and Penetration	8
DBD-ME-008	Containment Analysis	1

Miscellaneous Documents

Number	Title	Revision/Date
CS-CA-0000-3032	Supplemental Calculation for the Personnel Air Lock	4

Condition Reports

2011-011952	2013-008349	2011-010804	2013-008947	2013-008412
2013-005162	2013-007660	2013-010275		

Section 4OA5: Other Activities

Procedures

Number	Title	Revision/Date
EPG-9.03	Underground Pipe and Tank Program	4
STA-753	Control of Site Excavation Underground Pipe and Tank Program Plan	1
0900484.00	Comanche Peak Nuclear Power Plant APEC Survey	1
0900520.401	Site Specific Risk Implementation Analysis	0
MSE-P0-1327	Monthly Cathodic Protection Inspection	6
MSE-P0-1328	Cathodic Protection Annual Survey	1
STA-654	Groundwater Protection Program	9
TS521572	Technical Service Laboratory Report	May 10, 2013
0900514	Soil Analysis for Comanche Peak Nuclear Power Plant (CPNPP)	1
1016456	Recommendation for an Effective Program to Control the Degradation of Buried and Underground Piping and Tanks	1
SA-2009-017	Buried Pipe Program	April 6, 2007
NDE 4.02	ASME Section XI Visual Examination VT-2	6

Drawings

Number	Title	Revision
SK-0024-12-000027-01-02	General Layout for New Cathodic Protection System	2
D-2722.02-01	Cathodic Protection-Plan & Elevation	6
ISI-M1-0215	Flow Diagram Diesel Fuel Oil Piping CP1-MEDGEE-02	CP-1

Condition Reports

2011-12305	2012-12465	2010-07291	2009-02371	2009-02370
2009-02702	2010-01386	2012-02877	2013-02211	2012-13332
2013-01875	2013-09396			

Work Orders

3894928	4313504	3667839	3953450	3975749
4047802	4509630	4509638	4509694	4075264

Request for Information – Temporary Instruction 2515-182, "Review of Implementation of the Industry Initiative to Control Degradation of Underground Piping and Tanks"

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 August 30, 2013, to facilitate the preparation for the onsite inspection week. Please provide requested documentation electronically if possible. If requested documents are large and only hard copy formats are available, please inform the inspectors, 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 at (817) 200-1152.

1. Organization list of site individuals responsible for the site's underground piping and tanks program.

2. Copy of Site Underground Piping and Tanks program.

3. Date completed and/or schedule for the completion of the following NEI 09-14 Revision1 attributes:

   Buried Piping

   - Procedures and Oversight
   - Risk Ranking
   - Inspection Plan
   - Plan Implementation
   - Asset Management Plan

   Underground Piping and Tanks

   - Procedures and Oversight
   - Prioritization
   - Condition Assessment Plan
   - Plan Implementation
   - Asset Management Plan

4. Location maps of buried and underground piping and tanks identified by the inspectors from the information requested for the preparation week.

5. Copy of EPRI document "Recommendations for an Effective Program to Control the Degradation of Buried Pipe".

6. Self or third party assessments of the Underground Piping and Tanks Program (if any have been performed).

7. For any of the NEI 09-14 Revision1 attributes identified below which have been completed prior to the NRC's onsite inspection, provide written records that demonstrate that the program attribute is complete:

Buried Piping

- Procedures and Oversight
- Risk Ranking
- Inspection Plan
- Plan Implementation
- Asset Management Plan

Underground Piping and Tanks

- Procedures and Oversight
- Prioritization
- Condition Assessment Plan
- Plan Implementation
- Asset Management Plan

8. Please review the attached "Questions" list and provide the response and/or document requests. If requested documents are large and only hard copy formats are available, please inform the inspectors, and provide subject documentation during the first day of the onsite inspection.

Ques	Resp
Initiative Consistency	
Has the licensee taken any deviations to either of the initiatives?	Yes / No
If so, what deviations have been taken and what is (are) the basis for these deviations?	Provide documentation of deviations and any associated corrective action reports.
Does the licensee have an onsite buried piping program manager (owner)? One or more dedicated staff(s)?	Yes / No
How many buried piping program owners have there been since January 1, 2010?	Provide documentation identifying individuals responsible for the site buried piping program since January 1, 2010.
How many other site programs are assigned to the buried piping program owner?	List all site programs that are under the direct responsibility of the site's buried piping program owner.
Does the licensee have requirements to capture program performance, such as system health reports and performance indicators?	Provide copies of the last 3 systems health reports (if applicable)
Are these requirements periodic or event driven?	Periodic / Event Driven / None
Are there examples where these requirements have been successfully used to upgrade piping systems or to avert piping or tank leaks?	Provide documentation related to examples if applicable
Does the licensee have a program or procedure to confirm the as-built location of buried and underground piping and tanks at the plant?	Yes / No
Has the licensee used this program?	Yes / No

