



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

November 6, 2012

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 05000445/2012004 AND 05000446/2012004

Dear Mr. Flores:

On September 26, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Comanche Peak Nuclear Power Plant, Units 1 and 2, facility. The enclosed inspection report documents the inspection results which were discussed on October 3, 2012, with Mr. B. Mays, Vice President, Engineering and Support, and other members of your staff.

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

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

All of these findings were determined to involve violations of NRC requirements. Further, two licensee-identified violations, which were determined to be of very low safety significance are listed in this report. The NRC is treating these violations as non-cited violations (NCVs), consistent with Section 2.3.2 of the Enforcement Policy.

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

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your

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disagreement, to the Regional Administrator, Region IV; and the NRC Resident Inspector at the Comanche Peak Nuclear Power Plant, Units 1 and 2.

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

Sincerely,

/RA/

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

Docket Nos.: 05000445:05000446

License Nos.: NPF-87; NPF-89

Enclosure: Inspection Report 05000445/2012004 and 05000446/2012004
w/Attachment: Supplemental Information

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C:DRS/PSB1	C:DRS/PSB2	C:DRS/EB1	C:DRS/EB2	C:DRP/A	
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-445, 50-446

License: NPF-87, NPF-89

Report: 05000445/2012004 and 05000446/2012004

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 26, 2012

Inspectors: J. Kramer, Senior Resident Inspector
B. Tindell, Resident Inspector
D. Proulx, Senior Project Engineer
G. Guerra, Emergency Preparedness Inspector
K. Wood, Team Leader, Nuclear Reactor Regulation

Approved By: Wayne Walker, Chief, Project Branch A
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000445/2012004, 05000446/2012004; 6/27/2012 - 9/26/2012; Comanche Peak Nuclear Power Plant, Units 1 and 2 Integrated Resident and Regional Report; Fire Protection; Operability Evaluations; Identification and Resolution of Problems.

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 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: Mitigating Systems

- Green. The inspectors identified a non-cited violation of Technical Specification 5.4.1.d for the failure of the licensee to place signs at inoperable fire hose stations and at the compensatory fire hoses identifying the purpose and location of the compensatory measures. The inspectors determined that the licensee's compensatory actions were complex, undocumented, and not communicated to the fire brigade leader. As a result, the compensatory actions for inoperable hose stations were inadequate. The licensee entered the finding into the corrective action program as Condition Report CR-2012-006524.

The licensee's failure to place signs at the inoperable fire hose stations and at the compensatory fire hoses identifying the purpose and location of the compensatory measures was a performance deficiency. The finding was more than minor because it was associated with the protection against external factors attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the fire protection compensatory actions for inoperable hose stations were inadequate. Using NRC Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, Appendix A, Exhibit 2, d.3.c, the finding was referred to NRC Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." A senior reactor analyst evaluated the finding and determined qualitatively that the resultant increase in risk would be of very low safety significance. The finding has a human performance cross-cutting aspect associated with decision-making because the licensee failed to communicate decisions to personnel who have a need to know the information in order to perform work safely [H.1c] (Section 1R05).

- Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1.a for the failure of the licensee to adequately install a gasket in accordance with procedure. As a result, the diesel generator jacket water connection leaked above the Final Safety Analysis Report allowable value for a

seven day technical specification mission time for the diesel generator. The licensee replaced the leaking gasket and entered the finding into the corrective action program as Condition Report CR-2012-006536.

The licensee's failure to adequately install a gasket in accordance with procedure was a performance deficiency which resulted in a diesel generator jacket water leak. The finding was more than minor because it was associated with the human performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the jacket water leakage rate exceeded the Final Safety Analysis Report allowable value for a seven day diesel generator technical specification mission time. Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the finding screened to a detailed risk evaluation because it represented an actual loss of function of a single train for greater than its technical specification allowed outage time. A senior reactor analyst determined that the risk significance was of very low safety significance because the diesel generator was always capable of functioning for greater than the probabilistic risk assessment mission time of 24 hours. The finding has a human performance cross-cutting aspect associated with resources because the licensee failed to maintain design margins and minimize long-standing equipment issues [H.2a] (Section 1R15).

Cornerstone: Barrier Integrity

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for failure to promptly correct a nonconservative technical specification, a condition adverse to quality. Specifically, in December 2010, the licensee implemented the administrative controls of NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications that are Insufficient to Ensure Plant Safety," to permit storage of uprated fuel assemblies in Region II of the spent fuel pools. The licensee determined Technical Specification 3.7.17, "Spent Fuel Assembly Storage," was nonconservative for this condition, and did not submit a license amendment request in a timely manner to correct the technical specification. The licensee entered the finding into the corrective action program as Condition Report CR-2012-010304.

The licensee's failure to promptly correct a condition adverse to quality was a performance deficiency. This performance deficiency was more than minor because it was associated with the spent fuel pool controls attribute of the barrier integrity cornerstone. Because the significance determination process does not directly address spent fuel pool criticality, a senior reactor analyst evaluated this issue using NRC Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." Based on calculations provided by the licensee, the analyst determined that even with all uncertainties included in the calculations, the spent fuel pools would remain subcritical under all conditions, including a complete dilution of the borated water. The analyst qualitatively considered a completed dilution of the spent fuel pools to be a very low probability event. Therefore, the analyst concluded that this issue was of very low safety significance. This finding has a human performance cross-cutting aspect associated with work practices because licensee management did not

provide adequate oversight to support nuclear safety by ensuring a timely submittal of a technical specification amendment following implementation of administrative controls [H.4c] (Section 4OA2.4).

