

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-382/89-14

License: NPF-38

Docket: 50-382

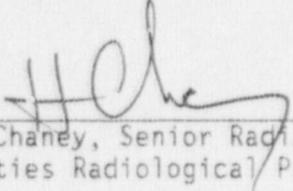
Licensee: Louisiana Power & Light Company (LP&L)
317 Baronne Street
New Orleans, Louisiana 70160

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

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

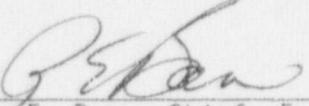
Inspection Conducted: May 22-26, 1989

Inspector:


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

6/22/89
Date

Approved:


R. E. Baer, Chief, Facilities Radiological
Protection Section

7/3/89
Date

Inspection Summary

Inspection Conducted May 22-26, 1989 (Report 50-89-14)

Areas Inspected: Routine, unannounced inspection of radioactive waste (radwaste) management and effluent control programs, and review of special and semiannual effluent reports.

Results: No violations or deviations were identified. The NRC inspector found the managers and staff personnel implementing the radwaste and effluents control programs to be highly motivated, highly qualified, and implementing the radiological effluents control and radwaste programs in a quality manner. Implementing procedures and training programs for radwaste personnel and countroom personnel are considered above average and well implemented. The licensee's technical reviews (root cause analysis and safety analysis) of incidents involving effluent controls (unplanned releases) are of high quality.

DETAILS1. Persons ContactedLicensee

- *J. McGaha, Plant Manager
- *D. Baker, Nuclear Operations Support and Assessment Manager
- *D. Boan, Health Physics (HP) Supervisor
- *F. Davis, Associate Engineer Radwaste Section
- *G. Davis, Event Analysis Manager
- C. Gamache, System Engineer, Gaseous Radwaste System
- A. Jacobs, Instrument and Controls Supervisor
- B. Kennedy, System Engineer, Ventilation System
- *G. Koehler, Quality Assurance (QA) Supervisor of Auditing
- *W. LaBonte, RP Superintendent
- *M. Langan, Technical Support Training Supervisor
- D. Landeche, HP Supervisor
- *L. Laughlin, Site Licensing Supervisor
- *T. Leonard, Maintenance Supervisor
- *H. Lesan, Radiological Engineer
- M. Marler, HP Trainer
- R. McLendon, Dosimetry Supervisor
- R. Norville, System Engineer, Instrument and Controls/Digital Radiation Monitoring System (RMS)
- *D. Packer, Assistant Plant Manager, Operations and Maintenance
- *R. Prados, Senior Licensing Specialist
- *P. Prasankumar, Assistant Plant Manager, Plant Technical Services
- *S. Ramzy, Assistant RP Superintendent
- *J. Ridgel, Assistant RP Superintendent
- A. Roberts, Auditor, QA
- *L. Simon, Radwaste Section Engineer
- J. Zabritski, Acting Nuclear QA Manager

Others

- *W. Smith, Senior NRC Resident Inspector
- T. Staker, NRC Resident Inspector
- D. Wiggington, Wat-3 Project Manager, NRC Office of Nuclear Reactor Regulation (NRR), Division of Reactor Projects IV

*Denotes attendance at the exit interview held on May 26, 1989.

The NRC inspector also contacted other licensee personnel including administrative, HP, radwaste, training, and QA personnel.

2. Open Items Identified During This Inspection

An open item is a matter that requires further review and evaluation by the NRC inspector. Open items are used to document, track, and ensure

adequate followup on matters of concern to the NRC inspector. The following open items were identified:

<u>Open Item</u>	<u>Title</u>	<u>See Paragraph</u>
382/8914-01	NRC/NRR Review of DC-3000 10 CFR Part 50.59 Evaluation	3.b
382/8914-02	NRC Review of LER 89-011	3.f

3. Radioactive Waste Systems (84750)

a. Audits and Appraisals

The NRC inspector examined selected audits, surveillances, and assessments of the licensee's radwaste systems, effluent control program and Offsite Dose Calculation Manual (ODCM). The following 1988 and 1989 audits and surveillances were examined:

Audits:

