ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-445/95-16
50-446/95-16

Licenses: NPF-87
NPF-89

Licensee: TU Electric
Energy Plaza
1601 Bryan Street, 12th Floor
Dallas, Texas

Facility Name: Comanche Peak Steam Electric Station, Units 1 and 2

Inspection At: Glen Rose, Texas

Inspection Conducted: August 8-18, with in-office review until August 22, 1995, and a supplemental telephonic call on September 13, 1995

Inspectors: C. A. Clark, Reactor Inspector, Plant Support Branch
Division of Reactor Safety

C. E. Johnson, Reactor Inspector, Maintenance Branch
Division of Reactor Safety

G. E. Werner, Reactor Inspector, Maintenance Branch
Division of Reactor Safety

Approved: Dale A. Powers 09/13/95
Dr. Dale A. Powers, Chief, Maintenance Branch — Date
Division of Reactor Safety

Inspection Summary

Areas Inspected (Unit 1 and 2): Routine, announced inspection of maintenance activities, erosion/corrosion program and program implementation, and followup of previous maintenance inspection findings.

Results (Unit 1 and Unit 2):

Plant Operations

- The control room operators performed the Unit 2 diesel generator operability surveillance test in a professional manner (Section 2.2.2.1.3).

- Operations personnel performed well with respect to communication and verification of equipment status during replacement of the reactor solid state protection system power supply. The pre-job briefing for the reactor solid state protection system power supply replacement was clear, detailed, and thorough. The procedures used were clear and detailed (Section 2.2.2.6).

- Good communications and excellent self-verification were used by the reactor operator conducting the turbine driven auxiliary feedwater pump surveillance (Section 2.2.3.2).

Maintenance

- The work control process functioned in an effective manner (Section 2.1 and 2.2).

- The licensee's work control group evaluated the risk of on-line maintenance activities in an appropriate manner (Section 2.1.1).

- The "Fix It Now" program was a strength to the maintenance program (Section 2.1.2).

- Material condition of both units had improved (Section 2.2.1).

- Good mechanical work practices and attention to safety were exhibited by mechanical maintenance personnel during the Unit 2 diesel generator and safety injection maintenance activities (Sections 2.2.2.1.1 and 2.2.2.2.3).

- The justification for not using a clearance before commencing work in a diesel generator high voltage cabinet was based on minimizing out-of-service time and reducing work complexity. This practice was determined to be nonconservative and potentially dangerous to personnel safety (Section 2.2.2.1.2).

- The maintenance activities performed on the Unit 2 diesel generator were conducted in an excellent manner. Both mechanical maintenance and instrumentation and control technicians were alert to potential problems during the diesel generator maintenance activities (Section 2.2.2.1.3).

- A noncited violation was identified on August 14, 1995, during maintenance activities on the safety injection lube oil cooler in that system engineering personnel did not trend temperatures of the lube oil cooler as required by procedure (Section 2.2.2.2.2).

- A noncited violation was identified on August 14, 1995, during maintenance activities on Unit 2 safety injection suction piping flange for failure to support the piping adequately before loosening the fasteners (Section 2.2.2.2.4).

- During reassembly of the Unit 2 suction and discharge safety injection piping flange, the mechanics used good work practices by torquing in several steps to ensure a smooth even crush of the flexitallic gasket (Section 2.2.2.2.4).

- A noncited violation was identified on August 15, 1995, during maintenance activities on Unit 1 auxiliary feedwater pump for failure to support the piping adequately before loosening fasteners (Section 2.2.2.4.1).

- Maintenance personnel demonstrated a questioning attitude during review of the modification package to install an anti-rotation device on Auxiliary Feedwater Pump Turbine Isolation Valve 1AF-0031 (Section 2.2.2.4.2).

- Instrumentation and control maintenance personnel performed in an excellent manner during removal and replacement of the reactor solid state protection system power supply. The pre-job briefing for the solid state protection system power supply replacement was clear, detailed, and thorough. Work activities were well planned. The procedures used were clear and detailed (Section 2.2.2.6).

- The licensee was developing a comprehensive program for long-term monitoring of flow-accelerated corrosion in accordance with their commitments to Generic Letter 89-08 (Section 3.0).

Engineering

- Excellent oversight was provided by system engineering during Unit 2 safety injection pump maintenance and troubleshooting of the Unit 1 diesel generator starting air compressor (Sections 2.2.2.2.2 and 2.2.2.7.2).

Plant Support

- Good quality control oversight was observed during Unit 2 diesel generator work activities (Section 2.2.2.1.1).

- Good oversight was provided by health physics during repair of the Unit 2 safety injection suction and discharge piping (Section 2.2.2.2.4).

- A noncited violation was identified for not logging in a ladder in the spent fuel pool housekeeping zone as required by procedure (Section 2.2.2.5).

Management Overview

- Management and supervisory oversight of maintenance activities was good during the Unit 2 diesel generator outage, safety injection system repair, and Unit 1 turbine driven auxiliary feedwater system repairs; however, two exceptions were noted in that mechanical maintenance supervision did not ensure compliance with procedural requirements for properly supporting piping before loosening fasteners (Section 2.2.2.1.1 and 2.2.2.1.3).

- Improvements in air, oil, water, and steam leak reduction were viewed as the results of positive management oversight (Section 2.1.6).

Summary of Inspection Findings:

- Inspection Followup Item 445/9318-03; 446-9318-03 was closed (Section 4.1).

- Violation 445/9506-01 was closed (Section 4.2).

- Inspection followup item 445/9516-01; 446/9516-01 was opened (Section 2.2.2.2.4).

- Four noncited violations were identified (Sections 2.2.2.2.2, 2.2.2.2.4, 2.2.2.4.1, and 2.2.2.5)

Attachment:

- Attachment - Persons Contacted and Exit Meeting

DETAILS

1 PLANT STATUS

Unit 1 and Unit 2 were at full power during this inspection. There were several significant on-line maintenance activities that occurred during this inspection period.

2 MAINTENANCE RELIABILITY INITIATIVE INSPECTION (62700)

The maintenance reliability initiative was developed to provide a structured inspection plan that integrates both custom and standard guidance from several inspection procedures for examining the effectiveness of maintenance and surveillance testing activities on plant structures, systems, and components. Specific activities of interest during this inspection involved the Unit 2 diesel generator, safety injection, and reactor solid state protection system; the Unit 1 turbine driven auxiliary feedwater pump; and other on-line maintenance activities. This inspection also focussed on the erosion/corrosion program and its implementation.

The inspection objectives of the maintenance reliability initiative were to:

- Determine the effectiveness of the licensee's maintenance and surveillance testing activities in regards to on-line maintenance and repair activities.
- Determine whether the maintenance activities performed were implemented in accordance with the licensee's maintenance program and regulatory requirements.
- Determine the effectiveness of the maintenance program on important plant equipment.
- Determine the ability of the maintenance staff to conduct effective maintenance.

2.1 Work Control Process

The inspectors performed a brief review of the work control process to understand how the process worked. The work control process group's responsibilities included planning, scheduling, and work preparation. The work preparation consisted of the determination of plant impact and handling of work orders.

The licensee had established a 12-week schedule for work activities to be conducted. The inspectors reviewed the 12-week schedule which listed maintenance activities planned during that period.