B. Licensee-Identified Violations

Violations of very low safety significance or severity level IV were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and associated corrective action tracking numbers are listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at approximately 100 percent power. On September 22, 2012, operators shut down Unit 1 for a scheduled outage to repair the turbine generator thyristor voltage regulator. Later the same day, the operators performed a reactor startup. On September 23, 2012, the unit was placed on the grid and achieved approximately 100 percent power. The unit operated at approximately 100 percent power for the remainder of the inspection period.

Unit 2 operated at approximately 100 percent power for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

Summer Readiness for Offsite and Alternate-ac Power

a. Inspection Scope

The inspectors reviewed the licensee's preparations for summer weather including conditions that could lead to loss-of-offsite power and conditions that could result from high temperatures. Additionally, the inspectors reviewed the Final Safety Analysis Report and verified that operator actions were appropriate as specified by plant procedures. The inspectors toured offsite and onsite power systems in order to review the summer readiness and material condition of the equipment. The inspectors reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1R04 Equipment Alignments (71111.04)

Partial Equipment Walkdowns

a. Inspection Scope

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

- July 12, 2012, Unit 1, motor driven auxiliary feedwater pump 1-02 while motor driven auxiliary feedwater pump 1-01 was unavailable for maintenance

- July 13, 2012, 138 kV switchyard and transformer to 6.9 kV buses while 345 kV transformer to 6.9 kV buses 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 two partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

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:

- June 27, 2012, Unit 1, fire zone SD9, train A switchgear room
- August 29, 2012, Unit 1, fire zone AA38, mechanical equipment rooms
- August 29, 2012, Unit 2, fire zone AA39, mechanical equipment rooms
- September 19, 2012, Unit 1, fire zone AB24, train A centrifugal charging pump room
- September 19, 2012, Unit 2, fire zone AC29, train A centrifugal charging pump 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

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.d for the failure of the licensee to place signs at inoperable fire hose stations and at the compensatory fire hoses identifying the purpose and location of the compensatory measures. The inspectors determined that the licensee's compensatory actions were complex, undocumented, and not communicated to the fire brigade leader. As a result, the compensatory actions for inoperable hose stations were inadequate.

Description. On June 27, 2012, for approximately 12 hours, the licensee removed several Unit 1 fire hose stations from service to perform maintenance on an upstream isolation valve. The affected hose stations were in the train A switchgear room, train A diesel generator room, and the train A and B air compressor rooms above the diesel generator rooms. The licensee initiated compensatory actions by placing extra hoses at operable hose stations.

The inspectors performed a walkdown of the inoperable fire hose stations and the compensatory hose stations to ensure that the compensatory actions were feasible. At the operable hose station, the inspectors found extra fire hoses and signs stating that the hose station supplies water to out-of-service hose stations. However, in each case, the inspectors determined that the length of hose provided would not reach the fire zone with the inoperable hose station.

When questioned by the inspectors, fire protection personnel explained a method to use the extra hoses to hook operable hose stations up to inoperable hose stations and back-feed to other inoperable hose stations. The inspectors determined that this method was not documented on the signs at the hose stations or on the fire impairment. The inspectors interviewed the fire brigade leader and determined that fire brigade leader was not aware of the method. The inspectors determined that the method was workable. However, it was complicated, undocumented, and not communicated to the fire brigade leader. Therefore, the inspectors determined that the compensatory actions were inadequate.

The inspectors determined through interviews that the licensee had briefed a fire brigade leader on a different shift, but had not provided a turnover to the fire brigade leader during the maintenance activity.

Analysis. The licensee's failure to place signs at the inoperable fire hose stations and at the compensatory fire hoses identifying the purpose and location of the compensatory measures was a performance deficiency. The finding was more than minor because it

was associated with the protection against external factors attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the fire protection compensatory actions for inoperable hose stations were inadequate. Using NRC Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, Appendix A, Exhibit 2, d.3.c, the finding was referred to NRC Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria."

A senior reactor analyst evaluated the finding. It involved the loss of use of fire hose stations in four areas without the easy ability to use other nearby hose stations. The exposure period was 12 hours. The affected areas and the fire ignition frequencies, provided from the licensee's probabilistic risk assessment, are listed below:

Unit 1 Room	Room Number	Fire Zone	Fire Ignition Frequency	Annualized Fire Frequency (12 hrs/yr)
Train A Switchgear Room	1-083	SD9	3.58E-04	5.26E-7
Train A EDG Room	1-084	SG10a	7.84E-03	1.07E-5
Train A Air Compressor Room	1-99B	SG10b	8.21E-04	1.12E-6
Train B Air Compressor Room	1-99A	SI12b	8.21E-04	1.12E-6

If a fire develops in the train A switchgear room, it is likely to cause a transient. The standardized plant analysis risk model gives a conditional core damage probability of 4.97E-5 for this situation, so combined with the annualized fire frequency, the maximum that the incremental conditional core damage probability is (5.26E-7)(4.97E-5) or 2.6E-11. This includes a bounding baseline assumption that the fire brigade would successfully extinguish the fire before damage occurs and be unsuccessful in this effort given the non-functional fire hose stations.

For the other three fire areas, it is unlikely that the fire would result in a transient, such that the remaining impact to safety for these areas as well as the switchgear room would be limited to the increased time needed to repair the equipment. The difference in repair time between a room that is quickly sprayed with water and one that is delayed is likely to be short and possibly under the conditions of a shut down and cooled down reactor. The analyst determined qualitatively that the resultant increase in risk would be of very low safety significance.

The finding has a human performance cross-cutting aspect associated with decision-making because the licensee failed to communicate decisions to personnel who have a need to know the information in order to perform work safely [H.1c].

