APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-498/88-57
50-499/88-57

Operating License: NPF-76
Construction Permit: 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 Electric Generating Station (STP),
Units 1 and 2

Inspection At: STP Site, Bay City, Matagorda County, Texas

Inspection Conducted: August 29 through September 2, 1988

Inspector: J. Blair Nicholas 9/30/88
J. B. Nicholas, Senior Radiation Specialist Date
Facilities Radiological Protection Section

Approved: Blaine Murray 9/30/88
for R. E. Baer, Chief, Facilities Radiological Protection Section Date

Inspection Summary

Inspection Conducted August 29 through September 2, 1988 (Report 50-498/88-57; 50-499/88-57)

Areas Inspected: Routine, unannounced startup inspection of the licensee's Unit 1 radioactive waste (radwaste) treatment systems and a preoperational inspection of the licensee's Unit 2 water chemistry and radiochemistry programs and the postaccident sampling system.

Results: Within the areas inspected, no violations or deviations were identified. Four previously identified open items were closed in paragraph 2. Seven new open items are discussed in paragraphs 8, 9, 10, 11, 12, 13, and 14.

DETAILS

1. Persons Contacted

HL&P

*J. T. Westermeier, Project Manager
*C. R. Beavers, Plant Engineering, Radiation Monitoring System Section Supervisor
S. E. Citzler, Chemical Analysis Technical Supervisor, Unit 2
R. Cruise, Startup Engineer, Unit 2
*S. M. Dew, Manager, Operations Support
*R. A. Gangluff, Chemical Analysis Supervisor
*L. Giles, Manager, Plant Operations, Unit 2
*A. W. Harrison, Supervising Licensing Engineer, Unit 2
*S. M. Head, Supervising Licensing Engineer
W. G. Isereau, Quality Assurance (QA) Surveillance Supervisor
W. F. Jocher, Chemical Support Supervisor
*T. J. Jordon, Manager, Project QA
*D. R. Keating, Manager, Nuclear Assurance Quality Engineering
*J. W. Loesch, Manager, Plant Operations
*J. R. Lovell, Manager, Technical Services
J. McNally, Startup Engineer, Computer Support
*K. M. O'Gara, Project Compliance Engineer
*G. Ondriska, Startup Supervisor
*G. L. Parkey, Plant Superintendent, Unit 2
R. Penn, Startup Engineer, Unit 2
*S. D. Phillips, Licensing Engineer
*M. F. Polishak, Lead Engineer, Project Compliance
R. J. Rehkugler, QA Audit Supervisor
M. J. Rejeck, Chemical Operations Supervisor
*S. L. Rosen, General Manager, Operations Support
R. E. Schirmer, Chemical Analysis Technical Supervisor, Unit 1
*J. A. Slabinski, Operations Quality Control (QC) Supervisor, Unit 2
*T. E. Underwood, Manager, Chemical Operations and Analysis (CO&A)

NRC

*R. J. Evans, Reactor Inspector
*D. L. Garrison, Resident Inspector, STP
*J. I. Tapia, Senior Resident Inspector, STP

*Denotes those present during the exit interview on September 2, 1988.

2. Followup on Previously Identified Inspection Findings (92701)

(Closed) Open Item (498/8630-03): Radwaste Program Audit - This item was identified in NRC Inspection Report 50-498/86-30 and involved the completion of an approved audit plan, including a checklist for the

radwaste program, the completion of an audit of the radwaste program, and the completion of an approved audit plan and checklist for the transfer, packaging, and transport of low-level radioactive waste. The NRC inspector reviewed the licensee's audit plan and results of the process control program/radwaste audit performed by the licensee during the period March 7-11, 1988. The NRC inspector also reviewed selected QA surveillances which had been performed on various phases of the radwaste program. It appeared the licensee had addressed the NRC concerns discussed in this open item.

(Closed) Open Item (498/8630-04): Radioactive Material Transport Quality Assurance Program - This item was identified in NRC Inspection Report 50-498/86-30 and involved the licensee's QA program to meet the requirements of 10 CFR Part 71.101. The NRC inspector reviewed the licensee's request to the NRC for approval of their QA program for radioactive material transportation and the NRC's approval of the submitted QA program dated February 16, 1988.

