

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 50-498/88-47 Operating License: NPF-76  
50-499/88-47 Construction Permit (CP): CPPR-129  
Dockets: 50-498  
50-499

Licensee: Houston Lighting & Power Company (HL&P)  
P.O. Box 1700  
Houston, Texas 77001

Facility Name: South Texas Project, Units 1 and 2 (STP)

Inspection At: STP, Matagorda County, Texas

Inspection Conducted:

Inspectors: E. Holler  
for J. E. Bess, Senior Resident Inspector, Project  
Section D, Division of Reactor Projects

8/29/88  
Date

E. Holler  
for D. L. Garrison, Resident Inspector, Project  
Section D, Division of Reactor Projects

8/29/88  
Date

Approved: E. Holler  
E. Holler, Chief, Project Section D,  
Division of Reactor Projects

8/29/88  
Date

Inspection Summary

Inspection Conducted July 1-31, 1988 (Report 50-498/88-47)

Areas Inspected: Routine, unannounced inspection included onsite followup of events, engineered safety feature system walkdown, monthly surveillance observation, operational safety verification.

Results: Within the areas inspected, one violation was identified (failure to perform surveillances in accordance with TS, paragraph 3.a).

Inspection Conducted July 1-31, 1988 (Report 50-499/88-47)

Areas Inspected: Routine, unannounced inspection included observation of electrical component work and mechanical equipment and process work observation.

Results: Within the areas inspected, one violation was identified (failure to implement maintenance requirements in accordance with NRC requirements, paragraph 7).

DETAILS

1. Persons Contacted

HL&P

- \*W. P. Evans, Licensing Engineer
- \*T. J. Jordan, Project Quality Assurance Manager
- \*M. L. Duke, Engineer
- \*D. C. King, Construction Manager, Unit 2
- \*A. R. Mikus, General Supervisor, Construction
- \*S. M. Dew, Manager, Operations Support
- \*J. T. Westermeier, Project Manager
- \*J. N. Bakey, Engineer and Licensing Manager
- \*A. C. McIntyre, Manager, Support and Engineering
- \*W. A. Randlea, Security Manager
- \*W. G. Wellborn, Supervising Project Engineer
- \*S. D. Phillips, Licensing Engineer
- \*M. F. Polishak, Licensing Engineer
- \*J. E. Geiger, General Manager, Nuclear Assurance
- \*G. L. Parkey, Plant Superintendent, Unit 2
- \*M. A. Garcia, ECI Construction
- \*S. M. Head, Supervisor, Licensing Engineer
- \*W. H. Kinsey, Plant Manager

Bechtel

- \*R. W. Miller, Project Quality Assurance Manager
- \*K. P. McNeal, Project Quality Assurance Engineer
- \*R. D. Bryan, Construction Manager

Ebasco

- \*D. D. White, Construction Manager
- \*C. P. Rosen, Site Manager

In addition to the above, the NRC inspectors also held discussions with various licensee, architect engineer (AE), constructor and other contractor personnel during this inspection.

\*Denotes those individuals attending the exit interview conducted on August 1, 1988.

2. Plant Status

South Texas Project (STP), Unit 1, reached 75 percent power on July 6, 1988. Following the successful completion of the large load reduction (75 percent power to 25 percent power) test on July 17, 1988, reactor power was reduced to approximately 6 percent to allow maintenance on the High Pressure Turbine Generator Governor Valve No. 1. The valve indicated erratic seating position during power escalation. After maintenance and

retesting of the valve, the licensee resumed power escalation to 75 percent. On July 19, 1988, at 9:24 a.m., the reactor tripped from 54 percent power, and the plant was brought to Hot Standby. The trip was caused by an I&C Technician resetting the wrong Quality Display Parameter System (QDPS) train. The licensee will report this incident in greater detail pursuant to 10 CFR 50.73. Following the completion of an investigation as to the cause of the trip, the licensee resumed power operation and reached a power level of 100 percent of rated reactor thermal power on July 27, 1988. On July 28, 1988, the reactor was manually tripped from 100 percent power to verify the ability of the plant to sustain a trip from 100 percent reactor power (a requirement for the initial startup testing at 100 percent power plateau). The acceptance criteria for the test appeared to have been met, and the primary system functioned as designed. The licensee planned to stay in Hot Standby (Mode 3) for approximately 48 hours to repair steam leaks and other required maintenance before resuming power operation. At the close of this inspection period, Unit 1 was in Hot Standby.