Enforcement. Technical Specification 5.4.1.d requires, in part, that written procedures shall be established, implemented, and maintained covering the fire protection program implementation. Procedure STA-738, "Fire Protection Systems/Equipment Impairments," Revision 6, Attachment 8.A, requires, in part, that signs identifying the purpose and location of the compensatory fire hose and related valves shall be placed above the gated wye and at the inoperable hose station. Contrary to the above, on June 27, 2012, the licensee failed to place signs identifying the purpose and location of

the compensatory fire hose above the gated wye and at the inoperable hose station. The licensee finished restoring the inoperable hose stations shortly after the walkdown. Because the violation was of very low safety significance and was documented in the licensee's corrective action program as Condition Report CR-2012-006524, it is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy: NCV 05000445/2012004-01, "Inadequate Compensatory Measures for Inoperable Hose Stations."

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On September 19, 2012, the inspectors observed a fire brigade drill for a simulated fire in Unit 2 positive displacement charging pump room 196 in the auxiliary building. 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 fire fighting 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 inspection sample as defined by Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the Unit 2 component cooling water heat exchangers. The inspectors verified the licensee properly utilized biofouling controls; the licensee's heat exchanger inspections adequately assessed the state of cleanliness of the tubes; and the heat exchanger was correctly categorized under 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants."

These activities constitute completion of one heat sink inspection sample as defined by Inspection Procedure 71111.07-05.

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 July 16, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during requalification training. The inspectors assessed the following areas:

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

These activities constitute completion of one quarterly inspection of licensed operator requalification program sample as defined in Inspection Procedure 71111.11-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

On September, 22, 2012, the inspectors observed the performance of on-shift licensed operators in the plant's main control room during the Unit 1 planned shutdown to repair the turbine generator thyristor voltage regulator. At the time of the observations, the plant was in a period of heightened activity. In addition, the inspectors assessed the operators' adherence to plant procedures and other operations department policies.

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:

- Diesel driven fire pumps
- Main feedwater pump recirculation valve failure to open

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

No findings were identified.

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

a. Inspection Scope

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

- June 27, 2012, transformer XST1 out of service
- July 6, 2012, additional boats and booms in the safe shutdown impoundment
- July 23, 2012, Unit 1, diesel generator 1-02 out of service for emergent maintenance activities
- September 21, 2012, Unit 1 risk assessment for the planned shutdown to repair the turbine generator thyristor voltage regulator

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

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- CR-2012-004124, Unit 1, reactor coolant system flow transmitter exceeded component response time
- CR-2012-005251, Unit 2, sequencer under-voltage relays out of tolerance
- CR-2012-006536, Unit 1, diesel generator 1-02 jacket water leak
- CR-2012-006539, Unit 1, diesel generator 1-02 positive crankcase pressure and associated oil leaks
- CR-2012-007277, Unit 2, safety chiller 2-06 trip
- CR-2012-007856, Unit 2, safety injection accumulator 2-02 low boron concentration

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 six operability evaluation inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

Introduction. The inspectors reviewed a Green self-revealing non-cited violation of Technical Specification 5.4.1.a for the failure of the licensee to adequately install a gasket in accordance with procedure. As a result, the diesel generator jacket water connection leaked above the Final Safety Analysis Report allowable value for a seven day technical specification mission time for the diesel generator. The licensee replaced the leaking gasket.

Description. On June 28, 2012, the licensee performed a surveillance test of diesel generator 1-02. During the test, the licensee identified a leak from the jacket water connection to the left bank turbocharger, as documented in Condition Report CR-2012-006536. The licensee determined the leak rate was approximately 1.875 gallons per hour, above the Final Safety Analysis Report allowable leak rate of 1.5 gallons per hour to support a seven day technical specification mission time for the diesel generator. The licensee replaced the gasket in the jacket water connection, which corrected the leak.

The licensee's apparent cause evaluation determined that the leakage was the result of an elongated gasket that was not centered on the sealing surfaces of the connection. Procedure MSM-C0-3346, "Emergency Diesel Engine Turbocharger Maintenance," Revision 6, Step 8.6.22, requires, in part, to tighten jacket water pipe nipple threads to seat the ring gasket. Therefore, the inspectors determined that the licensee had failed to adequately seat the ring gasket during installation on May 2, 2012.

The jacket water leakage path was through a threaded connection and then through the gasket. Therefore, the inspectors determined that the jacket water leak rate was unlikely to significantly deteriorate during diesel generator operation. If the leakage remained constant, the diesel generator would operate for approximately six days of its seven day technical specification mission time. The mission time used for risk assessment is 24 hours.

The inspectors determined, through interviews and document reviews, that the licensee had a documented history of leaks at this jacket water connection, and that engineering and maintenance recognized that the design of the connection made it difficult to correctly install a gasket.

Analysis. The licensee's failure to adequately install a gasket in accordance with procedure was a performance deficiency which resulted in a diesel generator jacket water leak. The finding was more than minor because it was associated with the human performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the jacket water leakage rate exceeded the Final Safety Analysis Report allowable value for a seven day diesel generator technical specification mission time. Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SPD) for Findings

At-Power,” the finding screened to a detailed risk evaluation because it represented an actual loss of function of a single train for greater than its technical specification allowed outage time. A senior reactor analyst determined that the risk significance was of very low safety significance because the diesel generator was always capable of functioning for greater than the probabilistic risk assessment mission time of 24 hours. The finding has a human performance cross-cutting aspect associated with resources because the licensee failed to maintain design margins and minimize long-standing equipment issues [H.2a].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Regulatory Guide 1.33, Revision 2, Appendix A, Item 9.a, requires, in part, that maintenance that can affect the performance of safety-related equipment should be performed in accordance with written procedures. Procedure MSM-C0-3346, “Emergency Diesel Engine Turbocharger Maintenance,” Revision 6, Step 8.6.22, requires, in part, to tighten jacket water pipe nipple threads to seat the ring gasket. Contrary to the above, on May 2, 2012, the licensee failed to tighten jacket water pipe nipple threads to seat the ring gasket. The licensee replaced the gasket in the jacket water connection, which corrected the leak. Because the violation was of very low safety significance and was documented in the licensee’s corrective action program as Condition Report CR-2012-006536, it is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy: NCV 05000445/2012004-02, “Inadequate Gasket Installation Causes Diesel Jacket Water Leak.”

