

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-382/85-21

License: NPF-38

Docket: 50-382

Licensee: Louisiana Power & Light Company (LP&L)
142 Delaronde Street
New Orleans, Louisiana 70174

Facility Name: Waterford Steam Electric Station, Unit 3

Inspection At: Taft, St. Charles Parish, Louisiana, Waterford-3 Site

Inspection Conducted: August 26-29, 1985

Inspectors:

B. Blaine Murray
for H. D. Chaney, Radiation Specialist
Facilities Radiological Protection Section

10/10/85
Date

B. Blaine Murray
for D. B. Spitzberg, Radiation Specialist
Facilities Radiological Protection Section

10/10/85
Date

Approved:

B. Blaine Murray
for Blaine Murray, Chief
Facilities Radiological Protection Section

10/10/85
Date

Inspection Summary

Inspection Conducted August 26-29, 1985 (Report 50-382/85-21)

Areas Inspected: Routine unannounced inspection of portions of the licensee's radiation protection (RP) program including management controls, external radiation exposure controls, internal dosimetry, respiratory protection program, radiation protection facilities, radioactive material and contamination control activities, and the radiation protection activities associated with plugging and staking of steam generator tubes. The inspection involved 67 inspector-hours onsite and 14 inspector-hours offsite by two NRC inspectors.

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

DETAILS

1. Persons Contacted

LP&L

- *S. A. Alleman, Assistant Plant Manager, Technical Services
- K. L. Brewster, Licensing Engineer
- *R. W. Kenning, Radiation Protection Superintendent
- E. C. Craven, Health Physics (HP) Technician
- R. E. Bingham, HP Shift Control Technician (SCT)
- *D. L. Hoel, HP Supervisor - Support
- D. H. Espenan, HP Supervisor - Administration
- *A. S. Lockhart, Site Quality Manager
- *D. A. Landeche, HP Supervisor - Operations
- W. K. Linares, HP-SCT
- *A. R. Roberts, Operations Quality Assurance (QA) Auditor
- R. C. McLendon, Dosimetry Supervisor
- *G. E. Wuller, Onsite Licensing Coordinator
- A. B. Pilutti, HP Technician
- *J. J. Zabritski, Quality Engineering Manager

Others

- *T. A. Flippo, NRC Resident Inspector
- *W. B. Jones, NRC Inspector
- T. Royce, Steam Generator (SG) Worker, Combustion Engineering
- L. French, SG Worker, Combustion Engineering
- J. Johnson, HP Technician, Contractor

*Denotes those present during the exit interview.

The NRC inspectors also interviewed other Waterford-3 administrative, training department, and HP staff members during this inspection.

2. Management Controls

The NRC inspectors reviewed the licensee's new HP supervisor's qualifications to determine agreement with the facility operating license Technical Specification (TS) and the commitments in the FSAR concerning staff qualifications. The new supervisor (HP operations) was recently promoted from the ALARA coordinator staff position and possesses the required educational and experience qualifications as stated in paragraph 4.3.2 of ANSI N18.1-1971, as referenced in Section 6.3 of the TS. The NRC inspectors also reviewed selected operational HP procedures.

Licensee audits of RP programs were reviewed and discussed with the operations QA audit group. The NRC inspectors discussed with the Waterford-3 QA personnel and brought to the attention of the NRC resident

inspector an unresolved audit finding (audit SA-W3-PA-85-31) identified in July 1985, regarding meteorological tower instrument calibrations. The exit meeting for the subject audit, however, was not conducted until August 23, 1985. The QA auditors found that the wind direction vane on the primary tower to be pointed in a different direction (greater than 30 degrees different) than the wind direction sensor/recorder was indicating. The licensee was evaluating the audit finding to determine if the item should be reported as a licensee event report. The NRC resident inspector will followup on licensee actions regarding this audit finding.

No violations or deviations were noted.

3. External Occupational Exposure Control and Personnel Dosimetry

The NRC inspectors reviewed the licensee's external exposure control and personnel dosimetry program for compliance with commitments contained in the Final Safety Analysis Report (FSAR), the requirements of 10 CFR Parts 19 and 20, and the recommendations of NRC Inspection and Enforcement (IE) Information Notices 81-26 and 83-59, industry standards ANSI N13.5-1972, N13.6-1966 and N13.11-1983, and NRC Regulatory Guides (RGs) 8.2, 8.4, 8.7, 8.8, and 8.14.

The NRC inspectors determined from discussions with licensee representatives that the current dosimetry processing system had successfully completed phases 1 and 2 for accreditation under the National Voluntary Laboratory Accreditation Program (NVLAP). The licensee's dosimetry processing system was noted to have passed all eight irradiation test categories in the ANSI standard (N13.11-1983), and that only a few administrative deficiencies were identified by auditors from both the Institute of Nuclear Power Operations and those from the national laboratory conducting inspections for NVLAP.