- *SA-88-018D.1, "Instrument, Process and Area Monitors"
- *SA-88-003D.1, "Health Physics and Radwaste Training/Qualifications"
- SA-89-022.1, "Radiological Environmental Monitoring and Offsite Dose Calculation Manual"
- SA-89-024.1, "Radwaste Processing, Packaging, and Shipping"

Surveillances:

- *QS-88-099, "Radwaste and Decontamination"
- *QS-88-014, "Primary Calibration of RM-PRM-IRE-0648"
- *QS-88-084, "Off-Normal Condition Monitor Alarms"
- *QS-88-086, "Operation of Technical Specification [TS] RP Monitors"

*Denotes audits and surveillances reviewed by the inspector during NRC Inspection 50-382/88-32.

The licensee's audits and surveillances were found to be comprehensive and effective. The NRC inspector discussed with QA representatives the noticeable lack of surveillances of RP activities during 1989. The QA representatives indicated that audits were being given priority over surveillances, and that during the upcoming refueling outage, performance based surveillances would be implemented. Only minor procedural violations were identified, for the most part, in audits with expedient response and effective resolution being provided by the HP Group. The HP Group was noted to routinely utilize the licensee's QA deficiency reporting program to self-identify RP

program problems. Audits and surveillances are also backed up by performance based assessment of all radiological activities. These assessments are conducted by the Nuclear Operations Support and Assessment Group.

The licensee's QA program appears to be well integrated into radwaste activities.

No violations or deviations were identified.

b. Changes

The licensee informed the NRC inspector of the loss of six HP technicians (HPTs) since October 1988. This is approximately a 25 percent reduction in HPTs. Losses have been attributed to several factors. Chief among them is that qualified senior HPTs are in great demand and contract HPT vendors are offering salaries and per diem significantly above licensee salary levels. It was noted that Wat-3 management has initiated short and long term corrective actions to supplement the current HP staff and accommodate future losses of technicians. The licensee plans to increase the career improvement opportunities of selected Wat-3 worker groups to enable them to enter a HPT training and qualification program. Currently, the licensee's HPT staff is 3 permanent positions below the staffing level of 28. The NRC inspector noted that the licensee's expedient attention to this matter should prevent a recurrence of previous NRC identified (NRC Inspection Report 50-382/86-18) HP Group staffing problems.

The NRC inspector discussed with licensee system engineers modifications that had been made to radwaste systems recently. The licensee had completed station modifications (SM) involving the Containment Purge System, specifically valve line-ups (SM 1322). The licensee had also completed evaluations for the removal of the liquid radwaste evaporator from service due to its low efficiency in processing liquids. Detailed reviews and safety evaluations have been performed regarding the use of a vendor leased filtration and demineralization system for processing liquid wastes (Updated Final Safety Analysis Report (UFSAR), Section 11.5.2.1).

The NRC inspector examined several Gaseous Waste Management System (GWMS) design changes (DCs) and station alteration (SA) packages that have been initiated and completed by the licensee since 1986. DC 3026, "GWMS Safety Class Reclassification (Phase I), and Waste Gas Compressor Replacement and System Modification (Phase II)," Revision 1, dated January 17, 1989, involved the installation of additional waste gas compressor isolation valves per Temporary Alteration Request 88-025 which has been completed; the replacement of the two waste gas compressors, including the rerouting of certain piping and replacement of certain valves (DC-3000

and 3026, approved for refueling cycle 3 outage); and the replacement of all GWMS carbon steel piping with stainless steel type (SM 1511, approved but deferred). The NRC inspector noted that the licensee had performed detailed safety evaluations and accident analyses (10 CFR Part 50.59) for the above noted modifications to ensure that the accident analysis contained in Section 15.7.3 of the UFSAR was still applicable. The licensee was noted to have performed an adequate ALARA review of the proposed modifications. DC-3026 also reclassifies the Safety Class 3 portions of the GWMS to a non-nuclear safety grade system. Due to this reclassification of the GWMS, it is expected that the licensee's safety evaluations and accident analyses for DC-3026 will be reviewed by NRR for accuracy and acceptability. This review of the licensee's safety evaluation of DC-3026 by the NRC will be considered an open item for tracking purposes until the NRR review is completed. (382/8914-01)

The NRC inspector found the licensee's implementing procedures (HP and radwaste groups) for liquid, gaseous, and solid radwaste activities (processing wastes, effluent control and release, sample collection and laboratory analysis, verification of computer programs, ODCM maintenance, quality control over documents generated, task assignments, and control of monitor set points) to be well written, comprehensive in nature, and given an adequate peer and technical review prior to issuance. Procedures reviewed during this inspection are listed in the attachment to this inspection report.

