UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

November 8, 2007

Mike Blevins, Senior Vice President
and Chief Nuclear Officer
Luminant Generation Company LLC
ATTN: Regulatory Affairs
Comanche Peak Steam Electric Station
P.O. Box 1002
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION UNITS 1 AND 2 - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000445/2007007 AND 05000446/2007007

Dear Mr. Blevins:

On June 22, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Comanche Peak Steam Electric Station, Units 1 and 2. The enclosed integrated inspection report documents the inspection findings which were discussed on October 23, 2007, with you and other members of your staff.

This inspection reviewed activities conducted under your license as they relate to the identification and resolution of problems, compliance with the Commission's rules and regulations and the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel. The team reviewed approximately 189 smart forms, work orders, associated root and apparent cause evaluations, and other supporting documents. The team reviewed cross-cutting aspects of NRC findings and interviewed personnel regarding the condition of your safety conscious work environment at Comanche Peak Steam Electric Station.

On the basis of the sample selected for review, the team concluded that your performance remained generally consistent with the last problem identification and resolution inspection. Generally, your staff effectively identified, evaluated and prioritized and implemented effective corrective actions for conditions adverse to quality. This report documents one NRC-identified finding. This finding was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because it was entered into your corrective action program, the NRC is treating this findings as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the noncited violation in this report, 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, 611 Ryan Plaza Drive, Suite 400, Arlington, TX 76011-4005 ; the Director, Office of

Enforcement, United States Nuclear Regulatory Commission, Washington DC 20555-0001; and the NRC Resident Inspector at Comanche Peak Steam Electric Station.

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

Linda Joy Smith Chief
Engineering Branch 2
Division of Reactor Safety

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

Enclosure:
NRC Inspection Report 05000445/2007007
and 05000446/2007007
w/Attachments: 1. Supplemental Information
2. Information Request

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets:	50-445, 50-446
Licenses:	NPF-87, NPF-89
Report:	05000445/2007007 and 05000446/2007007
Licensee:	Luminant Generation Company LLC
Facility:	Comanche Peak Steam Electric Station, Units 1 and 2
Location:	FM-56, Glen Rose, Texas
Dates:	June 15 through September 25, 2007
Inspectors:	D. Proulx, Senior Reactor Inspector, Team Leader A. Sanchez, Resident Inspector P. Goldberg, Reactor Inspector J. Adams, Reactor Inspector
Approved by:	Linda J. Smith, Chief Engineering Branch 2 Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000445/2007007 and 05000446/2007007; 06/15/2007 - 09/25/2007; Comanche Peak Steam Electric Station, Units 1 and 2. Problem Identification and Resolution.

This report covered a biennial problem identification and resolution inspection by three reactor inspectors and one resident inspector. One Green noncited violation was identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using the Inspection Manual Chapter 0609, "Significance Determination Process." 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 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: N/A

- The team reviewed approximately 189 risk significant issues, apparent and root cause analyses, and other related documents, to assess the effectiveness of the licensee's problem identification and resolution processes and systems. The team concluded that the licensee's management systems were effective, although seven examples occurred during the assessment period of failure to implement appropriate and timely corrective actions. Overall, corrective actions were appropriate to the circumstances. The licensee implemented an effective program for evaluating operational experience, although the team identified one example where ineffective use of operating experience led to a valve becoming inoperable.

  The team concluded that the licensee maintained an overall safety-conscious work environment. However, based on interviews, concerns with trust in management and the ability to raise issues above direct supervision existed within the security force. A majority of security officers interviewed stated that although they would issue smart forms or inform their direct supervision with concerns, they would be hesitant to elevate issues. Individuals interviewed (outside of the security organization) were comfortable raising safety issues and elevating them to appropriate levels of management as necessary. The team concluded that the employee concerns program (SafeTeam) effectively resolved safety issues raised by plant and contract personnel. Plant personnel interviewed generally considered the employee concerns program a viable option to pursue safety issues. However, the majority of security force personnel interviewed lacked confidence in the SafeTeam's ability to resolve issues or maintain confidentiality.

The licensee overall performed effective and critical self-assessments. However, a licensee contract employee safety culture survey performed during this assessment period failed to identify the above concerns within the security force. Licensee management stated that a new safety culture survey was planned (with emphasis on ensuring a representative sample within the security force) for the fall of 2007.

Cornerstone: Initiating Events

- Green. The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, for failure to provide work instructions or procedures appropriate to the circumstances. Specifically, Work Order 3-05-333517-01 and Procedure INC-2085, "Rework and Replacement of I&C [Instrumentation and Control] Equipment," Revision, 3, directed the replacement of the positioner for Valve 1-HCV-0607, but did not contain appropriate instructions for applying loctite or other measures to ensure the adjustment screw remained securely in place, despite operational experience in 1999, that indicated this action was necessary. As a result Valve 1-HCV-0607 failed to operate when called upon.

