

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-382/87-26

Operating License: NPF-38

Docket: 50-382

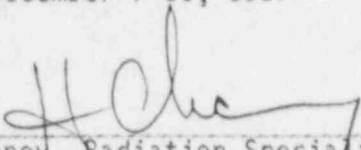
Licensee: Louisiana Power & Light Company
317 Baronne Street
New Orleans, Louisiana 70160

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

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

Inspection Conducted: December 7-11, 1987

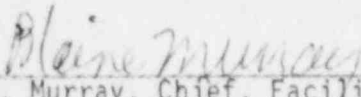
Inspector:



H. D. Chaney, Radiation Specialist
Facilities Radiological Protection Section

1/28/88
Date

Approved:



B. Murray, Chief, Facilities Radiological
Protection Section

1/28/88
Date

Inspection Summary

Inspection Conducted December 7-11, 1987 (Report 50-382/87-26)

Areas Inspected: Routine, unannounced inspection of the Radiation Protection Program.

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

DETAILS1. Persons ContactedLicensee

- R. Barkhurst, Vice President Nuclear
- *N. Carns, Plant Manager
- *C. Toth, Training Manager
- *S. Alleman, Staff Assistant
- D. Boan, Health Physics (HP) Supervisor
- D. Briggs, HP Shift Control Technician
- E. Brumfield, Security Systems Coordinator
- L. Duzat, HP Shift Control Technician
- *T. Gray, Operations Quality Assurance (QA) Supervisor
- G. Hood, Senior HP Technician
- A. Jacobs, Instrument and Controls (I&C) Supervisor
- P. Kelley, HP Supervisor
- *R. Kenning, Nuclear Operations and Support Assessment Engineer
- *W. LaBonte, Radiation Protection Superintendent (RPS)
- D. Landeche, HP Supervisor
- J. Messina, QA Auditor
- L. Meyers, Operations Superintendent
- T. Moore, Electrical Maintenance Supervisor
- *B. Morrison, Licensing Engineer
- *J. O'Hern, Technical Support Training Superintendent
- *P. Prasankumar, Assistant Plant Manager, Technical Services
- *J. Ridgel, Assistant Radiation Protection Superintendent
- D. Stevens, Radioactive Waste Supervisor
- B. Thigpen, Mechanical Maintenance Superintendent
- D. Walls, Mechanical Maintenance Supervisor
- *G. Wuller, Operational Licensing Supervisor

Others

- *W. Smith, Senior NRC Resident Inspector
- W. Watson, IMPELL Corporation, Consultant

*Denotes attendance at the exit interview.

The NRC inspector also contacted other licensee personnel including administrative and training.

2. Followup on Previous Inspection Findings (92701)

(Closed) Open Item 382/8708-02: HP Staff Position Descriptions - This item was identified in NRC Inspection Report 50-382/87-08 and involved the lack of accurate position descriptions for the health physics staff. The

licensee had established comprehensive and accurate position descriptions for all staff positions within the Health Physics Department.

(Closed) Open Item 382/8708-03: Hot Particle and Skin Dose Assessment Program - This item was identified in NRC Inspection Report 50-382/87-08 and involved concerns with the licensee's hot particle control and dose assessment program. The licensee had issued changes to Procedures HP-2-101, "Dosimetry Problem Report", and HP-2-704, "Personnel Decontamination" that provided resolution to the concerns identified in NRC Inspection Report 50-382/87-08.

(Closed) Unresolved Item 382/8715-06: Contaminated Clothing Offsite - This item was discussed in LER 382/87-003 and NRC Inspection Reports 50-382/87-08 and 50-382/87-15. This matter involved problems identified by the licensee. The NRC inspector reviewed the licensee's actions and determined that the requirements of 10 CFR Part 2, Appendix C were satisfied regarding self identified violations.

(Open) Open Item 382/8715-01: Radiation Monitoring System - This item was identified in NRC Inspection Report 50-382/87-15 and involved the reliability of the licensee's area radiation and process monitoring system (RMS). The licensee had submitted a written response to the NRC outlining short term and long term corrective actions to improve the performance of the RMS. The NRC inspector reviewed the licensee's actions and determined that the licensee was pursuing the problem appropriately and in an expedient manner. This item will remain open pending further review by the NRC inspector

3. Inspector Observations

The following is an observation the NRC inspector discussed with the licensee during the exit interview on December '1, 1987. Observations are not violations, deviations, unresolved items, or open items. Observations are identified for licensee consideration for program improvement, but the observations have no specific regulatory requirements. The licensee stated that this observation would be evaluated.