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the circumstances associated with the licensee’s stretch power uprate activities with respect to spent fuel pool storage and criticality calculations. In support of this inspection, the inspectors reviewed applicable condition reports, license amendments, the Final Safety Analysis Report, and criticality calculations, and conducted a number of interviews.

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

b. Findings

Introduction. The inspectors identified an unresolved item associated with a potential violation of 10 CFR 50.59 for the failure to conduct a safety evaluation and submit a license amendment request for a change to the facility that required a technical specification amendment. Specifically, on December 15, 2010, the licensee changed Procedure NUC-211, “Surveillance of Region II Storage Limitations,” Revision 1, to allow for storage of uprated fuel into Region II (high density racks) of the spent fuel pool. Using a methodology for fuel burnup penalties that had not been previously approved by the NRC, the procedure permitted storage of uprated spent fuel in Region II of the spent fuel pools, which required an amendment to Technical Specification 3.7.17 “Spent Fuel Assembly Storage” prior to implementation. Additional NRC review and follow-up is necessary to fully characterize the performance deficiency.

Description. On August 28, 2007, the licensee submitted an application for a license amendment for a stretch power uprate of reactor power of approximately six percent power. Included in this application was a proposed change to Technical Specification 3.7.17 to support the eventual loading of the power uprate fuel to the spent fuel pool, and associated criticality analyses.

For ease of review, the review of the spent fuel pool criticality analysis was separated from the stretch power uprate review. On June 27, 2008, the license amendment approving the licensed reactor power uprate was issued. On June 30, 2008, based on an NRC technical staff request, the licensee submitted additional information for the spent fuel pool criticality analysis amendment. On November 19, 2008, a formal request for additional information was issued by the NRC for the spent fuel pool criticality analysis amendment. During 2008 and 2009, the licensee submitted several separate responses to the request for additional information questions. On July 10, 2009, the NRC technical staff issued a draft denial letter of the spent fuel pool criticality analysis amendment. On August 20, 2009, in response to the draft denial of the license amendment, the licensee formally withdrew the license amendment, which was acknowledged by the NRC the next day. As of May 14, 2012, no further correspondence was submitted by the licensee to pursue a license amendment for uprated fuel storage in the spent fuel pool.

Both Units 1 and 2 operated for two entire refueling intervals (18 months) from 2009 to 2012 at the uprated reactor power conditions. However, the licensee had not resolved the issues associated with receiving a license amendment to allow for storage of the uprated fuel in the spent fuel pool.

In February 2009, the licensee performed a 10 CFR 50.59 screening of Procedure NUC-211 to address the potential storage of uprated fuel in the spent fuel pools if a license amendment was not approved by the end of the operating cycle. The licensee added a precaution to Procedure NUC-211 stating, in part, that fuel assemblies from Unit 1 Cycle 14 and beyond and assemblies from Unit 2 Cycle 12 and beyond, should not be stored in Region II until the technical specifications are revised to consider the effects of stretch power uprate conditions. The inspectors considered this precaution to be appropriate, because the Region II high density storage racks technical specifications implement a number of limitations on storage configurations based on fuel enrichment and fuel burnup. Procedure NUC-211 did allow for storage of uprated fuel in the low density fuel racks, which was analyzed for any storage configuration regardless of fuel enrichment.

The precautions of Procedure NUC-211, prohibiting the storage of uprated fuel in Region II of the spent fuel pool, remained in effect for the duration of the first operating cycles following the approval of the power uprate. The first storage of Unit 1 uprated fuel to Region I (the low density-unrestricted racks) of the spent fuel pool occurred on April 3, 2010, following Unit 1 Cycle 14.

However, the licensee determined that the spent fuel pools did not have sufficient capacity for the placement of all fuel in Region I of the spent fuel racks and accommodate other fuel management considerations. Therefore, the licensee contacted a vendor to analyze the movement of the uprated fuel to Region II of the spent fuel racks. On September 29, 2010, the vendor provided the licensee with the results of this analysis. This analysis stated that the burnup versus enrichment curves for Technical

Specification 3.7.17, for storage of fuel in Region II of the spent fuel racks, were nonconservative when applied to fuel depleted at uprated conditions. The uprated fuel remained in Region I (unrestricted low density racks) because of this information. The vendor letter provided the licensee with proposed "fuel burnup penalties" to account for uprate conditions should the licensee desire to move the uprated spent fuel to Region II of the spent fuel pools.

In December 2010, the licensee relocated uprated spent fuel from Region I to Region II of the spent fuel pools. Because the fuel discharge curves for spent fuel subject to uprated conditions of Technical Specification 3.7.17 were nonconservative, the licensee erroneously invoked the direction of NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Ensure Plant Safety." The licensee noted that the NRC letter states that if a technical specification is found to be nonconservative, administrative controls to ensure nuclear safety is adequately protected is an acceptable short-term solution. The licensee erroneously believed that these compromise solutions of the administrative letter applied equally to current and past plant design as well as a desired future plant configuration. Therefore, on December 15, 2010, the licensee revised Procedure NUC-211, to allow storage of uprated fuel in Region II of the spent fuel pools using the unreviewed or unapproved methodology and fuel "burnup penalties." The 10 CFR 50.59 screening incorrectly stated that a technical specification amendment was unnecessary. This method of applying burnup penalties was not analyzed, and was not reviewed or approved by the NRC. The inspectors concluded that Technical Specification 3.7.17 was not valid for storage of uprated fuel in Region II of the spent fuel pools, and not permitted by the provisions of 10 CFR 50.59.

