ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-498/95-24
50-499/95-24

Licenses: NPF-76
NPF-80

Licensee: Houston Lighting & Power Company
P.O. Box 1700
Houston, Texas

Facility Name: South Texas Project Electric Generating Station, Units 1 and 2

Inspection At: Wadsworth, Texas

Inspection Conducted: October 16-27, November 6-8, and 13-16, 1995

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Inspection Summary

Areas Inspected (Units 1 and 2): Routine, announced maintenance reliability initiative inspection, inservice inspection, and followup of previous maintenance inspection findings.

Results (Units 1 and 2):

Maintenance

- The work control process was well defined and administratively controlled, with improvement in implementation being noted (Section 2.1).

- Plant material condition was observed to be very good (Section 2.2).

- In general, communication between all outage work groups was exceptional, critical path work activities were readily supported by all groups, and teamwork was very evident by the work effort of most plant personnel (Section 2.2).

- The recent general maintenance self assessment, which included the use of peers from other licensed utilities, was well planned and thorough (Section 2.3).

- The inservice inspection plan was a much improved program document in that examinations, schedules, and frequencies were clearly defined (Section 3.1).

- Observed nondestructive examinations were performed by qualified examiners who were knowledgeable of examination procedures, techniques, and instrumentation. Ultrasonic equipment was properly calibrated and liquid penetrant materials had been properly certified and accepted (Section 3.2).

- Contractor personnel who performed eddy current examinations of steam generator tubes were qualified and performed the examinations in accordance with approved procedures (Section 3.4).

- A weakness was identified regarding contractor management of Unit 1 and 2 steam generator tube eddy current examination data from previous refueling outages. Steam generator tube data were misidentified (i.e., encoding errors) and Unit 1 data had been entered into the Unit 2 data base. Additionally, the inspectors considered this to be a weakness in the licensee's contractor overview program (Section 3.4).

- The welding and weld filler material control programs were technically correct and had been properly implemented with one exception. A welding specialist incorrectly planned a welding job which resulted in the use of a wrong welding procedure specification and weld filler material (Section 3.5).

- Poor questioning attitudes were identified by the inspectors. It was noted, in one case, that responsible test personnel and the cognizant reviewer failed to question test values that were outside the established acceptance criteria range (Section 2.2.2); and, in a second case that mechanics were noted to be willing to work around a procedure deficiency (Section 4.2.3).

Plant Support

- Housekeeping was observed to be very good (Section 2.2).

- Excellent health physics coverage was provided to workers during observed maintenance activities (Section 2.2).

- Delays occurred as a result of maintenance support and health physics not properly preparing a weld surface for examination, erecting scaffolding, or establishing radiation contamination zones prior to scheduled inservice inspections and welding (Section 3.3).

- Management expectations were not met with respect to assuring that the latest revisions to radiation work permits were located at health physics control points. At least five radiation work permits were identified at various control points that had not been updated to the latest applicable revision. This was a poor practice which impaired the ability of health physics personnel to provide proper radiation protection controls and overview (Section 3.5).

- The inspectors noted that the weld inspection checklist that specified the incorrect welding procedure specification and weld filler material, had been reviewed and signed by the Authorized Nuclear Inservice Inspector, who had failed to detect these errors (Section 3.6).

Management Overview

- Management had conveyed a message regarding the need for meaningful self assessments, and that continuous improvement could not be expected without lowering the threshold of acceptance. The most recently identified self-assessment weaknesses would have been considered acceptable conditions under previous assessment guidelines. The inspectors considered this approach to be a positive reflection of management's attitude towards achieving their stated desire for excellence (Section 2.3).

Summary of Inspection Findings:

- Unresolved Item 50-498/9524-01; 50-499/9524-01 was opened (Section 4.1).
- NUREG 151/Section 4.8.6 was closed (Section 4.2).
- Inspection Followup Item 50-499/9224-05 was closed (Section 4.3).
- Violation 50-499/9354-01 was closed (Section 4.4).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - Other Documents Reviewed

DETAILS

1 PLANT STATUS

Throughout this inspection period, Unit 1 was at full power. Unit 2 was in Mode 5 (Refueling Outage 2RE04) until November 2, 1995. On November 15, 1995, Unit 2 tripped from 100 percent power on a turbine trip that resulted from a loss of excitation to the main generator.

2 MAINTENANCE RELIABILITY INITIATIVE INSPECTION (62700)

The maintenance reliability initiative was developed to provide a structured 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.

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 both routine outage and on-line maintenance efforts.
- 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 corrective maintenance.

2.1 Work Control Process

2.1.1 Unit 1

The inspectors reviewed Procedure OPGP03-ZA-0090, "Work Process Program," Revision 13, in order to understand the licensee's process for evaluating, planning, scheduling, and implementing work activities to support plant operations. The program encompassed activities related to corrective maintenance, preventive maintenance, surveillance inspections, special tests, and modifications. The inspectors were then able to evaluate procedure implementation during the subsequent review and observation of the work activities discussed below.

The program utilized a two-tiered approach to perform work or correct equipment deficiencies: a formal work control process, and a rover process. The condition report was the document used to identify conditions that required maintenance work to correct or to request the performance of specific work. All condition reports were evaluated to determine the most appropriate method to perform the work or resolve the deficiency.

Those activities determined not to require the formal work control process were resolved using the rover process and were assigned directly to the maintenance organization for implementation. These activities were defined as relatively simple tasks (i.e., minor maintenance or troubleshooting and rework) that did not require detailed work instructions. The following limitations were invoked: the task should be within skill of the craft limits; testing in accordance with Generic Letter 89-10 was not required; testing in accordance with ASME Section XI was not required, and anything more than minimal support coordination was not required.

The formal work control process consisted of five phases. The first phase dealt with the initial screening of condition reports to determine if an emergency existed, or if the condition affected operability or safety. The second phase was the work order evaluation phase and dealt with review of the condition report for material condition, validity, completeness, scheduling, and prioritization. Work activity scheduling was the third phase in which integrated scheduling, based on a 12-week schedule cycle, was used. The fourth phase was work activity planning, and the fifth phase was work release and implementation of the work order package.

The inspectors noted that Procedure OPGP03-ZA-0090 was well written, with clearly defined responsibilities. Discussions with various personnel from responsible groups involved in the work control process, as well as maintenance technicians, overwhelmingly indicated that two of the biggest problems in the past dealt with "lack of ownership," thus lack of responsibility, and the inability to adhere to established schedules. The current process required up-front involvement and commitment by all affected groups, including supporting organizations, and appeared to minimize the potential for the previous problems. Scheduling meetings were currently conducted 6, 4, and 2 weeks prior to the start of work to assure that all cognizant personnel remained aware of commitments.

2.1.2 Unit 2

The inspectors noted that the outage schedule had been developed and approved prior to the outage. The schedule was followed closely to ensure that the work activities were not late. When work tasks were completed in less time than planned, the schedule was moved ahead. While the earlier completion of tasks was desirable to licensee management, this led to some scheduling difficulties as the outage progressed. For example, support crews were working in accordance with the original schedule and were not able to support both the original schedule and the advanced schedule adopted by some other work groups. This gave the appearance of poorly planned activities; however,

the problem was the result of some work activities being completed quicker than anticipated and the support personnel not being available because they were "on schedule" (see Section 3.3). The support personnel most affected were scaffold erectors and health physics personnel.