STP, Unit 2, is 97 percent complete. Hot Functional Testing started on July 15, 1988. On July 22, 1988, the plant was brought to cold shutdown to replace the number 1 seal in Reactor Coolant Pump (RCP) 1C. Seal replacement was completed on July 28, 1988. At the close of this inspection period, Unit 2 RCS temperature was 250 degrees F and RCS pressure was 350 psig.

3. Onsite Followup of Events - Unit 1 (93702)

- a. Failure to Meet Technical Specifications Surveillance Requirements  
During this inspection period, there were two instances where TS surveillances were not performed at the time required. The licensee has previously implemented corrective actions to preclude such incidents. The two cases are discussed below:

On June 23, 1988, during a review of plant surveillance data-base, the licensee discovered that surveillances pertaining to TS Surveillance Requirements 4.3.1.1 and 4.3.2.1 were scheduled with a method that could result in inappropriate staggering of test intervals. Further reviews by the licensee determined that the surveillance tests for the reactor trip breakers under voltage and shunt trip devices did not meet the staggered test basis requirement from June 20-23, 1988. The licensee identified the causes and corrective actions in Licensee Event Report (LER) 88-040.

On July 12, 1988, the licensee discovered that the surveillance test to verify that fuel oil particulate contamination was within acceptable limits on No. 11 Engineered Safety Feature (ESF) Diesel Generator Fuel Oil Storage Tank had been missed. TS Surveillance Requirement 4.8.1.1.2.d requires this test to be performed every 31 days. The test was due on July 10, 1988. The Shift Supervisor was notified at approximately 9:45 a.m. on July 12, 1988, that the test had not been performed and the No. 11 ESF Diesel was declared

inoperable. Immediate actions were taken to perform the required surveillance. The results of the test were satisfactory and the No. 11 Emergency Safety Feature Diesel Generator was declared operable at 11:14 a.m. on July 12, 1988. The licensee intends to identify the causes and corrective actions in LER 88-043, which is due on or about August 11, 1988.

TS 4.0.1 states, in part, that surveillance requirements shall be met during the operational modes or other conditions specified in individual Limiting Conditions for Operations (LCOs). Contrary to this requirement, the licensee has demonstrated failure to comply with surveillance requirements as illustrated by the examples above. Between March 11 and June 13, 1988, three other examples of the licensee's failure to adequately implement TS surveillance requirements occurred (LER 88-023, 88-035, and 88-038). Corrective actions implemented to date do not appear to be effective in preventing failure to meet surveillance requirements. This is an apparent violation (498/8847-01).

4. Engineered Safety Feature (ESF) System Walkdown - Unit 1 (71710)

The NRC inspector conducted a walkdown of the accessible portions of Train "B" of the Component Cooling Water (CCW) System to independently verify the operability of the system. A review was performed to confirm that the licensee's system operating procedure matched plant drawings and the as-built configuration. Equipment condition, valve position, housekeeping, labeling, and support subsystems essential to actuation of the system were inspected.

The NRC inspector identified the following items to licensee management:

- . The label on Breaker E1B2B2 indicated as follows, "CCW to Charging Pump Return." The CCW electrical lineup indicated this breaker supplied power to the CCW Return Header Isolation from Charging Pumps Cooler.
- . The label on Breaker E1B1F1 indicated as follows, "CCW to Charging Pump Supply Valve." The CCW electrical lineup indicated this breaker supplied power to the Motor Operated Isolation from CCW Train "B" to Charging Pumps Cooler.
- . The label on Breaker E1B2B1 indicated as follows, "CCW Pump 1B Cubicle Cooler Fan 11B." The CCW electrical lineup indicated this breaker supplied power to the CCW Pump 1B Cubicle Cooling Fan 11B.
- . The label on Breaker E1B4B2 indicated as follows, "CCW Pump Essential Chiller Area Supply Fan Room." The CCW electrical lineup indicated this breaker supplied power to the CCW Pump Essential Chiller Area Supply Fan Coil Unit.

The above listed discrepancies did not render the CCW System inoperable; however, they were examples of lack of attention to detail.

No violations or deviations were identified.