Radiation Worker Training - The licensee's radiation protection program and radiation workers could benefit from the development of an advanced radiation worker practical factors training course, that would emphasize the proper work practices for controlling contamination and radiation exposure. This observation is discussed in paragraph 6 of this report.

4. Organization and Management Controls (83522/83722)

The NRC inspector reviewed the licensee's organization, staffing, program for identification and correction of program weaknesses, audits and appraisals, communication to employees, and program documentation and implementation to determine adherence to commitments in Chapters 12

and 13 of the Updated Final Safety Analysis Report (USAR); and the requirements of Section 6.0 of Technical Specifications (TS).

The NRC inspector verified that the organization structure of the Radiation Protection Group was as defined in the USAR and TS. The NRC inspector reviewed the licensee's staff assignments and the recent reorganization of the plant staff. The NRC inspector verified that the RPS (same as the Radiation Protection Manager referenced in NRC Regulatory Guide 1.8) has direct access to the Plant Manager for resolution of radiological control matters.

The NRC inspector reviewed the licensee's progress in resolving the concerns identified in NRC Inspection Report 50-382/86-18 concerning: (a) the high personnel turnover rate in the Radiation Protection Group and (b) the lack of qualified personnel for management and technical support of the Radiation Protection Group. The NRC inspector noted that the licensee had restaffed and reorganized the Radiation Protection Group supervisory and technical support staff. The licensee has also experienced a much lower turnover rate within the Radiation Protection Group than in past years. Radiation protection staff functional assignments provides a suitable degree of technical expertise within each working section.

The licensee's staff appears to be adequate overall but marginal in the HP technician area. The shortage of HP technicians has resulted in the licensee depending on short-term contract personnel assistance for routine non-outage work. The licensee stated that the reliance on contract HP technicians is necessary so as not to disrupt ongoing radiation protection program improvements being carried out by inhouse staff.

The NRC inspector reviewed the licensee's audits of the radiation protection program implementation. The NRC inspector reviewed selected RP program policies, implementing procedures, and audit reports. Documents reviewed are listed in Attachment 1 to this report.

No violations or deviations were identified.

5. Training and Qualifications (83523/83723)

The NRC inspector reviewed the licensee's training and qualification programs for the RP staff (including contractor HPs), general employees, and radiation workers. The training and qualification program review included verification of education and experience, adequacy and quality of training, employee knowledge, qualification requirements, new employees, Institute of Nuclear Power Operations (INPO) training program accreditation, and audits and appraisals to determine adherence to commitments in Chapter 12 and 13 of the USAR, and the requirements of Section 6.0 of the TS.

The licensee had received INPO accreditation for ten areas including health physics staff training in March of 1987. The NRC inspector noted that the INPO accreditation did not cover the following areas:

- . Specialized Dosimetry Technician Position
- . Radioactive Waste Workers
- . Contractor Health Physics Technician

The NRC inspector reviewed the education and experience backgrounds of the current RP staff members and determined that all members met the guidance in ANSI N18.1-1971 and NRC Regulatory Guide 1.8 as required by TS 6.3. The experience and qualifications of the Training Department staff responsible for general employee, radiation worker (including respiratory protection training), and health physics technician training were reviewed. Observations of ongoing training activities were observed for adequacy of facilities, instruction material, presentation and employee feedback. The NRC inspector discussed with the instructor providing respiratory protection training the apparent distraction caused by transient personnel talking loudly in the hall way outside of the classroom.

The NRC inspector determined, by observations and interviews with licensee personnel, that there was a need for the licensee to provide enhanced hands-on contamination control and radiation exposure reduction practical factor training for radiation workers during their annual requalification training. The licensee agreed to evaluate the NRC inspector's observation for program improvement. The NRC inspector reviewed training program implementing procedures, lesson plans, individual training records, and course testing materials. Training documents reviewed are listed in Attachment 1 to this report.