The inspectors discussed the philosophy of the "one-stop shop" with outage personnel and observed the operation of the shop. The purpose of the "one-stop shop" was to relieve the operations staff of the burden of the administration of outage activities. The inspectors found that the concept of the "one-stop shop" was generated for the previous Unit 1 refueling outage and was carried forward to the Unit 2 outage, with the added benefit of "lessons learned" from the Unit 1 outage. Subsequent inspector observations of maintenance activities indicated improved implementation of the work control process.

In general, the "one-stop shop" concept was very successful. The combination of the "one-stop shop," effective work scheduling, and work task completion resulted in completion of the outage in a record number of days.

2.2 Observation of Work Activities

The inspectors observed numerous maintenance activities performed on Unit 2 equipment during the outage, and limited activities on Unit 1 equipment while it was on-line. Throughout the inspection, the inspectors routinely toured the plant to establish insights on plant material conditions. Material conditions and housekeeping of both units were, in general, observed to be very good.

During observation of maintenance activities associated with a pressurizer safety-relief valve and a residual heat removal pump motor and impeller, the inspectors noted two instances which they considered to be unsafe personnel safety practices. Although the NRC does not have any regulatory requirements in this area, these matters were referred to the resident inspection staff for discussion with licensee management.

2.2.1 Limited Observation of Unit 1 On-Line Maintenance

The following Unit 1 on-line maintenance activity was observed by the inspectors.

- Surveillance activities on the degraded voltage relays: Procedure OPSP06-PK-0005, "4.16 kV Class 1E Degraded Voltage Relay Channel Calibration TADOT - Channel I," Revision 2; Surveillance Test ST 88000165, Work Authorization Number 95011388.

2.2.2 Unit 2 Outage Maintenance

The inspectors attended several morning outage meetings. The meetings were focused on the critical work activities with particular emphasis placed on the protected train. Communication between all the work groups was excellent. Critical path work activities were readily supported by all groups. The teamwork exhibited in these meetings was also evident by the work effort of most plant personnel.

The inspectors observed the following maintenance activities in Unit 2.

- Preventive maintenance activities on the Turbine-Driven Auxiliary Feedwater Pump 24: Work Request Package MM-2-AF-88005071; Procedure OPMP04-AF-0002, "Inspect, Replace Turbine Driver," Revision 9; Preventive Maintenance Task PM MM-2-AF-93000610, "Clean, Inspect, Lube, Replace Turbine Driver"; and, Service Request AF-2-176836, "Replace Governor with Modified One From Unit 1."

- Preventive maintenance activities on Emergency Diesel Generator 21: drain and replace oil with Mobil Rad 450; head removal on Cylinder 4R; piston replacement in Cylinder 1L; and head replacement on Cylinder 1L.

- Corrective maintenance on Bus E2D11 battery breaker: Condition Report 95-1211 and Service Request DJ-337630.

- Preventive maintenance on the motor operated relief valve penetration overcurrent protection circuit breaker: Surveillance Procedure ST-88002737, Work Authorization Number 95003101; and, Procedure OPSP06-NZ-0006, "Molded Case Breaker Functional Test and Inspection," Revision 0.

- Partial removal of equipment clearance orders using Procedure OPOP01-AE-0001, "Circuit Breaker Operations," Revision 2: Tags D-96, -97, and -98 of Clearance ECO 2-95-57368 for Breaker E2A/5 to the 2A high head safety injection pump; tags D-46 and -47 of Clearance ECO 2-95-5738 for the breaker to Group A pressurizer backup heaters on Load Center E2A1/4E; and, Tag D-22 of Clearance ECO 2-95-57204 for the breaker to Group A pressurizer backup heaters on Load Center E2A1/4E.

- Preventive maintenance activities on the feeder breaker for the transformer to Load Center E2A1: Preventive Maintenance Task PM EM-2-PK-87016568, Work Authorization Number 93040441; and, Procedure OPMP05-ZA-0032, "Setup and Test of ITE-51 Relays Using Epoch Test Equipment," Revision 4.

- Corrective maintenance to repair connectors for the rod control system: Work Request WR RS-2-318985, Work Authorization Number 95014777.

- Feedwater isolation valve limit switch adjustment: Work Authorization Number 94023503 directed the adjustment of the open and closed limit switch indications for Feedwater Isolation Valve B 2-FW-FV-7141.

- Preventive maintenance activities on static inverters: Preventive Maintenance Task PM EM-94004547, Revision 01.0, Work Authorization Number 94029313; Procedure OPMP05-VA-0002, "Inverter/Rectifier Maintenance Westinghouse 7.5 kVA," Revision 2; Preventive Maintenance Task PM EM-94004548, Work Authorization Number 94029310. Specific comments on this maintenance activity are detailed below.

  During the observation of preventive maintenance activities on static inverters, the inspectors questioned the technician as to how test connections were to be made while the technician was setting up to test the high voltage relay. The technician described the connection that he had made in Inverter IV 1201, but stated that he had performed the same test on Inverter IV 1203 differently. The inspectors reviewed the work package for Inverter IV 1202, which was performed by a different technician, and noted that the test was performed in a third way.

  The inspectors found that Procedure OPMP05-VA-0002, Steps 6.12.6 (high voltage relay) and 6.12.8 (loss of direct current voltage relay) were not clear as to how the connections should have been made. The technician who performed Step 6.12.6 on Inverter IV 1201 lifted leads and connected the voltage source across the relay and a diode in series with the relay. The technician who performed Step 6.12.6 on Inverter IV 1202 removed the relay, the diode, and a resistor to connect a circuit that he believed was required by the procedure. The first technician also performed Step 6.12.6 on Inverter IV 1203, but he only removed the relay and tested the relay alone. None of the methods used to test the high voltage relay were intended to be used by the system engineer who wrote the procedure.

  During review of this information, the licensee identified that the wrong procedure revision had been issued to the technicians for the work on Inverters IV 1201 and 1202. While the steps were the same in both Revision 2 and 3, licensee personnel determined that the proper revision should have been Revision 3, which was used when the work packages for Inverters 1203 and 1204 were issued, but not when the other two packages were issued. The foremen who issued the packages for Inverters 1201 and 1202 were aware of the previous discrepancies and assumed that these two packages had been corrected.

  In order to address the ambiguity in the procedure, the system engineer initiated Field Change 95-0247. The inspectors found that the directions provided in the field change delineated the correct manner in which the high voltage relay and the loss of direct current voltage relay should be tested.

- Reinstallation of Pressurizer Safety Relief Valve N2RCPSV3451: Work Authorization 95005425; Procedure 0PMP04-RC-0008, "Pressurizer Safety Valve Removal and Reinstallation," Revision 8. Specific comments on the work activity are detailed below.

  During observation of the reinstallation of the pressurizer safety-relief valve, the inspectors noted that the mechanical maintenance technicians used good work practices. The technicians carefully cleaned the seating surfaces of the flanges, ensured even thread engagement for the flange studs, and carefully positioned the flange gaskets. The areas around the open inlet and outlet flanges were designated Housekeeping Zone 3, and all material taken into the area was properly accounted for during the activity.