The NRC inspector examined the licensee's evaluation and offsite dose/safety analyses that were made subsequent to their finding and reporting (Licensee Event Report [LER] 89-01) an unmonitored potential gaseous effluent release point from the hot machine shop and radioactive equipment decontamination room on January 6, 1989. The licensee also identified and evaluated ten other potential gaseous effluent release points that were not referenced in the UFSAR and not being monitored. The licensee installed temporary particulate and iodine aerosol samplers in the flow paths of the release points. These release paths involved ventilation flow paths within the reactor auxiliary building (RAB) associated with the diesel generator room, RAB ventilation system, elevator shaft exhaust, ventilation system for purging smoke from switch gear rooms (the Post Accident Sampling System and other radiological work areas are sometimes potential release sources within this room), and containment equipment hatch; fuel handling building heating and ventilation system; and radiological work areas outside of the power block/RAB involving the solid radwaste compaction and liquid waste solidification facilities. The general area of most of these areas had been previously monitored by either continuous beta/gamma particulate monitors or continuous grab samplers, but the representativeness of these samples was questionable. No significant

Levels of airborne radioactivity had been identified previously by routine sampling of these areas. The licensee's continuous samplers (installed since January 1989) have identified very low level radioactivity associated with plant system leakage and its movement by local ventilation air flows.

The sources of this radioactivity were eliminated by resealing of installed isolation barriers (such as floor plugs for access to valve and pipe chase passing through the switch gear room). The licensee's analysis (using the ODCM, NRC RG 1.109, and NUREG-0017) of all potential release points showed these releases to be of an insignificant nature and not warrant the permanent installation of continuous effluent monitors/samplers. The information gathered from this investigation will be utilized by the licensee to update the FSAR and address these potential release points. The NRC inspector discussed the licensee's finding with counterparts in the Division of Radiation Protection and Emergency Preparedness at NRC Headquarters and they agreed with the licensee's findings and conclusion. The NRC resident inspector had closed LER 89-01 in NRC Inspection Report 50-382/89-17.

No violations or deviations were identified.

c. Training and Qualification of Personnel (83523)

The NRC inspector examined the qualifications and licensee-provided training of nine HP department personnel associated with radwaste and effluent control functional assignments. All personnel reviewed met the training and qualification criteria of TS 6.2 and industry standard ANSI N18.1-1971. The licensee's training program for support of the site RP program is essentially the same as that described in NRC Inspection Report 50-382/87-26. The licensee was noted to have developed a comprehensive training/qualification program for personnel assigned to the functional area of Count Room Technician. All RP technicians are currently being phased through the count room technician training during their requalification period. Additional training emphasis has been put on individual performance of manual effluent release calculations due to a significant number of technicians failing testing in this area.

No violations or deviation were identified.

d. Processing and Storage of Radwaste

The licensee's program for processing, control, and onsite storage of solid radwaste was reviewed for agreement with the commitments contained in Section 11 of the UFSAR; and compliance with the requirements of TS 3.11.3 and 4.11.3, and the requirements of 10 CFR Part 20.301, 20.311, 61.55, and 61.56; and the recommendations of NRC Branch Technical Position (BTP) papers on Low Level Radioactive Waste (LLRW) classification and waste form characterization.

The NRC inspector examined the licensee's program for the evaluation of waste streams for primary radioisotope constituents, and use of a liquid or resin solidification process that met the guidance of NRC BTPs and NRC Inspection and Enforcement Information Notice (IEIN) 89-27. The licensee is currently sending all dry active waste (compactable and noncompactable) to an offsite processor of radwaste. The higher radwaste reduction efficiencies being achieved by technological advanced radwaste processors makes it more economical for licensees' to ship unprocessed dry active waste to these processors than operate their own compaction and segregation systems. The licensee is currently exploring the use of high integrity containers and dewatering of resins to meet the guidance contained in IEIN 89-27. The licensee has effectively stopped solidifying liquids and resins due to high boron concentrations in the wastes and its affect on solidification efficacy. The licensee is currently reviewing and revising the Process Control Program. The NRC inspector discussed with radwaste engineers the ongoing modifications to the outside LLRW processing facility and the resultant ALARA benefits to be achieved.