  When operators attempted to place the Train B residual heat removal system in service, Valve 1-HCV-0607, the Train B residual heat removal heat exchanger outlet valve would not open because the Bailey Type AV1 positioner had malfunctioned. The pilot valve stem adjustment screw (that had been replaced during a recent outage) became loose and repositioned such that it prevented the valve from stroking open. The licensee had received and reviewed 1999 operating experience information that a loose pilot valve adjustment screw was determined to be the main cause of a Bailey positioner failure that led to a reactor trip at another facility. However, the team determined that the licensee had not taken appropriate action to prevent such failures at Comanche Peak Steam Electric Station, resulting in the failure of Valve 1-HCV-0607 when called upon.

  The team determined that the failure of the licensee to adequately implement operating experience into maintenance procedures was a performance deficiency. The performance deficiency had plant impact because it caused a loss of one train of a safety function (residual heat removal). The finding was determined to be more than minor because it is associated with the equipment performance attribute for assuring availability and reliability and affected the initiating events cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown operations. Using Appendix G, "Shutdown Operations Significance Determination Process," Checklist 2, of Manual Chapter 0609, "Significance Determination Process," the significance of the finding was determined to be Green, very low safety significance, because one train of residual heat removal was operable and at least two steam generators were available for decay heat removal (Section 4OA2.e.1).

B. Licensee-Identified Violations

None.

REPORT DETAILS

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution (71152)

The team based the following conclusions, in part, on all issues identified in the assessment period that ranged from June 2005 to June 2007. The issues are divided into two groups. The first group (current issues) included problems identified during the assessment period where at least one performance deficiency occurred during the assessment period. The second group (historical issues) included issues that were identified during the assessment period but had performance deficiencies that occurred outside the assessment period.

Overall Assessment

The team reviewed approximately 189 risk significant issues, apparent and root cause analyses, and other related documents, to assess the effectiveness of the licensee's problem identification and resolution processes and systems. The team concluded that the licensee's management systems were effective, although seven examples occurred during the assessment period of failure to implement appropriate and timely corrective actions. Overall, corrective actions were appropriate to the circumstances. The licensee implemented an effective program for evaluating operational experience, although the team identified one example where ineffective use of operating experience led to a valve becoming inoperable.

The team concluded that the licensee maintained an overall safety-conscious work environment. However, based on interviews, concerns with trust in management and the ability to raise issues above direct supervision existed within the security force. A majority of security officers interviewed stated that although they would issue smart forms or inform their direct supervision with concerns, they would be hesitant to elevate issues. Individuals interviewed (outside of the security organization) were comfortable raising safety issues and elevating them to appropriate levels of management as necessary. The team concluded that the employee concerns program (SafeTeam) effectively resolved safety issues raised by plant and contract personnel. Plant personnel interviewed generally considered the employee concerns program a viable option to pursue safety issues. However, the majority of security force personnel interviewed lacked confidence in the SafeTeam's ability to resolve issues or maintain confidentiality.

The licensee overall performed effective and critical self-assessments. However, a licensee contract employee safety culture survey performed during this assessment period failed to identify the above concerns within the security force. Licensee management stated that a new safety culture survey was planned (with emphasis on ensuring a representative sample within the security force) for the fall of 2007.

a. **Assessment of the Corrective Action Program Effectiveness**

(1) Inspection Scope

The team reviewed items selected across the seven cornerstones to verify that the licensee: (1) identified problems at the proper threshold and entered them into the corrective action system, (2) adequately prioritized and evaluated issues, and (3) established effective and timely corrective actions to prevent recurrence. The team observed control room operations and performed field walkdowns of the emergency diesel generators and component cooling water system to inspect for deficiencies that should have been entered into the corrective action program. Additionally, the team reviewed a sample of self assessments, trend reports and various other documents related to the corrective action program.

The team evaluated smart forms (SMFs), work orders and operability evaluations to assess the threshold for identifying problems, entering them into the corrective action program, and the ability to evaluate the importance of adverse conditions. Also, the team evaluated licensee efforts in establishing the scope of problems by reviewing selected self-assessments, audits and system health reports. Team members interviewed station personnel and interviewed corrective action program group personnel to understand the screening and prioritization of problems, as well as the interfaces with the operability assessment and work control processes. The team performed a historical review of smart forms written over the last 5 years that addressed the emergency diesel generators (EDGs) and the component cooling water system.

The team reviewed a sample of SMFs, apparent cause evaluations and root cause analyses to ascertain whether the licensee properly considered the full extent of causes and conditions, generic implications, common causes, and previous occurrences. The team assessed the timeliness and effectiveness of corrective actions, completed or planned, and looked for additional examples of similar problems. The team sampled specific technical issues to evaluate the adequacy of operability determinations.

