APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-498/92-12
50-499/92-12

Operating License: NPF-76
NPF-80

Licensee: Houston Lighting & Power Company (HL&P)
P.O. Box 1700
Houston, Texas 77251

Facility Name: South Texas Project Electric Generating Station (STP)
Units 1 and 2

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

Energy Development Complex
12301 Kurland Drive, Houston, Texas

Inspection Conducted: May 4-8, 1992

Inspectors: L. T. Ricketson, P.E., Senior Radiation Specialist

Approved: Blaine Murray 5/21/92
B. Murray, Chief, Facilities Inspection Programs Section — Date

Inspection Summary

Inspection Conducted May 4-8, 1992 (Report 50-498/92-12; 50-499/92-12)

Areas Inspected: Routine, announced inspection of portions of the licensee's radiation protection program including external exposure controls, internal exposure controls, controls of radioactive materials and contamination, surveys, and monitoring.

Results: Within the areas inspected, no violations or deviations were identified. The following is a summary of the inspection results:

- Comprehensive quality assurance audits were performed. Technical experts were included on the audit team.

- A state-of-the-art external dosimetry program was in place which included an excellent quality assurance program.

- The radiation work permit program provided good instruction and was implemented effectively. Workers adhered to radiation protection procedures.

- Good whole body counting procedures and internal exposure controls were in place; however, areas were identified in which the licensee could enhance its program by the implementation of common industry practices and manufacturers' recommendations (see paragraph 2.4).

- Radiological controls were implemented effectively. Housekeeping was exceptional.

- Health physics supervisors performed frequent tours of the radiological controlled areas to observe on-going work activities.

- An excellent radiation instrument repair and calibration program had been implemented.

DETAILS

1. PERSONS CONTACTED

HL&P

*W. H. Kinsey, Vice President, Nuclear Generation
L. Archer, Health Physicist
J. Ashcraft, Radiation Protection Supervisor
J. Benavidez, Radiation Protection Supervisor
*H. W. Bergendahl, Technical Services Manager
*R. W. Chewning, Vice President, Nuclear Support
L. Earls, Health Physicist
*T. J. Jordan, General Manager, Nuclear Assurance
*W. J. Jump, Manager, Nuclear Licensing
*R. W. Pell, Health Physics Division Manager
*G. T. Powell, Health Physics Operations Support General Supervisor
J. Sepulveda, Radiation Protection Supervisor
G. E. Williams, Staff Engineer, Energy Development Complex
*M. R. Wisenbug, Plant Manager
B. Witmer, Radiation Protection Supervisor

NRC

J. Tapia, Senior Resident Inspector
*R. Evans, Resident Inspector

*Denotes those present at the exit meeting on May 8, 1992.

The inspector also interviewed other health physics personnel during the course of the inspection.

2. OCCUPATIONAL EXPOSURE (IP 83750)

The inspector reviewed portions of the licensee's occupational exposure control program to determine compliance with requirements in Technical Specification 6.8 and 6.11, 10 CFR Parts 19 and 20; commitments in Chapter 12 of the Updated Final Safety Analysis Report; and agreement with the recommendations of Regulatory Guide 8.15, NUREG-0041, and industry standards ANSI N13.11-1983, ANSI Z88.2-1980, ANSI/CGA G-7.1-1989, and ANSI N323-1978.

2.1 Audits and Appraisals

The inspector reviewed Quality Assurance Audit 92-03, "Radiological Controls," conducted March 9-27, 1992, and noted that it identified several deficiencies and included recommendations for program improvement. The audit was comprehensive and utilized team members with health physics backgrounds and included two technical specialists from other sites.

2.2 Changes

The inspector reviewed organization and personnel changes that had occurred since the previous inspection. The Health Physics Division Manager (Radiation Protection Manager) was promoted to Technical Services Manager. The Health Physics Operations General Supervisor was promoted to Health Physics Division Manager. The inspector reviewed the qualification of the new Health Physics Manager and determined that he satisfied the recommendations in Regulatory Guide 1.8. concerning qualifications for a Radiation Protection Manager.