  Excellent health physics coverage was provided during the observed portions of the safety valve replacement. The health physics technician monitored radiation levels in the work area and ensured that all personnel not actively working were standing in a low dose area. The health physics technician would routinely direct personnel into the low dose waiting areas. Mechanical maintenance technicians were methodically reminded by the health physics technician of the radiation dose rates in the areas they were working.

  During the post work review of the procedure and work package, the inspectors noted that the mechanical maintenance technicians did not observe the caution statement of Procedure 0PMP04-RC-0008, Step 5.3, "Valve Reinstallation," to monitor hydrogen levels when removing covers from the pressurizer piping. A maintenance supervisor stated that hydrogen readings did not need to be taken since the cloth pipe covers would not trap hydrogen. Licensee personnel initiated Condition Report 95-12576 to review this issue. At the end of the inspection, Condition Report 95-12576 was not complete and corrective actions were in the process of being formulated. However, since caution statements were meant to be passive and not active, the procedure was in the process of being revised to change the caution statement to an action statement. An engineering evaluation was also being performed to determine the need for monitoring hydrogen levels when cloth covers are used.

- Source Range Nuclear Instrument NI-32 power supply replacement: The inspectors observed two instrumentation and control technicians perform the replacement of the Source Range NI 32 power supply. Preventive Maintenance IC-2-NI-94004209 (NI 32 power supply replacement) was conducted in accordance with Work Authorization 94023955. The power supply replacement was being completed in conjunction with the Source Range NI 32 detector replacement (Work Authorization 95003247). The

power supply and detector replacements were stand-alone activities; however, they were being worked together to avoid duplication of calibration requirements. Both work activities referenced Procedure 0PSP05-NI-0032, "Source Range Neutron Flux Channel II Calibration (N-0032)," Revision 3. Specific comments on this work activity are detailed below.

During the Source Range Nuclear Instrument NI-32 power supply replacement, the inspectors observed two instrumentation and control technicians perform the replacement of the Source Range Nuclear Instrument NI-32 power supply. Prior to performance of the work, the responsible instrumentation and controls supervisor conducted a pre-job briefing which was attended by the inspectors. The supervisor discussed the coordination of the two activities in general terms and did not identify any coordination problems between the maintenance activities Appropriate discussions regarding precautions and expectations on verification were given by the supervisor to the technicians. Good communications were noted between the technicians and the "one-stop shop" personnel and between the technicians and Unit 2 control room personnel. The scope of the activities, as well as the effect on plant equipment during the maintenance, were discussed between the technicians and the "one-stop-shop" and the Unit 2 control room personnel.

During the power supply replacement, the technicians generally used appropriate communication and verification techniques. However, during removal of instrument power fuses from Drawer N-32 (Step 5.5.1 of Procedure 0PSP05-NI-0032), the inspectors observed an apprentice technician perform dual verification of the fuse description, but fail to ensure that the correct cabinet was selected. The inspectors also noted, on another occasion, an apprentice technician fail to repeat back the procedure step prior to connecting a digital multimeter to obtain as-found voltage measurements (Steps 5.4.13.2 and 5.4.13.3 of Procedure 0PSP05-NI-0032). The inspectors discussed these observations with the instrumentation and controls supervisor. Followup conversations with the instrumentation and controls supervisor indicated that the technicians were not meeting management's expectations. The supervisor further indicated that he had counseled both technicians on using appropriate communication and verification techniques.

While the technicians were performing the initial steps of Work Authorization 95003247 (NI-32 detector replacement), they requested a pen and ink change to the work steps to coincide with the power supply replacement work steps (Work Authorization 95023955). The inspectors reviewed the changes and discussed them with the technicians and concluded that the changes were appropriate. When the inspectors questioned the supervisor about the work package changes for power supply and detector replacement for Source Range Nuclear Instrument NI-31, completed the previous day, the supervisor was unsure of the changes and how they corresponded to changes done for the Source Range Nuclear Instrument NI-32 power supply and detector replacement.

The inspectors reviewed the paperwork associated with Source Range Nuclear Instrument NI-31 detector (Work Authorization 95003248) and power supply replacement (Work Authorization 94023951) and identified numerous paperwork differences between the work done on Source Range Nuclear Instrument NI-31 verses Source Range Nuclear Instrument NI-32. The original work instructions to change out the detector and power supply on Source Range Nuclear Instrument NI-31 were essentially identical to the original work instructions for Source Range Nuclear Instrument NI-32 detector and power supply replacement.

Followup discussions with the instrumentation and controls supervisor and a review of Condition Report 95-12575 identified that the maintenance personnel had identified duplicate steps between the various work authorizations and had taken credit for steps previously performed; however, the revisions to the work packages did not clearly indicate which steps were applicable.

The inspectors determined that both Source Range Nuclear Instruments NI-31 and NI-32 power supply replacements were completed appropriately.

- Corrective maintenance activities for the exciter of the main generator:

As a result of the plant trip on November 14, the inspectors requested copies of the most recent preventive maintenance activities that had been performed on the main generator exciter. The inspectors reviewed the work packages for Preventive Maintenance Task EM-2-GE-89000038, "Inspect Turbine Generator Exciter," Work Authorizations 94029530 and 67522, and Task EM-2-GE-88009852, "Inspect/Test Turbine Generator Exciter," Work Authorization 93040028. These work activities were performed on October 4, 26-31, and November 8, 1995, respectively.

The inspectors found that many of the values recorded in Work Authorization 93040028 for the testing of the exciter were "less than optimum" or outside the acceptance criteria range. This was of interest because the package had been routed through the "one-stop shop" for review; however, the shift supervisor-qualified individual who reviewed the package did not question any of the unacceptable values. Discussion with the system engineer indicated that he had not been informed of all the "less than optimum" or unacceptable values. For those he was aware of, he determined that they were not influenced by environmental conditions (i.e., high humidity) or the electrical circuitry present during the testing; therefore, they would not be detrimental to the function of the exciter. However, test personnel apparently did not communicate all of the information to the system engineer, and the reviewer apparently did not question the values or bring them to the attention of management.

Subsequent to the trip, and after discussions with the inspectors, system engineering personnel re-performed the tests in which "less than optimum" and unacceptable values had been obtained. The subsequent readings validated the system engineer's original determinations regarding the environmental conditions and electrical circuitry not having any impact on the test results; however, the cause of the failure of the exciter remained unknown. Followup of this event will be performed during evaluation of the associated licensee event report.

Except for the minor incidents noted above, none of which were safety significant, the inspectors found that the maintenance activities were generally well performed, controlled, and conducted in accordance with procedures. Also, good supervisory oversight was noted during the activities. Health physics personnel provided excellent coverage to ensure minimum radiation exposure to workers.

2.3 Maintenance Department Self Assessments

The inspectors reviewed the maintenance department self-assessment schedule and completed self assessments, and discussed them with cognizant maintenance representatives.

The maintenance department self-assessment schedule was a document that identified and tracked the self assessments scheduled to be performed during the year. The schedule, last updated on September 7, 1995, showed a total of 24 self assessments, 10 of which had been completed. These assessments, classified as supplemental assessments, were typically limited to narrow scope items and could be requested by individuals who might have a concern in a particular area, or as an assurance that a particular facet of a program was functioning properly. However, one of the assessments (95008) titled "INPO Style Broad Based Self Assessment (INPO 90-015) (NRC 62700 Maintenance Implementation)," was classified as a general assessment and had been completed and distributed on August 21, 1995. The scope of the self assessment, as shown in the report, addressed all 10 maintenance objectives identified in INPO 95-015, "Performance Objectives and Criteria For Operating and Near Term Operating License Plants." In addition, the maintenance welding program was included in the scope of the assessment. The inspectors noted that the assessment team was comprised of 22 individuals - - 20 from maintenance, maintenance programs, work control, nuclear purchasing and material control, metrology laboratory, operations support, and an individual from each of two other licensed nuclear facilities in Region IV.