(Closed) Open Item (498/8630-05) Liquid Radwaste System - This item was identified in NRC Inspection Report 50-498/86-30 and involved the completion of the preoperational tests on the Unit 1 liquid radwaste systems and verification of tank volumes, representative sampling, discharge flow rates, and recorder readings. The NRC inspector reviewed the results of the following liquid radwaste system preoperational tests: 1TEP04-WL-0002 "Liquid Waste Evaporator Performance Test," performed during the period September 28 through November 13, 1987; 1TEP04-WL-0003, "Liquid Waste Process Preoperational Test," performed during the period September 18 through November 12, 1987; 1TEP04-WL-0001, "Liquid Waste Processing System Waste Monitor Tanks 1D, 1E, 1F and Pumps Preoperational Test," performed during the period September 28 through November 4, 1987; and 1TEP04-BR-0001, "Boron Recycle System and Evaporator Performance Preoperational Test," performed September 3-4, 1987.

(Closed) Open Item (498/8630-06): Gaseous Radwaste System - This item was identified in NRC Inspection Report 50-498/86-30 and involved the completion of the preoperational tests on the Unit 1 gaseous radwaste system and verification of discharge flowrates and recorder readings. The NRC inspector reviewed the results of the gaseous radwaste system preoperational test 1TEP04-WG-0001, "Waste Gas Processing System," performed during the period February 23 through May 31, 1988.

(Open) Open Item (498/8630-07): Solid Radwaste System - This item was identified in NRC Inspection Report 50-498/86-30 and involved the completion of the preoperational tests on the Unit 1 solid radwaste systems and the verification of representative sampling of spent resins during solidification and packaging. The NRC inspector reviewed the results of the following solid radwaste system preoperational tests: 1TEP04-WS-0001, "Solid Radwaste Concentrates Storage/Transfer, Chemical Feed and Dry Waste Compactor," performed during the period September 16 through December 1, 1987; and 1TEP04-WS-0002, "Spent Resin Transfer System," performed during the period September 11-15, 1987. These

preoperational tests satisfied most of the open item concerns. However, representative sampling of spent resins was not verified during the testing. The licensee has installed an "isolock" sampler on the spent resin transfer line since the performance of the preoperational tests. Therefore, Open Item 498/8630-07 will remain open pending completion of an approved operating procedure for the spent resin sampler and the sampler being tested for representative sampling of spent resin during the first transfer of spent resin for solidification and packaging.

3. Open Items

An open item is a matter that requires further review and evaluation by the NRC inspector or licensee. Open items are used to document, track, and ensure adequate followup on matters of concern to the NRC inspector. The following open items were discussed with the licensee during the exit interview on September 2, 1988.

Open Item	Description	Paragraph
499/8857-01	Primary Chemistry Program	8
499/8857-02	Primary Chemistry Sampling	9
499/8857-03	Secondary Chemistry Program	10
499/8857-04	Secondary Chemistry Sampling	11
499/8857-05	Postaccident Sampling System	12
499/8857-06	Facilities and Equipment	13
499/8857-07	Quality Assurance Program	14

4. Radwaste - Startup (84521)

The NRC inspector reviewed the licensee's operation of the Unit 1 radwaste systems to determine agreement with commitments in Chapter 11 of the Final Safety Analysis Report (FSAR) and compliance with the requirements in Section 3/4.11 of the Unit 1 Technical Specification (TS).

The NRC inspector reviewed the licensee's startup chemical and radiochemical tests at various power levels during power ascension testing. The licensee had performed surveillance testing of the secondary system and reactor coolant system chemistry as required by TS. The results of these surveillance tests met the TS requirements for secondary water and reactor coolant water quality.

The NRC inspector reviewed the licensee's testing program for comparing effluent monitor readings to known effluent concentrations as determined by laboratory analysis of grab samples. The licensee had performed initial startup testing of Unit 1 effluent monitors in accordance with 1PEP04-ZY-0043, "Process and Effluent Monitors Initial Startup." The test results were reviewed for power levels of 0 and 30 percent. All 45 Unit 1 process and effluent detectors passed the acceptance criteria of the test; therefore, verifying the satisfactory performance of the Unit 1 process and effluent detectors. The NRC inspector reviewed selected liquid radwaste release permits and determined that, prior to each liquid

effluent release, the effluent monitor reading was compared to the effluent grab analysis results and a monitor agreement ratio determined. The NRC inspector reviewed selected Unit 1 vent release analyses, and Unit 1 reactor containment building purge release permits to determine that the liquid and gaseous radioactive waste processing, storage, and release systems are operating in accordance with design criteria and TS requirements. The licensee's release permit programs and unit vent monitoring program appeared to be implemented in accordance with TS requirements.