2.3 External Exposure Controls and Personnel Dosimetry

The inspector reviewed the licensee's dosimetry processing program at the Energy Development Complex in Houston. The licensee's state-of-the-art dosimetry system used four element thermoluminescent dosimeters (TLD). Total filtration over the elements ranged from 22 to 1107 milligrams/centimeter squared (mg/cm^2). The licensee did not use an element with a filtration density of 300 mg/cm^2 for measuring the dose at the nominal depth of the lens of the eye; however, Station Procedure OPGP03-ZI-0003, "Personal Safety Equipment," required that individuals wear safety glasses within the protected area, thus providing extra shielding from beta radiation. Special badges were used when neutrons were monitored.

The licensee had received accreditation from the National Voluntary Laboratory Accreditation Program in Categories II, IV, V, VII, and VIII (as listed in ANSI N13.11-1983). Licensee representatives stated that they had not sought accreditation in the other three categories because of the absence of low energy photons at the site. However, the licensee plans to seek accreditation in the remaining categories some time in the future.

The licensee's internal quality assurance program included the verification of the dose calculation algorithm by routinely processing TLDs irradiated by known amounts and types of radiation. The irradiated dosimeters were known only to the designated quality assurance officer or his designee. The quality assurance officer was an individual who was familiar with the dosimeter processing program, but did not take part in the routine activities, thus maintaining his objectivity.

The licensee had approximately 8000 TLDs available for use, and an older automatic reader was available as a backup. The backup system was used primarily to anneal dosimeters and perform quality assurance activities.

The inspector discussed with the licensee NRC Information Notice 91-60, "False Alarms of Alarm Ratemeters Because of Radiofrequency Interference." Licensee representatives stated that the alarming dosimeters used had been tested and certified by the manufacturer as meeting Industry Standard ANSI N42.17A-1989 which required that effects of radio frequency radiation result in no more that 15 percent difference from a reference standard. The maximum observed effect was 4 percent.

The inspector also discussed the use of the alarming dosimeters in high noise areas. Licensee representatives stated that they had not experienced difficulty because of high noise, but they had discussed the matter with the manufacturer and were working on contingency plans should they have to use the dosimeters in an environment with high noise levels.

The licensee compared the total radiation exposure for 1991 as measured with the alarming dosimeter with that measured by TLDs and determined that the results were within approximately 3 percent.

The inspector reviewed general and special radiation work permits in both units and observed workers within the radiological controlled area and determined that the radiation work permit program was implemented effectively and that workers followed radiation protection procedures.

No violations or deviations were identified.

2.4 Internal Exposure Controls and Assessment

The licensee had installed recently a "quick count" whole body counter. The inspector reviewed whole body counting procedures and determined that the licensee had implemented a good program with appropriate investigational limits.

The inspector observed respirator fit testing and determined that a good program had been established. The licensee did not have a stand-alone policy statement concerning respiratory protection. Licensee representatives stated that because Station Procedure OPGP03-ZR-0021, "Respiratory Protection Program," included the elements of a policy statement as recommended by Regulatory Guide 8.15 and was signed by the plant manager after being reviewed by the plant operations review committee, they felt the procedure met the intent of a policy statement. The lack of a specific, stand-alone policy statement was identified recently by an internal audit and the need for such a document was the subject of an on-going evaluation by the Health Physics Department.

The licensee did not have procedures for major maintenance work on self-contained breathing apparatuses; therefore, work on parts such as regulators were performed by the manufacturer. The licensee was committed through Regulatory Guide 8.15 and NUREG 0041 to test portions of respiratory protection devices periodically for proper function in accordance with the manufacturers' instructions. Licensee representatives stated that monthly checks were performed in accordance with these instructions. The inspector reviewed the manufacturers' inspection and maintenance procedures and noted that they also included recommendations that the regulators be flow tested annually and that the regulators and audible alarm assemblies be overhauled every 3 years. The manufacturer's recommendations had not been considered by the licensee to be part of the instructions; however, the licensee's representatives evaluated the recommendations and committed to follow them. They added, however, that the manufacturer had amended the recommendations to say that for light use such as at nuclear power plants, the overhaul of the

regulators could be performed every 5 years. The regulators were last overhauled in November 1988.