The licensee's current personnel dosimetry system consists of a four element thermoluminescent dosimeter (TLD) and a computerized reader. The TLD badge consists of various filters over the four TL elements (lithium-borate-2 and calcium-sulfate-2) in conjunction with a differentiating algorithm to distinguish between exposures from beta, gamma (low and high energy), and neutron radiation. The licensee also was noted to have contracted for external and internal dosimetry services during emergency operations, and has committed to participation in a dosimetry cross check program with an offsite laboratory to supplement the NVLAP testing.

The NRC inspectors reviewed equipment used in the dosimetry processing program including the dosimetry QA manual and multiple TLDs for whole body and extremity monitoring during entries into the primary side of the SGs during plugging and staking operations. The licensee was noted to be using calculated stay times based on measured radiation levels within the SGs. The licensee's personnel exposure records were reviewed and found to contain the information recommended in RG 8.7.

The NRC inspectors reviewed completed exposure history statements (equivalent NRC Form 4) for personnel exceeding or nearing the 10 CFR part 20.101a limits. The NRC inspectors reviewed the licensee's administrative exposure limits and the controls for ensuring that personnel do not exceed 10 CFR Part 20.101 limits. The NRC inspectors also reviewed the licensee's procedures for establishing personnel exposure controls during reactor accidents. The licensee's corporate Radiation Control Unit and the operations QA group have both performed comprehensive audits of the personnel dosimetry program. Audit findings appear to be addressed in a timely manner. The licensee's methodology for evaluating and assessing exposure due to skin contamination references acceptable practices for making such assessments. The NRC inspectors also reviewed licensee initiated studies on TLD response involving beta radiation emitters and submersion in radioactive noble gas environments.

The NRC inspectors discussed with licensee representatives the licensee's actions in regard to NRC Generic Letter No. 85-08, concerning 10 CFR Part 20.408 personnel exposure termination reports and problems concerning the susceptibility of their TLDs (Panasonic 802) to indicate erroneous exposure dose data when exposed to hydrogen sulfide gas. The licensee was noted to be in contact with IE personnel on modifications to the format and content of termination reports, especially in the area of reporting radionuclides that were considered undetectable by the licensee but appear on the computerized report. The licensee believes the reporting of less than minimum detectable radionuclides which can amount to 10 or more radionuclides should be reduced to only a select few. In regard to the effect of hydrogen sulfide gas on TLD readout, the licensee had initiated action to have an evaluation made on the effects of airborne chemicals, indigenous to the Waterford-3 site, on TLD response. The licensee's personnel dosimetry program appears to satisfy the commitments contained in Chapter 12 of the FSAR and the requirements of 10 CFR Parts 19 and 20. The licensee's posting program for high radiation areas was also reviewed.

No violations or deviations were identified.

4. Internal Exposure Control and Assessment Program

The NRC inspector reviewed the licensee's internal exposure control and assessment program, including airborne contamination sampling, respiratory protection program and the Radiation Work Permit (RWP) program, for compliance with commitments in the FSAR, and the requirement of 10 CFR Part 20.103.

The NRC inspectors reviewed the components of the licensee's internal exposure control and assessment program, including bioassay program, maximum permissible concentration - exposure hours (MPC-hr) tracking, indirect bioassay program, and the evaluation of internally deposited radionuclides. The licensee's internal exposure assessment program

appears to comply with the recommendations of RGs 8.9 and 8.26 and industry standard ANSI N343-1978. The licensee was noted to have established a contract for the cross check of whole body system calibration sources with an outside laboratory. The NRC inspectors reviewed the licensee's data records, QA manual and operating procedures for the whole body counter (WBC) program. The NRC inspectors noted that the licensee utilized WBC results for evaluation of the respiratory protection program (RPP). This included having WBC performed prior to the initial entry into a radiation controlled area, when personnel contamination limits or predetermined MPC-hrs are exceeded, annually, and upon termination of employment. The NRC inspectors determined that the licensee had made provisions for MPC-hr tracking during a reactor accident and that a contract was in place for vendor analysis of both external dosimetry and indirect bioassay samples.

The NRC inspectors reviewed the implementation of the licensee's program for respiratory protection to determine compliance with 10 CFR 20.103, and adherence to FSAR commitments, RG 8.15, NUREG-0041, and licensee procedures. An LP&L respiratory protection policy statement dated September 15, 1983, issued by the Senior Vice President of Nuclear Operations provides the general guidelines of the program. The program includes some 20 health physics procedures which were examined during the inspection. The procedures address areas such as training, qualification, fit testing, equipment selection, maintenance, and inspection of respiratory protection equipment.