Additionally, the team reviewed SMFs that addressed past NRC- and licensee-identified violations to ensure that the corrective actions addressed the issues as described in the inspection reports. The team reviewed a sample of corrective actions closed to other SMFs, work orders, or tracking programs to ensure that corrective actions were still appropriate and timely.

(2) Assessments

(a) Assessment - Effectiveness of Problem Identification

The team determined that, overall, the licensee effectively identified problems. The team identified the licensee had established an appropriate threshold for identifying conditions adverse to quality. Further, the team verified that the licensee processed assessment and audit results documenting adverse conditions in their corrective action program.

The team found that the licensee had a low threshold for identifying adverse trends and made effective use of the trending program to identify and resolve issues before they worsened.

No current or historical issues were identified with respect to identification of issues.

(b) Assessment - Effectiveness of Prioritization and Evaluation of Issues

Overall, the licensee appropriately prioritized and evaluated conditions adverse to quality. The team found that the licensee was self critical and thorough in evaluating the causes of significant conditions adverse to quality and that management remained involved in assigning the appropriate priority and significance to identified deficiencies. However, the team identified one example in which prioritization and evaluation of an issue resulted in an NRC-identified noncited violation (NCV).

Current Issues

Example1: Two examples of a noncited violation (NCV) were identified for failure to implement design control measures to exclude air from the containment spray system. A surveillance test drained water out of the containment spray lines, but had no provisions for refilling. Prior opportunities had identified that water was drained from the containment spray lines, but licensee evaluations failed to specify that the lines required refilling for operability of the system (NCV 05000445;446/2006009-01).

(c) Assessment - Effectiveness of Corrective Actions

Generally, the licensee implemented effective corrective actions to address conditions adverse to quality; however, seven current and two historical findings were identified in this area during the 2 year assessment period, spread evenly over the 2 years. The team identified that four of these examples affected maintenance at the facility (Examples 2 through 5).

Current Issues

Example 1: A noncited violation was identified because two containment spray system functions were not described in the Updated Final Safety Analysis Report or design basis documents. The functions of the vacuum breakers on the chemical addition tank and associated valves were not described in the design basis documents for the system. This issue was identified in a 2003 self-assessment, but had not been corrected (NCV 05000445;446/2006009-03).

Example 2: A noncited violation was identified when the licensee failed to prevent foreign material from entering the station service water pump suction. The licensee had two prior events of foreign material entering the station service water pump suction, but did not take effective corrective actions (NCV 05000445;446/2006-002).

Example 3: A noncited violation was identified because a station service water pump tripped because of a degraded motor lead. The degraded lead was identified during pump maintenance, but the condition was not corrected prior to returning the pump to service (NCV 05000445;446/2005005-04).

Example 4: A noncited violation was identified because an agastat relay failed in service causing loss of emergency power to a safety-related bus. The licensee had previously identified that agastat relays would become unreliable after 12 years in service. However, the relay that failed had been in service for 16 years, but the licensee did not take timely corrective action to replace the relay, prior to the end of its 12-year service life (NCV 05000445;446/2005005-05).

Example 5: A noncited violation was identified for ineffective corrective actions for a leaking seal weld on a valve. The licensee affected repairs on a leaking valve in the residual heat removal system, but the seal weld leaked again less that one year later, because of ineffective corrective action (NCV 05000445;446/2005005-01).

Example 6: A noncited violation was identified for failure to take corrective actions to train employees in hazardous material controls. The licensee did not provide training on hazardous material handling for employees involved in radioactive material shipments following identification of this issue during a Nuclear Overview Department audit (NCV 05000445;446/2006008-01).

Example 7: The team determined that the licensee was slow to correct the issues associated with SMF 2005-003004, which included a human performance issue. The licensee prepared SMF 2005-003004 to document that the required periodic reassessments of the risk-informed in-service test program. This reassessment had not been previously performed and documented. The team found that the reassessment was a regulatory commitment and the licensee corrected it in ER-EA-001, "Periodic Update." In another portion of the SMF, the team noted that there were approximately 52 failures for relief devices. The licensee stated that most of these devices do not perform a safety function per the Class 2 and 3 ASME Operation and Maintenance Code and the inservice testing (IST) plan. The licensee determined that, since they were either thermal relief or pressure relief devices the failures were not considered as failures with the exception of Class 1 valves. This reasoning allowed the licensee to not test additional valves. The team reviewed ASME Operation and Maintenance Code - 1999 and found that the test frequency for each Class 2 and three valves was once every 10 years. The team noted that there were requirements for additional tests for ASME Class 2 and 3 valves if they failed the as-found set pressure test. For each valve that failed the as-found set pressure test, two additional valves shall be tested. If the two additional valves failed, all of the remaining valves in the same group shall be tested. The licensee prepared SMF-2007-002065 during the inspection to revise the IST procedure to clarify the code requirements and test frequency.