Washing machines used to clean respirators were not functional and were waiting for parts. Respirator use was relatively low, since it was a nonoutage period. Cleaning and disinfecting were performed by hand. The inspector reviewed respirator issue records and verified that users were qualified to receive the indicated type and size respirator.

The inspector reviewed air sampling data collected by health physics technicians and also noted on tours of the radiological controlled area that continuous air monitors were response checked properly. The licensee maintained a suitable supply of lapel air samplers for determining breathing zones samples.

The licensee did not have a program to check HEPA filters in portable ventilation units or vacuum cleaners to ensure proper fit and function. Licensee representatives stated that they were evaluating the situation to determine what equipment was necessary and that they had contacted another site to discuss the procedure.

No violations or deviations were identified.

2.5 Controls of Radioactive Materials and Contamination, Surveys, and Monitoring

The inspector made several tours of both units and performed independent radiation surveys within the radiological controlled areas. The inspector noted that areas were posted and locked properly, if appropriate, and did not identify additional areas needing posting or controlling. Housekeeping within the radiological controlled area was exceptional.

The inspector checked the number of entries made by the health physics supervisors into the radiological controlled area since January 1, 1992. The inspector concluded that sufficient entries were made for the supervisors to maintain proper oversight of work activities in progress.

The inspector observed health physics technicians as they collected samples and performed contamination surveys and noted that they used proper procedure and good health physics practices.

The licensee maintained a current inventory of sealed radioactive instrument calibrations sources at the site and records confirmed that the sources were tested for leakage at the proper frequency.

The inspector noted during one of the tours that two workers were allowed to take tools into the radiological controlled area rather than drawing them from one of the tool rooms inside. The inspector questioned health physics representatives at the access control point concerning this. Representatives stated that it was their policy to limit the number of tools brought into the radiological controlled area; however, they did make exceptions, occasionally,

for vendors, with the understanding that the vendor may have to forfeit the tools if they became contaminated and could not be cleaned adequately. The inspector observed that the tools were placed in a tool monitor by health physics personnel, found not to be contaminated, and released to the workers.

The licensee required that individuals preparing to exit the radiological controlled area frisk their ankles, tops of their feet, and inside their hardhats prior to using the personnel contamination monitors. The procedure was as an added precaution to detect contamination or hot particles which may have been present in "dead spots" or areas not checked effectively by the beta sensitive personnel contamination monitors.

The inspector visited the metrology laboratory where the portable radiation survey instruments were calibrated. The inspector found that the licensee had copies of the manufacturers' specifications for each type of instrument and that the calibration procedures were based on the recommendations contained in Industry Standard ANSI N323-1978.

A radiological controlled area was in place within the metrology laboratory and personnel within worked in accordance with a radiation work permit. The laboratory personnel performed instrument repairs as well as calibrations. The laboratory appeared to be well managed and maintained the instrument backlog at a low level.

Neutron survey instruments were returned to the manufacturer for calibration. The inspector reviewed selected examples of instrument calibration records and verified that they contained the necessary information. Selected instruments were inspected in the field and found to be in proper calibration.

No violations or deviations were identified.

Conclusions

Quality assurance audits were comprehensive and utilized technical experts on the audit team.

The dosimetry program was state-of-the-art and included an excellent quality assurance program.

The radiation work permit program provided good instruction and was implemented effectively. Workers adhered to radiation protection procedures.

Good whole body counting procedures and internal exposure controls were in place; however, areas were identified in which the licensee could enhance its program through the addition of common industry practices and maintenance practices which included manufacturers' recommendations.

Radiological controls were implemented effectively. Housekeeping was exceptional.

Health physics supervisors toured the radiological controlled areas often enough to be familiar with on-going work activities.

An excellent radiation instrument repair and calibration program had been implemented.

3. EXIT MEETING

The inspector met with the resident inspector and the licensee's representatives denoted in paragraph 1 at the conclusion of the inspection on May 8, 1992, and summarized the scope and findings of the inspection as presented in this report. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspector during the inspection.