The licensee's change to Procedure NUC-211 that allowed the use of administrative controls to discharge uprated fuel to Region II of the spent fuel pools without prior NRC approval was considered a potential violation of 10 CFR 50.59. However, additional NRC review and follow-up is necessary to fully characterize the performance deficiency. Therefore, this issue is being treated as an unresolved item:

URI 05000445/2012004-03; 05000446/2012004-003, "Potential Failure to Follow 10 CFR 50.59 for a Change to the Spent Fuel Pool Configuration."

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:

- June 28, 2012, Unit 1, diesel generator 1-02 testing following jacket water and crankcase blower maintenance
- July 12, 2012, Unit 1, motor driven auxiliary feedwater pump 1-01 testing following breaker cubicle secondary stab change-out
- July 18, 2012, Unit 2 diesel generator 2-01 testing following governor oil replacement

- July 19, 2012, Unit 2, motor driven auxiliary feedwater pump 2-01 minimum flow valve testing following valve maintenance
- July 23, 2012, Unit 1, diesel generator 1-02 testing following fuel oil leaks repairs
- August 3, 2012, transformer XST2 electrical testing following gasket and bushing replacement

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

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

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

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the 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

- August 19, 2012, Unit 2, component cooling water pump 2-02 testing in accordance with Procedure OPT-208B, "CCW System," Revision 11

Routine Surveillance Testing

- June 28, 2012, Unit 2, control rod repositioning in accordance with Procedure OPT-106B, "Control Rods Exercise," Revision 9
- July 11, 2012, Unit 1, diesel generator 1-01 monthly surveillance in accordance with Procedure OPT 214A, "Diesel Generator Operability Test," Revision 22

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 three surveillance testing inspection samples (one pump or valve inservice test sample, and two routine surveillance testing samples) as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings were identified.

1EP2 Alert Notification System Evaluation (71114.02)

a. Inspection Scope

The inspectors discussed with licensee staff the operability of offsite siren emergency warning systems and backup alerting methods to determine the adequacy of licensee methods for testing the alert and notification system in accordance with 10 CFR Part 50, Appendix E. The inspectors observed the testing of the siren system during a routine monthly surveillance. The licensee's alert and notification system testing program was compared with criteria in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1; Federal Emergency Management Agency Report REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants"; and the licensee's current Federal Emergency Management Agency approved alert and notification system design report dated September 28, 2004. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one alert notification system evaluation sample as defined in Inspection Procedure 71114.02-05.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation (71114.03)

a. Inspection Scope

The inspectors discussed with licensee staff the operability of primary and backup systems for augmenting the on-shift emergency response staff to determine the adequacy of licensee methods for staffing emergency response facilities in accordance with their emergency plan. The inspectors reviewed the documents and references listed in the attachment to this report to evaluate the licensee's ability to staff the emergency response facilities in accordance with the licensee's emergency plan and the requirements of 10 CFR Part 50, Appendix E. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one emergency response organization staffing and augmentation sample as defined in Inspection Procedure 71114.03-05.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness (71114.05)

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program requirements as stated in plant procedures. The inspectors reviewed summaries of corrective action program documents assigned to the emergency preparedness department and emergency response organization between March 2010 and July 2012, and selected 35 for detailed review against the program requirements. The inspectors evaluated the response to the corrective action requests to determine the licensee's ability to identify, evaluate, and correct problems in accordance with the licensee program requirements, planning standard 10 CFR 50.47(b)(14), and 10 CFR Part 50, Appendix E. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one maintenance of emergency preparedness sample as defined in Inspection Procedure 71114.05-05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On September 11, 2012, 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/training evolution sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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 2012 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 2011 through the first quarter 2012. 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 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspectors sampled licensee submittals for the drill and exercise performance, performance indicator for the period from the third quarter 2011 through the second quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revisions 6, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator; assessments of performance indicator opportunities during predesignated control room simulator training sessions, performance during the 2011, biennial exercise, and performance during other drills. The specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one drill/exercise performance sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspectors sampled licensee submittals for the emergency response organization drill participation performance indicator for the period from the third quarter 2011, through the second quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, 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 records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator, rosters of personnel assigned to key emergency response organization positions, and exercise participation records. The specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one emergency response organization drill participation sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.5 Alert and Notification System (EP03)

a. Inspection Scope

The inspectors sampled licensee submittals for the alert and notification system performance indicator for the period from the third quarter 2011 through the second quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, 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 records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator and the results of periodic alert notification system operability tests. The specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one alert and notification system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

40A2 Identification and Resolution of Problems (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 cross-cutting theme documented in NRC Inspection Report 05000445/2012001 and 05000446/2012001 (2011 Annual Assessment Letter) in the resources component of the human performance cross-cutting area for the failure to provide complete and accurate procedures [H.2c]. 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 and Observations

No findings were identified.

The inspectors observed the effectiveness of corrective actions for the cross-cutting theme documented in NRC Inspection Report 05000445/2012001 and 05000446/2012001 in the resources component of the human performance cross-cutting area for the failure to provide complete and accurate procedures [H.2c]. The inspectors reviewed trend data, condition reports, and performed interviews to determine the effectiveness of the licensee's corrective actions.