Respiratory protection training has been conducted by the training department as part of General Employee Training level III. Retraining is required annually. Completion of this training, together with certification of medical clearance and the initial quantitative fit testing, qualifies a worker to use respiratory protection equipment. The NRC inspectors reviewed several employee qualification records, records of fit tests, and medical screening acceptance records and found them to be in order.

Respiratory protection equipment is issued by HP technicians at the Radiological Controlled Area (RCA) access point as specified by the RWP's. An issue record is completed at that point on form HP-RP-30. Used respirators are cleaned and inspected by radwaste technicians in a designated area outside of the RCA control point. At the time of the inspection, the licensee was air drying respirators in ambient conditions with a typical drying time reported to be 3 days. The NRC inspectors expressed concern that the current method of drying could place constraints on the number of respirators available during periods of heavy respirator usage. The licensee is awaiting the installation of a forced air dryer that should reduce the drying time.

The licensee's inventory of respiratory protection equipment was reviewed and was found to consist of National Institute of Occupational Safety and Health approved full face respirators, air line respirators, bubble hoods, and self contained breathing apparatus units. Protection factors used were as specified in 20 CFR Part 20, Appendix A. The licensee's program for quality control of new equipment as well as periodic testing, inspection, and inventory was inspected.

The NRC inspectors discussed licensee air sampling and engineering control programs. The licensee is required by 10 CFR 20.103(b)(1) to use engineering controls to the extent practicable to lower airborne concentration of radioactive material. The licensee has purportedly reviewed the possible application of such controls prior to initiating each RWP requiring respiratory protection. During this inspection, it was observed that portable ventilation systems were being used to control airborne levels associated with the steam generator repair work. Periodic grab air samples had been obtained to establish the airborne concentrations both inside the SG's and near the worker preparation areas. Based upon the grab samples, respiratory protection was not deemed necessary for the technicians working in the preparation areas to suit out and unsuit the SG workers. Since the unsuiting of contaminated workers could cause brief spikes in the working airborne concentrations, the NRC inspectors expressed concern that breathing zone lapel samplers had not been utilized in addition to the general area grab samples obtained to better estimate the workers' intakes. Area surveys and personnel frisking did not reveal any elevated contamination levels.

No violations or deviations were noted.

5. Control of Radioactive Materials and Contamination

The NRC inspectors reviewed the licensee's radioactive material (RAM) and contamination control program for compliance with FSAR commitments, and the requirement of the TS and 10 CFR Part 20.

The NRC inspectors reviewed the licensee's facility for applicable radiological posting, observed ongoing work operations (SG plugging/staking) reviewed selected radiological surveys, inspected facilities, conducted independent radiation surveys, observed HP personnel performing radiological surveys, verified current facility contamination levels, and verified applicability of radiological posting external to the power block structures involving the waste solidification building. The NRC inspectors also reviewed operational procedures for RAM control, performance of radiological surveys, instrumentation operation and calibration, instrumentation storage, and maintenance and calibration facilities. The licensee appears to be conducting the RAM and contamination control program in accordance with FSAR commitments and regulatory requirements. The NRC inspectors noted that the number of specific areas identified as being under contamination control have been reduced from the number previously referenced in NRC Inspection Report 50-382/85-14. This was mainly due to the radiological surveying and removal of radiological controls from all turbine building and secondary systems that were involved in the primary to secondary system cross contamination incident reported in Licensee Event Report 85-13. The licensee is currently trending facility contamination control efforts in units of square feet of contaminated area in the facility. As referenced in paragraph 3 of this report, the NRC inspectors discussed with the licensee their procedures and

practices on the use of lapel air samplers and continuous air monitors (CAMS) for work operations where frequent grab air samples would be necessary.

No violations or deviations were identified.

6. RP Facilities and Equipment

The NRC inspectors reviewed the licensee's RP facilities and equipment for compliance with FSAR commitments and suitability for operational RP activities.

The NRC inspectors inspected offsite training facilities, onsite RP facilities including internal and external dosimetry work stations, HP control point for entry and exit from RAB, locker and shower spaces for workers, RP instrument storage and repair facility, respiratory protection equipment decontamination and sanitizing facilities, respiratory protection equipment storage and maintenance area, and inspected emergency equipment lockers and prestaged respiratory protection equipment at the reactor control room. The NRC inspectors reviewed the emergency equipment inventory procedure (EP-3-040) and inventory checklist for the Operational Support Center (OSC). The OSC inventory included high range (telescoping probe) gamma radiation measurement instruments and a supply of potassium iodide with instructions for proper use. The licensee's facilities appeared to be in accordance with those referenced in the FSAR.

No violations or deviations were identified.

7. Exit Interview

The NRC inspectors met with the licensee representatives and the NRC resident inspectors identified in paragraph 1 at the conclusion of the inspection on August 29, 1985. The NRC inspectors summarized the scope and findings of the inspection. The licensee acknowledged the NRC inspector's comments.