The inspectors' review of the general self-assessment report showed the assessment effort to have been well planned and implemented. It appeared to be in-depth and thorough. The assessment summary identified numerous strengths and areas of improvement since the last self assessment. Seven weaknesses were identified; however, the report noted that continuous

improvement could not be expected without lowering the threshold of acceptance, and that some of the currently identified weaknesses would have been considered acceptable conditions under previous assessment guidelines. The inspectors considered this approach to be a reflection of management's attitude towards achieving their stated desire for excellence.

All identified weaknesses or issues were addressed by corrective recommendations, with assigned responsibilities and priority classifications. It was apparent that cognizant assessment personnel were aware of management's expectation that self assessments were to be used as a meaningful tool for improvement.

3 INSERVICE INSPECTION (73753)

The objectives of this inspection were to determine whether the inservice inspection, repair, and replacement of Class 1, 2, and 3 pressure retaining components were performed in accordance with Technical Specifications, and the applicable ASME Code.

3.1 Inservice Inspection Program and Plans

The licensee's first 10-year interval inservice inspection program, in effect at the time of this inspection, was developed to meet the 1983 Edition, Summer 1983 Addenda of Section XI of the ASME Code. The inservice inspection program, which became effective on August 25, 1988, and was scheduled to end on August 25, 1998, was accepted by an NRC safety evaluation under cover letter dated February 22, 1990. This refueling outage (2RE04) constituted the second outage in the second period of the first 10-year interval.

The inservice inspection program was controlled by Interdepartmental Procedure IP-3.04Q, "Inservice Inspection Program," Revision 4, which described responsibilities, interfaces, and requirements for the administrative control of the associated examination and testing activities.

The inspectors reviewed the current inservice inspection plan, which was developed for the current refueling outage and was based on inspection data contained in the 10-year inservice inspection program. The inspectors' review of the inspection plan revealed a much improved program document, in terms of clearly defined examinations, schedules, and frequencies. This area had been identified as a weakness in NRC Inspection Report 50-498/95-04; 50-499/95-04. Rather than making numerous hand written entries throughout the inspection plan as had been previously done (some of which had been identified as being incorrect), all changes were now entered in a document titled "Examination Plan Changes," which showed each change number and a clear description of the change, including date, page number, and item or area affected. The latest change to the document was Change No. 13 dated October 23, 1995. The inspectors did not identify any errors regarding scheduling or rescheduling of

components that had not been examined as originally planned. It was clear that the responsible inservice inspection engineer had made a thorough review to identify and correct the types of errors that had been previously noted, and had made overall enhancements to the program plan.

3.2 Inservice Inspection Procedures and Records Review

The inspectors reviewed the applicable nondestructive examination procedures used during observations of the examinations which are discussed later. The procedures contained sufficient detail and instructions to perform the intended examinations, and were consistent with the requirements of the 1983 Edition, Summer 1983 Addenda of the ASME Code. The inspectors also verified that nondestructive examination reports were properly completed and submitted to appropriate nondestructive examination supervision for review and evaluation. The inspectors noted that necessary nondestructive examination records were easily retrievable for review.

Based on documentation review and observation, the inspectors also determined that equipment used during examinations was capable of being easily identified by cross matching reference calibration documents.

3.3 Observation of Inservice Inspections (Nondestructive Examinations of Welds)

During this inspection, limited inservice inspection examinations of welds were performed. The inspectors observed three examinations consisting of one ultrasonic and two liquid penetrant examinations (including a reexamination), performed on Reactor Coolant Line 12-RC-2221-BB1, Weld 9, a pipe-to-elbow weld.

The inspectors verified that the observed examinations were performed by qualified Level II examiners, all of whom were contractors from Sonic Systems International, Inc. These personnel had received training under the licensee's training program, which was controlled by Procedure OPGP03-ZT-0138, "Contractor Training and Qualification Program," Revision 1. They had received approximately 60 hours training on the use of the licensee's nondestructive examination procedures and equipment, and on the documentation of inspection results. Upon completion of the training, the contractor personnel were tested on procedural requirements and underwent a proficiency demonstration. The qualification records showed that they had been certified in accordance with American Society of Nondestructive Testing Recommended Practice SNT-TC-1A, 1980. As required by the ASME Code, all individuals had received annual near distance acuity and color vision examinations.

Prior to the performance of examinations, the examiners properly cleaned the weld surface and adjacent areas, and verified component temperatures. All the observed examinations were performed in accordance with

Procedures OPQP05-ZA-0012, "Color Contrast Solvent Removable Liquid Penetrant Examination For ASME XI PSI/ISI," Revision 1, and UTI-001, "Manual Ultrasonic Examination of Austenitic and Dissimilar Metal Pressure Piping Welds Using Refracted Longitudinal Technique," Revision 3.

The examiners were knowledgeable with respect to the examination procedures, techniques, and instrumentation. The inspectors also verified that ultrasonic equipment was properly calibrated. The liquid penetrant materials used during the observed examinations had been properly certified and accepted.

The liquid penetrant reexamination was required because of inadequate surface preparation by the craft who were designated to support the examination efforts. The elbow surface upstream from the toe of the weld was quite rough and had not been smoothed sufficiently to allow for a meaningful penetrant examination. The examiner attempted to perform the examination; however, upon application of the developer, it became apparent that the examination results would not be meaningful due to the rough surface. The examiner, after spending approximately 2.5 hours (preparing, entering and exiting the radiologically controlled area, and performing the examination), had to reperform the examination at a later time after the craft properly prepared the surface to be examined. The subsequent examination was successfully performed.

The inspectors also noted delays in the performance of the ultrasonic examinations of the same weld (subsequent to the liquid penetrant examinations). The examiners had been informed that the scaffolding had been erected so that they and their equipment could safely perform the examinations. However, after performing system calibration, entering the radiologically controlled area, and gathering up additional support equipment, the examiners arrived at the weld location only to find that the scaffolding had not been safely erected (an unsafe tag was affixed to the scaffolding). This was another instance of poor support provided to nondestructive examination personnel. Later, the scaffolding was properly completed and the examiners were able to perform the ultrasonic examination.

The inspectors concluded that the examiners were well trained, knowledgeable, and capable of performing the observed examinations.

3.4 Eddy Current Testing of Steam Generator Tubes

During this inspection, the inspectors observed a sample of the eddy current examinations (data acquisition) being performed on the Unit 2 steam generators. The eddy current examinations were performed by B&W Nuclear Technologies, who had performed eddy current examinations during previous Unit 1 and 2 refueling outages. During the current refueling outage for Unit 2, approximately 1087 tubes (21 percent of the steam generator tubes in service) were examined by bobbin coil, while all tubes (19,386) were examined by motorized rotating pancake coil at the hot leg tube sheet transitions. The procedures used were ISI-424, "Multifrequency Eddy Current Examination of .750" OD X .043" Wall RSG Tubing for ASME Examination and Wear at Tube Support

Plates," Revision 22, and ISI-510, "Technical Procedure For Examination and Evaluation Using Motorized Pancake Coil Probes," Revision 15. The governing document that directed the use of the above procedures, was the eddy current examination plan, which was issued on September 25, 1995.