The licensee performed significant corrective actions in developing human performance tools, procedural updates, training, and trending. The inspectors noted decreasing trends for the number of document quality issues documented in condition reports and causal analysis. In addition, the inspectors identified, through interviews, that station personnel were generally aware of and used the human performance tools for document quality issues. However, none of the four interviewed security officers were aware of the human performance tool. The officers were aware that document quality issues should be documented on a condition report. Therefore, the inspectors determined that the observation was not significant. The licensee documented this observation in Condition Report CR-2012-010016. No inspection findings were assigned an H.2c cross-cutting aspect in the 2012 calendar year. The inspectors concluded that the station demonstrated an improved trend for document quality issues.

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

The inspectors performed a review of the following items entered in the licensee's corrective action program:

- Condition Report CR-2010-006268, potential for steam voiding to cause a loss of the residual heat removal system
- Condition Report CR-2010-009018, licensee's actions for implementing controls for spent fuel storage

The inspectors reviewed documents and interviewed personnel to determine if the licensee completely and accurately identified problems in a timely manner commensurate with its significance, evaluated and dispositioned operability issues, considered the extent of condition, prioritized the problem commensurate with its safety significance, and completed corrective actions in a timely manner commensurate with the safety significance of the issue.

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

b. Findings

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for failure to promptly correct a nonconservative technical specification, a condition adverse to quality. Specifically, in December 2010, the licensee implemented the administrative controls of NRC Administrative Letter 98-10 "Dispositioning of Technical Specifications that are Insufficient to Ensure Plant Safety" for storage of uprated fuel assemblies in the spent fuel pool after determining that Technical Specification 3.7.17, "Spent Fuel Assembly Storage" was nonconservative for this condition, and did not submit a license amendment in a timely manner to correct the technical specification.

Description. As discussed in Section 1R18 of this inspection report, on September 29, 2010, the licensee determined that Technical Specification 3.7.17 was nonconservative with respect to storage of spent fuel pool in the high density Region II racks following operation at stretch power uprate conditions. This condition was

documented in Condition Report CR-2010-009018. Because the plant was in a conservative condition, that is, all fuel subject to uprated conditions was stored in Region I (unrestricted low density region) the licensee determined that no immediate action was necessary to correct this condition. The licensee correctly invoked Administrative Letter 98-10 to restrict storage of uprated fuel to Region I of the spent fuel pool, and correctly stated that a license amendment was required to correct Technical Specification 3.7.17. Procedure NUC-211 was revised to implement these controls.

Subsequent to the above activities, the licensee inappropriately revised the administrative controls to place the plant in a nonconservative condition. A vendor provided the licensee with "fuel burnup penalties" to attempt to offset the increased reactivity associated with the uprated fuel design. For example, the burnup penalty would be 3004 megawatt days per metric ton for uprated fuel placed in a 3 by 4 storage array for fuel enriched to less than 2 percent. These burnup penalties were determined using unapproved and unreviewed analyses methodologies.

Administrative Letter 98-10 discussed two instances of untimely corrective action to correct a nonconservative technical specification. The first example of untimely corrective action described an issue in which a licensee waited until after a refueling outage to submit a license amendment. The second example of untimely corrective action described an issue in which a licensee waited over one year to submit a license amendment. As of October 3, 2012, the licensee had not submitted a license amendment for over two years and over two operating cycles after implementing administrative controls for spent fuel pool storage. Therefore, the inspectors determined that the licensee's corrective actions were untimely and a violation of 10 CFR Part 50, Appendix B, Criterion XVI.

Analysis. The licensee's failure to promptly correct a condition adverse to quality was a performance deficiency. This performance deficiency was more than minor because it was associated with the spent fuel pool controls attribute of the barrier integrity cornerstone. Because the significance determination process does not directly address spent fuel pool criticality, a senior reactor analyst evaluated this issue using NRC Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." Based on calculations provided by the licensee, the analyst determined that even with all uncertainties included in the calculations, the spent fuel pools would remain subcritical under all conditions, including a complete dilution of the borated water. The analyst qualitatively considered a complete dilution of the spent fuel pools to be a very low probability event. Therefore, the analyst concluded that this issue was of very low safety significance. This finding has a human performance cross-cutting aspect associated with work practices because licensee management did not provide adequate oversight to support nuclear safety by ensuring a timely submittal of a technical specification amendment following implementation of administrative controls [H.4c].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XVI, requires, in part, that conditions adverse to quality shall be promptly identified and corrected. Contrary to the above, on September 29, 2010, a condition adverse to quality was not promptly corrected. Specifically, the licensee determined that Technical Specification 3.7.17, "Spent Fuel Assembly Storage" was nonconservative for storage of uprated fuel in the spent fuel pools, but as of October 3, 2012, the licensee failed to submit a license amendment to correct this condition. Because the violation was of very low safety significance and was documented in the licensee's corrective action program as

Condition Report CR-2012-010304, it is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy: NCV 05000445/2012004-04; 05000446/2012004-004, "Failure to Promptly Correct a Nonconservative Technical Specification."

40A3 Event Followup (71153)

The inspectors performed a review of licensee event reports and related documents to determine the accuracy of the licensee event reports, appropriateness of corrective actions, violations of requirements, and generic issues.

These activities constitute completion of three event followup samples as defined in Inspection Procedure 71153-05.

.1 (Closed) Licensee Event Report 05000446/2011-003-00, Unit 2 EDG Inoperable due to Fuel Oil Leak

The licensee event report documented an incident where Unit 2 diesel generator 2-02 was inoperable from April 15 through May 11, 2011, as a result of a fuel leak on the crossover header pipe. The inspectors had reviewed the event and documented the enforcement aspect and safety significance in NRC Inspection Report 05000445/2011003 and 05000446/2011003, Section 1R15. No new information was identified in the licensee event report. This licensee event report is closed.

