

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 50-458
License No.: NPF-47
Report No.: 50-458/96-28
Licensee: Entergy Operations, Inc.
Facility: River Bend Station
Location: 5485 U.S. Highway 61
St. Francisville, Louisiana
Dates: October 7-10, 1996
Inspector: L. T. Ricketson, P.E., Senior Radiation Specialist
Plant Support Branch, Division of Reactor Safety
Approved By: Blaine Murray, Chief, Plant Support Branch,
Division of Reactor Safety

ATTACHMENTS:

Attachment 1: Partial List of Persons Contacted
Inspection Procedure Used
Items Closed and Discussed
List of Acronyms Used

Attachment 2: Documents Reviewed

EXECUTIVE SUMMARY

River Bend Station NRC Inspection Report 50-458/96-28

The inspection reviewed portions of the radiation protection program. The inspection focused primarily on audits and appraisals, training and qualifications, and the program to maintain occupational radiation exposures as low as is reasonably achievable (ALARA).

Plant Support

- The radiation protection organization was appropriately staffed with qualified individuals. Staffing was stable and there was little dependence on contractor personnel during routine operations (Section R6).
- A good training program for radiation protection technicians was implemented. Topics were relevant; instructors were qualified and experienced. Technical expertise within the organization was good (Section R5).
- Elements of a good ALARA program were in place, however, for 1994 through 1996, the three-year averages of collective radiation exposures were above the national average (Section R1.1).
- The ALARA committee effectiveness needed improvement (Section R1.1).
- Management oversight of radiation protection activities was very good. The 1996 quality assurance audit was noteworthy because of the team qualifications and because of the thoroughness of the review. The radiation protection organization responded appropriately when tasked with identifying and implementing corrective actions (Section R7).
- Exposure controls were properly implemented (Section R1.2).

Report Details

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 Review of Updated Final Safety Analysis Report Commitments

A recent discovery of a licensee operating their facility in a manner contrary to the Updated Final Safety Analysis Report (UFSAR) description highlighted the need for a special focused review that compares plant practices, procedures, and/or parameters to the UFSAR description. While performing the inspection discussed in this report, the inspector reviewed the applicable portions of the UFSAR that related to the areas inspected. The inspector verified that the UFSAR wording was consistent with the observed plant practices, procedures, and/or parameters.

IV. Plant Support

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 Maintaining Occupational Exposures ALARA

a. Inspection Scope (83750)

The ALARA program was last reviewed during NRC Inspection 50-482/95-20. The purpose of this inspection was, in part, to update information related to the licensee's ALARA program performance. The radiation control superintendent and the radiation control supervisor with responsibility for the ALARA program were interviewed. The following items were reviewed:

- 1995 ALARA Report
- River Bend Station RF-06 ALARA Report
- ALARA Implementing procedures
- Selected post-job reviews
- ALARA Committee meeting minutes
- 1995 and 1996 ALARA suggestion results

b. Observations and Findings

According to meeting minutes, the ALARA Committee met March 19, 1996; April 16, 1996; and June 20, 1996. There was no meeting of the ALARA committee during the third quarter of 1996. Procedure ADM-0039, "ALARA Program," Revision 7, Section 5.6.4 states, "The ALARA Committee meets every quarter, as a minimum" There were no actual safety consequences

associated with this item and it did not suggest a programmatic problem. This failure constitutes a violation of minor significance and is being treated as a Non-Cited Violation, consistent with Section IV of the NRC Enforcement Policy. Condition Report 96-1765 was initiated by the licensee to document and correct the item.

The inspector reviewed the attendance list included with the ALARA Committee meeting minutes and determined there was good support for the ALARA Committee by all site organizations. According to the minutes of the meeting conducted March 19, 1996, the ALARA Committee responsibilities were transferred from management-level personnel to the existing department ALARA representatives. Licensee personnel stated they were attempting to determine the optimum level of management necessary to have an effective ALARA Committee. The meeting minutes also stated that the ALARA Coordinator would evaluate procedures, inform the department representatives [of the results of the evaluation], and instruct the department representatives on their new charter during their next meeting. The next meeting was held April 16, 1996. A review of the minutes for that meeting and the meeting conducted June 20, 1996, did not indicate that the ALARA coordinator completed this assignment.

Procedure ADM-C039, "ALARA Program," Revision 7, Section 4.8, states that the ALARA Committee is responsible for establishing the goals and objectives of the ALARA Program and monitoring progress toward their achievement. The 1996 refueling outage was conducted January 4 through February 13, 1996. Copies of subcommittee meetings minutes indicated that goals were established by subcommittee members and the ALARA coordinator. ALARA Committee meeting minutes prior to the 1996 refueling outage provided no information to demonstrate that the ALARA Committee even reviewed the exposure goals for the 1996 refueling outage.