The inspectors attended the daily plan-of-the-day activity meeting. Maintenance activities scheduled to be worked were generally performed when scheduled. There were two activities delayed because of replacement parts not being available. Overall, the licensee was performing maintenance as planned on the 12-week schedule.

The inspectors reviewed a flow chart diagram indicating the work control process flow path. The work request form was utilized to identify problems and failures of plant equipment. Anyone could initiate a work request. Once the work request was initiated, it went through the review and planning process. The inspectors determined through review of this flow chart diagram that the process involved numerous reviews. The inspectors were informed by the licensee representative that on a few occasions documents had been misplaced during this work process review. The process appeared complex because of the many reviews involved; however, the process was used effectively in completing work activities as scheduled.

Discussions with the manager of the work control group indicated that some of the major challenges for the group were:

- Improved work process coordination,
- Enhanced risk assessment for daily and outage scheduling,
- System leak reduction,
- Outage optimization, and
- Preventive maintenance program optimization.

The inspectors determined that some of the challenges (i.e., system leak reduction) had been initiated, and signs of improvement were already visible.

2.1.1 On-line Maintenance Evaluation

The inspectors reviewed the licensee's process for evaluating the risk of on-line maintenance activities. Discussions with a work control planner indicated that nuclear engineering in the Dallas office had previously conducted evaluations for on-line maintenance activities. In addition, engineering had developed guidelines for the work control group to conduct these evaluations effectively at the site. The inspectors asked the work control group planner to go through the evaluation process using Unit 2 Diesel Generator 2-01 and the Unit 1 turbine driven auxiliary feedwater maintenance activities as examples. Upon completion of the examples reviewed, the inspectors were satisfied that the licensee's work control group was evaluating the risk of on-line maintenance activities in an appropriate manner. The evaluation process was used on a day-to-day basis whenever maintenance activities were planned.

2.1.2 Backlog

The inspectors reviewed the maintenance backlog which consisted of corrective, general, and green card maintenance (simple work that does not require complex planning) work orders and work requests. The inspectors reviewed the maintenance indicators which showed that the backlog had definitely decreased over the past 2 years. At the end of July 1995, there were 1208 open work activities for both units. The licensee had established goals and were diligently working toward those goals.

The "Fix It Now" program was a large contributor to the reduction of backlog items. The "Fix It Now" program focussed on minor maintenance activities that were not required to follow the complete work control process. The maintenance work items the "Fix It Now" program covered were minor in nature (green card). Additionally discussions with the "Fix It Now" program coordinator indicated that the "Fix It Now" program trended minor repetitive maintenance problems regardless of significance. The inspectors considered the "Fix It Now" program to be a strength to the maintenance program.

2.1.3 Leak Reduction Program

In January 1995, there were approximately 600 identified leaks in both units, which included air, oil, water, and steam leaks. At the time of this inspection, the maintenance manager indicated this had been reduced to roughly 300 identified leaks and 39 catch containments, because of a leak reduction program established to further improve plant material condition. He indicated that he wanted no more than 7 catch containments in the plants. The plan-of-the-day report was tracking the number of catch containments and licensee management was focusing attention on this area.

The maintenance manager stated that improvements were attributed, in part, to the use of a new 2 part mechanical seal, instead of pump packing; replacement of valve packing; and installation of caps on all vents and drains. These improvements were confirmed by plant material condition (refer to Section 2.2.1) and a decrease in total gallons of discharged water. Approximately 4 million gallons of water were discharged in 1994 while the projected total for 1995 was around 2.5 million gallons.

2.1.4 Post-Work Testing

The post-work test guide was used by maintenance personnel to assist in determining the appropriate post-work testing following maintenance. The post-work test guide was divided into two sections, recommended and required post-work testing. General equipment types were listed in the recommended testing section and specific equipment identifications were listed for the required testing. The post-work test guide listed testing attributes, but did not identify the procedures necessary to accomplish tasks. Discussions with planners, operations staff, and operations and work control managers indicated that the post-work test guide was cumbersome and sometimes difficult to use but had not caused any missed post-work testing.

The licensee, as well as independent review groups, had identified efficiency problems with the process; therefore, the licensee was working on improving the post-work test guide. In many cases, the licensee staff stated that too many post-work testing requirements versus the requisite testing requirements were specified by the planners.

The inspectors determined that the post-work test guide was adequate. All maintenance activities observed had the appropriate post-work testing specified in the work orders.

2.1.5 Maintenance History

The inspectors reviewed maintenance history on selected components to determine if repetitive equipment problems existed, and if there were any operability concerns that may not have been identified.

The inspectors compared a computer-generated printout of repetitive maintenance (past 2 years) to work performed on Unit 1 auxiliary feedwater and Unit 1 and 2 diesel generators during the past year. A review of the descriptions of work performed did not identify any repetitive maintenance items that were not previously recognized by the licensee's staff.

A large number of work orders had been prepared on the diesel generators starting air systems before the change out of the air dryer packages in April 1995 for Unit 1 and in November 1994 for Unit 2. The Unit 2 diesel generator starting air systems continued to have problems after the modification until the systems were "debugged" and changes to operations were instituted. Since March 1995, Unit 2 has had only a small number of work items on the diesel generator starting air systems. Unit 1 diesel generator starting air systems have had few problems since the modification. Discussions with the diesel generator system engineers revealed that many of the starting air system problems were attributed to the old air dryers; however, other minor modifications have also helped increase the reliability of the diesel generator starting air compressors.

Technical evaluations (94-384, -796, -1090, and -450) for four repetitive maintenance items were reviewed by the inspectors and were determined to appropriately evaluate the described conditions.

2.2 <u>Observation Of Maintenance Activities</u>

2.2.1 Plant Tour

Before conducting maintenance observations, the inspectors toured the plant to establish insights on plant material conditions.

Material condition and housekeeping of both units had improved over the past 12-18 months. The number of steam, oil, and water leaks in the Unit 2 secondary plant was greatly reduced and painting had improved equipment appearance. Both the Unit 2 heater drain pumps and main feedwater pumps had significantly less water and oil leakage. Unit 1 and Unit 2 diesel generators had less oil leakage and were being wiped down every Sunday by the mechanical maintenance department personnel.

The emergency core cooling valve rooms for Unit 1 had been improved; however, additional effort was needed as evidenced by a small amount of trash and a moderate amount of water on the floor beneath the metal grating. Unit 2 emergency core cooling valve rooms were very clean with no observable water on the floor. The material condition of Units 1 and 2 containment blowdown penetration rooms was vastly improved. In these rooms, the steam leaks had either been eliminated or greatly reduced, and all poly tenting material previously needed to contain the steam leaks had been removed.

The licensee was in the process of painting various areas of Unit 1 to improve plant appearance.

Overall, housekeeping has improved and was very good in both units. The licensee had installed numerous permanent mounting brackets for ladders; fabricated and installed permanent structures to replace temporary scaffolding; and installed permanent hose storage locations. There were isolated instances where improvements were still needed (e.g., picking up tools and equipment after completing maintenance).

2.2.2 Maintenance Activities Observed

The inspectors observed various maintenance activities performed by maintenance personnel. All maintenance activities observed by the inspectors were conducted while the plant was on-line.