Historical Issues

Example 1: Smart Forms SMF 2002-001431 (discussed in Item 2, above) and SMF-2004-000243, involved failure of two (of four) bolts that attach the exhaust manifold assembly support bracket to the EDG. Complete failure of the support bracket would have resulted in the EDG being inoperable. The two bolts failed in 2002 but the licensee treated this failure as a "broke fix" and replaced the bolts without determining the cause for the failure, assuming it to be an isolated case of defective bolts. When they again failed, in 2004, the licensee examined the bolts and concluded: (1) they had failed due to fatigue failure; (2) the remaining two bolts were unaffected; and (3) since the other two bolts were intact, the EDG would have be able to fulfill its safety function under all design basis accident conditions. The licensee subsequently performed a modification to prevent future occurrences. However, they missed an opportunity to correct the problem in 2002, which might have prevented the failures in 2004.

Example 2: Smart Form SMF-2004-001055 involved air relief valves failing their IST as-found set pressure test that was not corrected in a timely manner. The licensee determined the cause to be the use of viton gaskets, which can result in "sticky O-rings." The team discussed this with the IST engineer who stated that this is an on-going problem with these O-rings and that approximately 20 percent of the IST as-found set pressure tests are routinely failed by these valves because of this phenomenon. The IST program is conducted i.a.w. the 1998 version of the Operations and Maintenance Code, which allows the use of a larger set pressure range for these valves if an engineering analysis is performed to justify the larger range. However, the engineering analysis has not been performed and the licensee is living with the 20 percent failure rate for these valves - an operator workaround vice permanent corrective action.

b. **Assessment of the Use of Operating Experience**

(1) Inspection Scope

The team examined licensee programs for reviewing industry operating experience. The team selected a number of operating experience notification documents (e.g., NRC bulletins, information notices, generic letters, 10 CFR Part 21 reports, licensee event reports, vendor notifications), which had been issued during the assessment period to verify whether the licensee had appropriately evaluated each notification for relevance to the facility. The team then examined whether the licensee had entered those items deemed relevant into their corrective action program. Finally, the team reviewed a number of significant conditions adverse to quality and conditions adverse to quality to verify if the licensee had appropriately evaluated them for industry operating experience.

(2) Assessment

Overall, the team determined that the licensee had appropriately evaluated industry operating experience for relevance to the facility and had entered applicable items in the corrective action program. The licensee appropriately evaluated for internal and external industry operating experience when performing root cause and apparent cause evaluations. However, inadequate implementation of operational experience resulted in one NRC-identified noncited violation during this inspection.

Current Issues

Example 1: The team identified a violation of failure to provide adequate procedures appropriate to the circumstances. The licensee received operational experience information that air operated valve actuators had failed, the pilot valve adjustment screws backing out of position. When operators attempted to place the Train B residual heat removal (RHR) system in service, Valve 1-HCV-0607, the Train B RHR heat exchanger outlet valve, would not open because the Bailey Type AV1 positioner had malfunctioned. The pilot valve stem positioner had been replaced during a recent outage, but the maintenance procedure did not contain instructions to ensure that the adjustment screw remained in place. As a result, the screw became loose and repositioned such that it prevented the valve from stroking open. The licensee had received and reviewed 1999 operating experience information that a loose pilot valve adjustment screw contributed to a Bailey positioner failure that led to a reactor trip at another facility. However, the team determined that the licensee had not taken appropriate action (revision of maintenance procedures) to prevent such failures at Comanche Peak, resulting in the failure of Valve 1-HCV-0607 when called upon to place a train of RHR in service (Section 40A2.e.1).

c. **Assessment of Self-Assessments and Audits**

1. Inspection Scope

The team reviewed numerous audits, self-assessments, quality surveillances, and site performance indicators. The team reviewed program procedures and interviewed process managers related to corrective action program, and the quality assurance department. The team evaluated the use of self-assessments; the role of quality assurance; and the role of the corrective action program administrators. The team reviewed the results of a contractor safety culture survey conducted in the third quarter of 2006.

2. Assessment

The team determined that the licensee implemented self-critical trending, quality assurance audit and surveillance, and self-assessment programs. The team determined that the licensee performed thorough critical self-assessments. The number of self-assessments performed and the variety of ways used to assess site performance provided a broad perspective on site performance. The Nuclear Overview Department performed critical audits and surveillances and provided detailed assessments of the

reviewed organizations performance. The team verified that the licensee had implemented performance indicators and trended data that allowed the managers to evaluate the progress of their actions to improve performance related to corrective action program deficiencies. The team concluded that the licensee used their trending program to critically evaluate potential deficiencies. However, a contractor-performed employee safety culture survey performed during this assessment period failed to identify concerns within the security force, and was considered a missed opportunity to identify the issue. The security force had a low response rate to the contract survey, but the licensee did not pursue the cause.