Was the program effective in identifying the location of buried pipe?	Yes / No
For a sample of buried pipe and underground piping and tanks (sample size at least 1 high and 1 low risk/priority pipe or tank), did the risk ranking and/or prioritization process utilized by the licensee produce results in accordance with the initiative guidelines, i.e., which emphasize the importance of components which have a high likelihood and consequence of failure and deemphasize the importance of components which have a low likelihood and consequence of failure?	Yes / No Sample size examined _____ Provide copy of site's risk ranking documents including documents pertaining to the actual risk rankings and methodology used. Provide documents/drawings and/or list which identifies the risk ranking for each pipe segment or tank in each system within the scope of these programs. Provide the documents which record/describe how the risk methodology was applied to determine the risk of pipe segments or tanks as selected by the inspector during the preparation week.
As part of its risk ranking process did the licensee estimate/determine the total length of buried/underground piping included in the initiatives?	Yes / No
As part of its risk ranking process did the licensee estimate/determine the total length of high risk buried/underground piping included in the initiatives?	Yes / No
Preventive Actions / System Maintenance	
For buried steel, copper, or aluminum piping or tanks which are not cathodically protected, has the licensee developed a technical basis for concluding that structural (e.g. ASME Code minimum wall, if applicable) and leak tight integrity of buried piping can be maintained?	Yes / No / Not Applicable (no buried steel, copper, or aluminum piping which is not cathodically protected)
Is the technical basis provided as justification by the licensee consistent with the initiative (including its reference documents) or industry standards (e.g. NACE SP0169)	Yes / No Provide documented technical basis including referencing documents.
For uncoated steel piping, has the licensee developed a technical basis for concluding that structural (e.g. ASME Code minimum wall, if applicable) and leak tight integrity of buried piping can be maintained?	Yes / No / Not Applicable (no uncoated buried steel pipe)
Is the technical basis provided as justification by the licensee consistent with the initiative (including its reference documents) or industry standards (e.g. NACE SP0169)?	Yes / No Provide documented technical basis including referencing documents.

For licensees with cathodic protection systems, does the licensee have procedures for the maintenance, monitoring and surveys of this equipment?	Yes / No / Not Applicable (no cathodic protection systems)
Are the licensee procedures consistent with the initiative (including its reference documents) or industry standards (e.g. NACE SP0169)?	Yes / No Provide copy of procedures if applicable.
Is the cathodic protection system, including the evaluation of test data, being operated and maintained by personnel knowledgeable of, or trained in, such activities?	Yes / No Provide documentation of training or qualification records of personnel
Is there a program to ensure chase and vault areas which contain piping or tanks subject to the underground piping and tanks initiative are monitored for, or protected against, accumulation of leakage from these pipes or tanks?	Yes / No / N/A (No piping in chases or vaults) Provide copy of program.
Inspection Activities / Corrective Actions	
Has the licensee prepared an inspection plan for its buried piping and underground piping	Yes / No
Does the plan specify dates and locations where inspections are planned?	Yes / No Provide copy of inspection plan and associated implementation procedures
Have inspections, for which the planned dates have passed, occurred as scheduled or have a substantial number of inspections been deferred?	Occurred as scheduled / Deferred
Has the licensee experienced leaks and/or significant degradation in safety related piping or piping carrying licensed material since January 1, 2009?	Leaks Yes / No Degradation Yes / No
If leakage or significant degradation did occur, did the licensee determine the cause of the leakage or degradation?	Yes / No
Based on a review of a sample of root cause analyses for leaks from buried piping or underground piping and tanks which are safety related or contain licensed material, did the licensee's corrective action taken as a result of the incident include addressing the cause of the degradation?	Yes / No / N/A (no leaks) Provide root cause analyses of identified leaks if applicable.
Did the corrective action include an evaluation of extent of condition of the piping or tanks and possible expansion of scope of inspections? (Preference should be given to high risk piping and "significant" leaks where more information is likely to be available).	Yes / No / N/A (no leaks) Provide corrective action documents concerning leaks if applicable.

Based on a review of a sample of NDE activities which were either directly observed or for which records were reviewed, were the inspections conducted using a predetermined set of licensee/contractor procedures?	Yes / No Provide list of scheduled NDE activities scheduled during onsite week and list of NDE activities that have already been conducted.
Were these procedures sufficiently described and recorded such that the inspection could be reproduced at a later date?	Yes / No Provide copies of NDE procedures for the various NDE activities that have occurred or are scheduled to occur.
Were the procedures appropriate to detect the targeted degradation mechanism?	Yes / No
For quantitative inspections, were the procedures used adequate to collect	Yes / No
Did the licensee disposition direct or indirect NDE results in accordance with their procedural requirements?	Yes / No Provide sample of direct and/or indirect NDE results and the subsequent evaluations of these NDE results.
Based on a sample of piping segments, is there evidence that licensees are substantially meeting the pressure testing requirements of ASME Section XI IWA-5244?	Yes / No Provide the completed records for the last two required Section XI periodic pressure/flow test on safety-related buried pipe segments