5. Monthly Surveillance Observation - Unit 1 (61726)

The NRC inspector observed selected portions of the surveillances listed below to verify that the activities were being performed in accordance with the TS and surveillance procedures. The applicable procedures were reviewed for adequacy, test instrumentation was verified to be in calibration, and test data was reviewed for accuracy and completeness. The inspector ascertained that identified deficiencies were properly reviewed and resolved.

- a. Procedure 1PSP06-DJ-0001, Revision 6, "125 Volt Class 1E Battery 7-Day Surveillance Test." The NRC inspector witnessed data acquisition and verified specific gravity checks on Unit 1 Class 1E batteries. The NRC inspector noted that the results were within TS limits.
- b. Procedure 1PSP03-DG-0001, Revision 5, "Standby Diesel 11 Operability Test." The NRC inspector observed portions of Test Procedure 1PSP03-DG-0001 on Standby Diesel Generator 11 and verified that the Diesel Generator performed in accordance with the TS. The NRC inspector verified that data acquired was accurate and complete. No discrepancies were identified.
- c. Procedure 1PSP02-FW-0574, Revision 1, "Steam Generator Narrow Range Level Alarms." The NRC inspector witnessed performance of this procedure and verified that the procedure was followed sequentially. Data was properly documented. No problems were identified.

No violations or deviations were identified.

6. Operational Safety Verification - Unit 1 (71707)

The objectives of this portion of the inspection were to verify that the facility is being operated safely and in conformance with regulatory requirements, management controls are effective, selected activities of the licensee's radiological protection programs are implemented in compliance with regulatory requirements, and to verify licensee compliance with the approved physical security plan.

The NRC inspector observed control room activity on a daily basis to verify that control room staffing, operator behavior, shift turnover, adherence to TS LCOs and overall control room decorum were being conducted in accordance with NRC requirements.

Inspections were conducted throughout the plant to observe work in progress. Radiological work practices, posting of barriers, and the correct use of dosimetry were observed. Four Radiation Work Permits (RWPs) were reviewed.

A review of the four RWPs was made to determine whether the work process was done in a safe manner and under controlled conditions. The NRC inspector also verified that the RWPs contained information which referenced job description, radiation levels, contamination levels, respiratory protective equipment, dosimetry, and expiration dates.

No violations or deviations were identified.

7. Electrical Component: Unit 2 (51053)

An inspection of various electrical components was performed to assess the adequacy of the installation and workmanship. The inspection focused on basic installation practices, storage requirements, and an assessment of any damage or deterioration.

The following equipment was inspected for installation; cleanliness; damage; termination of cables; condition of terminal boards, fans, motors, closure panels and doors; maintenance; and general overall condition.

- . Cable and cable tray C2XE6-CT-EAB at elevation 79 feet in the Electrical Auxiliary Building (EAB) - This tray carries "C" train power cables through the plant.
- . High range radiation alarm controls in the EAB at elevation 65 feet in the electrical penetration room - This panel is designated C2RA-R1-8051A and was turned over for startup testing.
- . Neutron Flux Amplifier 4Z3522-IP-686 at elevation 65 feet in the EAB - This equipment had components removed for use in Unit 1; however, the status of the unit was in accordance with site procedures. The electronics were subjected to the construction environment because an excess of large, nonterminated cable coming into the equipment prevented closing the door. The licensee took immediate corrective action to protect this piece of equipment.
- . Electrical penetration Nos. 46, 47, 48, 49, 55, 56, 57, and 64 in the EAB penetration room at elevation 60 plus - These units were inspected for general condition and gas purge. The NRC inspector noted that some penetration cabinets had covers removed for several days which allowed the internals to become covered with construction dust. This condition was immediately corrected by the licensee. The NRC inspector also noted that the nitrogen gas pressure in the penetrations was as follows:

<u>No.</u>	<u>Pressure (psig)</u>	<u>No.</u>	<u>Pressure (psig)</u>
46	11	55	30
47	15	56	0
48	55	57	15
49	5	64	5

The NRC inspector determined that the constructor had maintained nitrogen gas pressures in the penetration assemblies between 30 and 65 psig prior to March 1988. These pressures were checked monthly by the construction maintenance department. In March 1988 these items were turned over to the licensee operations maintenance department. The operations maintenance department has not picked up these items for continued maintenance and had not written a maintenance procedure to cover the items. (Procedure PM EM-1-PH87016768 "Inspect Electrical Penetrations" has been implemented for the same activity in Unit 1.) This is an apparent violation (50/499-8849-02).