2.2.2.1 Unit 2 Diesel Generator Maintenance Outage

2.2.2.1.1 Unit 2 Diesel Generator 2-01 Fuel Oil System Leakage

The inspectors observed portions of corrective action repairs to correct identified system leakage performed on various components of the Unit 2 Diesel Generator 2-01 and its auxiliary skid fuel oil system. The repairs were performed by mechanical maintenance and instrumentation and control technicians. The work was conducted in accordance with Work Orders 1-95-081931-00, 1-94-076750-00, 1-95-086798-00, and 4-95-086797-00.

During performance of Work Order 1-95-081931-00, maintenance personnel found galled threads on a fitting connection while working to stop leakage at a tubing connection located in the engine left bank fuel oil supply header, at the generator end of the engine. Since the damaged tubing connection could not be repaired or replaced on the existing tubing, maintenance personnel had to bend a new piece of tubing and install new connectors at both ends. The maintenance department implemented appropriate corrective actions to manufacture, to inspect, to install, and to test the replacement tubing assembly in a timely manner.

Before conducting work in accordance with Work Order 1-95-086798-00, the mechanical maintenance supervisor conducted a job briefing about replacing Diesel Generator 2-01 fuel oil drip waste tank return pump relief valve. The briefing detailed the work activity, clearance requirements, and safety precautions. The mechanics ensured the appropriate work authorization was signed and that the clearance was in place. Good mechanical practices and attention to safety were exhibited by maintenance personnel. For this particular maintenance activity, no post-work testing was specified. Based upon numerous discussions with maintenance, planning, and operations personnel, the inspectors agreed that this was appropriate. Leak checks were done as part of routine engine operation.

The inspectors verified for 10 of 34 tags that Diesel Generator 2-01 Clearance 2-95-02102 was hung on the correct components, as specified by component identification on the clearance.

Supervisory oversight was routinely present during the diesel generator fuel oil work activities as well as good quality control oversight.

2.2.2.1.2 Replacement of Heat Sensitive Tape on Diesel Generator 2-01 Diodes

Work Order 3-95-3316168-01 was issued to inspect and replace heat sensitive tape on Diesel Generator 2-01 diodes. The work order stated, "This PM (preventive maintenance) must be performed only during 'Water Roll Checks' while the diesel is in 'Maintenance Mode'." However, since the diesel generator was being tagged out to perform various maintenance activities, this preventive maintenance activity was moved up to lessen diesel generator out-of-service time. At the time of the maintenance activity, the diesel generator had been placed in the maintenance mode (deenergized), but the tagging of the equipment out-of-service had not been completed.

The technicians verified that the panel was deenergized before replacing the heat sensitive tape. Uninsulated tools were used for this maintenance activity. When asked, the technicians stated that if energized, and if the diesel generator was to start, the flashing of the generator field would produce high voltage and current in the cabinet which would be a personnel safety concern. No safety concerns were identified with this activity since the diesel generator was in the maintenance mode and the work activity was completed while in this lineup.

The inspectors did, however, question the generic use of a work order to ensure personnel safety verses tagging out of the system. Operations Notification and Evaluation Form 95-794 was initiated by the maintenance manager to document the inspectors' concern and review the generic aspects of the concern. The maintenance manager stated that their procedures allowed them the flexibility to determine when a clearance was required, but believed a review of not using clearances for certain work activities was warranted. The instrumentation and control manager, as well as other licensee personnel, stated that this work order provided the necessary level of personnel protection and that this activity did not need a clearance.

Procedure STA-605, "Clearance and Safety Tagging," Revision 12 only required clearances to be used when deemed necessary by plant personnel. Operations and maintenance personnel, as well as the instrumentation and control manager, stated that the use of a clearance adds time and complexity (documented on Operations Notification and Evaluation Form) without benefit. After reviewing both Procedure STA-605 and STA-606, "Work Requests and Work Orders," Revision 22, the inspectors determined that the work order process did not provide the same level of protection or review as does the clearance process. In addition, putting equipment out-of-service time above personnel safety was a potentially dangerous practice.

2.2.2.1.3 Diesel Generator Post-Maintenance Testing

Upon completion of the maintenance activities for the Unit 2 diesel generator, the inspectors observed the operability test conducted by operations personnel in accordance with Procedure OPT-214B, "Diesel Generator Operability Test," Revision 1.

The control room operators properly followed Procedure OPT-214B, and the inspectors observed that commands and repeat backs were clear. After synchronizing the diesel generator, a high vibration alarm was noted at the local panel by the auxiliary operator. The auxiliary operator informed the reactor operator that his diagnostic procedure indicated that the diesel generator should have tripped; however, the diesel generator had not tripped. Discussions between the auxiliary operator and the Unit 2 control room supervisor indicated that the diesel generator appeared normal, however, the Unit 2 control room supervisor made the decision to stop the diesel generator run and troubleshoot the problem. The control room operators performed in a professional manner during the Unit 2 diesel generator operability test.

Troubleshooting was conducted using Work Request 200433. Discussions with the system engineer indicated that the suspected problem was with the pneumatic switches that sense high vibration on the diesel generator. The system engineer was very knowledgeable and formulated a troubleshooting recommendation, which was discussed in detail with the Unit 2 unit supervisor and maintenance personnel. The unit supervisor authorized the recommended troubleshooting. One of the four vibration switches was found to have failed. Maintenance instrumentation and control technicians replaced all four vibration switches with new upgraded switches recommended by the vendor. While replacing the vibration switches, licensee personnel identified that the labels were interchanged on the turbo side of the engine, and an Operations Notification and Evaluation Form was initiated to document this deficiency.

During review of the work instruction, the inspectors noted that the model number of the new vibration switch did not match the model number in the work instructions. The instrumentation and control representative was notified of the administrative deficiency by the inspectors, and the problem was promptly corrected. This deficiency appeared to be an isolated case.

Both mechanical maintenance and instrumentation and control technicians were alert to potential problems that arose during these maintenance activities. Overall, the maintenance activities performed on the diesel generator were conducted in an excellent manner. There was good supervisory oversight by maintenance supervisors in the field.

2.2.2.2 Unit 2 Safety Injection System Maintenance Outage (Train B)

The inspectors observed various maintenance activities performed on the safety injection system, which included Safety Injection Pump 2-02 and various valves within the system.

2.2.2.2.1 Safety Injection Valve Replacement

The inspectors observed grinding and welding activities on Drain Valve 2SI-8975 (3/4-inch) in Room 77A. The mechanical maintenance technicians were removing this valve because of continuous seat leakage. A grinding and welding permit was obtained and a firewatch was posted before conducting the work activity. The mechanical maintenance technicians adhered to proper housekeeping requirements. The inspectors reviewed the work package and determined that sufficient instructions were included to start and complete the job.

An observation noted by the inspectors during review of the weld data card was that the size of weld was not given. Discussions with the welder and a quality control inspector indicated that it was the welder's responsibility to calculate the weld size in accordance with Procedure WLD-106, "ASME Piping Criteria." The inspectors were informed by the quality control inspector that if the material thickness or the schedule of material was given, then the weld size could be calculated using the simplified formula in Procedure WLD-106. The inspectors noted that it was an added burden on the welder to calculate weld size while working in high radiation areas. The licensee representative informed the inspectors that the observation made by the inspectors would be taken under consideration.

