APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-382/88-12 Operating License: NPF-38

Docket: 50-382

Licensee: Louisiana Power & Light Company (LP&L)
317 Baronne Street
New Orleans, Louisiana 70160

Facility Name: Waterford Steam Electric Station, Unit 3 (Wat-3)

Inspection At: Wat-3 site, Taft, St. Charles Parish, Louisiana

Inspection Conducted: May 1-6, 1988

Inspector: for H. D. Chaney, Radiation Specialist — Date 5/27/88
Facilities Radiological Protection Section

Approved: R. E. Baer, Acting Chief, Facilities — Date 5/27/88
Radiological Protection Section

Inspection Summary

Inspection Conducted May 1-6, 1988 (Report 50-382/88-12)

Areas Inspected: Routine, unannounced inspection of radiation protection activities during the cycle-2 refueling outage.

Results: Within the area inspected, no violations or deviations were identified.

DETAILS

1. Persons Contacted

Licensee

*N. Carns, Plant Manager
*D. Baker, Event Analysis Manager
G. Espenan, Nuclear Operations and Support Assessment Engineer
*R. Kenning, Nuclear Operations and Support Assessment Engineer
*W. LaBonte, Radiation Protection Superintendent
D. Landeche, Health Physics Supervisor
M. Marler, Health Physics Trainer
R. McLendon, Dosimetry Supervisor
*B. Morrison, Licensing Engineer
P. Prasankumar, Assistant Plant Manager, Plant Technical Services
S. Ramzy, Assistant Radiation Protection Superintendent
*J. Ridgel, Assistant Radiation Protection Superintendent
L. Simon, Radwaste Engineer
*J. Zabritski, Operation Quality Assurance Manager

Others

*W. Smith, Senior NRC Resident Inspector
*M. Knapp, Director, NRC Division of Low Level Waste Management and Decommissioning
S. Clark, Radiation Protection Project Coordinator, NUMANCO/Westinghouse

*Denotes attendance at the exit interview.

The NRC inspector also contacted other licensee personnel including administrative, contract health physics, and quality assurance personnel.

2. Followup on Previously Identified Inspection Findings (92703)

(Closed) IEB 382/7808: Radiation Levels During Fuel Transfer - This item was previously discussed in NRC Inspection Reports 50-382/86-24 and 50-382/87-08 concerning the lack of adequate radiation surveys during spent fuel transfer to verify adequacy of spent fuel transfer tube shielding. The licensee had performed detailed radiation surveys both during cycle-1 and -2 spent fuel movements and verified that the as-installed shielding provides adequate dose rate reduction during spent fuel transfers.

3. Inspector Observation

An inspector observation is a matter discussed with the licensee during the exit interview. Observations are neither violations, deviations, nor unresolved items. They have no specific regulatory requirement, but are suggestions for the licensee's consideration.

Loitering in Radiation Areas - The NRC inspector noted an unusually large number (8-15) of workers congregated in both the Reactor Auxiliary Building and Reactor Containment areas waiting for their portion of a job to come around. The workers were in posted low dose rate waiting areas within the reactor containment.

4. Outages (83729)

The NRC inspector reviewed the licensee's radiation protection program in effect during the cycle-2 refueling outage. The NRC inspector reviewed planning and scheduling activities, worker briefings, health physics (HP) staffing and manning, control of radiological work activities, qualifications of contract HP personnel, compliance with radiological work, and safety instructions. The licensee's ALARA activities associated with conduct of the cycle-2 outage were also reviewed. The following specific areas were reviewed:

a. Planning and Preparation

The NRC inspector attended the twice daily planning and scheduling meetings, held discussions with senior plant managers concerning outage preparations, and reviewed job preplanning for issuance of radiation work permits (RWP). The NRC inspector reviewed the licensee's oversight of contracted radiation protection activities associated with work areas under exclusive contractor control (Spent Fuel Building and all in-reactor containment areas). This is the first Integrated Service Contract on a refueling outage at an NRC licensee in Region IV. The NRC inspector noted that the contractor had established an efficient division of duties and supervisor oversight for containment areas. The NRC inspector noted that the licensee had issued several new radiation protection procedures and updated several existing procedures in preparation for the outage. The NRC inspector reviewed the following procedures:

- Radiation Work Permits, HP-1-110, Revision 8, dated March 18, 1983
- Hot Particle Contamination Control, HP-1-241, Revision 0, dated March 18, 1988
- Calibration of NMC Portable Continuous Airborne Radioactivity Monitors, HP-2-425, Revision 0, dated March 21, 1988

- Dosimetry Administration, HP-1-209, Revision 6, dated January 4, 1988
- Contamination Survey Techniques, HP-2-210, Revision 3, dated March 23, 1988
- Operation of the Canberra Series 20 Multichannel Analyzer, HP-2-364, Revision 0, dated April 5, 1988

The NRC inspector noted that the licensee had installed a weather-proof passage way and auxiliary offices adjacent to the reactor containment equipment hatch for HP technicians, dosimetry issue, respiratory protection equipment issue, and protective clothing issue. This facility greatly improves accessibility to the reactor containment and provides greater HP control over reactor access and work operations. The NRC inspector noted that the licensee had purchased several high sensitivity personnel and small tool monitors and had placed these at strategic locations within the plant radiologically controlled areas and outside areas such as radwaste processing building.