The NRC inspector reviewed the licensee's response to the NRC Inspection and Enforcement Bulletin No. 80-10, "Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to the Environment," dated May 6, 1980. The licensee had established and implemented a program for sampling and analysis of potentially contaminated nonradioactive systems. The NRC inspector reviewed Procedure OPCP01-ZA-0014, "Chemical Laboratory Sampling Schedule," and the results of the various identified systems sampling and analyses for the period June through August 1988. The analyses results showed no radioactive contamination.

No violations or deviations were identified.

5. Unit 2 Fuel Handling Building

The NRC inspector inspected the readiness of the Unit 2 fuel handling building (FHB) to receive new fuel. The area radiation monitors throughout the various levels of the FHB were inspected and verified to be operational. It was noted that eight out of ten area monitors had burned out green "operate" indicator lights The burned out light bulbs were replaced during the inspection. This observation was discussed at the exit interview on September 2, 1988, and the NRC inspector expressed his concern for lack of a surveillance program to ensure that all equipment indicator lights are functional and indicating the correct instrument status. The NRC inspector also inspected the readiness and operability of the ventilation system in the FHB. It was verified that the ventilation supply fans and exhaust fans were operational. The charcoal filter banks and the ventilation prefilters had been installed. At the time of the inspection, the licensee was completing the installation of the high efficiency particulate air filters. Operational testing had not been completed on the FHB ventilation system. This item was discussed at the exit interview and the licensee agreed to operate and check the FHB ventilation system prior to receiving new fuel. The NRC inspector determined that the licensee was meeting FHB radiation monitoring and ventilation requirements in accordance with their license application for receipt of unirradiated power reactor fuel as approved by the NRC on August 30, 1988, under Special Nuclear Materials License-1983.

6. Chemical Operation and Analysis Organization and Management Controls (83522)

The NRC inspector reviewed the licensee's organization and staffing of the CO&A Division for implementation of the Unit 2 water chemistry and radiochemistry programs to determine agreement with the commitments in Chapter 13.1 of the FSAR and the requirements in Section 6.2 of Unit 2 proposed TS.

The NRC inspector verified that the organizational structure of the CO&A Division was as defined in the FSAR and TS. The NRC inspector reviewed the CO&A Division staff assignments and management controls for the implementation of the STP, Unit 2, water chemistry and radiochemistry programs. The NRC inspector verified that the duties and responsibilities of the CO&A Division staff were adequately described in approved procedures and position descriptions.

The NRC inspector reviewed the staffing of the chemical analysis section (CAS) and the chemical support section (CSS) of the CO&A Division and noted that all but one of the 59 staff positions approved for Units 1 and 2 operation had been filled. The number of CAS and CSS personnel were determined to be in accordance with licensee commitments for Units 1 and 2 and appeared to be sufficient to meet staffing requirements for the routine five shift rotation of both units.

No violations or deviations were identified.

7. Chemical Analysis Section Personnel Qualifications (83523)

The NRC inspector reviewed the qualifications of the CAS and CSS staffs to determine agreement with the commitments in Chapter 13.1.3 of the FSAR and recommendations of Regulatory Guide 4.15 and ANSI/ANS 3.1-1981.

The NRC inspector reviewed the education and experience backgrounds of the present CAS and CSS staffs and determined that all personnel except for the two associate chemistry technicians met the education and experience qualification recommendations for chemistry and radiochemistry personnel as outlined in ANSI/ANS 3.1-1981.

No violations or deviations were identified.

8. Primary Chemistry Program (84525)

The NRC inspector reviewed the licensee's Unit 2 primary chemistry program including establishment and implementation of a chemistry control program for the reactor coolant system and borated water sources and a QC program for chemical measurements to determine agreement with the commitments in Chapter 5 of the FSAR and compliance with the requirements in Sections 3/4.1.2.5, 3/4.4.7, 3/4.5.1, 3/4.5.5, and 6.8 of the Unit 2 proposed TS.