Overall, the maintenance technicians conducted the work in accordance with procedures. The completed weld was visually sound. The maintenance technician properly verified interpass temperature after each pass as required by the weld data record.

2.2.2.2.2 Preventive Maintenance - Clean and Inspect Safety Injection Pump 2-02 Lube Oil Cooler

Work Order 3-94-327795-01 was conducted to inspect and clean the service water side of the safety injection pump lube oil cooler. The cooler was appropriately isolated by Clearance 2-95-2504. During the maintenance activity, a backup system engineer, a mechanical maintenance crew supervisor, and a quality control inspector were present during most of the work activity. A large amount of soft algae was present in the end bell of the heat exchanger and in numerous tubes. Step 5 of the work order had originally specified a boroscopic inspection of five randomly selected tubes to inspect for clams; however, the boroscopic inspection had been lined out. The supervisor stated that another system engineer indicated that a inspection only using a flashlight would satisfy the requirement for the heat exchanger tube inspection. The mechanical maintenance supervisor stated that he was going to do a visual inspection with a flashlight. The system engineer told the mechanical maintenance supervisor that a boroscopic inspection was required by Procedure STA-734, "Service Water System Fouling Monitoring Program," Revision 1. This oversight provided by the system engineer was good and it prevented missing a required inspection of the heat exchanger. No evidence of clams were found during the boroscopic inspection. The heat exchanger was hydrolazed to remove the algae buildup.

The inspectors reviewed Procedure STA-734 and noted that Step 6.2.4.2 required the system engineer to trend the safety injection pump lube oil supply and return temperatures and to take corrective measures when the test data exceeded the expected value by 10 percent. Contrary to this requirement, on August 14, 1995, the inspectors identified through questioning that no trending of temperatures was done. The backup system engineer stated that temperatures were not trended because data was not useful for trending. The inlet and outlet lube oil temperatures were relatively the same. The engineer continued by saying that a procedure revision was being worked and this requirement was going to be eliminated. Additionally, the engineer stated that service water flows through the heat exchanger had been constant. This failure to adhere to the procedural requirement constituted a violation of minor significance and is being treated as a noncited Violation, consistent with Section IV of the NRC Enforcement Policy.

2.2.2.2.3 Preventive Maintenance - Lubricate Safety Injection Motor to Pump Coupling

This activity was accomplished using Work Order 3-94-327796-01 and Clearance 2-95-2504. The inspectors verified that the work group had authorization to perform the work and the work order was identified on the clearance. Good mechanical work practices were used. The design of the coupling prevented all of the old grease from being removed from the coupling. When questioned by the inspectors, the system engineer verified that the new grease being installed was compatible with the old grease remaining in the coupling. The system engineer inspected the gear teeth and determined that the wear was normal.

2.2.2.2.4 Repair Suction and Discharge Piping Flange Leaks

This activity was being conducted using Work Order 4-95-082121-00 to repair active leaks on one discharge flange and three suction flanges of the Unit 2 safety injection system. Good oversight was provided during the repair by a health physics technician. While disassembling the flanges, the mechanics noted that most of the nuts were not torqued. On the discharge flange, the mechanic indicated that the breakaway torque on two of the bolts was about 20 ft/lbs. The torque for these nuts was specified between 533-710 ft/lbs on a Crane Valve flexitallic torque chart. Procedure MSM-G0-0203, "Flange Alignment and Fastener Torque Data," Revision 3, required that manufacturers' recommended torque values be used when they were available.

When questioned, the maintenance engineer indicated that these flanges had been assembled during Unit 2 construction and no torque specification had been given, therefore, the flanges were tightened "snug" tight. The maintenance engineer and manager of planning and scheduling also stated that there were no generic concerns with other flanges on Unit 2 equipment not being torqued or "snug" tight since leaks would be identified during normal equipment operation and repaired as needed. The inspectors' were concerned that the as-built configuration of other safety-related flanges may not meet minimum torque standards. This concern will be further reviewed as Inspection Followup Item 445/9516-01; 446/9516-01.

On August 14, 1995, the inspectors noted while the mechanics were loosening the nuts for Flange 2 (on Drawing BRP-SB-010), the piping (6-inch pipe, approximately 6-8 feet long) was not supported before loosening fasteners as required by Step 8.2.3 of Procedure MSM-G0-203, "Flange Alignment and Fastener Torque Data," Revision 3. The inspectors pointed this requirement out to the crew supervisor, and the pipe was supported. This failure to follow a procedural requirement constituted a violation of minor significance and is being treated as a noncited violation, consistent with Section IV of the NRC Enforcement Policy.

During reassembly, the mechanics used good work practices by torquing in several steps to ensure a smooth even crush of the flexitallic gasket. Flange alignment and torque values were checked by the mechanics and then verified to be correct by the quality control inspector.

2.2.2.3 Unit 1 - Common Liquid Waste Floor Drain Pump X-01

The inspectors observed portions of preventive maintenance work activities conducted on the liquid waste floor drain tank Pump X-01. Preventive Maintenance Work Order 3-94-321419-01 required electrical technicians to replace the motor bearings and for mechanical maintenance to remove, inspect, and lubricate the coupling. The inspectors verified that the component was tagged out-of-service before conducting the work.

The inspectors observed mechanical maintenance technicians inspect and replace the pump coupling. The maintenance technicians followed the work instructions as required. Discussions with the maintenance technicians indicated that they were knowledgeable of the work involved. Upon completion of the coupling assembly, the maintenance technicians began to align the shaft using the OPTALIGN electronic equipment. During this alignment process, the technicians identified a problem with the equipment. The maintenance technicians temporarily halted work until they acquired another instrument. The mechanical maintenance technicians displayed good judgement by temporarily stopping work until the problem was resolved.

2.2.2.4 Unit 1 Auxiliary Feedwater Pump Turbine 1-01

The inspectors observed various inspection and maintenance activities performed on the auxiliary feedwater system. The inspectors noted good management, supervisory, and system engineering oversight of the work activity.

2.2.2.4.1 Governor Valve Stem Inspection

Approximately 2 months before this inspection, the licensee installed a stem manufactured of a new material in the auxiliary feedwater pump turbine governor valve and decided to perform two monthly followup inspections of the new stem. On August 15, 1995, the inspectors observed portions of the second disassembly, the inspection, and the reassembly of the governor valve performed in accordance with Work Order 1-95-089252-00.

During this work observation, the inspectors noted that all fasteners on a four-bolt 3/4-inch diameter main steam piping flange assembly were loosened by maintenance personnel. After two of the four fasteners were removed from the flange, the piping assembly was supported from the overhead with two lengths of white-red-white boundary ribbon before removing the last flange fasteners. After the valve bonnet assembly had been removed from the work area, the inspectors questioned the use of boundary ribbon to support a piping assembly (approximately 8-9 feet in length). Licensee personnel in the area noted that boundary ribbon was not normally used for rigging in that manner and the ribbon was replaced with rigging straps. The pipe assembly appeared to have been adequately supported during the time period the boundary ribbon was installed. The inspectors were not aware of the procedural requirements at the time the bolts were loosened. However, upon review of Procedure MSM-GO-203, "Flange Alignment and Fastener Torque Data," Revision 3, Step 8.2.3, the inspectors noted that the procedure stated the following, "Ensure the dead weight of the disconnected pipe is supported sufficiently to hold the weight before loosening fasteners." During this work observation, four flange fastener assemblies were loosened and two removed, before supporting the dead weight of the piping assembly to be disconnected. While this violation was of minor safety significance, it was the second example of not following procedure instructions to support the dead weight of disconnected piping before loosening the fasteners. The licensee maintenance personnel initiated

Operations Notification and Evaluation Form 95-808. This failure to follow the procedural requirement constituted a violation of minor significance and is being treated as a noncited violation, consistent with Section IV of the NRC Enforcement Policy.

