APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-382/90-25 Operating License: NPF-38

Docket: 50-382

Licensee: Entergy Operations, Inc. (EOI)
P.O. Box B
Killona, Louisiana 70066

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

Inspection At: WAT-3 Site, Killona, St. Charles Parish, Louisiana

Inspection Conducted: December 3-7, 1990

Inspectors: _____ 1/2/91
R. E. Baer, Senior Reactor Health Physicist Date
Radiological Protection and Emergency
Preparedness Section

_____ 1/2/91
for L. Wilborn, Radiation Specialist, Radiological Date
Protection and Emergency Preparedness Section

Approved: _____ 1/4/91
B. Murray, Chief, Radiological Protection and Date
Emergency Preparedness Section

Inspection Summary

Inspection Conducted December 3-7, 1990 (Report 50-382/90-25)

Areas Inspected: Routine, announced inspection of selected portions of the occupational radiation protection program including: external occupational exposures and personal dosimetry; internal exposure control and assessment; control of radioactive materials and contamination, surveys, and monitoring; and facilities and equipment.

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

Two open items regarding vendor qualification for certification of breathing air quality and the testing of portable air filtration systems efficiency were identified (see paragraph 5).

The licensee has maintained a very good personnel dosimetry program which received recognition from the national testing organization. The respiratory protection program was acceptable and included a good quality control program. The emergency response equipment was well maintained, but inventory lists need to be updated.

Radiological surveys were well documented and timely dissemination of survey data was made. Portal monitors did not have low detection limits.

DETAILS

1. PERSONS CONTACTED

EOI

*P. V. Prasankumar, Manager, Technical Services (Acting Plant Manager)
D. F. Boan, Health Physics (HP) Supervisor
*G. M. Davis, Manager, Events Analysis
*G. D. Espenan, Corporate Health Physicist
W. E. Floyd, Quality Assurance (QA) (Acting Supervisor)
*T. Gates, Licensing Representative
*J. Z. Hand, Emergency Planner I
*G. F. Koehler, QA Supervisor
*B. R. Lee, Manager, Radiation Control
R. C. McLendon, Dosimetry Supervisor
*D. F. Packer, Manager, Operations and Maintenance
*S. Ramzy, Assistant HP Superintendent
J. A. Ridgel, HP Superintendent
D. Rothrock, Senior Engineer Licensing
L. R. Simon, Lead Supervisor Radwaste

Others

*S. D. Butler, Resident Inspector, NRC
*W. F. Smith, Senior Resident Inspector, NRC

*Denotes those individuals present during the exit interview on December 7, 1990.

The inspectors also interviewed other licensee and contractor personnel including administrative, health physics, and quality assurance personnel.

2. Licensee Actions on Previously Identified Inspection Findings

(Closed) Open Item (382/9011-01): QC Inspector Training - This item was previously discussed in NRC Inspection Report 50-382/90-11 and involved the lack of training for quality control (QC) inspectors on specific NRC approved transport packages. The licensee had provided the necessary training for both QC inspectors and radwaste inspectors.

3. Open Items Identified During This Inspection

An open item is a matter that requires further review and evaluation by the inspector. Open items are used to document, track, and ensure adequate follow-up on matters of concern to the inspector. The following open items were identified.

Open Item	Title	Paragraph
382/9025-01	Vendor Qualification for Certification of Breathing Air	5
382/9025-02	Testing of Portable Air Filtration Systems Efficiency	5

4. External Occupational Exposure Control and Personal Dosimetry (83750)

The inspectors reviewed the licensee's external occupational exposure control and personal dosimetry programs to determine compliance with Technical Specification (TS) 6.11 and 6.12 and 10 CFR Part 20.202. Included in the review were changes to the dosimetry program; use of dosimetry, selection and placement for nonuniform radiation fields; and required records, reports, and notifications.

The inspectors determined the external radiation exposure measurement and control program consists of whole body monitoring using thermoluminscent dosimeters (TLDs), self-reading dosimeters (SRDs), direct surveys, radiation work permits (RWPs), and administrative dose limits. The licensee processes TLDs on a quarterly schedule, termination and multiple badge packet TLDs are processed monthly. Daily radiation exposures were tracked using the SRD results. The licensee has shown good agreement between TLD and SRD results.

The licensee had received accreditation by the National Voluntary Laboratory Accreditation Program (NVLAP) in all eight test categories. The licensee has maintained a very good TLD processing program. The dosimetry supervisor had been selected as a member of the NVLAP evaluation team.