Licensee documentation listed nine ALARA suggestions for 1995. ALARA suggestions 95-003, "Postings at Entrances to HRA's," and 95-006, "RP Door Checks," were still open. A review of licensee documentation showed that suggestion 95-003 was originally suggestion 94-003. It was re-numbered for "better tracking purposes." According to ALARA Committee meeting minutes, a review of the status of the ALARA suggestions was conducted October 24, 1995. There was no discussion in later minutes concerning a review of the status of ALARA suggestions. The meeting of March 19, 1996 included a discussion of a single ALARA suggestion, and the meeting of April 16, 1996, included a discussion of recent ALARA suggestions, but there appeared to be no emphasis on closing older ALARA suggestions.

The 1996 quality assurance audit identified that the ALARA Committee was slow in reviewing some refueling outage jobs that accrued more than 10 person-rem's each. The inspector reviewed examples of post-job reviews that did not require the ALARA Committee's review and determined that there was a suitable method to

The 1996 quality assurance audit identified that the ALARA Committee was slow in reviewing some refueling outage jobs that accrued more than 10 person-rem each. The inspector reviewed examples of post-job reviews that did not require the ALARA Committee's review and determined that there was a suitable method to record and recall lessons-learned associated with the different work activities. Completed post-job reviews were performed appropriately.

Licensee representatives stated that there had been no "formal" ALARA suggestions submitted in 1996, even though it was a refueling outage year. Typically more opportunities for dose savings are identified during refueling years. When asked about this, licensee representatives stated that even though there were no formally submitted suggestions, ideas and suggestions were passed informally by workers to their respective work group ALARA representatives. Licensee representatives were not able to quantify the number of ALARA suggestions collected through informal means, but stated that it was the informal program that would receive most emphasis.

The licensee's person-rem totals for recent years were as follows:

	1994	1995	1996
Licensee	514	79	395-400*
Licensee 3-year Average	468	258	329-331*
BWR National Average	327	256	not available

*Projected values. The licensee has accrued 382 person-rem at the time of inspection.

The exposure in 1995, a year without a refueling outage, was the lowest since the licensee began commercial operation in 1986.

c. Conclusions

Elements of a good ALARA program were in place, however, for 1994 through 1996, the licensee's three-year average of collective radiation exposures were above the national average.

The inspector concluded the ALARA committee effectiveness needed improvement because ALARA committee meetings were not always held as required, the level of management involvement necessary to conduct ALARA business was undecided, the status of ALARA suggestions was not a priority, post-job reviews for work

accruing more than 10 person-rem were not performed in a timely manner, and the ALARA goals were not established and reviewed by the entire ALARA committee. Licensee representatives acknowledged the inspector's conclusions but made no commitments.

R1.2 Exposure Controls

a. Inspection Scope (83750)

The following items in the radiological controlled area were reviewed:

- Access controls
- Radiological postings
- High radiation area controls
- Control of contaminated areas and equipment
- Instrument response testing
- Radiation worker practices

b. Observations and Findings

No significant problems were observed in this area. The inspector verified that selected postings were correct by performing independent radiation measurements. Area radiation survey results were stationed prominently to inform the workers of radiological conditions. Locked high radiation areas were properly controlled.

c. Conclusions

Exposure controls were properly implemented.

R5 Staff Training and Qualification

a. Inspection Scope (83750)

Radiation protection training instructors and supervisors were interviewed. The following items were reviewed:

- 1995 and 1996 Radiation Protection Technician Continuing Training Syllabus
- Lesson plans and student handout material
- Course attendance lists
- Instructor evaluations
- Course evaluation summaries

b. Observations and Findings

The continuing training included sessions on radiation hazards associated with selected reactor systems (in 1996) and industry events. There was no session to discuss plant modifications as outlined in the procedural guidance found in Section 6.4.4 of Procedure TPP-7-016, "Radiation Protection Personnel Training and Qualification," Revision 6. Training personnel stated that this was because there had been no plant modification in the last two years that affected radiological conditions significantly.

There were three radiation protection technician instructors. All had previous radiation protection experience at nuclear power plants. All met instructor qualification requirements. One instructor was on a rotational assignment from the radiation protection organization. All instructors had their classroom performance evaluated by management during the previous year in accordance with procedural guidance.

Fifteen of the approximately 48 supervisors, specialists, and technicians in the radiation protection organization were registered by the National Registry of Radiation Protection Technologists. Nine of the fifteen were supervisors or professionals. The licensee typically encouraged this form of professional advancement by providing special training to prepare individuals for the examination. Because the responsibility to participate in refueling outages at other Entergy sites conflicted with preparation and testing dates, no radiation protection technicians were tested and registered in 1996. The radiation control superintendent stated that he would attempt to resolve these conflicts through negotiations with the national registry.