Current Issues

Example 1: The licensee contractor employee safety culture survey performed during this assessment period failed to identify the concerns within the security force, and was considered a missed opportunity to identify the issue. The security force had a low response rate to the contract survey, but the licensee did not pursue the cause, upon receipt of the survey results.

Example 2: The licensee has improved their performance through the development and implementation of a couple of new procedures, STA-429, "Human Performance Program," Revision 0, and STA-431, "Centers of Excellence," Revision 0. The licensee keeps performance indicators for human performance, but the licensee can make changes to the indicator, add, drop, or suspend indicators without clear documentation as to why the change occurred. The team determined that the licensee was appropriately tracking performance indicators.

d. **Assessment of Safety Conscious Work Environment**

1. Inspection Scope

The team reviewed a third quarter 2006 site safety culture survey results including the redacted comments. The team reviewed the redacted comments to identify concerns that were expressed by more than a few people for further followup. Also, the team interviewed an organizational cross-section of 26 site personnel to assess their willingness to raise safety issues, use the corrective action program and use the employee concerns program (SafeTeam). These interviews assessed whether conditions existed that would challenge the establishment of a safety-conscience work environment. Because of the low response rate of the security force to the safety culture survey, 18 of the interviewees were security officers. The team also met with the SafeTeam coordinator.

2. Assessment

The team concluded that the licensee maintained an appropriate safety conscious work environment. The team determined that the 2006 safety culture assessment had a high response rate other than in the security organization. From the interviews conducted during this inspection, the team determine that personnel outside of the security force would not hesitate to use the corrective action program, raise concerns to management

or bring a concern to the NRC. The team concluded from interviews that, although no safety conscious work environment concerns existed, the complaints related to general culture factors and management trust might result in safety conscious work environment concerns.

Example 1: Based on interviews with licensee personnel, the team determined that issues existed within the security force that affected the work environment. These issues included: serious distrust of management, unequal treatment by management, some indications of retribution for disagreements with management, poor and low morale, and no confidence in the SafeTeam. Although all officers stated that they would not hesitate to bring up safety issues, there was indications that the officers would not elevate those issues because of the possible affect on their continued employment. Approximately half the individuals interviewed were aware that they could bring concerns to the NRC and there was one instance where the officer was discouraged from taking issues to or asking questions of the NRC because of a perceived lack of knowledge within the NRC with respect to security.

A number of examples for the distrust of management existed at the Comanche Peak Electric Generating Station within the security organization. One example deals with Securitas management implementation of various NRC orders and what information is relayed to the security officers. Apparently, Securitas management stated that work conditions, such as gas mask availability and the requirement to run a certain distance within a certain period of time, were implemented because of the perception that this situation was desired by the NRC, although this was merely a licensee interpretation of NRC requirements. When officers were made aware of this information, they believed that management was not being truthful. Another example indicated that security officers believed that Securitas management did not value the opinions of its staff. During the most recent steam generator replacement outage, officers did not agree with the compensatory measures in place for the alternate access point pop-up barriers and concrete trucks entering and exiting the protected area, and brought this concern up to management. Management's response to the concerned individuals appeared to emphasize the desire not to delay outage activities, without regard to security requirements, according to the interviewees.

Additional concerns included inequitable treatment for similar performance issues, and using work schedules (i.e. backshift) as a method of retaliation for challenging management decisions. Interviewees also indicated low morale in the performance of their duties.

The majority of the interviewees expressed a lack of confidence in the SafeTeam and would not take any concerns there for investigation. One individual stated that if he took an issue or concern to the SafeTeam it would be just for a paper trail, evidence that he tried to take some action, but expected nothing from the SafeTeam. Most officers believed that the identity of anyone that went to the SafeTeam would not be kept confidential and would be given to management.

The team did not find any instances where security staff did not appropriately bring up safety issues or concerns, and all officers stated they would bring up safety issues regardless of management's response. However, the team determined that the licensee

must evaluate and resolve the issues that existed in the security department to ensure it does not degrade the safety conscious work environment. Licensee management stated that a new safety culture survey was planned (with emphasis on ensuring a representative sample within the security force) for the fall of 2007.

e. **Specific Issues Identified During This Inspection**

1. Inspection Scope

The team reviewed the root cause analysis, including the identified corrective actions to prevent recurrence, reviewed supporting documents and interviewed personnel. During the reviews described in Sections 4OA2.a(2)(a), 4OA2.a(2)(b), and 4OA2.a(2)(c), the team identified the following finding:

2. Findings and Observations

Inadequate Evaluation of Operating Experience

Introduction. A Green, NRC-identified, noncited violation was identified for inadequate incorporation of operating experience into maintenance procedures to prevent the failure of the Train B RHR system when demanded on April 8, 2007.