No violations or deviations were identified.

e. Effluents

The licensee's liquid and gaseous radwaste effluent control, processing, and release were examined for agreement with the commitments contained in Section 11 of the UFSAR; and the requirements contained in TS 3.11.1.1, 3.11.1.2, 3.11.1.3, 3.11.1.4, 3.11.2.1, 3.11.2.2, 3.11.2.3, 3.11.2.4, 3.11.2.6, and 3.11.4; and the surveillances required by TS 4.11.1.1.1, 4.11.1.2, 4.11.1.3.1, 4.11.1.3.2, 4.11.1.4, 4.11.2.1.1, 4.11.2.1.2, 4.11.2.1.3, 4.11.2.2, 4.11.2.3, 4.11.2.4.1, 4.11.2.4.2, 4.11.2.6, and 4.11.4.1; and 40 CFR Part 190; and the guidance contained in NRC Regulatory Guide (RG) 4.15.

The NRC inspector reviewed selected licensee liquid and gaseous discharge permits for 1989; reviewed changes made to the ODCM (HP-01-230, Revision 6, Change 01); discussed with operations and HP personnel the processing of discharge permits and the controls applied to ensuring inadvertent discharges are prevented; observed the manual calculation of offsite doses to members of the public due to both a liquid and gaseous radwaste discharge using the ODCM, manual calculation procedures, and comparison with computer generated results. All results were in agreement with ODCM/computer derived results. Licensee liquid and gaseous effluent analysis results obtained during TS Surveillances 4.11.1.1.1 and 4.11.2.1.2 (routine periodic sampling/compositing and prerelease samples) were reviewed and found satisfactory. The licensee's lower limit of detection for selected radioisotopes (tritium, cobalt 60, cesium 137, unknown alpha emitters, strontium 89 and 90, iodine 131, xenon 133 and others) were reviewed for compliance with TS Tables 4.11-1 and 4.11-2 requirements.

The licensee's quarterly and annual liquid and gaseous effluent releases are significantly below TS limits for 1988 and first half of 1989. During 1988, the licensee reported two unplanned gaseous releases. Both of these releases (April 3, 1988, and November 30, 1988) and a third report on the results of a planned release (May 23, 1988), via an abnormal release pathway, were reviewed. Only the November 30, 1988, release (see LER 88-31 and Semiannual Effluent Release Report for July 1 through December 31, 1988) had the potential for exceeding TS requirements. This event and licensee corrective actions will be further reviewed by the NRC inspector during the closeout review of LER 88-31. The NRC inspector reviewed the radioactive release data and determined that no TS limits were exceeded. Interim corrective actions appear to be satisfactory to prevent a recurrence of this specific type of release. The licensee's reporting of the events, technical evaluation, and assessment of root cause were of high quality for all events.

No violations or deviations were identified.

f. Instrumentation

The licensee's process and effluent monitoring instrumentation location and monitoring parameters, alarm set point controls, maintenance program, functional check requirements, and calibration programs were reviewed for agreement with the commitments of Sections 11 and 12 of the UFSAR; and compliance with the requirements of TS 3.3.3.1 and 4.3.3.1 and the ODCM.