The NRC inspector reviewed the licensee's Unit 2 primary chemistry program and found that it appeared to agree with the FSAR and the proposed TS. It was noted that the licensee's administrative procedures, surveillance procedures, chemical control procedures, instrument calibration and QC procedures, and analytical procedures had been completed and approved. The NRC inspector reviewed the status of the primary chemistry in-line process instrumentation on the reactor coolant system, reactor water makeup system, component cooling water system, and boron recycle system. It was determined that some of the in-line process instruments had undergone startup testing but had not been calibrated or turned over from startup to the nuclear plant operations division (NPOD). The licensee had not moved into the Unit 2 primary chemistry laboratory and had not installed instrumentation in the laboratory.

This is considered open (499/8857-01) pending the calibration of all primary chemistry in-line process instrumentation and primary chemistry laboratory analytical instrumentation and the implementation of an instrumentation QC program prior to STP, Unit 2, initial criticality.

No violations or deviations were identified.

9. Primary Chemistry Sampling System (84525)

The NRC inspector reviewed the licensee's Unit 2 primary chemistry sampling system to determine agreement with the commitments in Chapters 9 and 11 of the FSAR.

The NRC inspector inspected the STP, Unit 2, primary chemistry sampling areas. The Unit 2 primary chemistry sample panels were installed but preoperational tests were not completed. All grab sample valves and sample lines had not been tested, verified, and flushed.

The licensee had not verified tank volumes for all potentially contaminated tanks and had not determined recirculation times to obtain representative samples of especially the radwaste monitor tanks. The licensee had written and approved the procedure, OPTEP07-ZC-0001, "Determination of Tank Recirculation Time Test," to determine tank recirculation times for primary chemistry and radwaste tanks. The licensee is to perform this test on STP, Unit 2, tanks prior to initial criticality.

This is considered open (499/8857-02) pending the completion of preoperational testing of all the primary chemistry and radwaste sample panels; the testing and verification of all radwaste tank volumes and tank recirculation times; and the ability of the system to provide representative samples prior to STP, Unit 2, initial criticality.

No violations or deviations were identified.

10. Secondary Chemistry Program (79501/79502)

The NRC inspector reviewed the licensee's Unit 2 secondary chemistry program including establishment and implementation of a water chemistry control program and a QC program for chemical measurements to determine agreement with the commitments in Chapters 9 and 10 of the FSAR and compliance with the requirements in Sections 3/4.7.1.4 and 6.8 of the Unit 2 proposed TS.

The NRC inspector reviewed the licensee's Unit 2 secondary chemistry program and found that it appeared to agree with the FSAR and the proposed TS. It was noted that all secondary analytical procedures, chemical addition procedures, and secondary chemical process systems operations procedures had been completed, approved, and tested. The procedures appeared to be adequate to monitor and control the secondary chemistry program.

The licensee had moved into the secondary chemistry laboratory and it was equipped and operational to support startup activities. The NRC inspector verified that the analytical instrumentation in the secondary chemistry laboratory had been calibrated and a QC program had been implemented in accordance with STP procedures.

The licensee had approved procedures for the operation, calibration, and QC of the secondary chemistry in-line process instrumentation. The NRC inspector verified that all the secondary chemistry in-line process instrumentation for STP, Unit 2, had been installed and that startup testing and calibration was in progress.

This item is considered open (499/8857-03) pending the calibration of all secondary chemistry in-line process instrumentation and turnover of the instrumentation from startup to NPOD.

No violations or deviations were identified.

11. Secondary Chemistry Sampling System (79501/79502)

The NRC inspector reviewed the licensee's Unit 2 secondary chemistry sampling system to determine agreement with the commitments in Chapter 10 of the FSAR.

The NRC inspector inspected the STP, Unit 2, secondary sampling areas. The secondary chemistry sampling panels had been installed. The grab sample valves and sample lines had been tested, verified, and flushed during preoperational testing. The condensate polishing system sample panel lines had not been tested completely. The secondary chemistry sample panels had not been turned over to NPOD from startup. The licensee had not completed Unit 2 secondary chemistry system sampling procedures.