Description. On April 8, 2007, while Unit 1 was in Mode 5, reactor coolant system (RCS) intact and level less than 17 percent in the pressurizer, and nearing completion of RCS heatup to 120 degrees, operators were in the process of transferring shutdown cooling from Train A RHR system to Train B RHR system. Operators started the Unit 1 Train B RHR system, but noticed that 1-HCV-0607, Train B RHR heat exchanger outlet valve, would not open and did not observe expected flow and temperature changes. Operators immediately declared the Train B RHR system inoperable, and began to restore shutdown cooling via the Train A RHR system. Train A RHR system was placed in service within a relatively short period of time and the reactor coolant system temperature rise was negligible, approximately 1.6 degrees. The Train B RHR system remained inoperable for approximately 8 hours.

The licensee's troubleshooting discovered that the Bailey Type AV1 positioner had malfunctioned. The failed positioner was replaced with a new positioner. The failed positioner was taken to the valve shop for investigation. The licensee determined that the root cause of the positioner failure was the pilot valve stem adjustment screw that had repositioned such that it prevented the valve from stroking open. The licensee also noted that this positioner was replaced this outage and had only been in service for about 1 month.

The team reviewed the root cause and completed an extensive search for similar issues. The result was the identification of two key pieces of operating experience. The licensee's root cause identified these pieces of operating experience as well, and actually addressed and evaluated one event in 1999, where a loose pilot valve adjustment screw was determined to be the main cause of a the Bailey positioner failure that led to a reactor trip. The team reviewed the operating experience evaluation and

determined that the licensee was aware that the pilot valve adjustment screw was the main cause of the failure. Furthermore, the licensee was also aware of the corrective action to prevent such failures, but failed to implement any action to prevent the same type of failure. The team determined that, although the operating experience was reviewed and evaluated, the licensee failed to adequately implement that experience and led to the inoperability and unavailability of the Train B RHR system when the system was called upon to perform its safety function. Work Order 3-05-333517-01 and Procedure INC-2085, "Rework and Replacement of I&C Equipment," Revision, 3 directed the replacement of the positioner for Valve 1-HCV-0607, but did not contain direction as to stake or otherwise secure the adjustment screw in place. Therefore, the procedure and instructions were inadequate.

Analysis. The team determined that the failure of the licensee to adequately implement operating experience into maintenance procedures was a performance deficiency. The performance deficiency had plant impact because it caused a loss of one train of a safety function (residual heat removal). The finding was determined to be more than minor because it is associated with the equipment performance attribute for assuring availability and reliability and affected the initiating events cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown operations. Using Appendix G, "Shutdown Operations Significance Determination Process," Checklist 2, of Manual Chapter 0609, "Significance Determination Process,"the significance of the finding was determined to be Green, very low safety significance, because one train of RHR was operable and at least two steam generators were available for decay heat removal. This issue was considered for a crosscutting aspect in the area of operating experience, but the failure was not considered to be indicative of current performance.

Enforcement. Part 50 of Title 10 of the Code of Federal Regulations, Appendix B, Criterion V, states, in part, that activities affecting quality shall be prescribed by documented, instructions, procedures of a type appropriate to the circumstances. Contrary to this requirement, an activity affecting quality was not prescribed by work instructions and procedures appropriate to the circumstances. Specifically, Work Order 3-05-333517-01 and Procedure INC-2085, "Rework and Replacement of I&C Equipment," Revision, 3, directed the replacement of the positioner for Valve 1-HCV-0607, but did not contain appropriate instructions for applying loctite or other measures on the adjustment screw to ensure the screw remained in place, despite operational experience in 1999, that indicated this action was necessary. As a result Valve 1-HCV-0607 failed to operate when called upon. Because the failure to provide maintenance procedures appropriate to the circumstances resulting in a loss of one train of RHR was of very low safety significance and was documented in the licensee's corrective action program as SMF-2007-002087, this finding is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000445/2007007-01, Failure to appropriately secure adjustment set screw resulted in RHR valve failure.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On October 23, 2007, the team presented the results of the inspection to Mr. R. Flores, Site Vice-President, and other members of the licensee's staff. The licensee acknowledged the findings presented in the exit meeting. The team asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENTS: 1. Supplemental Information
2. Information Request

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

M. Belvins, Senior Vice President and Chief Nuclear Officer
R. Flores, Site Vice President
D. Goodman, Simulator Support Supervisor
N. Harris, Consulting Licensing Analyst
J. Henderson, Engineering Smart Team Manager
T. Hope, Manager, Regulatory Performance
M. Kanavos, Plant Manager
S. Maier, Design Engineering Analysis Manager
G. Merka, Regulatory Affairs
J. Patton, Supervisor, Quality Assurance
M. Quick, Engineering Smart Team Manager
S. Sewell, Training Manager
S. Smith, Director, Site Engineering

NRC

D. Allen, Senior Resident Inspector
A. Sanchez, Resident Inspector

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None.