Nine people in the radiation protection organization had college degrees; seven of these were technical or scientific degrees. The radiation protection organization had no certified health physicists. There was no corporate support for technical evaluations of radiation protection problems.

c. Conclusions

A good training program for radiation protection technicians was implemented. Qualified instructors presented training of appropriate content. Radiation protection technicians met qualification requirements. Technical expertise within the radiation protection organization was good.

R6 RP&C Organization and Administration

a. Inspection Scope (83750)

The radiation control superintendent was interviewed and a current organization chart was reviewed.

b. Observations and Findings

Some individuals had taken positions in other parts of the company, but overall, there was little turnover in the radiation protection organization. Contractors were not employed as radiation protection technicians or professionals during routine operations.

c. Conclusions

Appropriate staffing for the radiation protection organization maintained. Staffing was stable and there was little dependence on contractor personnel during routine operations.

R7 Quality Assurance in RP&C Activities

a. Inspection Scope (83750)

The following were reviewed:

- Quality Assurance audits of the radiation protection program performance
- Quality Assurance surveillances of radiation protection activities
- Condition reports assigned to the radiation protection organization for disposition

b. Observations and Findings

The 1995 quality assurance audit of the radiation protection program was reviewed and assessed during Inspection 50-458/96-06. The 1996 audit was performed August 19-23, 1996.

The 1996 audit was noteworthy because of the size and experience of the audit team. In addition to three quality assurance specialists, the team included eight technical experts from other nuclear power plants. The audit was comprehensive in scope; area reviews were thorough. The audit identified weaknesses in the radiation protection program but concluded that the program was adequate to control radiation protection activities. Condition reports were initiated to address the audit findings. Because the audit was conducted recently, all actions proposed in response to audit findings were not implemented. Therefore, a conclusion could not be drawn as to the licensee's effectiveness in addressing the findings. However, the inspector noted that responses to the condition reports initiated as a result of the audit were timely.

Quality assurance personnel conducted numerous surveillances of radiation protection activities, primarily during the first and second quarters of 1996 (See attached list of documents reviewed). The activities reviewed were diverse enough to ensure that the surveillances provided useful insights to management on the daily performance of radiation protection personnel and radiation workers.

The inspector reviewed condition reports in order to evaluate the responsiveness of the radiation protection organization and its effectiveness in implementing corrective actions.

All responses by the radiation protection organization were made with the established due dates. Corrective actions for the selected examples reviewed were properly implemented and effectively addressed the identified problems.

The inspector noted that Condition Report 96-0621 was written in March 1996 to identify a potential adverse trend in radiation protection work practices. No subsequent adverse trends were identified. The condition report had not been closed. Licensee representatives stated that corrective actions were implemented; however, the actions were being reviewed for effectiveness before the condition report was closed. The inspector confirmed that selected actions were properly implemented.

c. Conclusions

Oversight of radiation protection activities was very good. The 1996 quality assurance audit was noteworthy because of the team qualifications and experience and because of the thoroughness of the review. Quality assurance surveillances were frequently performed to review daily radiation protection activities when the radiation protection organization was busiest.

The radiation protection organization responded appropriately when tasked with identifying and implementing corrective actions.

R8 Miscellaneous RP&C Issues

R8.1 (Closed) Violation 50-482/9603-02: Entry Into the Radiological Controlled Area Without Proper Dosimetry

The inspector verified the corrective actions described in the licensee's response letter, dated June 20, 1996, were implemented. No similar problems were identified.

R8.2 (Open) Violation 50-482/9606-01: Failure to Follow Procedures

This violation involved failures to follow procedures related to posting an airborne radioactivity area, using a radiation work permit with inadequate controls, surveying of contaminated personnel, and decontaminating personnel without proper radiation protection oversight. The licensee had not completed the implementation of corrective actions described in the licensee's response dated April 5, 1996.

R8.3 (Closed) Violation 50-482/9613-06: Failure to Post and Barricade a High Radiation Area

The inspector verified the corrective actions described in the licensee's response letter, dated September 23, 1996, were implemented. No similar problems were identified.

V. Management Meetings

X1 **Exit Meeting Summary**

The inspectors presented the inspection results to members of licensee management at an exit meeting on October 10, 1996. The licensee acknowledged the findings presented. No proprietary information was identified by the licensee.