The valve stem inspections were completed with no discrepancies observed. The valve was subsequently retested and the turbine driven auxiliary feedwater pump was restored to an operable status.

2.2.2.4.2 Unit 1 Condensate to Auxiliary Feedwater Pump Turbine 1-01 Isolation Valve 1AF-0031 Yoke-to-Yoke Adapter Modification

The inspectors observed portions of the corrective action modifications performed on Unit 1 condensate to Auxiliary Feedwater Pump Turbine 1-01 Isolation Valve 1AF-0031 yoke-to-yoke adapter. The purpose of the modification was to install an anti-rotation device to prevent rotation between the two pieces. The work was conducted in accordance with Work Order 1-95-085019-00 and Design Change Notice 9194.

Before work activities began, the mechanical maintenance technician reviewed the proposed work in the field. The mechanical maintenance technician raised several questions to the mechanical planner, who was also at the work location. The planner addressed the questions appropriately and the work began.

Mechanical maintenance technicians removed cracked tack welds and drilled and tapped a 5/16-inch diameter hole through both the yoke and yoke adapter. A 5/16-inch diameter bolt was then threaded in the hole with approved thread locking compound to lock the two pieces together and prevent their rotation. The inspectors concluded that the maintenance personnel performing the work were knowledgeable and performed acceptable work in accordance with procedure instructions. Maintenance personnel also demonstrated a questioning attitude during review of the modification package to install the anti-rotation device.

2.2.2.4.3 Unit 1 Turbine Driven Auxiliary Feedwater Pump 1-01 Gland Leakoff Drain Line Inspection

The inspectors observed portions of the disassembly, inspection, and reassembly of the turbine 3/4-inch diameter gland leakoff drain lines. The work was conducted in accordance with Work Order 1-95-089916-00.

Maintenance personnel cut welds, disassembled line connections, and reassembled piping connections after completion of inspections. Visual inspections were performed in an acceptable manner and no line blockage was identified. The inspectors concluded that the personnel performing the work were knowledgeable and performed acceptable work in accordance with procedural instructions.

2.2.2.5 Fuel Handling Bridge Crane Inspection and Repair

On August 11, 1995, the inspectors observed maintenance technicians inspect and adjust the misaligned sprockets on the Fuel Handling Spent Fuel Pool Bridge Crane X-01. The inspectors reviewed Work Order 3-95-305304-01 and determined that the instructions were sufficient to conduct the work activity. The inspectors verified that a work clearance was assigned to this maintenance activity before work began. Maintenance technicians followed work instructions appropriately. The inspectors observed the maintenance technicians properly re-align and adjust the misaligned sprockets.

During this inspection, the inspectors noted a ladder approximately 6 feet north of the crane partially lying on the fuel handling bridge crane tracks, and within 5-6 feet of the fuel transfer canal. This ladder was not secured. The inspectors also noted that the ladder was not logged in the area as required by Procedure STA 607, "Housekeeping," Revision 14. The licensee representatives were informed of the inspectors' finding and promptly removed the ladder and initiated Operations Notification and Evaluation Form 95-787. Upon completion of the licensee's followup, the inspectors were informed that the ladder had been inadvertently left in the area and had not been documented in the housekeeping zone as required by procedure. As part of the licensee's corrective action, work crews were briefed on management's expectations. This failure to adhere to the procedural requirement constituted a violation of minor significance and is being treated as a noncited violation, consistent with Section IV of the NRC Enforcement Policy.

The maintenance technicians performed the fuel handling bridge sprocket alignment satisfactorily. Instructions were short and clear. Much of the work performed was within the skill of the craft. The two maintenance technicians worked well together.

2.2.2.6 Unit 2 Reactor Solid State Protection System

The inspectors observed instrumentation and control technicians, with assistance from the control room operators, change out and replace the power supply for Train A reactor solid state protection system. This change out and replacement of the reactor solid state protection system power supply was the first to be conducted at Comanche Peak Steam Electric Station. The Unit 2 operations crew and the instrumentation and control personnel held a detailed pre-job briefing. The pre-job briefing was clear and thorough.

Work activities were well planned and coordinated by both instrumentation and control technicians and control room operators. The control room operators performed well with respect to communications and verification of equipment status. Repeat backs and double verification of equipment status were excellent. Upon completion of the control room actions, the instrumentation and control technicians disconnected the power leads, removed the old power supply, and installed the replacement reactor solid state protection system power supply. The instrumentation and control technicians conducted the work in an excellent manner, with no performance errors or work delays.

Procedure SOP-711B, "Solid State Protection System," Revision 1, and the instructions in Work Order 1-95-090015-00 were clear and detailed.

The inspectors concluded that the replacement of the solid state protection system power supply was both maintenance and operations personnel, and both groups performed in an excellent manner.

2.2.2.7 Minor Maintenance

2.2.2.7.1 Replacement of Sample Si· Valve

Work Order 4-95-089126-00 containe· ·k instructions to replace Valve 1CS-0068, "Boric Acid Blender 1 Sample Sink Sample Valve." This valve was a 1/2-inch stainless steel swedge-lock needle valve that was leaking by its seat. The valve replacement was done under a standby clearance which was determined to be appropriate for the circumstance. Proper radiological precautions were taken and a health physics technician was present during the valve replacement. Good work practices were used by the technician (i.e., Valve 1CS-0068 was opened before loosening fittings to ensure that the line was depressurized and ensured proper valve orientation in relation to flow). The inspectors did note that personnel removing the insulation on this valve did not sign off the step in Procedure MSM-G0-0907, "Installation and Removal of Anti-Sweat and Thermal Insulation," Revision 0; however, the work order did note the removal of the insulation. This failing was determined to be a simple lack of attention to detail and had no significance. Overall, the work activity was well performed.

2.2.2.7.2 Work Request Troubleshooting

The inspectors observed portions of troubleshooting associated with the failure of Unit 1 Diesel Generator Starting Air Compressor 1-02 to load. This activity was high priority since the Unit 1 turbine driven auxiliary feedwater pump was inoperable. If the diesel generator starting air system had been lost, then the unit would have been placed in a 2-hour shutdown action statement.

The system engineer formulated a troubleshooting plan and discussed the plan with the instrumentation and control technicians and their supervisor before going into the plant. The focus of the troubleshooting activity was on the dryer tower valves apparently not shifting and, thus, preventing the compressor from loading. The inspectors verified that the technicians, under the direction of the system engineer, were following a written troubleshooting plan, which had been discussed with operations personnel. Throughout the activity, the system engineer was present and provided direction and focus on troubleshooting the possible causes of the improper operation of the starting air compressor. Excellent oversight for this activity was provided by the system engineer.