Opened and Closed

05000445/2007007-01	NCV	Failure to Appropriately Secure Adjustment Set Screw Resulted in RHR Valve Failure (Section 4OA2.e.1)

Closed

None

Discussed

None.

LIST OF DOCUMENTS REVIEWED

Smart Forms (SMFs)

2001-001255	2002-002566	2005-004209	2005-004233	2005-000511
2003-000188	2005-005005	2006-000099	2006-000229	2006-000317
2003-000501	2003-000515	2003-001259	2003-001370	2003-001857
2003-001940	2003-002239	2004-000170	2004-000217	2004-000243
2004-000430	2004-000507	2004-000596	2004-000613	2004-000621
2004-000575	2004-000659	2004-000687	2004-000752	2004-001100
2004-000646	2004-000681	2004-001055	2005-000722	2005-002668
2004-001168	1999-001397	2004-001493	2004-003807	2005-000742
2004-001193	2005-000085	2005-003924	2006-000028	2006-000873
2004-002081	2005-001060	2005-002107	2005-001065	2005-001580
2004-003918	2004-003039	2004-002970	2004-002506	2006-003591
2004-005328	2005-001666	2005-003235	2005-004591	2006-000987
2005-001580	2005-001588	2005-001674	2005-002077	2005-002337
2005-002545	2005-003041	2005-003639	2006-000002	2006-000159
2005-002698	2006-000503	2006-001836	2006-002337	2006-002608
2005-003235	2006-004161	2006-000942	2006-002312	2006-003943
2005-003866	2002-003745	2005-001666	2003-000419	2003-000422
2006-000366	2002-003723	2007-000892	2002-002248	2002-002536
2006-000879	2006-002428	2006-003189	2006-003224	2006-003309
2006-001749	2006-001939	2006-001996	2006-002529	2006-002873
2006-002756	2006-003632	2006-0003660	2007-000903	2002-003909
2006-002948	2007-001409	2002-003532	2002-001431	2001-001776
2006-003276	2006-003298	2006-004081	2007-000356	2007-000376
2006-003382	2006-003527	2006-004021	2007-000252	1999-000276
2006-003591	2005-003004	2004-001415	2005-000364	2005-000268

2007-000090	2006-003200	2005-004209	2002-003376	2002-003822
2007-000553	2007-000581	2007-000601	2007-000619	2007-000621
2007-000664	2007-000692	2007-000695	2007-000706	2007-000718
2007-000728	2007-000750	2007-000751	2007-000755	2005-000937
2007-000813	2006-002833	2007-000519	2007-001841	2005-002752
2007-001225	2006-000061	2005-003369	2004-001696	2003-000196
2007-001247	2007-001604	2005-004758	2002-002768	2002-004321
2007-001350	2006-002823	2005-000615	2002-003198	2002-000719
2007-001841	2006-000942	2005-000316	2002-003845	2002-003579
2007-001942	2006-000936	2005-003468	2004-003674	2003-002426
2007-001964	2007-001607	2005-001652	2002-003201	2007-001250
2007-001967	2006-000125	2005-003866	2002-000320	2003-000844
2007-002065	2004-003883	2006-004073	2006-003965	

Procedures

Number	Title	Revision
STA-422	Processing SmartForms	20
STA-421	Initiation of SmartForms	12
WLD-117	Repair Guidelines	0
RPI-233	Verification of License to Receive Radioactive Material	2
SOP-609A	Diesel Generator System	17
DBD-MAE-229	Component Cooling Water System	6
ODA-403	Operations Department Locked Component Control	6

Calculations

RXE-LA-CPX/0-015, “Containment Analysis for Postulated LOCAs Inside Containment at CPSES,” Revision 5

ME-CA-0229-2188, Component Cooling Water Heat Exchanger Fouling Factor Analysis,” Revision 6

Miscellaneous

Number	Title	Revision
SA-2006-027	Component Design Basis Assessment	0
LER 1-02-004-00A	TWO PRESSURIZER SAFETY VALVES FOUND WITH UNSATISFACTORY LIFT SETPOINTS	0
WO 1-03-14660	Troubleshooting Plan for 1DO-276 and 1-SV-3422B-2 DG 1-02	0
Report 1011903	Maintenance Work Package Planning Guidance	0

Other

OE13074 Diesel Generator recurring Vibration Alarms & Turbocharger Bolting Failure

OE10847 Operability Determination Re-Used Instead of New One

OE2442 Cooper Bessemer Emergency Diesel Generator Turbocharger Support Bracket Mounting Bolt Failures

ER-EA-010, "Risk Based In Service Testing Program, Integrated Decision making Panel, 2005 Periodic Reassessment," Revision 1

CPSES Program Status, Unit 1, Unit 2 Equipment Reliability Maintenance Rule 1st Quarter FY07

EVAL-2007-001380-01-00: Evaluate the condition of 1HV-2452-1, and 1-HV-2452-2, pursuant to the ASME OM-1988 Code.