The NRC inspector reviewed several licensee Potential Reportable Event (PRE) Reports involving the plant's digital RMS (PRE's 89-58, 89-60, and 89-65). All of these events involved system failures and monitor set points. PRE 89-058 is considered significant enough to warrant describing it in this report. The licensee's digital RMS is a General Atomics/Sorrento Electronics system (described in Sections 11 and 12 of the UFSAR). The licensee monitors and inputs system parameters using two computerized display systems (RM-11's, A and B designated) that share approximately 50 percent of outputs from 87 monitors (process, effluent, area radiation, portable continuous airborne contamination monitors). Each RM-11 is capable of assuming the others responsibilities and can download to each monitor's process control station archived operating data base parameters. On May 5, 1989, the licensee determined that certain monitors controlled by RM-11B were providing erroneous data. All data from RM-11B was suspect, its monitors could not tell what they were or what they were to monitor. The licensee expediently declared the RM-11B out of service and downloaded previously verified data bases for all monitors (87) to both of the RM-11s. As of the date of this inspection, the licensee's engineers were unable to determine the mechanism for the loss of memory in RM-11B. The licensee has taken action to defeat the system processor's ability to accept automatic download of data from the RM-11s and increase the monitoring of system operation until the exact mechanism of the event is determined. The other PREs involved one failure to input proper

alarm set points (PRE 89-060, May 10, 1989) for the Fuel Handling Building (FHB) Ventilation Isolation Monitors (radiation), and a case of the FHB exhaust ventilation monitors (PRM-IRE-5107B) being found without any operating parameters and out of service (PRE 89-065, May 16, 1989). PRE 89-060 was due to personnel error and confusion about which proceduralized data sheets were to be used in setting alarm set-points, and PRE 89-065 was possibly due to system tampering by an unknown person (LER 89-011). The licensee had not closed or completed corrective actions for either of the PREs. The licensee is still evaluating PRE 89-065. Even with the rash of events involving the RMS, the licensee was able to maintain the system on line and not lose the capability to perform plant processing and effluent assessment.

The licensee's investigation into the circumstances surrounding the incident identified in PRE 89-065 will be considered an open item pending NRC review and close out of LER 89-011. (382/8914-02)

No violations or deviations were identified.

g. Air Cleaning Systems

The licensee's programs for surveillance and testing of plant air cleaning systems was examined for agreement with the commitments contained in Section 9 of the UFSAR; and compliance with the requirements of TS 4.6.6.1.b through f, 4.7.6.a through g, 4.7.7.a through f, and 4.9.12.a through f; and agreement with the guidance contained in NRC RGs 1.52 and 1.140, and industry standards ANSI/ASME N509-1975 and N510-1975.

The NRC inspector reviewed licensee performed surveillances for the period 1988 through 1989 involving the Shield Building Ventilation System, Control Room Air Conditioning System, Auxiliary Building Controlled Ventilation Area System, and the FHB Ventilation System, Control Room Emergency Filter Units A and B, Hot Machine Shop and Decontamination Area Ventilation System Filtration Units. All system testing was performed by properly qualified personnel with calibrated equipment. Laboratory tests were conducted in accordance with TS requirements and industry standards. The NRC inspector noted that the system engineers associated with filtered ventilation systems performed periodic system walkdowns using checklists to verify system status. Procedures and surveillances reviewed during the inspection of this area are listed in the attachment to this inspection report. The NRC inspector walked down certain ventilation and exhaust filtration systems within the plant and observed no discrepancies. Cleanliness of the areas was above average with very little debris or litter.

No violations or deviations were identified.

4. Exit Interview

The NRC inspector met with the NRC resident inspector and licensee representatives denoted in paragraph 1 on May 26, 1989, and summarized the scope and findings of the inspection as presented in this report.