2.2.3 Surveillance Observations

2.2.3.1 Unit 2 Solid State Protection System Slave Relay Test

The inspectors observed the performance of Procedure OPT-467B, "Train A Safeguards Slave Relay K609 Actuation Test," Revision 1. This surveillance was completed under Work Order 5-95-502914-AB to satisfy the requirements of Technical Specification 4.3.2.1.1b. An adequate infrequent evolution pre-brief was conducted by the unit supervisor. During the surveillance performance, good communication and self-verification were used by the control room operations personnel. Applicable equipment actuated as required. The inspectors verified the restoration of plant equipment to the normal lineup.

2.2.3.2 Cold Start of Unit 1 Turbine Driven Auxiliary Feedwater Pump

To demonstrate operability of the turbine driven auxiliary feedwater pump after governor valve inspections, the licensee conducted a cold start of the turbine driven auxiliary feedwater pump in accordance with Procedure OPT-206, "AFW System," Revision 12, which was authorized under Work Order 5-95-504446-AA. The inspectors verified that this surveillance procedure was appropriate to demonstrate operability of the pump.

An excellent pre-job briefing was conducted as required for infrequent evolutions. The system engineer and all involved operations personnel attended the briefing. Test coordination and data collection were discussed to ensure that all data necessary to demonstrate operability was properly recorded. Precautions and limitations were discussed with emphasis on more important steps. Procedures were given to all field operations personnel.

Good communications and excellent self-verification were used by the reactor operator conducting the surveillance. The inspectors independently calculated required pump differential pressures and verified numerical data parameters. The surveillance test was completed with the pump properly demonstrating all operability requirements.

2.2.4 Review of Work Package Instructions/Procedures

The inspectors reviewed numerous work packages during the review of work activities conducted by maintenance personnel. Most packages contained sufficient work instructions and details to perform the intended work activity. However, some contained an excessive amount of documents that were not needed to conduct the work activities. Some work packages were detailed, yet still manageable, while other work packages were cumbersome. Procedures within the work packages, however, were determined to be appropriate by the inspectors.

Overall, the packages were sufficient; however, consistency in developing the necessary degree of detail in the work packages was needed.

3 Inspection of the Erosion/Corrosion Monitoring Program and its Implementation (49001)

3.1 Introduction

The purpose of this inspection was to evaluate the licensee's long-term erosion/corrosion monitoring program to determine: (1) if the program was being conducted in accordance with NRC guidelines established in Generic Letter 89-08, "Erosion/Corrosion-Induced Pipe Wall Thinning"; (2) if the program was being conducted in accordance with licensee commitments and procedures; (3) how well management controls problems and whether weaknesses exist; and, (4) if quality assurance or independent reviews of the program had been conducted.

3.2 Program Description

The licensee had initiated a program for long-term monitoring for pipe wall thinning due to erosion/corrosion in 1987 before the startup of Unit 1 in 1989. The current program covered various forms of corrosion including, but not limited to, the following: (1) flow-accelerated corrosion, previously know as erosion/corrosion, (2) uniform or general attack, and (3) microbiologically-induced corrosion. To analytically predict locations most susceptible to pipe wall thinning, the licensee used the CHEC/CHECMATE/CHECWORKS family of computer codes developed by the Electric Power Research Institute. The licensee had repeatedly inspected areas identified by their analysis as being susceptible to flow-accelerated corrosion to obtain actual wear rates. The licensee had established baseline wall thickness data for the initial selected inspection sites before startup of each unit. According to engineering personnel, flow-accelerated corrosion wear measurements have been obtained during four Unit 1 outages and one Unit 2 outage. From the examination data the engineers had established actual wear rates for replacement projections and for feedback into their analytical program.

In April 1994, as implemented by the Electric Power Research Institute and licensee CHECWORKS tailored collaboration agreement, Vectra Technologies, Inc., performed a comprehensive review of the Comanche Peak Steam Electric Station flow-accelerated corrosion program. The purpose of the review was identified as two-fold: first, to document the current status of the licensee's flow-accelerated corrosion program and to compare the existing program to current industry guidelines and regulatory standards; and, second, to recommend program improvements that would bring the licensee program in line with current regulatory practices and industry standards. Vectra Technologies, Inc., issued Report Document 0065-00052.001, "FAC [flow-accelerated corrosion] Program Review for Comanche Peak," Revision 0, dated

August 1994, at the completion of their review. While the licensee had implemented a majority of the Vectra Technologies, Inc., report recommendations, they were still working on the implementation of some recommendations and other recommendations were still being evaluated.

The licensee identified that their program was documented and implemented using the following procedures:

- STA-730, "Corrosion Monitoring Program," Revision 3, dated August 4, 1995;
- "Corrosion Monitoring Program Monitoring Plan," Revision 5, dated August 8, 1995;
- ER-ME-93, "Flow-Accelerated Corrosion System Susceptibility Analysis for Comanche Peak Unit 1," Revision 0, dated May 1995;
- ER-ME-94, "Flow-Accelerated Corrosion System Susceptibility Analysis for Comanche Peak Unit 2," Revision 0, dated May 1995;
- ER-ME-95, "Flow-Accelerated Corrosion CHECWORKS Database for Comanche Peak Unit 1," Revision 0, dated September 1994;
- ER-ME-96, "Flow-Accelerated Corrosion CHECWORKS Database for Comanche Peak Unit 2," Revision 0, dated August 1994; and
- ER-ME-97, "Flow-Accelerated Corrosion Small-Bore/Large-Bore Piping Non-CHECWORKS Monitoring Program for CPSES Unit 1 and 2," Revision 0, dated January 1995.

3.3 Program Implementation

The inspectors reviewed the methods which the licensee was employing to determine the pipe and components to be inspected, the flow-accelerated corrosion wear rates, the documentation and calculations that supported the analysis, the examination data feedback to the analysis group and the actions taken for degraded conditions.

Items noted by the inspectors during this inspection are detailed below.

3.3.1 Analysis Program

The licensee used the CHECWORKS family of codes along with other industry information and experience to identify and rank suspected locations in piping systems for inspection.

The licensee took baseline wall thickness readings on approximately 95 examination sites in Unit 1 and 100 examination sites in Unit 2 before the start of commercial operation of the two units. At the time of this inspection, the total number of examination sites that had measured wall thickness readings taken during baseline measurements and refueling outages were approximately 280 sites in Unit 1 and 175 in Unit 2. The inspectors determined that the licensee was currently using Pass 2 CHECWORKS calculations based on the actual wall thickness readings taken during the last refueling outages for each unit, to quantitatively predict remaining pipe wall thickness and acceptable remaining time in service. The licensee was in the process of calibrating their latest CHECWORKS models for the two units, to improve the accuracy of the models to reflect plant performance. This calibration was accomplished by taking all previously measured component wall thicknesses and wear and incorporating them back into the CHECWORKS model.