The inspectors verified that probe push/pull speeds were within the limits specified in the procedures, calibrations were being performed within the designated time constraints, frequencies were as specified in the procedures, and positive tube identification was being maintained. The inspectors also verified that the operators were properly certified as Level II examiners.

The inspectors asked licensee representatives if any tubes identified as having indications during Refueling Outage 2RE03 had been reinspected during this current outage, and what, if so, the results were (i.e., were the same indications re-identified). B&W Nuclear Technologies review determined that all tube flaws detected during Refueling Outages 2RE03 and retested during Refueling Outages 2RE04, were again detected and reported. However, their review also identified that the data from at least two tubes, which contained manufacturing burnishing marks, were assigned incorrect tube numbers during Refueling Outage 2RE03. The review further identified that the data from 107 tubes from the 1993 refueling outage of Unit 1 were accidentally loaded into both the Unit 1 and Unit 2 database. These conditions caused the licensee to initiate Condition Reports 95-12535 and 95-12531, respectively.

The inspectors were provided a copy of "HL&P Status Report 11/15/95 - Steam Generator Inspection Overview," which provided information pertaining to the evaluation of the condition reports to date. A 100 percent review of the Refueling Outage 2RE03 bobbin coil database revealed an additional 45 tubes that had been incorrectly identified, a condition attributed to manual encoding errors. None of these 45 tubes contained indications that required plugging or reinspection during Refueling Outage 2RE04. With respect to the data of the 107 Unit 1 tubes that was loaded into the Unit 2 database, no Unit 2 data was displaced; thus, it had no impact on Refueling Outage 2RE04 tube inspection.

As a result of the issues identified with the Unit 2 tubes, a similar review was performed on the Unit 1 bobbin coil inspections performed during Refueling Outage 1RE05. The report stated that 39 tubes that had indications during Refueling Outage 1RE04 were identified as INFs (indications not found) during Refueling Outages 1RE05. Further review determined that 36 were a result of location tolerance or differences in interpretation, while 3 were encoding errors. It was also determined that these results did not have any effect on plugging or reinspection during Refueling Outage 1RE05.

The report concluded that none of the discrepancies found in the database resulted in a failure to comply with Technical Specification requirements during Refueling Outages 2RE03, 2RE04, and 1RE05.

While all results of B&W Nuclear Technologies' detailed reviews and corrective actions had not been finalized and documented before the end of this inspection, licensee representatives indicated, as a minimum, that corrective actions would include a program enhancement to include a review of INFs and NDFs (the acronym for "no defect found" used in rotating pancake coil examinations) after each future refueling outage.

The inspectors informed licensee representatives that, as a minimum, the careless management of eddy current test data was considered a weakness in the administrative controls employed by their contractor, and in their oversight of the contractor.

3.5 ASME Section XI Repair and Replacement Activities

During this inspection, the inspectors reviewed and observed several ASME Section XI repair and replacement activities involving welding operations.

- Gas tungsten arc welding on Safety Injection Accumulator Tank 2C discharge line drain, Welds HFW 0044 and HFW 0045: Work Authorization 94017355, Work Package SI-2-204875, ASME Section XI Repair and Replacement Traveler 2-94-084, using WPS P8-T-Ag, Revision 3, and Type ER308L electrodes.

- Gas tungsten arc welding on Valves TZJ0010 and TZJ0012 for Safety Injection Accumulator Tank 2C: Service Requests SI-2-314433 and SI-2-314434, Work Authorization No. 94006786, ASME Section XI Repair and Replacement Traveler 2-94-043, using WPS P8-T-Ag, Revision 3, and Type ER308L electrodes.

- Shielded metal arc welding on elbow-to-pipe Field Welds FW 05 and FW 06 in Component Cooling Water Line CC2487-A0001: Work Package 328265EP02, using WPS P1-A-Lh, Revision 1, and Type E-7018 electrodes.

- Gas tungsten arc welding on pipe-to-pipe Field Weld HFW 0051 in Component Cooling Water Line CC2492: Work Package 328265EP01, using WPS P1-T, Revision 3, and Type ER70S2 electrodes.

  On October 19, 1995, prior to entry into the radiologically controlled area for the purpose of observing welding being performed on component cooling water system piping, the inspectors signed in on Radiation Work Permit 95-2-0502, Revision 2. The radiation work permit described the radiological conditions and protection controls to be used while performing the activities for which the permit was written. Upon arrival at the health physics control point located at the 19-foot elevation, the inspectors requested to see the radiation work permit prior to entry inside the bioshield wall. The health physics technician opened a notebook containing copies of radiation work permits. The copy of RWP 95-2-0502 in the notebook was Revision 1, rather than the current revision that the inspectors had signed at the radiologically controlled area access point. The primary difference between the two revisions

made the location of entry into the actual work place dependent upon specific radiological conditions. The inspectors exited the radiologically controlled area and notified health physics supervision of the apparent conflict in radiation work permit revision numbers.

Cognizant health physics personnel reviewed radiation work permits at other health physics control points and found five additional radiation work permits which had not been updated to their latest applicable revisions. The inspectors expressed concern regarding the ability of health physics personnel to provide proper radiation protection controls and overview if they didn't have access to the latest radiological conditions.

The health physics supervisor initiated Condition Report 95-12291, on October 20, 1995, to evaluate the circumstances associated with not having the latest revisions of radiation work permits at health physics control points. The ensuing evaluation determined that radiation protection procedures do not require the use of radiation work permits in the field; however, it was considered to be good practice and was implemented during this refueling outage. It was further identified that the radiation work permit books at the health physics control points were being updated, but only with those radiation work permits directly related to that specific control point. Other radiation work permit copies were not being updated. While it was not required by procedure that radiation work permits be updated at health physics control points, it was clearly a management expectation that the correct revision be in place at all times. The inspectors were informed by the health physics supervisor that the correct revision had been delivered to the health physics control point at the 19-foot elevation. However, it was simply placed on the desk at that location and the technicians were not made aware of its presence, thus it was not placed into the notebook.

The resultant corrective actions consisted of removing expired, terminated, and not needed radiation work permits from all radiation work permit field copy books; correcting all radiation work permit revision deficiencies; and assigning two personnel the responsibility for assuring that radiation work permit field copy books were updated on a continuing basis.

- Corrective actions for incorrect welding of safety injection accumulator vent valve: On October 21, 1995, the welding program supervisor notified the inspectors that a condition report had been initiated to address improper planning and incorrect use of a welding procedure specification and weld filler material. Condition Report 95-12305 discussed the welding of a carbon steel valve body (A?SIHCV-0900) to

stainless steel piping, using a stainless steel gas tungsten arc welding procedure (P8-T-Ag) with Type ER308L electrodes, rather than the required dissimilar metal welding procedure (P8, P1-T-Ag) and Type ER309L electrodes. The condition was identified by the welder subsequent to completion of the weld, but prior to the licensee's review and acceptance of the work activity.