- Auxiliary Relay Panel 3E252ERR114 and the hydrogen recombiner power supply at elevation 65 feet in the EAB
- Termination Cabinets 3E122ETCBO 2, -3, -4, and -5 at elevation 65 feet in the cable vault - These units are lacking shields, which preclude the entry of contaminants; however, they are acceptable at this time.
- 4160 volt switchgear for High Head Safety Injections (HHSI) Pump Motor "B" No. 3E152ESGOE1B at elevation 32 feet in the EAB - This unit was inspected visually on the outside for damage to panels and cable entry.
- Battery chargers at elevation 32 feet in room 213 - These units were under control of the Nuclear Power Operations Department (NPOD). This room had been recently painted. All related equipment in the room was in a satisfactory condition.

During the inspection, the NRC inspector noted that the status of the high radiation alarm, 4160V switchgear, and the battery charging equipment were not in accordance with licensee procedures. This is an additional example of a previous violation (50/499-8824-01) for which the licensee is implementing corrective action.

8. Safety-Related Components and Process Work Observations - Unit 2 (50073)

The NRC inspector examined the following mechanical equipment and work processes as a part of general plant inspections concerning standard work practices or conditions of equipment and structures.

- Essential Cooling Water (ECW) Chillers (3V112VCH) at elevation 70 feet in the Mechanical Auxiliary Building (MAB) - These three units are York 300 ton capacity units driven by Reliance electric motors. One unit was in operation during the inspection and two were



on standby. The NRC inspector observed that the motor bearing temperature sensors were not wired, nor could an immediate status of this item be determined. The NRC inspector brought this matter to the attention of the licensee.

CCW pumps, motors, and coolers - The "B" train of the three units was operating. Maintenance was being performed on the "A" and "C" units. The NRC inspector visually inspected the units for oil levels, external damage, leakage, and general condition.

Small bore ECW bronze pipe fabrication - This system has been subject to deterioration and leaking because of the dealuminization of cast materials. The licensee has removed the deficient cast components and is replacing these parts with forged fittings. The NRC inspector reviewed the work in the MAB and materials in the fabrication shop.

Diesel Generator No. 23 - This unit, which is one of three, is a Cooper KSV Turbocharged V20, 7650 H.P. Diesel Generator. The unit has been the subject of several inspections during this reporting period. After a recent test run, maintenance was performed which required removal of two fuel injector lines and turning over of the engine. On turning the engine, water was observed coming out of the injector bosses in two heads. These two heads were removed and found to be cracked. On further investigation, all 20 heads were removed, and a total of 18 were found to be cracked.

Further review found that the timing chain was two notches off, which represented a timing error of approximately 20 degrees advance. The licensee has issued a purchase order to the manufacturer, Cooper-Bessimer, to examine the rods, bearings, crankshaft, and other moving components. The resident inspector will follow the licensee's actions including any licensee reports regarding the matter.

Coatings - At this time, the paint/coating activity is at a maximum in all areas of Unit 2. The NRC inspector observed the work on the bridge crane, EAB fire doors, and electrical cabinets in the battery charger room (213) at elevation 32 feet. Additionally, the floor preparation in the reactor containment building at elevation -11 feet was inspected.

Insulation - Insulation installation is progressing in all piping areas. The NRC inspector examined the in-process work at elevation 29 feet in the MAB. The work was checked for condition of pipe, cutting, fit, wiring, and sheathing.

Security facilities - Construction of the west gate security building has been inspected on several occasions. The structure appears to meet standard construction practices for the structural steel portion

of the building and specific design engineering drawings for the secured portion. Also, the installation of the ultrasonic detection system within the double fence appears to be satisfactory.

No violations or deviations were identified.

9. Exit Interview

The NRC inspectors met with licensee representatives (denoted in paragraph 1) on August 1, 1988, and summarized the scope and findings of the inspection. Other meetings between NRC inspectors and licensee management were held periodically during the inspection to discuss identified concerns. The licensee did not identify as proprietary any of the information provided to, or reviewed by, the inspectors during this inspection.