EVAL-2007-001409-02: Unit 1 TDAFW Pump Steam Admission Valves: 1-HV-2452-1 & 1-HV-2452-2

Failure /Analysis Investigation of Four Bolts on a Diesel Exhaust Manifold Assembly

Memorandum from R. Kayler (Duke Power) to C. T. Alley, Jr (Duke Power)CNS-2 -Crack in D/G 2B Turbocharger Casing Metallurgy File # 321 February 13, 2004

"Comanche Peak Steam Electric Station Units 1 & 2 In-service Testing Plan for Pumps and Valves, Second Interval," Revision 4

Information Request
May 9, 2007
CPSES Problem Identification and Resolution Inspection
(IP 71152; Inspection Report 05000446/2007-07)

The inspection will cover the period of May 2005 to May 2007. All requested information should be limited to this period unless otherwise specified. As agreed when announcing the inspection, please provide the information on two CDs, or other electronic media (such as the RUG IV CERTREC website) to David Proulx (DLP@NRC.gov) at the Region IV office by **May 16, 2007**.

Some information, depending on the size of the file, may be provided by e-mail. Information provided in electronic media may be in the form of e-mail attachment(s), CDs, or thumb drives. Placing the information on the CERTREC website is also acceptable. The agency's text editing software is Corel WordPerfect 10, Presentations, and Quattro Pro; however, we have document viewing capability for MS Word, Excel, Power Point, and Adobe Acrobat (.pdf) text files.

The team will get updated lists et cetera during the first day onsite (June 11, 2007).

Note: On **summary lists** please include a description of problem, status, initiating date, and owner organization.

1. Summary list of all Smart Forms (SMFs) of significant conditions adverse to quality opened or closed since 5/1/2005.

2. Summary list of all SMFs that were generated since 5/1/2005.

3. A list of all corrective action documents that aggregate or "roll-up" one or more smaller issues for the period.

4. Summary list of all SMFs that were down-graded or up-graded in significance since 5/1/2005.

5. List of all root cause analyses completed since 5/1/2005.

6. List of root cause analyses planned, but not complete at end of the period.

7. List of all apparent cause analyses completed since 5/1/2005.

8. List of plant safety issues raised or addressed by the employee concerns program since 5/1/2005.

9. List of action items generated or addressed by the plant safety review committees (onsite and offsite) since 5/1/2005

10. All quality assurance audits and surveillances and/or assessments of corrective action activities completed since 5/1/2005.

11. A list of all quality assurance audits and surveillances completed since 5/1/2005, include any audits or surveillances scheduled but which were not completed.

12. All corrective action activity reports, functional area self-assessments, and non-NRC third party assessments completed since 5/1/2005.

13. Corrective action performance trending/tracking information generated since 5/1/2005 and broken down by functional organization

14. Current revisions of corrective action program procedures for: SMFs, Apparent Cause Evaluations, Corrective Action Program, Root Cause Evaluation/Determination, Operator Work Arounds, Work Requests, Requests for Engineering Assistance (or equivalent), Temporary Modifications, Procedure Change Requests, Deficiency Reporting and Resolution, Operating Experience Evaluation, Operational Decision Making Process. All significant procedures by reference in these procedures as well.

15. A listing of all external events (OE) evaluated for applicability at CPSES since 5/1/2005.

16. SMFs or other actions generated since 5/1/2005 for each of the items below:

    1. Part 21 Reports:
    2. [Applicable] NRC Information Notices:
    3. All LERs issued by CPSES
    4. NCVs and Violations issued to CPSES (including licensee identified)

17. Safeguards event logs for the period.

18. Radiation protection event logs.

19. Current system health reports or similar information for the [two systems picked]

20. Current predictive performance summary reports or similar information.

21. Corrective action effectiveness review reports generated since 5/1/2005.

22. Summary list of SMFs separated by systems, for the [two systems picked] systems generated since 5/1/2002 (five year trend review).

23. Information relative to any efforts related to a plant improvement program, such as human performance initiatives, etc.

24. Any third party or licensee culture surveys (Safety conscious work environment evaluation.