The NRC inspector conducted a detailed review of the licensee's program concerning the selection, screening, training, and qualification of contract HP technicians.

The licensee's contractor HP technician training and qualification program is set forth in Wat-3 Health Physics Department Administrative procedure HP-1-217, "Health Physics Qualification," and NTC-230, "Health Physics Contract Technician Training." Contract HP technician training lesson plans and course tests were reviewed for adequacy. Training records and on-the-job-training sign-off sheets were also reviewed for the most recently hired contract HP technicians. The licensee's contractor HP technician review and qualification program consists of the submitting of each prospective contract employee resume to the licensee for review and evaluation. The review and evaluation is based on each HP supervisor's personal knowledge of the contract HP, or if the previous work history is not known then inquiries are made to previous employers or industry sources. After a contract HP is hired, they are processed through general employee training, security check, drug testing, special indoctrination for contractor technicians, and site specific HP training (including procedure review) and qualification testing. Failure to pass the contract

HP course test usually results in the prospective contract HP technician being denied employment. Remedial training may be required for contract employees who fail the test, but only if replacement personnel are not available in the open job market. The licensee then assigns the contract HP technician to specific work activities they are qualified to perform. Contract technicians without previous work histories at Wat-3 are evaluated (documented on-the-job-training) by inhouse senior HPs prior to being allowed to independently cover jobs. Jobs with significant radiological problems are normally assigned to inhouse senior HP technicians.

No violations or deviations were identified.

7. External Occupational Exposure Control and Personnel Dosimetry (83524)

The NRC inspector reviewed the licensee's program for radioactive hot particle and skin dose assessment. The licensee's program was previously reviewed and discussed in NRC Inspection Report 50-382/87-08, and several problem areas were identified. Since the last inspection of this area, the licensee had revised the hot particle program and skin dose assessment procedures. Changes to licensee procedures have resolved the NRC's concerns referenced in the aforementioned inspection report. The licensee had experienced approximately 18 hot particle incidents in 1987 involving fuel fragments (fuel fleas). The fuel flea problems surfaced during an October 1987 main coolant pump seal repair outage. The licensee's radiological controls prevented a significant spread of fuel fragments. The skin doses from the 18 incidents involved exposures of less than 500 millirem to the skin of the whole body. The licensee's hot particle control program is aimed at identifying (using special swipe survey techniques) and controlling hot particles at the source (using special layered protective clothing, dressing and undressing procedures, and decontamination). The licensee has trained station personnel on the problem and including expected employee work practices.

No violations or deviations were identified.

8. ALARA Program (83528/83728)

The NRC inspector reviewed the licensee's ALARA program including management policies, assignment and responsibilities, procedures and standards, employee indoctrination and instruction, reviews of design and equipment selection, audits and appraisals, program changes, worker awareness and involvement, goals and objectives, and results and effectiveness to determine adherence to USAR Section 12 commitments and the guidance in NRC Regulatory Guides 8.8, 8.10, 8.27, and NUREG-0761.

The NRC inspector reviewed ALARA implementing procedures, training lesson plans, ALARA meeting minutes, ALARA policies, ALARA committee staffing, ALARA suggestion program reports, and ALARA design reviews.

The Licensee has implemented an effective ALARA program, and at the time of this inspection the licensee was within approximately 2000 millirem of meeting their 1987 goal of 175 person-rem. The licensee's exposure expenditure performance when compared to the national average for a single reactor for the last five years is shown in Table 1 of Attachment 2 of this report. The 1986 goal of 50 person-rem was exceeded due to poor work performance and complications in the first refueling outage causing higher than anticipated exposures during the last portion of the year. The licensee had established a goal of 215 person-rem for the first refueling outage, and this was exceeded by approximately 77 person-rem. The person-rem received during the first refueling on selected work operations exceeding 5 person-rem are listed in Table 2 of Attachment 2 of this report.

No violations or deviation were identified.

9. Exit Interview

The NRC inspector met with the licensee representatives denoted in paragraph 1 at the conclusion of the inspection on December 11, 1987. The NRC inspector summarized the scope of the inspection and discussed the inspection findings and inspector observations.