The licensee's administrative controls and radiation exposure guidelines during an emergency are described in Procedure EP-2-030 and were in agreement with Environmental Protection Agency recommendations. The licensee routinely uses 2000 TLDs each quarter and maintains approximately 6000 TLDs for outages and emergencies.

No violations or deviations were identified.

5. Internal Exposure Control and Assessment (83750)

The inspectors reviewed the licensee's program for control of internal radiation exposure and assessment to determine compliance with the requirements of 10 CFR Parts 20.103, 20.203, 20.401; TS 6.11; and agreement with the recommendations of Regulatory Guide (RG) 8.15, NUREG-0041, Industry Standards ANSI Z88.2-1980, and ANSI/LGA G-7.1-1989.

The inspectors reviewed the licensee's respiratory protection program including policy statements, directives, implementing procedures, and respiratory protection equipment. The inventory of respirators and

training for individuals involved with the maintenance and repair of respirators and associated support equipment was reviewed and found to be adequate. The licensee maintains a sufficient supply of respiratory protective equipment to support plant activities. The licensee had maintained a well documented quality control program for respiratory protection equipment.

The inspectors noted that the vendor used by the licensee to certify that breathing air supplies were of Grade D or better was not on the licensee's qualified supplier list (QSL). ANSI/LGA G-7.1-1989 recommends that breathing air be maintained as Grade D or better. This was discussed with licensee representatives and they stated that the vendor would be added to the QSL. This is considered an open item pending further review by the inspectors (382/9025-01).

The inspectors reviewed the licensee's emergency plan requirements regarding respiratory and radiological equipment. The licensee had developed and implemented Procedure EP-003-040, "Emergency Equipment Inventory," Revision 12, dated February 28, 1990. The inspectors verified by observation that the required emergency kit inventories were properly maintained. The inspectors discussed with licensee representatives that the procedure should be reviewed to ensure that the hospital emergency cabinets were key locked. There was no breakable seal used on these kits. Attachment 7.4, technical support center (TSC) inventory list, states that one ratemeter was located in the cabinet and one ratemeter located at the HP coordinator's desk in the TSC. Both ratemeters were found at the HP coordinator's desk. The inspectors noted that the HP coordinator's desk was a more logical location for both ratemeters since they were ac or battery operated, and the units were plugged into an ac circuit which kept the battery charged. The inspectors discussed that radioactive check sources kept in the cabinets should not be located in close proximity to the TLDs and SRDs used for emergency workers.

The inspectors reviewed the use of engineering controls to reduce the usage of respiratory protective equipment. The licensee uses portable ventilation units which contain high efficiency particulate airborne (HEPA) filters to control the airborne radioactivity in glove boxes, tents/enclosures, and rooms. The inspectors noted that the licensee had not established a formal program for testing the portable HEPA units. The inspectors discussed with licensee representatives the advantage of performing DOP testing on these portable HEPA systems to ensure the filters were correctly installed and operating as designed. The licensee stated they would review their QA program for the HEPA units. This is considered an open item pending further review by the inspectors (382/9025-02).

No violations or deviations were identified.

6. Control of Radioactive Materials and Contamination, Surveys, and Monitoring (83750)

The inspectors reviewed the licensee's program for the control of radioactive materials and contamination, surveys, and monitoring to determine agreement with the commitments contained in Chapters 11.4 and 12 of the Updated Safety Analysis Report; compliance with the requirements of TS 3.7.9, 6.8.1, and 6.11; 10 CFR Parts 19.14, 20.4, 20.5, 20.201, 20.203, 20.207, 20.301, 20.401, 20.402, and 30.51; the recommendations of RGs 7.3 and 8.25; and Industry Standard ANSI N323-1978.

The inspectors observed during tours of the licensee's facilities that the licensee posts the radiological conditions outside each room or area and that these postings were current. Copies of current surveys were posted within 2 hours after the surveys were completed. The RWPs were updated as required if the radiological conditions had changed significantly.

The inspectors noted that the licensee had developed a daily response check program for portable radiation survey instruments. The response source was capable of checking every scale intended to be used on the instrument.

The inspectors also discussed at the exit on December 7, 1990, that it was observed that several process and area monitor control panels had burned-out operate lights. The inspectors noted that on the higher range units, 100 milliroentgen per hour and up, an individual would not know if the unit was operable since the meter was reading at the bottom of the scale.

