APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

NRC Inspection Report: 50-382/86-24 License: NPF-38

Docket: 50-382

Licensee: Louisiana Power & Light Company (LP&L)
N-80
317 Baronne Street
New Orleans, Louisiana 70160

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

Inspection At: Taft, St. Charles Parish, Louisiana (Wat-3 Site)

Inspection Conducted: December 15-19, 1986

Inspector: _____ 1/26/87
H. D. Chaney, Radiation Specialist, Facilities Radiological Protection Section Date

Approved: _____ 1/27/87
B. Murray, Chief, Facilities Radiological Protection Section Date

Inspection Summary

Inspection Conducted December 15-19, 1986 (Report 50-382/86-24)

Areas Inspected: Routine, unannounced inspection of the radiation protection program implementation during a refueling outage.

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

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## DETAILS

1. Persons Contacted

LP&L

R. Barkhurst, Vice President Nuclear (Site Director)
*S. Alleman, Assistant Plant Manager
*N. S. Carns, Plant Manager
*W. T. LaBonte, Radiation Protection Superintendent
*P. V. Prasankumar, Technical Support Superintendent
*T. O. Gray, Operations Quality Assurance Supervisor
*K. Brewster, Licensing Engineer
*D. Landeche, Health Physics (HP) Supervisor
*H. C. Lesan, Engineering Technician Nuclear
P. Kelly, Shift Control Technician (SCT) Radiation Protection
K. Linares, SCT
D. Hoel, HP Supervisor
R. Kenning, Engineering Technician Nuclear
B. Goldman, ALARA Supervisor/Coordinator

Others

*J. G. Luehman, NRC Senior Resident Inspector
*S. T. Clark, HP Consultant, NUMANCO
G. V. Policastro, HP Consultant, IRM

*Denotes those present at the exit interview on December 19, 1986.

The NRC inspector also interviewed several other licensee and contractor personnel.

2. Licensee Action on NRC Inspection and Enforcement Bulletin No. 78-08

(Open) Bulletin (78-08): Radiation Level From Fuel Transfer Tubes - The licensee had identified potential access paths and possible areas of radiation streaming that would pose radiation hazards adjacent to the spent fuel transfer tube that connects the fuel handling building and the reactor refueling cavity within the reactor containment. The licensee posted and isolated these areas prior to the first movement of spent fuel, and conducted detail radiation surveys of all accessible areas during the first two movements of spent fuel (two spent fuel assemblies at a time). The licensee's access controls appear to be adequate. However, a special radiation survey during spent fuel movement indicated that contact dose rates exceeded the Final Safety Analysis dose rate projections by a factor of approximately 3. The licensee is reviewing the survey data for acceptability. This item will remain open pending further licensee action.

3. Advance Planning and Preparations

The NRC inspector reviewed the licensee's preparations for the first refueling outage. The NRC inspector was specifically interested in jobs that involved radiation protection activities such as auxiliary building and reactor containment decontamination, insulation removal, primary side steam generator inspection, secondary side steam generator sludge removal and inspection, reactor coolant pump heat exchanger stud removal, and spent fuel movement. The NRC inspector held discussions with outage coordinators and HP personnel implementing the ALARA program. The NRC inspector attended licensee meetings for scheduling and planning of work activities. All departments were well represented at these twice daily meetings. Licensee planning activities for this refueling outage were also discussed in NRC Inspection Report 50-382/86-18. The NRC inspector held discussions with the NRC resident inspectors and the ALARA coordinator concerning significant errors being found by the NRC resident inspectors in Radiation Work Permits (RWPs) issued for specific jobs and general access. These concerns were verified by the NRC inspector and will be addressed by the NRC Resident Inspectors in a separate inspection report. The licensee had apparently taken action to correct errors on specific RWPs and review all other RWPs for similar problems.

No violations or deviations were identified.

4. Staffing, Qualifications, and Training

The licensee's staffing, qualifications, and training programs were inspected for compliance with the requirements of Technical Specifications (TS) 6.3 and 6.4, and the recommendations of industry standard ANSI N18.1-1971.

The NRC inspector discussed with the licensee the current status of staffing for the support of the Radiation Protection Program and the hiring of a permanent Radiation Protection Superintendent (RPS). The aforementioned items were previously discussed in NRC Inspection Report 50-382/86-18. The NRC inspector reviewed the qualifications of two contracted HP consultants that were hired temporarily to support the RPS and the Radiation Protection Group. The NRC inspector also reviewed the qualifications and experience of the new RPS hired by LP&L. The NRC inspector determined that the new RPS satisfied the qualification criteria in TS 6.3.1.a.

The NRC inspector held discussions with HP technicians covering radiological work operations and observed their work practices. All technicians appeared to be qualified for their functional assignments.

No violations or deviations were identified.

5. ALARA

The NRC inspector inspected the licensee's ALARA program to determine agreement with the recommendation of NRC RGs 8.8 and 8.10 and adherence to Wat-3 procedures and directives.

The licensee had established radiation exposure goals for the refueling outage that involved reactor coolant pump work, steam generator inspection and repair, refueling, and others. At the time of this inspection the licensee's person-rem tracking system had shown that the goal for primary side steam generator work would exceed the goal of 66 person-rem. Exceeding this goal was attributed to problems with leaking hot leg dams and replugging of previously plugged tubes. The NRC inspector reviewed specially designed shielding packages for the RCP heat exchanger work, RCP seal water injection filters, and reactor head surfaces. The NRC inspector also reviewed the results of flushing operations on two radioactive pipes which involved reduction of hot spots from approximately 200 R/hr to less than 1 R/hr on contact with the pipes. The licensee's use of filtered ventilation in work areas was reviewed and found to reduce the levels of airborne radioactivity in several work areas.