ATTACHMENT
To
NRC Inspection Report No.
50-382/89-14

DOCUMENTS REVIEWED

<u>TITLE</u>	<u>REVISION</u>	<u>DATE</u>
<u>RADIOACTIVE WASTE MANAGEMENT PROCEDURES</u>		
RW-001-100, Radioactive Waste Reduction	02	02-18-87
RW-001-200, Record Preparation, Filing, and Storage	01	06-26-87
RW-001-210, Process Control Program	03	05-09-89
RW-002-110, Waste Sample Collection and Handling	04	05-02-89
RW-002-220, Radwaste Filter Disposal	03	05-02-89
RW-002-320, Packaged Radioactive Waste Control and Inventory	06	08-08-88
<u>RADIOLOGICAL EFFLUENT CONTROL PROCEDURES</u>		
<u>Health Physics Group Procedures</u>		
HP-001-169, Compositing Effluent Samples	00	12-06-85
HP-001-170, Sampling of GWMS and Containment Purge for Radioactive Effluents	01	12-15-87
HP-001-171, General Grab Sampling Techniques	02	12-04-87
HP-001-172, Quality Control of the ND Gamma Spectroscopy System	01	09-14-86
HP-001-173, Records Preparation, Collection and Storage	01	06-01-88
HP-001-174, Grab Sampling From PIG Monitors and WRGMs	00	01-26-89
HP-001-175, Routine Filter Replacement on PIG Monitors and WRGMs	00	01-26-89
HP-001-215, NRC Radiological Reporting Requirements	02	08-28-87
HP-001-217, Health Physics Qualifications	03	12-28-87
HP-001-230, Offsite Dose Calculation Manual	06	07-07-87
HP-001-231, Liquid Radioactive Waste Release Permit (Manual)	03	02-14-87
HP-001-232, Gaseous Radioactive Waste Release Permit (Manual)	02	10-30-85
HP-001-233, Liquid Radioactive Waste Release Permit (Computer)	02	08-08-83
HP-001-234, Gaseous Radioactive Waste Release Permit (Computer)	03	06-11-88

TITLE	REVISION	DATE
HP-001-235, Calculation and Adjustment of Radiation Monitoring Setpoints	06	03-27-89
HP-001-236, Control of Radiation Monitoring System Monitor and Channel Items	03	02-06-85
HP-001-237, Operation of the Radiation Monitoring System	02	10-03-86
HP-001-238, Radiological Effluents Sampling Schedule	01	02-09-88
HP-001-239, Quality Assurance Program for Radiological Effluents and Environmental Monitoring	00	07-21-87
HP-001-240, Count Room Tickler File Operation	00	05-17-86
HP-001-242, Health Physics Computer System Control	00	10-04-88
HP-002-474, Calibration of the Gamma Spectroscopy System ND 66/76	02	09-14-86

Training Department Documents

NTC-228, Count Room Technician Training Program	04	06-14-88
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Course Outlines

H060-013-00, Radiation Monitoring System	00	06-17-88
H060-014-00, Effluents	00	06-29-88
H060-012-00, Count Room Equipment Operation	00	06-29-88
H060-015-00, Environmental	00	06-29-88
H060-016-00, Whole Body Counting	00	06-29-89

Plant Engineering Procedures

PE-4-013, Technical Procedure - RAB Normal Ventilation System Exhaust Filter Test	02	04-21-87
PE-4-014, Technical Procedure - Hot Machine Shop and Decontamination Area Ventilation System Exhaust Filter Test	01	04-21-87
PE-4-015, Technical Procedure - ARRS Exhaust Filter Test	01	04-20-87
PE-5-003, Surveillance Procedure - Shield Building Ventilation System	03	05-08-87
PE-5-004, Surveillance Procedure - Control Room Air Conditioning System	04	05-08-87
PE-5-005, Surveillance Procedure - Controlled Ventilation Area System	03	05-08-87
PE-5-006, Surveillance Procedure - Fuel Handling Building Ventilation System	03	04-23-87

OTHER DOCUMENTS

Preventative Maintenance Work Authorization #01030893 dated 01-19-89, for Hot Machine Shop and Decontamination Area ventilation filter testing.

OTHER DOCUMENTS CONT'D

Surveillance Test for testing of Control Room Emergency Train "A and B" HEPA Filters and Charcoal Adsorbers, completed 07-25-88.

Special Report SR-88-007-00, dated July 15, 1988, Subject: Primary Meteorological Tower Instruments Out-of-Service Greater Than Seven Days Due to Lightning Strike.

Special Report SR-88-008-00, dated August 16, 1988, Subject: Plant Stack Effluent Accident Wide Range Gas Monitor Inoperable Due to Worn Sample Pump.

Analysis Report, dated August 10, 1988, Subject: Release of Radioactivity During ILRT Depressurization on May 23, 1988, Serial No. W3H88-0244

Analysis Report, dated August 10, 1988, Subject: Report on Unplanned Release on April 3, 1988, Serial No. W3H88-0245

Analysis Report, dated February 6, 1989, Subject: Dose Calculations for Unplanned Release on November 30, 1988, Serial No. W3H89-0108

Selected Training Records of HP staff personnel.