The inspectors determined that the licensee was actively involved in the CHECWORKS user's group and had been selected to be a demonstration plant for implementation of the CHECWORKS computer code. The inspectors determined that current industry experience was clearly reflected in the licensee's current activities in developing their program. For example, the licensee had already received an August 10, 1995, "CHUG Hotline Notice," with information on a pipe failure in a heater drain system pipe at Millstone, Unit 2, on August 8, 1995. Millstone, Unit 2, experienced a 12-inch long fishmouth-type failure in an 8-inch diameter recirculation pipe leading from the heater drain pump to the heater drain tank. The CHECWORKS user's group notice identified: (1) that this portion of the system was normally operated only during plant startup, typically up to 30 percent power; and, (2) that the failure was located in a straight vertical leg, approximately 3 inches downstream of the normally closed manual isolation gate valve installed in the subject pipe.

During the inspectors' discussions with engineering personnel of the recent Millstone, Unit 2, pipe failure, the engineers noted that similar pipes were already in the Comanche Peak Steam Electric Station flow-accelerated corrosion program and that the licensee planned to further evaluate the details of the Millstone event. The licensee was reviewing future flow-accelerated corrosion inspection activities for these pipes. The inspectors reviewed the licensee's current flow-accelerated corrosion program selected examination sites for the subject heater drain recirculation pipes. The inspectors noted that the selected flow-accelerated corrosion examination sites for the recirculation pipes appeared to adequately cover the isolation valves and downstream components (expanders, nozzles, etc.), along with the component-to-pipe weld and approximately 6 inches to two pipe diameters of adjacent downstream piping, depending on the component inspected.

Based on review of the above information, the inspectors concluded the analysis program information was being effectively used to define and expand examination site locations for future outages and scheduled component repairs or replacement.

3.3.2 Selection Criteria

The inspectors reviewed the licensee's selection criteria for determining which systems would be included in their flow-accelerated corrosion program. The inspectors observed that the licensee had established a pipe selection criteria which followed the guidelines contained in NRC Bulletin 87-01.

"Thinning of Pipe Walls in Nuclear Power Plants," and Generic Letter 89-08. The inspectors reviewed system parameters for portions of four systems (condensate, extraction steam, feedwater, and heater drains) that were subject to examination and four systems (main steam to high pressure turbine, main steam bypass drain lines, steam supply to auxiliary feedwater pump, and steam generator to process sampling) which were excluded from examination.

The inspectors concluded from the sample that the selection criteria were being properly applied.

3.3.3 Data Input

The inspectors reviewed the computer code modeling and data input for selected systems to verify that correct data was placed into the CHECWORKS calculation for the ranking of pipes. The inspectors concluded that the information was accurately entered into the equations, reviewed by a second person to minimize the probability of data input error, and that the results were consistent with the data provided.

3.3.4 Inspection

The corrosion monitor program responsible engineer had produced an inspection plan for each outage, listing examination site recommendations based on the corrosion monitoring program plan and previous examination results. A corrosion monitoring program summary report documenting inspection results and next outage repairs or replacement recommendations was prepared after each outage. The inspectors reviewed the corrosion monitoring program summary report issued for the last refueling outages in Unit 1 (1RF04) and Unit 2 (2RF01).

The inspectors concluded that the number of examination sites reviewed in each unit during the last outage was consistent with the number of examination sites typically examined at other facilities.

The inspectors reviewed photographs of examination locations that were permanently scribed with an examination grid location marker at the initial transducer site "A1" using low-stress stamps to facilitate information trending and accuracy. However, the inspectors were unable to visually inspect examination sites due to the plant being in operation.

3.3.5 Nondestructive Examination Personnel

The inspectors reviewed Procedure TX-ISI-21, "Manual Ultrasonic Procedure for Wall Thickness Measurements for Comanche Peak Steam Electric Station," Revision 0, and the certifications for six contract nondestructive examination examiners. The inspectors confirmed that the latest procedures were used to perform Refueling Outages 1RF04 and 2RF01 flow-accelerated corrosion examinations, and that the licensee nondestructive examination personnel, who performed the examinations were certified. The inspectors were unable to observe actual in-plant nondestructive examination examinations due to the operating status of both units.

3.3.6 Material Repairs and Replacements

The inspectors reviewed several corrective actions initiated by the licensee as the result of identified flow-accelerated corrosion wear. The inspectors concluded that the corrective actions were prepared and documented in accordance with established plant procedures.

The inspectors concluded that the licensee's program incorporated appropriate corrective actions for components with identified flow-accelerated corrosion wall thinning.

3.3.7 Program Management and Quality Assurance Overview

The inspectors reviewed the management oversight of the licensee's program and noted the following observations.

3.3.7.1 Program Responsibility

The inspectors observed that the responsibilities for administering the licensee's program were identified in licensee Procedure STA-730. The inspectors reviewed the licensee procedure and concluded that the program responsibilities were adequately defined.

3.3.7.2 Quality Assurance

The inspectors reviewed the following documents:

- Nuclear Overview Department Evaluation Report NOE-EVAL-95-000069-00-00, "1RF04 Corrosion Monitoring Program Implementation," issued March 16, 1995;
- Nuclear Overview Department Evaluation Report NOE-EVAL-95-000033, "Plant Performance Monitoring Programs," issued February 8, 1995;
- Nuclear Overview Department Evaluation Report NOE-EVAL-94-000314, "Corrosion Monitoring Evaluation," issued October 13, 1994; and
- Electric Operations Quality Assurance Audit Report QAA-92-123, "CPSES Inservice Inspection and Testing Program," issued August 1992.

The one audit and three evaluations included assessments of the flow-accelerated corrosion program activities.

After reviewing these documents, the inspectors concluded that while the nuclear overview department had not been significantly involved in the development of the licensee's flow-accelerated corrosion program, they had performed the overview activities required by their procedures. The current nuclear overview department oversight activities of the flow-accelerated corrosion program were similar to those typically performed at other facilities.

3.3.7.3 Long-Term Strategy

The inspectors noted that a long-term strategy was included in Procedure STA-730. Upon completion of discussions with the licensee representatives, the inspectors concluded that the licensee had implemented an initial long-term strategy, however, they were still evaluating other options.

4 FOLLOWUP - MAINTENANCE (92902)

4.1 <u>(Closed) Inspection Followup Item 445/446-9318-03: Repetitive Maintenance Identification and Coding Errors</u>

4.1.1 Original NRC Finding

An NRC inspector identified that Work Order 1-93-043107-00, "Diesel Generators 2-01 lifter replacement," was not coded as a repetitive work order as described by Procedure STA-517, "Repetitive Maintenance," Revision 1.

4.1.2 Licensee Action in Response to Finding

Operations Notification and Evaluation Form 93-936 was generated to document this observation. As part of the Operations Notification and Evaluation Form, Technical Evaluation 93-900 was written to evaluate the repetitive maintenance on Diesel Generator 2-01. The evaluation determined that this work was not repetitive, but ongoing troubleshooting that attempted to determine the cause of lifter noise and high cylinder temperature. However, Operations Notification and Evaluation Form 93-936 did identify work orders from Unit 1 during the second refueling outage that were not properly coded as repetitive. As part of the corrective actions associated with the Operations Notification and Evaluation Form, the licensee representative indicated that they were going to revise Procedure STA-517.

Two recent Operations Notification and Evaluation Forms (95-568, dated May 19, 1995, and -803, dated August 15, 1995) showed continued problems in identifying and correctly coding repetitive maintenance items. These recent findings were identified by the licensee. At the end of this inspection, the licensee was still in the process of finalizing corrective actions.