ATTACHMENT 1

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Anderson, Radiation Protection Supervisor
E. Ewing, Training Manager
J. Hatcher, Technical Training Supervisor
E. Hensley, Technical Training Instructor
R. King, Nuclear Safety and Regulatory Affairs Director
P. Lefort, Training Support Supervisor
C. Maxson, Licensing Senior Lead Engineer
J. McGaha, Site Vice President
W. Odell, Radiation Control Superintendent
G. Zinke, Quality Assurance Manager

NRC

W. Smith, Senior Resident Inspector
D. Proulx, Resident Inspector

INSPECTION PROCEDURE USED

83750 Occupational Radiation Exposure

ITEMS CLOSED AND DISCUSSED

Closed

50-482/9603-C2	VIO	Entry Into the Radiological Controlled Area Without Proper Dosimetry
50-482/9613-06	VIO	Failure to Post and Barricade a High Radiation Area

Discussed

50-482/9606-01	VIO	Failure to Follow Procedures
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LIST OF ACRONYMS USED

ALARA	As low as is reasonably achievable
BWR	Boiling water reactor
UFSAR	Updated final safety analysis report
RF	Refuel
RP	Radiation protection

ATTACHMENT 2

Documents Reviewed

Quality Assurance Documents

Audit 95-07-I-HPRP, "RBS Radiation Protection Program," July 31-August 11, 1995
Audit 96-08-I-RP, "RBS QA Radiation Protection Evaluation," August 19-23, 1996

Surveillance Report 609010, Radiation Protection Activities Associated with the Cleaning of Spent Fuel Pool Cooling Heat Exchangers (September 25, 1996)
Surveillance Report 604020, Radiation Worker Knowledge Items (April 30, 1996)
Surveillance Report 604007, Clean, Check, Calibrate, and Function Test of Radiation Monitor (April 17, 1996)
Surveillance Report 602012, Followup of Concern Related to 10 CFR 20.1101(c) (February 27, 1996)
Surveillance Report 602011, Radiological Controls in the Hot Tool Room Facility (February 23, 1996)
Surveillance Report 602006, Material Release from Radiological Controlled Area (February 14, 1996)
Surveillance Report 602001, Control and Handling of Radioactive Materials (February 1, 1996)
Surveillance Report 601044, Radiation Protection Activities (January 29, 1996)
Surveillance Report 601037, Radiation Protection Practices (January 24, 1996)
Surveillance Report 601036, Housekeeping (January 24, 1996)
Surveillance Report 601015, Observation of Refuel Floor Activities (January 16, 1996)
Surveillance Report 601010, Radiological Protection Controls (January 12, 1996)
Surveillance Report 512005, Radioactive Material Control and Labeling, and Radiological Posting (December 20, 1995)
Surveillance Report 509015, Posting Inspection of the Radiological Controlled Area (August 23, 1995)
Surveillance Report 508016, SCBA Air Compressor Leak Test (September 25, 1995)

Policies, Procedures, and Instructions

Site Policy No.R-PL-021, "ALARA," Revision 0

RBNP-030, "Initiation and Processing of Condition Reports," Revision 9
ADM-39, "ALARA Program," Revision 7
R-SAD-TQ-005, "Station Training Program," Revision 5
R-DAD-TQ-001, "Training Administration," Revision 1
R-DAD-TQ-002, "Training Analysis," Revision 3
R-DAD-TQ-008, "Training Implementation," Revision 0
R-DAD-TQ-013, "Training Effectiveness Evaluation," Revision 0
TPP-7-016, "Radiation Protection Personnel Training and Qualification," Revision 6

Radiation Protection Department Standing Instruction No. 96-0012, "Radiation Protection Planning Checklist," Revision 2
Radiation Protection Department Job Guide, "Replace Demister - Off-Gas 123"

ALARA Documents

1995 River Bend Station ALARA Report
River Bend Station RF-06 ALARA Report
Post-job Review for Radiation Work Permit 96-0033
Post-job Review for Radiation Work Permit 96-1000
ALARA Committee Minutes for Meeting 95-03 (August 11, 1995)
ALARA Committee Minutes for Meeting 95-04 (October 24, 1995)
ALARA Committee Minutes for Meeting 95-05 (December 12, 1995)
ALARA Committee Minutes for Meeting 96-01 (March 19, 1996)
ALARA Committee Minutes for Meeting 96-02 (April 16, 1996)
ALARA Committee Minutes for Meeting 96-03 (June 20, 1996)
ALARA Department Representative Meeting Minutes 95-02 (July 21, 1995)
ALARA Department Representative Meeting Minutes 95-03 (September 21, 1995)
1995 and 1996 ALARA Suggestions

Training Documents

Radiation protection technician continuing training student handout and lesson plan for "Off-Gas and Feedwater Systems Radiological Hazards"

1996 Radiation Protection Technician Training Program Feedback Summary

Training Review Group Minutes for Meeting 96-01 (March 5, 1996)
Training Review Group Minutes for Meeting 96-02 (May 8, 1996)
Training Review Group Minutes for Meeting 96-03 (August 28, 1996)

Miscellaneous Documents

Organization Chart for Plant Operations-Radiological Programs (October 3, 1996)
Executive Trending Summary - August 1996
River Bend Station Mid-SALP Self-Assessment - Radiation Protection