The inspectors reviewed Potential Reportable Event 90-065 which documents an event which was identified during implementation of a design change to the sink located in the HP count room located on the 4-foot elevation. Since approximately mid-year of 1987, the sink drain piping connected to the sanitary system had been plugged to prevent liquids from leaving the sink. Liquids that might enter the sink drain system would go into the reactor auxiliary building sanitary tank which is pumped to the metal waste pond offsite and then pumped to the river. Prior to the plugging, the sink was posted with a sign stating that it was a nonradioactive drain. During a design change on November 5, 1990, the drain piping was rerouted from the sanitary sewer to a radioactive waste system. While performing the piping change, the sink drain trap was found to contain approximately 700 milliliters (mL) of radioactive water. This liquid was analysed and radioactive cobalt-60 (2.081×10^{-7} microcurie [µCi]/mL) and cesium-137 ($1.556E^{-7}$ µCi/mL) were identified. No other radioisotopes were present. The drain pipe downstream of the trap was surveyed for contamination using smears and swabs. Survey records indicate levels of radioactivity were less than 1000 disintergrations per minute, which are the minimum detectable level for the equipment used. Gamma spectrometer analysis of the smears and swabs did not identify any radionuclides.

The licensee does not know when or how the liquid was introduced into the drain trap. In order to arrive at a dose estimate from the material found in the drain trap, the licensee performed calculations based on two samples of activity for release permits with the highest radioactive concentration in 1990. The licensee's calculations of estimated doses indicated that any dose received would be well below regulatory requirements. The licensee will include this event in the semiannual effluent release report.

No violations or deviations were identified.

7. Facilities and Equipment

The inspectors reviewed the licensee's facilities and equipment for routine and emergency operations including USAR and radiological emergency response plan commitments.

The licensee had not made any changes to its radiation protection equipment since the previous radiation protection program inspection. The inspectors observed that the portal monitors had an alarm setpoint of 1 µCi in accordance with Procedure HP-001-210, "Health Physics Instrument Control," Revision 6, November 30, 1990. The inspectors noted that typical industry portal monitors can usually detect activity in the range of 80 to 200 nanocuries. Subsequent to the inspection, the inspector learned that the licensee had obtained three new portal monitors with greater sensitivity for the primary access building. The licensee was developing operational and calibration procedures for these new monitors. The licensee stated that the new portal monitors will be operational prior to the scheduled March 1991 refueling/maintenance outage.

No violations or deviations were identified.

8. Audits (83750)

The inspectors reviewed licensee audits and surveillances conducted on the occupational radiation protection program. During the period of April 1 through December 1, 1990. The following reports were reviewed:

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SA-90-018A.1, "ALARA Program," April 30 - June 14, 1990.

SA-90-018C.1, "Health Physics Program Instruments, Process and Area Monitors," August 22 - September 27, 1990.

SA-90-018D.1, "Radiological Respiratory Protection and Contamination Control Program," June 14 - August 22, 1990.

Surveillances

QS-90-013, Status of Leakage Containment Devices and the Effectiveness of Their Administrative Controls.

QS-90-017, Emergency Equipment Lockers Located at Ochsner Foundation Hospital and West Jefferson Medical Center.

QS-90-020, Technical Support Center Activities During Annual Emergency Exercise.

QS-90-021, Radiological Field Monitoring Teams 1990 Annual Exercise 90-07.

QS-90-022, Post Accident Sample System Area Radiation Monitor Alarm Setpoint.

The inspectors noted that most audit findings had been resolved in a timely manner, however, Audit QA-90-215 had identified a problem regarding the removal of a funnel and tubing used to collect radioactive liquids leaking from valve fittings after repair work on the leaky valves had been completed. The audit report required an October 24, 1990, response. The inspectors noted that a response was not provided by October 24, 1990, and that a second letter was transmitted on November 30, 1990, with a response due December 31, 1990. The inspectors discussed the timeliness of this response during the exit interview. The licensee stated that they would review the timeliness of audit responses.

The licensee had made several personnel changes in the QA Department. The inspectors noted that the new auditors had experience/technical expertise in those areas they were assigned to audit.

No violations or deviations were identified.

9. Exit Interview (83750)

The inspectors met with the senior resident inspector and licensee representatives identified in paragraph 1 of this report at the conclusion of the inspection on December 7, 1990. The inspectors summarized the scope of the inspection and discussed the inspection findings as presented in this report. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspectors during the inspection.