.2 (Closed) Licensee Event Report 05000446/2011-004-00, Human Error Resulting in Inoperability of all Safety Injection Accumulators

On July 11, 2011, a non-licensed operator was directed to restore power to the Unit 1 accumulator isolation valve motor operators as part of the unit shutdown. The operator incorrectly proceeded to Unit 2 and restored power to all the accumulator isolation valve motor operators in Unit 2. The incorrect operation of the equipment on the wrong unit was recognized by a Unit 1 reactor operator and the reactor operator informed the Unit 2 control room staff of the issue. The Unit 2 unit supervisor declared all the accumulators inoperable on Unit 2 and entered Technical Specification 3.0.3. The unit supervisor dispatched a second non-licensed operator to remove power from the accumulator isolation valve motor operators. The accumulators were considered inoperable for approximately 40 minutes. The licensee documented the event in the corrective action program as Condition Report CR-2011-007783. The licensee determined the cause of the event was personnel error. The enforcement aspects of this finding are discussed in Section 40A7. This licensee event report is closed.

.3 (Closed) Licensee Event Report 05000445/2011-001-00, Potential for Steam Voiding Causing Residual Heat Removal System Inoperability

On March 22, 2010, the licensee identified that in the past three years, both trains of residual heat removal system were placed into the shutdown cooling mode of operation prior to the unit reaching Mode 5. As a result, the liquid in the hot leg suction lines, should the residual heat removal system be transferred to the refueling water storage tank or the emergency core cooling system recirculation sump, could cause a steam void in the system and cause inoperability of both trains of the residual heat removal pumps. The licensee documented the event in the corrective action program as

Condition Report CR-2010-006268. The licensee revised the station operating procedures to prohibit both residual heat removal pumps from being aligned in the shutdown cooling mode of operation with the reactor coolant system temperature greater than 200 degrees Fahrenheit. The enforcement aspects of this finding are discussed in Section 4OA7. This licensee event report is closed.

4OA6 Meetings

Exit Meeting Summary

On July 19, 2012, the inspectors presented the onsite emergency preparedness inspection results to Mr. K. Peters, Site Vice President, and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On October 3, 2012, the inspectors presented the resident inspection results to Mr. B. Mays, Vice President, Engineering and Support, 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 has been included in the report.

On October 4, 2012, the inspectors presented the spent fuel pool criticality inspection results to Mr. K. Peters, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors acknowledged review of proprietary material during the inspection. No proprietary information has been included in the report.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) or Severity Level IV were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as non-cited violations.

- Technical Specification 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Regulatory Guide 1.33, Revision 2, Appendix A, Item 3.d, requires, in part, procedures for the emergency core cooling system. Procedure SOP-202A, "Safety Injection Accumulators," Revision 15, provides the steps to operate the safety injection accumulators. Step 5.2.C required, in part, to unlock and close the accumulator injection valve breakers for Unit 1. Contrary to the above, on July 11, 2011, a non-licensed operator failed to unlock and close the accumulator injection valve breakers for Unit 1. The non-licensed operator unlocked and closed the breakers for Unit 2. The licensee documented the issue in Condition Report CR-2011-007783. Since the accumulator isolation valves for Unit 2 remained open, there was not a loss of safety function of the accumulators and the issue was determined to be of very low safety significance. This non-cited violation addresses the enforcement aspect of the licensee event report documented in Section 4OA3.2.

- Title 10 CFR Part 50, Appendix B, Criterion V, requires, in part, that activities affecting quality shall be prescribed by documented instructions or procedures of a type appropriate to the circumstances. Procedures SOP-102 (A and B), "Residual Heat Removal System," Revisions 16 and 11, respectively, delineate the steps to operate the residual heat removal system, an activity affecting quality. Contrary to the above, on March 22, 2011, Procedures SOP-102 (A and B) did not delineate actions that would prevent operating both trains of residual heat removal and causing a potential steam voiding condition of the residual heat removal system in Mode 4. The licensee documented the issue in Condition Report CR-2010-006268 and corrected the procedures. A senior reactor analyst performed a bounding risk evaluation and determined the issue was of very low safety significance. This non-cited violation addresses the enforcement aspect of the licensee event report documented in Section 4OA3.3.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

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

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000445/2012004-01	NCV	Inadequate Compensatory Measures for Inoperable Hose Stations (Section 1R05)
05000445/2012004-02	NCV	Inadequate Gasket Installation Causes Diesel Jacket Water Leak (Section 1R15)
05000445/2012004-04 05000446/2012004-04	NCV	Failure to Promptly Correct a Nonconservative Technical Specification (Section 4OA2.4)

Opened

05000445/2012004-03 05000446/2012004-03	URI	Potential Failure to Follow 10 CFR 50.59 for a Change to the Spent Fuel Pool Configuration (Section 1R18)
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Closed

05000446/2011-003-00	LER	Unit 2 EDG Inoperable due to Fuel Oil Leak (Section 4OA3.1)
05000446/2011-004-00	LER	Human Error Resulting in Inoperability of all Safety Injection Accumulators (Section 4OA3.2)
05000445/2011-001-00	LER	Potential for Steam Voiding Causing Residual Heat Removal System Inoperability (Section 4OA3.3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STA-634	Extreme Temperature Equipment Protection Program	4

Section 1R05: Fire Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ABN-901	Fire Protection System Alarms or Malfunctions	9
ABN-805A	Response to Fire in the Auxiliary Building or the Fuel Building	7
FPI-403	Auxiliary Building Elevation 810'-6"	4