b. Training and Qualification of Workers

The NRC inspector reviewed the licensee's evaluation and screening program of contract HP workers. Those contract workers that failed an HP skills test following site training were further evaluated by the licensee (HP management and training personnel) as to whether they would be terminated or provided remedial training and retesting. The licensee initially trained and tested approximately 140 prospective HP technicians (junior and senior), and of that number approximately 5 were terminated upon failing initial skills testing and 10 were allowed to be retested following remedial training. The 10 successfully passed retesting.

c. External Exposure Control

The NRC inspector reviewed the licensee's control and posting of radiation and high radiation areas, hot spot posting, dose rate evaluations for steam generator entries, multiple whole body and extremity dosimetry use, and the conduct of radiological surveys.

The NRC inspector reviewed the radiological controls associated with the cutting up of incore instrumentation, spent fuel reconstitution, and inspection and maintenance on the two steam generators (SG). The NRC inspector reviewed the licensee's use of alarming dosimeters for compliance with the requirements of Technical Specification (TS) 6.12.1, and the posting and control requirements of TS 6.12.2 for areas where radiation levels are greater than

1000 millirem per hour. The NRC inspector reviewed the licensee's use of special shielded doors for lowering platform dose rates and restricting access into the primary side of the SG when work inside the SG is not being conducted.

d. Internal Exposure Control

The NRC inspector reviewed and participated in the licensee's respiratory protection equipment (RPE) training and qualification program. The licensee's RPE control and issue, airborne radioactivity surveys, internal exposure trending and tracking, and respirator field usage were inspected for compliance with 10 CFR Part 20.103 requirements. The NRC inspector reviewed the licensee's fast-turn-around, airborne radioactivity sample screening program and found that it significantly reduced the time it took to obtain quantitative isotopic airborne radioactivity results.

The NRC inspector noted that workers routinely inspected and properly performed negative fit tests of their respirators prior to use. The NRC inspector noted that the licensee implemented requirements and engineered ventilation systems to eliminate the need for the use of respirators. This has caused a slight increase in personnel uptakes. These uptakes are normally well below 5 percent of a maximum-body-burden limit for any isotope.

e. Control of Radioactive Materials and Contamination, Surveys, and Monitoring

The NRC inspector inspected the licensee's radioactive material control program for release of materials from radiological work areas, the licensee's implementation of contamination control practices for major worker operations (SG entry, cutting-up of pressurizer heaters, and reconstitution of spent fuel). The licensee's use of contamination control containments aided in minimizing the spread of radioactive contamination and the reduction in the use of respiratory protection equipment.

The NRC inspector reviewed the licensee's recently implemented hot radioactive particle (HRP) control and evaluation program. The program is administratively controlled by licensee Procedure HP-1-241, "Hot Particle Contamination Control." The licensee had determined that incoming fuel reconstitution equipment contained HRPs and that previous experience during Wat-3 outages suggested that the plant harbored both fuel and cobalt type HRPs. The licensee's HRP tracking program has identified approximately 163 occurrences since the April 1987 outage. Approximately 77 of the occurrences involve the finding of HRPs on personnel or their clothing. The highest estimated exposure was approximately 3.6 rem of exposure to the skin of the whole body (upper leg) due to an HRP on the outside of an individual's modesty garment. The NRC inspector discussed with licensee personnel their proposal for reducing this

exposure estimate. The area of exposure has been verified to be delivered to a much larger area (approximately 8 to 11 square centimeters) and not the theoretical 1.0 square centimeter of the skin. This larger area of exposure is due to the motion of the clothing when being worn by the worker. This would reduce the licensee's estimate from a conservative value of 3.6 rem to a more reasonable, yet conservative, value of approximately 0.9 rem. The NRC inspector found no problem with the licensee's methodology and technical resolution to the issue.

f. Independent Surveys by the NRC Inspector

The NRC inspector conducted independent radiation surveys of high radiation areas, radiation areas, office spaces, and waste receptacles.

g. ALARA Program

The NRC inspector reviewed the licensee's ALARA activities during the outage. The NRC noted that the licensee was providing ALARA technician support for resolution of problems concerning radiological job requirements and temporary shielding installation. The licensee was found to be closely tracking job performance based on person-rem exposure by work group tasks. The NRC inspector reviewed temporary shielding projects and system hot spot (elevated radiation levels in a portion of a system that significantly affect area radiation levels) flushing activities. The NRC inspector noted that the ALARA program was aggressively implemented and well staffed.

h. Staffing

The NRC reviewed the licensee's HP, radwaste support, and decontamination staffing for the outage and determined that it was adequate. The NRC inspector noted a significant improvement in the number and quality of HP supervision and technical staffs over that found during the preparatory phase for cycle-1 outage. This area was previously discussed as a major concern in NRC Inspection Report 50-382/86-18 and identified as a programmatic weakness in the 1985-1986 Systematic Assessment of Licensee Performance Report.

No violations or deviations were identified.

5. Exit Interview

The NRC inspector met with the NRC resident inspector and licensee representatives denoted in paragraph 1 on May 6, 1988, and summarized the scope and findings of the inspection as presented in this report.