4.1.3 Inspector Action During the Present Inspection

The inspectors reviewed Procedure STA-517, "Repetitive Maintenance," Revision 2, and determined that the procedure appropriately specified the responsible organization to perform the repetitive maintenance review. In addition, guidance on work order coding and technical evaluation initiation was provided by the procedure.

A review of vaulted Operations Notification and Evaluation Form 93-936 found that the section containing recommended procedural enhancements was missing; therefore, the inspectors were unable to determine if any type of corrective actions had been taken. Licensee personnel were unable to produce the procedural change to Procedure STA-517 associated with Operations Notification and Evaluation Form 93-936.

Interviews with several planning personnel indicated data base problems attributed to identification of repetitive maintenance and coding errors. One such problem related to component identification where subcomponents of a piece of equipment were identified by the equipment identification number since no unique identifier was available for that subcomponent; therefore, data base searches were extremely difficult and time consuming. Also, weaknesses in the data base did not allow the responsible work organization to easily look for similar failures in the other unit or in other systems. It was determined through the conversations with various licensee personnel that a lack of accountability (management's reinforcement of procedural expectations) for procedural implementation had been attributed to some of the problems.

4.1.4 Conclusions

Licensee planning and management personnel were aware of continuing problems with identifying and coding repetitive maintenance and were attempting to resolve these weaknesses through the corrective action process. However, increased licensee management attention was needed and licensee management was currently proposing corrective actions to resolve this ongoing problem.

4.2 (Closed) Violation 445/9506-01: During inservice inspection activities, there was a failure of contract inservice examination personnel and contract maintenance personnel to assure that special processes, including nondestructive testing and welding were controlled and conducted in accordance with applicable codes standards and other special processes.

4.2.1 Original NRC Violation

This violation consisted of three examples, which were identified by the NRC, pertaining to the failure of contract inservice examination personnel and contract maintenance personnel to assure that special processes, including nondestructive testing and welding, were controlled and conducted in accordance with applicable codes, standards and other special processes.

The first example involved a contract nondestructive examination technician not taking surface temperature measurements during ultrasonic examinations; the second example involved a contract nondestructive examination technician failing to remove the developer during a liquid penetrant examination within the required time limits; and, the third example involved the failure of a contract welder to verify interpass temperature before making another weld pass.

4.2.2 Licensee Action in Response to the Violation

Example 1

The surface temperature was verified shortly after the incident and determined to be within the temperature limits. The licensee conducted a review of the documentation of other ultrasonic weld examinations performed by this technician and other contract nondestructive technicians. The licensee concluded that surface temperatures had been recorded and were acceptable. The inservice inspection ultrasonic examination procedures were enhanced to provide more specific guidance with respect to how and when the temperatures of examination surfaces should be recorded. The contract inservice inspection technicians were trained on these procedure enhancements.

Example 2

A different nondestructive examination technician re-examined the weld surface and the examination was witnessed by the authorized nuclear inservice inspector. Additionally, the licensee reviewed other documentation and found that no other surface examinations were performed by the technician involved with the subject violation. The technician involved, along with other contract nondestructive examination technicians qualified in surface examination methods, was retrained in the Comanche Peak Steam Electric Station site-specific nondestructive surface examination procedures.

Example 3

The licensee initiated an Operations Notification and Evaluation Form to document the deficiency for not verifying weld interpass temperatures. Licensee engineering determined that there was no adverse affect on the integrity of the subject weld. The maintenance department reviewed the welder's previous work performance and did not identify additional matters of concern.

4.2.3 Inspector Action During the Present Inspection

Example 1

The inspectors verified during the initial inspection that: (1) the procedural enhancements had been made, and (2) that the nondestructive technicians were trained on these enhanced procedures.

Example 2

The inspectors verified during the initial inspection that the licensee re-examined the nondestructive examination in question and determined that the structural integrity of the weld was not affected. The inspectors also verified that the contract nondestructive examination technicians were retrained in Comanche Peak Steam Electric Station site-specific nondestructive surface examination procedures.

Example 3

The inspectors reviewed the licensee corrective actions and had no further concerns. The inspectors' discussions with other welders indicated that they had been briefed on attention to detail.

4.2.4 Conclusions

The inspectors concluded that the above actions were appropriate for correcting the problems and minimizing recurrence of similar incidents. The licensee increased oversight of contractor work activities. In all three examples, the licensee's maintenance and inservice inspection departments conducted training and re-emphasized expectations with respect to attention to detail by the contract technicians.

ATTACHMENT

1 PERSONS CONTACTED

1.1 Licensee Personnel

*D. Armstrong, Quality Control Supervisor
*J. Barker, Mechanical Engineering Manager
*C. Beerck, Senior Maintenance Analyst
*M. Blevins, Assistant to Vice President of Nuclear Operations
*D. Buschbaum, Technical Compliance Manager
*R. Carter, Instrumentation and Control Metrology Supervisor
*H. Crockett, Senior Mechanical Engineer
*D. Davis, Nuclear Overview Department Manager
*M. Dean, Outage Support Supervisor
*F. Dunham, Nuclear Overview Department Evaluator
*R. Flores, System Engineering Manager
*T. Hope, Regulatory Compliance Manager
*R. Jenkins, Electrical Maintenance Manager
*J. Kelley, Vice President, Nuclear Engineering/Support
*G. Laughlin, Planning and Scheduling Support Manager
*M. Lucas, Maintenance Manager
*N. Paleologos, Vice President, Nuclear Operations
+#*A. Quam, Regulatory Compliance Engineer
*T. Marvray, Acting Maintenance Engineering Manager
*R. Mays, Inservice Inspection Supervisor
*D. Moore, Operations Manager
*J. Muffett, Station Engineering Manager
R. Prince, Radiation Protection Manager
C. Rickgauer, Maintenance Overview Manager
*D. Scott, Nuclear Overview Department Engineer
*W. Sly, Materials Condition Coordinator
S. Smith, Work Control Manager
D. Snow, Senior Regulatory Compliance Engineer
*D. Thomason, Maintenance Support Supervisor
*R. Walker, Regulatory Affairs Manager
*D. Walling, Electrical/Instrumentation and Control Engineering Manager
*C. Weary, Instrumentation and Control, Planning Supervisor
*J. Williams, Mechanical Maintenance Supervisor

1.3 NRC Personnel

*H. Freeman, Resident Inspector
*D. Powers, Chief, Maintenance Branch, Division of Reactor Safety

In addition to the personnel listed above, the inspectors contacted other personnel during this inspection period.

* Denotes personnel that attended the exit meeting on August 18, 1995.
\# Denotes personnel that attended the supplemental telephonic exit meeting on August 22, 1995.
\+ Denotes personnel that attended the supplemental telephonic meeting on September 13, 1995.

2 EXIT MEETING

An exit meeting was conducted on August 18, 1995. A supplemental telephonic exit meeting was held on August 22 and September 13, 1995, to discuss the results of in-office records reviews and the potential procedural violations. During this meeting and teleconference, the inspectors reviewed the scope and findings of the report. The licensee did not express a position on the inspection findings documented in this report. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.