CONDITION REPORTS

2012-006524	2012-008700	2012-009404	2012-009458	2012-009642
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MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
14425	Fire Impairment	0

Section 1R07: Heat Sink Performance

CONDITION REPORTS

2011-009029	2011-009305
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Section 1R11: Licensed Operator Requalification Program

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
LO47.C12.CLS	LORT Cycle 12-3 Cold Look Simulator Exercise Guide	6/18/12

Section 1R12: Maintenance Effectiveness

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
FRH-0.1A	Response to Loss of Secondary Heat Sink	8

CONDITION REPORTS

2011-007833 2011-008375 2011-010693 2011-010696

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

CONDITION REPORTS

2012-000039 2012-009515

Section 1R15: Operability Evaluations

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EE-CA-0008-0871		11

WORK ORDERS

4427411 4354430

CONDITION REPORTS

2012-005545 2012-005546 2011-008932 2012-000310 2012-002395
2011-012764 2011-010634

Section 1R18: Plant Modifications

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
NUC-211	Surveillance of Region II Storage Limitations	1 and 2
ODA-308	LCO Tracking Program	15
STA-422	Processing Condition Reports	28
STA-707	10 CFR 50.59 Evaluations	1

MISCELLANEOUS DOCUMENTS

Comanche Peak FSAR Section 4.3.2.6 "Criticality of the Reactor during Refueling and Criticality of Fuel Assemblies," Amendment 104.

NRC Administrative Letter 98-10 "Dispositioning of Technical Specifications that are Insufficient to Ensure Plant Safety," December 29, 1998.

NRC Information Notice 2011-03, "Nonconservative Criticality Safety Analyses for Fuel Storage," February 16, 2011.

TXU Letter TXX-94325 "Comanche Peak Submittal of License Amendment 94-022, Spent Fuel Storage Capacity Increase," December 30, 1994.

NRC Letter Dated July 10, 2009, "Staff Evaluation and Basis for Denial of License Amendment Request Re: Revision to Technical Specification 3.7.17, 'Spent Fuel Assembly Storage'"

MISCELLANEOUS DOCUMENTS

Luminant Power Letter CP-200901204, "Request for Withdrawal of License Amendment Request Re: Technical Specification 3.7.17 "Spent Fuel Assembly Storage"

CONDITION REPORTS

2010-009018 2011-002055 2011-009748 2012-004793 2012-005236
2012-005300 2012-005311

Section 1R19: Post-Maintenance Testing

CONDITION REPORTS

2012-006059

WORK ORDERS

4418740 3427277

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
E1-0031	6.9 kV Switchgear Bus 1EA1 Auxiliary Feedwater Pump 11 Schematic Diagram	CP-8
MSE-C0-6305	6.9 kV HK Circuit Breaker Enhanced Maintenance	2
MSE-P0-6000	6.9 kV Switchgear Cleaning and Inspection	5
OPT-214A	Diesel Generator Operability Test	22

Section 1R22: Surveillance Testing

WORK ORDERS

4408443

Section 1EP2: Alert Notification System Evaluation

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
FEMA Report	Alert & Notification System for Comanche Peak	9/28/2004
Staff Guideline 12	ANS Surveillance	18

Section 1EP3: Emergency Response Organization Staffing and Augmentation

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
Staff Guideline 5	Quarterly Augmentation Verification of the Emergency Response Organization	12

Section 1EP5: Maintenance of Emergency Preparedness

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Evacuation Time Evaluation for Units 3 & 4, April 2010	3
	Comanche Peak Emergency Plan	38
NQA-3.02	Audit and Surveillance Programs	8
Staff Guideline 9	Maintenance and Inventory of Equipment and Supplies	10
EPP-100	Maintaining Emergency Preparedness	10
EPP-123	10CFR50.54(q) Screening and Evaluation of Changes to Emergency Plan Documents	0
STA-421	Initiation of Condition Reports	18
STA-422	Processing Condition Reports	28

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EVAL-2009-011	Emergency Planning	3/8/2010 – 4/1/2010
EVAL-2011-003	Emergency Planning Changes	3/28/2011 – 5/9/2011
EVAL-2012-001	Emergency Preparedness	3/1/2012 – 3/22/2012
SURV-2011-000100	Emergency Preparedness	11/30/2011
SURV-2012-000027	Emergency Preparedness	02/28/2012
SURV-2012-000081	Emergency Preparedness	06/05/2012

CONDITION REPORTS

2010-002407	2010-002423	2010-002451	2010-002547	2010-002586
2010-002588	2010-005065	2010-005100	2010-006448	2010-006498
2010-010216	2010-010720	2011-001691	2011-001902	2011-002840
2011-003123	2011-003125	2011-006731	2011-006986	2011-006989
2011-008253	2011-008711	2011-010844	2012-000557	2012-001639

CONDITION REPORTS

2012-002154	2012-002164	2012-002166	2012-002764	2012-003540
2012-004219	2012-004999	2012-005093	2012-005895	2012-007103

Section 1EP6: Drill Evaluation

CONDITION REPORTS

2012-009443	2012-009138
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Section 4OA1: Performance Indicator Verification

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
Staff Guideline 20	NRC Performance Indicators	15

Section 4OA2: Identification and Resolution of Problems

CONDITION REPORTS

2010-009018	2011-002055	2011-009748	2012-004793	2012-005236
2012-005300	2012-005311	2012-004540	2012-008393	2011-008870
2012-008398				

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STA-421	Initiation of Condition Reports	18
NUC-211	Surveillance of Region II Storage Limitations	1 and 2
ODA-308	LCO Tracking Program	15
STA-422	Processing Condition Reports	28
STA-707	10 CFR 50.59 Evaluations	1