The inspectors' review of Drawing 79AB-005, Revision M, showed the valve to be an ASME Code Class 2, 1-inch vent valve used in the stainless steel nitrogen piping of the safety injection accumulators. The drawing's bill of materials showed the valve bonnet was SA-479 material (stainless steel) while the valve body was SA-105 material (carbon steel).

The licensee's investigation determined that two welding operations were associated with Work Order Package SI-2-337615. The work order package was planned and assembled by a maintenance planner, and contained pertinent design documents, including the valve drawing. Since welding was part of the work activity, the assembled package was forwarded to the cognizant welding specialist for initiation of the weld inspection checklists. The checklists were used to specify all required welding parameters, including welding procedure specifications and welding filler material. Since information in the package showed that stainless-to-stainless and stainless-to-carbon welding was required, the welding specialist erroneously assumed that the stainless-to-carbon welding pertained to the valve bonnet-to-body tack welds, and the stainless-to-stainless was for the valve body-to-piping weld. Since this assumption was incorrect, the wrong welding procedure specifications and weld filler materials were specified for the assigned welds, and it wasn't until after completion of the valve body-to-piping weld that the welder recognized the error and brought it to the attention of his supervisor.

The licensee concluded that the welding specialist had improperly planned the weld inspection checklist by assuming that a stainless steel valve body was going to be welded into a stainless steel piping system. This was attributed to inattention to detail since he failed to note the valve body was carbon steel as shown on the valve drawing. In addition, the weld inspection checklist did not receive the required second review by the next shift. Finally, the lack of a heightened questioning attitude on the part of the welder prior to making the weld was discussed. This issue was raised primarily because the valve body was painted and this is not normally the case with stainless steel valve bodies; thus, the discrepancy should have been a "skill-of-the craft" recognition by the welder.

The inspectors noted during their review of the weld inspection checklist associated with the incorrect welding procedure specification and weld filler material, that the Authorized Nuclear Inservice

Inspector had also missed this discrepancy and signed in the appropriate block on October 19, 1995, indicating his review.

With respect to corrective actions, new checklists were issued, the weld was removed, and the valve body was rewelded to the piping using the proper welding procedure specification and filler material for a carbon-to-stainless weld. Training sessions were conducted with each welding specialist to stress the process for properly preparing, revising, and reviewing weld packages, with particular emphasis on attention to detail. In addition, the welding program supervisor conducted meetings with all welders, stressing expectations for welding crews and the need to always maintain a questioning attitude.

The welding program staff undertook an accuracy review of work packages that included both safety-related and non safety-related welding. The work packages fell into three categories: those issued prior to September 5, 1995, and still open (18 safety-related and 37 nonsafety-related; those issued since September 5, 1995, and still open (24 safety-related and 5 non safety-related), and those issued since September 5, 1995, and closed (25 safety-related). September 5, 1995, was selected because it represented the date that weld inspection checklists were specifically initiated for the Unit 2 outage, and contract personnel were brought in to assist in welding program activities. There were no other instances where incorrect information pertaining to welding was identified.

The inspectors considered the corrective action approach taken by the welding program supervisor to have been very thorough and encompassing in scope. This approach demonstrated that this was an isolated occurrence.

With respect to observed welding, the inspectors verified that:

- welding procedure specifications were properly qualified and supported by a procedure qualification record;
- both stored and issued weld filler material was properly controlled in accordance with Procedure OPMP02-ZW-0004, "Control of Filler Materials," Revision 9; and,
- the welding process essential variables were being satisfied.

With respect to two of the above welding jobs, the inspectors observed minor indications of poor planning by the welders and poor coordination between the welders and health physics personnel. Regarding the minor poor planning, in one instance, the welder did not have sufficient weld filler material, and in another, the welder did not have adequate cutting/grinding tools or a face shield for grinding metal. The poor coordination pertained to a failure to pre-establish a contaminated area zone at the location where cutting and grinding of safety injection accumulator piping was planned.

With the exception of the licensee-identified issue dealing with the use of a wrong welding procedure specification and incorrect weld filler material, very good administrative and technical controls of welding and welding filler materials had been implemented.

4 FOLLOWUP - MAINTENANCE (92902)

4.1 (Opened) Unresolved Item 50-498/9524-01; 50-499/9524-01: Residual Heat Removal Pump 1C Impeller Cracking

4.1.1 Original NRC Finding

Inspection Report 50-498/95-23; 50-499/95-23 documented the identification by maintenance personnel of cracks in the pump impeller of Residual Heat Removal Pump 1C on September 26, 1995, while replacing the pump gaskets. A number of large cracks were visible in the wear ring area of the impeller. After discussions with plant management a decision was made to replace the impeller and further evaluate the cracking. Engineering personnel stated that similar cracking should not affect the operability of the other five pumps. A metallurgical laboratory concluded that the circumferential cracking in the shroud area of the pump impellers was caused by improper weld repair, post-weld heat treatment, and machining. Licensee engineers stated that, if similar conditions existed in the other pump impellers, the pumps would not fail.

In a letter dated October 6, 1995, the pump vendor recommended that all the pump impellers should be thoroughly inspected at the next scheduled outage.

Material engineering reviews and management assessments were conducted utilizing verbal reports that contained conclusions that were not fully supported by written vendor reports. The review itself was presented to management in primarily a verbal format. Several significant questions remained unanswered.

In addition, the inspectors were concerned that a formal operability determination for the other five pumps had not been developed.

4.1.2 Licensee Actions

The licensee had contracted with Structural Integrity Associates, Inc., to evaluate by stress and fracture mechanics analysis, the fitness for continued service of residual heat removal pump impellers containing cracks. During the two weeks following the initial part of this inspection, telephone conversations were conducted between the licensee, Region IV, and the Office of Nuclear Reactor Regulation. In order to acquire additional information regarding impeller condition, the licensee committed to disassemble Residual Heat Removal Pump 2B, and inspect the impeller for cracks, weld repairs, and

undersized machined areas. The licensee also agreed to provide NRC with copies of the completed fracture mechanics analysis as soon as it became available. However, at the conclusion of this inspection, the analysis had not yet been received by the licensee.

4.1.3 Inspectors' Action During the Present Inspection

During this inspection, the inspectors observed the disassembly of Residual Heat Removal Pump 2B and the inspection of the pump impeller for cracks, weld repairs, and machined areas. The licensee indicated that Residual Heat Removal Pump 2B was selected since Residual Heat Removal Pumps 1A and 2A had been disassembled in 1993 and no cracking was identified, Residual Heat Removal Pump 1C had an impeller replacement recently completed, and Residual Heat Removal Pump 2B had more service time and higher vibration than Residual Heat Removal Pump 2C. The selection of Residual Heat Removal Pump 2B was appropriate based on historical and testing information.

The inspectors observed the initial disassembly of Residual Heat Removal Pump 2B and determined that the work was conducted in accordance with Work Authorization No. 67397. Housekeeping zones were established prior to breaching of the system and all equipment was properly accounted for during this portion of the work activity.

During the performance of the maintenance activity, excellent radiation protection support was provided by the health physics technician. Numerous surveys of the area were taken prior to commencing the work activity and during the breach of the residual heat removal system. The health physics technician ensured personnel remained in low dose waiting areas when they were not working on the pump.

In an effort to save equipment out-of-service time, the licensee decided to remove the impeller from the pump and perform a detailed inspection of the suspect impeller in the hot shop.