6. External Radiation Exposure Control

The licensee's external radiation exposure control program was inspected to determine agreement with the commitments contained in Section 12 of the Final Safety Analysis Report; the requirements of TS 6.11 and 6.12; 10 CFR Parts 19.12, 19.13, 20.101, 20.102, 20.104, 20.105, 20.202, 20.203, 20.205, 20.206, 20.405, 20.407, 20.408, and 20.409; and the recommendations of NRC IE Information Notices 86-22, 86-24, and 86-44, NRC RGs 8.2, 8.4, 8.7, 8.8, 8.13, 8.14, and 8.28, and industry standards ANSI N13.11-1983, N13.5-1972, and N13.27-1981.

The NRC inspector reviewed personnel radiation exposure records that included radiation exposure history, quarterly radiation exposure records, authorizations to exceed administrative exposure limits, whole body counting analysis results, dosimetry discrepancy reports, skin contamination exposure analysis results, records of quality control reviews, letters from previous employers verifying personnel exposure status, and exposure termination reports.

The NRC inspector also reviewed surveys of radiation and high radiation areas, issuance and placement of multiple dosimetry on personnel, extremity dosimetry, access control over high and very high radiation areas, shielding placement and removal controls, use of self-alarming dosimeters, dose tracking and stay time controls for high dose rate work, and discussed with licensee representatives the results of their evaluation involving protection factors afforded personnel by protective clothing when exposed to beta radiation. The NRC inspector also verified the

exposure controls for very high radiation areas were adequate. The NRC inspector discussed with the licensee the methods used to monitor protective clothing for hot particles of radioactivity. The licensee stated that the contracted laundry performs the initial radiological surveys of processed laundry and the licensee performs cursory surveys of ready-to-issue protective clothing.

No violations or deviations were identified.

7. Internal Radiation Exposure Controls

The licensee's program for control of internal exposure was inspected to determine compliance with the requirements of 10 CFR Part 20.103 and the recommendations of RG 8.15 and NUREG-0041.

The NRC inspector reviewed respiratory protection equipment maintenance, cleaning, decontamination, inspection, issuance, and return activities. The licensee's use of continuous air monitors and grab air samplers was reviewed. The licensee's use of administrative limits for controlling personnel exposure to airborne radioactive materials, methods for collecting and analyzing air samples, tracking personnel exposures, and use of filtered exhaust ventilation systems were also reviewed. The NRC inspector noted that the licensee frequently utilized lapel breathing zone air samplers for evaluation of airborne exposures. The NRC inspector also reviewed whole body counting results for personnel suspected of having incurred an uptake of radioactivity.

No violations or deviations were identified.

8. Posting, Labeling, and Worker Controls

The licensee's program for control of workers, radiological posting of areas, and the labeling of radioactive materials (RAM) was inspected for compliance with the requirements of TS 6.11, 10 CFR Parts 19.12, 20.203, 20.205, 20.207, and 20.301. The NRC inspector also reviewed the licensee's actions taken in regard to NRC IE Bulletin 78-08.

The NRC inspector reviewed the licensee's posting of RAM, radiation, high radiation, airborne radioactivity, and low dose rate areas. The NRC inspector reviewed material release logs, control point logs and verified that control point technicians had ready access to RWPs. Selected RWPs were reviewed and work activities observed for compliance. The NRC inspector observed and performed confirmatory measurements during the special surveys of the spent fuel transfer tube during initial spent fuel transfers. See paragraph 2 for details.

No violations or deviations were identified.

9. Control of RAM, Contamination, and Radiological Monitoring

The licensee's programs for the control and survey/monitoring of RAM were reviewed for compliance with the requirements of TS 6.11 and 6.12, 10 CFR Parts 19.12, 20.4, 20.5, 20.201, 20.203, 20.205, 20.207, 20.301, 20.401, and 20.402.

The NRC inspector reviewed the licensee's radiological survey program involving prework/RWP review, ongoing work activities, storage areas, change rooms, lunch and meeting rooms, contractor service facilities, radiological control points, and material being released from radiologically controlled areas. The NRC inspector also reviewed the control exercised over RAM transferred to onsite vendor/contractor facilities for testing, decontamination or maintenance. Temporary work areas and control points established inside reactor containment and auxiliary building were inspected. The NRC inspector inspected radiological work controls and operations involving reactor vessel head, reactor coolant pumps, equipment decontamination, steam generator (primary and secondary side) inspection and repair, and inspection and maintenance of the steam supply system. Confirmatory measurements were performed on selected areas and components of both the reactor coolant system and steam supply system. The NRC inspector's survey results agreed with documented surveys performed by the licensee. The licensee's radiological controls for work operations appear to effectively control personnel exposure to RAM and control material removed from the systems.

No violations or deviations were identified.

10. Exit Interview

The NRC inspector met with the NRC resident inspector and licensee's representatives identified in paragraph 1 of this report at the conclusion of the inspection on December 19, 1986. The NRC inspector summarized the scope and the results of the inspection.