This item is considered open (499/8857-04) pending completion of testing, verification, and flushing of all secondary chemistry sample lines and the

approval of sampling procedures and valve lineups for all the various secondary chemistry sampling panels prior to STP, Unit 2, initial criticality.

No violations or deviations were identified.

12. Postaccident Sampling System (84525)

The NRC inspector reviewed the licensee's Unit 2 postaccident sampling system (PASS) to determine agreement with the commitments in Chapter 9.3.2 of the FSAR and compliance with the requirements in NUREG-0737, Item II.B.3.

The NRC inspector inspected the area in STP, Unit 2, where the PASS was installed. The liquid and gas sample panel, PASS laboratory fume hood, and PASS control panels were installed and sample lines and ventilation ducts were connected. The PASS area construction was completed and turned over to NPOD from startup. The PASS was under startup control, but had not undergone preoperational testing. The PASS in-line instrumentation was installed in the various PASS panels but had not been tested or calibrated.

This item is considered open (499/8857-05) pending the following to be completed prior to Unit 2 exceeding 5 percent power.

- Testing and calibration of the in-line analytical instrumentation and the implementation of a maintenance and QC program on the PASS.
- Checkout of system operation by performing trial runs using the sample transport devices and sample preparation laboratory facilities.
- Verification of system performance by collecting samples of reactor coolant and containment atmosphere under simulated accident conditions and performing required comparative analyses.

No violations or deviations were identified.

13 Facilities and Equipment (84525/79501)

The NRC inspector inspected the facilities and equipment to be used by the CAS staff in performing their various chemistry support responsibilities. The following facilities were inspected in STP, Unit 2: secondary chemistry laboratory, primary chemistry laboratory, radiochemistry counting room, chemistry sampling panels, PASS control room and laboratory, and CAS personnel study area. At the time of the inspection, the secondary chemistry laboratory was completed, equipped, and occupied for routine use. The CAS personnel study area construction was completed but furniture had not been completely installed. The radiochemistry laboratory construction and furniture installation was completed; however,

instrumentation was not yet installed. The radiochemistry counting room construction was near completion and most of the counting equipment had been moved into place and was being made ready for calibration and routine use. The chemistry sampling panels were installed and turned over to startup for testing. The PASS area construction was completed and turned over to NPOD, but the PASS instrumentation was not calibrated and operational.

This item is considered open (499/8857-06) until construction of all the above named CAS work areas have been completed and the areas turned over to NPOD from construction or startup for routine occupancy and use.

No violations or deviations were identified.

14. QA Program (83522)

The NRC inspector reviewed the licensee's internal audit and surveillance programs regarding CAS activities to determine agreement with the commitments in Chapter 17 of the FSAR and compliance with the requirements in 10 CFR Part 50, Appendix B and Section 6.5 of the proposed Unit 2 TS.

The NRC inspector reviewed the proposed QA audit program for 1989 for both STP units. It was determined that an audit of water chemistry and radiochemistry activities is to be scheduled for both units in 1989.

This item is considered open (499/8857-07) pending scheduling and completing a comprehensive audit of the CAS program and activities in STP, Unit 2, prior to initial criticality.

No violations or deviations were identified.

15. Procedures

The NRC inspector reviewed the licensee's CO&A Division procedures to determine compliance with the requirements in Section 6.8 of the proposed Unit 2 TS.

The NRC inspector reviewed the plant general procedures, plant chemistry procedures, and plant surveillance procedures which direct the administration and operations of the CO&A Division. It was noted that seven procedures for Unit 2 were yet to be approved and issued. The licensee stated that these procedures were currently being reviewed and all are expected to be approved and issued by October 1988. The licensee's procedures appeared to meet the regulatory requirements and recommendations of the regulatory guides and ANSI standards which are regarded as being necessary to effectively implement a water chemistry/radiochemistry program.

No violations or deviations were identified.

16. Exit Interview

The NRC inspector met with the NRC resident inspectors and the licensee representatives identified in paragraph 1 of this report at the conclusion of the inspection on September 2, 1988. The NRC inspector summarized the scope of the inspection and discussed the inspection findings and open items. The NRC inspector stated that all open items must be resolved prior to Unit 2 initial criticality except for the PASS open item which must be resolved prior to Unit 2 exceeding 5 percent power. The licensee stated that they would review and evaluate the NRC inspector's findings and e action as necessary to resolve the identified open items.