The inspectors observed a licensee engineer perform an initial inspection of the impeller as it was lifted above the pump casing. No cracking or other deficiencies were observed; however, three areas of potential concern were identified. Due to the cramped working conditions and ALARA considerations for the numerous workers in the area, the inspectors decided to wait to perform an independent inspection of the impeller in the hot shop.

After the impeller was initially decontaminated, the inspectors performed a detailed inspection of Residual Heat Removal Pump 2B impeller. All accessible surfaces of the impeller were examined and no cracks were identified. Inspections of the impeller surfaces were completed using a flashlight and magnifying glass. The following areas were identified as areas for further investigation during the hardness and ultrasonic testing:

- At least one area on the suction impeller wear ring appeared to be weld repaired.

- The suction side shroud showed signs of heavy machining, and
- Discoloration was observed on the hub wear ring surface.

The inspectors reviewed the licensee report which detailed the visual examination (VT-1), ultrasonic examination, and Rockwell hardness testing for Residual Heat Removal Pump 2B impeller. A detailed visual examination identified no indications. Ultrasonic thickness measurements on the front shroud area ranged from 0.253 to 0.362 inches, well above the minimum thickness of 0.100 inches used as a reference value for replacement criteria. Rockwell hardness tests ranged from 24.9 to 54 HRC.

Region IV, on November 21, 1995, in Task Interface Agreement 95TIA011, requested the Office of Nuclear Reactor Regulation (NRR) to perform a technical review of the aforementioned fracture mechanics analysis upon receipt from the licensee.

4.1.4 Conclusions

The issue regarding the continued operability of residual heat removal pump impellers containing possible cracks is an unresolved item pending the completion of NRR's technical review of the fracture mechanics analysis (50-498/9524-01; 50-499/9524-01).

4.2 (Closed) NUREG 1517 Section 4.8.6, "Work Was Done on Valve Without Instruction"

4.2.1 Original NRC Finding

NUREG 1517, "Report of the South Texas Project Allegations Review Team," Section 4.8.6, referenced NRC Inspection Report 50-498/93-13; 50-499/93-13 that was issued April 23, 1993, and which documented the resolution of Unresolved Item 50-498;499/9235-04. The report indicated that the NRC inspectors found there were no standardized guidelines for the preparation of work instructions for motor-operated valve maintenance. The individual maintenance planners had their own set of generic work instructions, which varied from planner to planner. The NRC inspectors determined that the lack of standardized guidelines led to inconsistencies in the work packages. The licensee representative stated, during the inspection, that a contractor would be hired within the next 2 months to work on the maintenance procedures and that the procedures would be ready by the summer of 1993.

Inspection Report 50-498/93-13; 50-499/93-13 also identified a commitment made by the licensee to "trend equipment history to identify repetitive component degradation and failures and to take corrective action to prevent recurrence."

4.2.2 Licensee Action in Response to the Findings and Current Motor-Operated Valve Maintenance Practices

Numerous changes have occurred throughout the entire South Texas Project organization since the issuance of NRC Inspection Report 50-498/93-13; 50-499/93-13. No attempt was made during the inspectors review of this finding to determine why various changes to the maintenance and engineering departments where made; however, a discussion of how the licensee currently conducts motor-operated valve maintenance is as follows.

A contractor was hired to write/rewrite various motor-operated valve procedures. A total of 15 maintenance specific motor-operated valve procedures were written by the contractor. Licensee personnel utilized these maintenance procedures to work on motor-operated valves. These specific maintenance procedures were incorporated into work instructions as either complete documents or applicable sections of procedures. Numerous licensee personnel stated that all work instructions were prepared in accordance with the Planners Guide. The Planners Guide provided directions for all planners in the development of work instructions. This guide described a fixed format for the development of work instructions along with standard items that should be included in all work packages, (e.g., items such as post work testing and parts lists).

During the current inspection, there was a dedicated motor-operated valve group that consisted of maintenance, testing, engineering, and support personnel. This group was supplemented with additional personnel during the Unit 2 outage. All planning, scheduling, testing, and maintenance activities were completed by this group. Maintenance personnel were being trained on motor-operated valve maintenance and the licensee was working on criteria for certification of maintenance personnel on motor-operated valve maintenance.

4.2.3 Inspectors' Action During the Present Inspection

The inspectors conducted reviews of maintenance procedures, vendor technical manuals, work instructions, maintenance history, repetitive maintenance items, and interviewed various motor-operated valve personnel.

Interviews with management, supervision, and planning personnel indicated that all work packages were planned by the two planners within the motor-operated valve group and were planned in accordance with the Planners Guide. The inspectors performed a review of the Planners Guide, Revision 8, and compared the instructions of the guide to the contents of two motor-operated valve work instructions, Work Authorizations 95007778 and 9[illegible]13887, conducted during Unit 2 Refueling Outage 4. The inspectors found the work order instructions to be consistently prepared in accordance with the Planners Guide.

The inspectors reviewed the motor-operated valve maintenance history for the auxiliary feedwater system, essential service water system, and the safety injection system for the past year. No maintenance items were found to be repetitive. However, several maintenance items appeared to use a different

type of actuator grease (i.e., part numbers) compared to other motor-operated valve actuators. Further review found that the grease was the same type (the part number difference was due to quantities ordered - small container versus bulk grease).

The inspectors also interviewed the reliability engineering supervisor and discussed repetitive maintenance identification and tracking. He stated that all maintenance activities were reviewed for repeat maintenance items as discussed in the repeat maintenance review committee guideline. The first level of identification was the responsibility of the maintenance planner, then the craft supervisor and the technician, and a final review was accomplished by a reliability engineer. Repetitive maintenance was reviewed by component, model number, and system levels. After an item was flagged as repetitive maintenance, the repeat maintenance review committee reviewed and determined appropriate corrective actions. Based upon the discussions and review of motor-operated valve maintenance history, the inspectors determined that the repeat maintenance program was an effective tool for identifying repetitive maintenance.

A limited review of Limitorque Motor-Operated Valve Technical Manual 604814-00006-XX (Size 00) was completed by the inspectors. The inspectors reviewed approximately ten vendor update letters and the associated disassembly instructions to ensure they were incorporated into Maintenance Manual OPMP05-ZE-0059, "Limitorque Operator Maintenance Type SMB/SB-00 Actuator Disassembly/Assembly," Revision 0. With the exception of Update Letter 89-1, all maintenance instructions were determined to be appropriately included in the maintenance procedure. Update Letter 89-1, "Assembly Methods for Locking Set Screw," stated that for SMB-00 through SMB-5 actuators the set screws had to either be lockwired or thread locking compound needed to be used on the set screws, since it was not possible to stake the screws on these units. Contrary to this update letter instruction, the licensee had established instructions for staking, not realizing they were only applicable to Size 000 actuators. The inspectors discussed this discrepancy with licensee representatives who initiated Condition Report 95-12974 on October 31, 1995, to review this finding. The evaluation was scheduled to be completed by November 30, 1995.

The manager of the motor-operated valve group stated that five other maintenance procedures also incorporated this update incorrectly and they were in the process of revising the procedures. These included Procedures OPMP05-ZE-0306, OPMP05-ZE-0411, OPMP05-ZE-0059, OPMP05-ZE-0407, and OPMP05-ZE-0408. He also stated that maintenance personnel were lock wiring the set screws on the larger actuators even though the procedure called for staking. The manager stated he would review completed maintenance activities to ensure the larger actuator set screws were documented as being lock wired.