ATTACHMENT 1

NRC INSPECTION REPORT
50-382/87-26

DOCUMENTS REVIEWED

<u>TITLE</u>	<u>REVISION</u>
<u>Quality Assurance Documents</u>	
Audits:	
SA-86-018A.1, ALARA Program	
SA-87-022.1, Radiological Environmental Monitoring Program	
SA-87-023.1, Offsite Dose Calculation Manual	
SA-87-018B.1, External and Internal Dosimetry Program	
SA-87-018E.1, Radioactive Material and Contamination Control	
SA-87-003D.1, Health Physics Group Training and Qualifications	
SA-87-018F.1, Protective Clothing and Respiratory Protection Equipment Use Program	
Surveillances:	
QS 87-014, Radwaste Compactor Operations	
QS 87-050, Primary Access Point Operations	
QS 87-058, Waste Gas Sampling and Analysis	
QS 87-064, Nuclear Operators Radiological Work Practices	
QS 87-094, Selection and Qualifications of Health Physics Staff	
QS 87-095, Health Physics Staff Training Records	
QS 87-097, Radiation Work Permit Use During Outage	
QS 87-108, Dosimetry Issuance and Control	
QS 87-111, Radiation Work Permit Management	
QS 87-114, Radiological Controlled Area Entry and Exit Practices During an Outage	
Quality Assurance Deficiency Notices:	
QN 86-149, RWP Problems	
QN 87-007, RCA Control Point Work Practices	
QN 87-119, 120, and 121, HP Staff Training Program	
QN 87-089 and 090, Respiratory Protection Equipment Maintenance and Worker Medical Records	
<u>Nuclear Operations and Support Assessment Group Documents (NOSA)</u>	
NOSA Organization and Staffing Chart, dated 5/4/87	
Procedures:	
NOSAP-103, Operations Assessment & Information Dissemination	1
NOSAP-104, Assessments and Surveillances	2

<u>TITLE</u>	<u>REVISION</u>
NOSAP-106, Radiation Control Group Organization & Responsibilities	00
NOSAP-107, Radiological Control Group Radiological Environmental Monitoring Program	00
NOSAP-108, Radiation Control Group REMP Evaluations and Reports	00

Nuclear Operations Training Department Documents

Organization and Staffing Chart, dated 11/11/86

Procedures:

NTP-006, Control and Administration of Exams	00
NTP-011, Training Program Evaluation	00
NTP-020, Training Waiver Request	00
NTP-201, General Employee Training	00
NTP-204, Instructor Training	02
NTP-206, Health Physics Technician Training	00
NTP-208, Technical Staff & Managers Training	01

Training Course Descriptions:

NTC-201, General Employee Introductory Training	00
NTC-202, General Employee Radiation Worker Training	00
NTC-203, General Employee Respiratory Protection Training	00
NTC-204, General Employee Radiation Worker Requalification Training	00
NTC-205, General Employee Requalification Training	00
NTC-206, General Employee Respiratory Protection REqualification Training	00
NTC-217, Emergency Plan Continuing Training	00
NTC-220, Technical Staff & Managers Training	00
NTC-222, Instructor Training (Initial)	00
NTC-224, Health Physics Administrative Training	00
NTC-225, Health Physics Introductory Training	00
NTC-226, Health Physics Junior Technician Training	00
NTC-227, Health Physics Senior Technician Training	00
NTC-228, Health Physics Specialized Training	00
NTC-229, Health Physics Continuing Training	00
NTC-230, Health Physics Contract Technician Training	00
NTC-231, Health Physics RCA Control Point Monitor Training	00

Lesson Plans:

H100-003-00, Contractor HP Administrative Training
W3G003-000-02, Respiratory Protection Training
G002-018-03, General Employee Radiation Worker Requalification Program
P202-001-00, Study Guide: Area and Process Radiation Monitoring System

TITLE

REVISION

Student Handouts:

- Respiratory Protection
- General Employee Training (GET-1)
- General Employee Training (GET-2, Radiation Worker)

Health Physics Curriculum Committee Meeting Minutes, 10/23/87

Training Records:

- Selected Radiation Protection Staff Personnel - 30
- Current Contract HP Technicians - 4
- Nuclear Training Department GET and HP Technician Instructors - 3
- On-the-job-training Qualification Sheets for Contract HP Technicians - 5

ALARA Program Documents:

- Waterford 3 Steam Electric Station First Refueling Health Physics Outage Report (11/27/86 to 2/7/87)
- ALARA Special Prejob Briefing for "Removing Preconcentrator or Fuel Pool Filters
- Various Hot Spot Identification and Action Reports for 1987 Contamination Buildup and Area Decontamination Tracking Reports

Procedures:

- HP-1-101, ALARA Program Implementation 04
- HP-1-105, ALARA Improvement Report 03
- HP-1-203, Administrative Procedure - ALARA Committee Operation 03
- HP-1-110, Radiation Work Permits 07
- HP-1-114, Installation of Temporary Lead Shielding 01
- HP-1-204, ALARA Cost-Benefit Evaluation 03

Health Physics Group Documents and Procedures (HP)

- Memorandum (W3E87-0312), "Monthly Task Report on RMS", dated 10/22/87
- Technical Services and Radiation Protection Group Organization and Staffing Chart, dated 5/4/87
- Personnel Records for Health Physics Group Personnel - 27 Individuals
- Position Descriptions for Radiation Protection Staff Functional Assignments - 21 Positions (HP and Radwaste), dated August 1987

Procedures:

- Unt-01-002, Procedure Classification, Numbering and Format 10

<u>TITLE</u>	<u>REVISION</u>
Unt-01-003, PDM Procedure Development, Review, and Approval; Change and Revision; and Deletion	10
Unt-01-004, Plant Operations Review Committee	07
Unt-001-001, Plant Organization	02
Unt-003-001, Design Control	03
Unt-06-012, Event Notification and Reporting	04
Unt-07-007, Conduct of Flushes and Layup	00
HP-01-112, Radiological Infraction Reporting	04
HP-01-113, Control of Radiography Operations	03
HP-01-217, Health Physics Qualification	02
HP-01-102, Radiological Respiratory Protection	03
HP-01-215, NRC Radiological Reporting Requirements	02

ATTACHMENT 2

NRC Inspection Report 50-382/87-26

WATERFORD 3 STEAM ELECTRIC STATION
 COMPARISON WITH NATIONAL SINGLE
 REACTOR RADIATION EXPOSURE PERFORMANCE
 AND
 FIRST REFUELING WORK OPERATIONS WITH RADIATION EXPOSURE
 EXPENDITURES GREATER THAN 5 PERSON-REM

TABLE 1

Comparison of Waterford -3's Annual Person-REM Expenditure to
 National Single Reactor Performance

<u>YEAR</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
PWR AVERAGE:	592	556	427	392	UNK
Waterford-3's	000	0.9	0.33	223	*175

*This represents Waterford-3's goal for 1987 and as of December 11, 1987 approximately 173 person-REM had been expended.

TABLE 2

Work Operations That
Exceeded 5 PERSON-REM During 1986-87

<u>Job Description</u>	<u>PERSON-REM</u>
Steam Generator 1	
Install/Remove Nozzle Dams	27.342
Eddy Current Testing	<u>6.651</u>
Total Job:	37.203
Steam Generator 2	
Install/Removed Nozzle Dams	19.087
Eddy Current Testing	<u>6.747</u>
Total Job:	31.010
Refueling	
Reactor Head Disassembly/Remove and Replace	5.000
Refueling Cavity Decontamination	6.702
Reactor Head Studs Detension/Retensioning	<u>7.217</u>
Total Job:	26.201
Reactor Coolant Pumps (4 Pumps)	
Stage/Setup/Remove Equipment	5.050
Raise and Lower Heat Exchanger	7.130
Stud Removal (64)	<u>34.329</u>
Total Job:	74.636
Health Physics Job Coverage	25.644
General Valve Maintenance	12.927
Scaffolding Installation/Removal	9.133
Decontamination and Radioactive Waste Operations	21.060
Inservice Inspection	10.943
General Preventive Maintenance	20.298
ALARA Person-REM Goal for First Cycle Refueling Outage:	215.000
Total First Cycle Refueling Outage Person-REM Expenditure:	298.274