Subsequent to the inspection, on November 28, 1995, the inspectors were informed by licensee representatives that the procedures had been revised and were in the final review and comment phase, and actions should be completed by December 15, 1995. While documentation of the results of the evaluation had not been completed, the inspectors were provided the following information.

An action was created to review all Limitorque bulletins to ensure that they have been correctly incorporated into the applicable maintenance procedures, which, if necessary, were to be revised accordingly. A review of completed work packages was performed; however, the packages did not document the lock wiring of the set screws. The motor-operated valve group manager stated that the mechanics who performed the maintenance verbally verified that the set screws had been lock wired as required by the vendor letter. He further stated that the mechanics knew it was physically impossible to stake the set screws on the larger actuators, and that the mechanics had simply worked around the procedure error and did not initiate any actions to correct the procedure deficiency. The training department was notified to specifically address this issue in continuing training. The due date for incorporating this issue into training materials was established as December 6, 1995. Lessons learned were to be issued to all motor-operated valve personnel by December 6, 1995, to ensure correct understanding of securing the motor pinion gear assembly locking set screws.

4.2.4 Conclusions

The inspectors concluded that the licensee did hire an outside consultant, and that motor-operated valve maintenance specific procedures were developed using various industry guidance. In addition, the licensee was currently using dedicated motor-operated valve planners who utilized the Planners Guide, and this made for consistent motor-operated valve work instructions.

The willingness of the mechanics to work around a procedure deficiency reflected a poor questioning attitude. Similar problems were noted in the recent past and corrective actions were initiated. This was one minor example of a problem that needed additional attention by licensee management.

4.3 (Closed) Inspection Followup Item 499/9224-05: Failure of Pump to Start Because of Breaker Problem

4.3.1 Original NRC Finding

On July 13, 1992, Residual Heat Removal Pump 2B failed to start on demand on two separate attempts. This was one of several problems that were experienced at the site with Westinghouse Model DS-206 480 volt alternating current power supply breakers. This followup item was opened to track the licensee's engineering and maintenance actions related to this type of breaker.

4.3.2 Licensee Actions

Licensee personnel inspected 64 safety-related DS-206 breakers that were in-service in both units. Maintenance Procedure OPMP05-ZA-0008, "Westinghouse 480 Volt Breaker Test," was revised. Training was provided to the electricians regarding these changes.

4.3.3 Inspectors Action During the Present Inspection

The inspectors verified, by document review, that the licensee personnel used the guidance of NRC Information Notice 92-44, "Problems With Westinghouse DS-206 and DSL-206 Type Circuit Breakers," to perform the inspections between May 1992 and July 1993. The inspectors noted that, among the 32 breakers inspected by licensee personnel in Unit 1, 3 required lubrication and 7 required minor contact adjustment. In the 32 breakers inspected by licensee personnel in Unit 2, only 1 breaker required minor contact adjustment.

The inspectors verified that Procedure OPMP05-ZA-0008 had been revised to incorporate the recommendations included in Information Notice 92-44, and Westinghouse Technical Bulletin NSD-TB-91-06, "DS-206 and DSL-206 Breakers - Mechanical Friction of Main Contact Assemblies," Revision 0. The inspectors also reviewed the lesson plan for circuit breaker Course EMT939.02, "480 Volt Circuit Breakers," to ensure that the information related to this issue was incorporated.

4.3.4 Conclusions

The inspectors concluded that the licensee's engineering, maintenance, and training personnel adequately addressed the concerns with the operation of the DS-206 circuit breakers.

4.4 (Closed) Violation 499/9354-01: Failure to Follow the Requirements of the Work Process Program Procedure Which Resulted in Work on the Wrong Equipment

4.4.1 Original NRC Finding

On January 20, 1994, a Notice of Violation was issued for failing to follow the requirements of the work control process program procedure. This violation contained two examples: a failure to perform pre-job briefs; and a failure to verify the station component identification. Both of theses events resulted in wrong equipment being worked on.

4.4.2 Licensee Actions

The licensee agreed that the violations occurred by a letter dated February 22, 1994. Event review teams were established to examine the events Training was administered to both supervisors and craft personnel.

4.4.3 Inspectors Action During the Present Inspection

The inspectors verified the licensee's actions by record reviews and found that the actions had been completed as stated in the response letter dated February 22, 1994. The inspectors also found, through discussions with the resident inspector staff, that there were no known instances of wrong equipment being worked on by the licensee staff since the issuance of the violation.

4.4.4 Conclusions

The inspectors concluded that the licensee's actions had been appropriate to correct the identified conditions and prevent recurrence.

ATTACHMENT 1

PERSONS CONTACTED AND EXIT MEETING

1 PERSONS CONTACTED

1.1 Licensee Personnel

*M. Berg, Manager, Unit 1 Mechanical Maintenance
*T. Cloninger, Vice President, Nuclear Engineering
*K. Coates, Manager, Unit 2 Maintenance
*C. Donald, Outage Superintendent
*W. Dowdy, Manager, Unit 2 Operations
*T. Graham, Supervisor, Maintenance
*A. Granger, Administrator, Quality Assurance
*J. Groth, Vice President, Nuclear Generation
*J. Haning, Staff Engineer
*S. Head, Supervisor, Licensing Compliance
*J. Ledgerwood, Manager, Unit 2 Instrumentation & Controls Maintenance
*C. Lunsford, Supervisor, Maintenance
*E. Masse, Plant Manager, Unit 2
*I. Myers, Plant Manager, Unit 1
*G. Parkey, General Manager, Generation Support
*R. Prater, Construction Specialist
*K. Richards, Manager, Work Control
*G. Schinzel, Manager, Unit 2 Mechanical Maintenance
*D. Schulker, Compliance Engineer
*S. Thomas, Manager, Design Engineering Department

1.2 NRC Personnel

*W. Sifre, Resident Inspector

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

* Denotes personnel that attended the exit meeting.

2 EXIT MEETING

An exit meeting was conducted on November 16, 1995. During this meeting, 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.

ATTACHMENT 2

OTHER PROCEDURES REVIEWED

IP-3.04Q, "Inservice Inspection Program," Revision 4

OPMP01-ZA-0041, "Troubleshoot and Rework Process," Revision 2

OPGP03-ZA-0090, "Work Process Program," Revision 13

OPGP03-ZM-0002, "Preventive Maintenance Program," Revision 26

OPGP03-ZT-0138, "Contractor Training and Qualification Program," Revision 1

OPQP05ZA-0001, "Qualification and Certification of Nondestructive Examination Personnel," Revision 0

OPQP05-ZA-0004, "General Ultrasonic Examination," Revision 0

OPQP05-ZA-0009, "Recording Data From Direct Visual, Liquid Penetrant and Magnetic Particle Examination," Revision 0

OPQP05-ZA-0012, "Color Contrast Solvent Removable Liquid Penetrant Examination for ASME XI PSI/ISI," Revision 1

UTI-001, "Manual Ultrasonic Examination of Austenitic and Dissimilar Metal Pressure Piping Welds Using Refracted Longitudinal Technique," Revision 3

"South Texas Project Scheduler's Guide," Revision 1