

ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Inspection Report: 50-458/96-06

License: NPF-47

Licensee: Entergy Operations, Inc.  
P.O. Box 220  
St. Francisville, Louisiana

Facility Name: River Bend Station

Inspection At: St. Francisville, Louisiana

Inspection Conducted: January 29 through February 2, 1996

Inspector: Michael P. Shannon, Radiation Specialist  
Plant Support Branch

Approved:

  
Blaine Murray, Chief, Plant Support Branch  
Division of Reactor Safety

3/6/96  
Date

Inspection Summary

Areas Inspected: Routine, announced inspection of the licensee's radiation protection program during the 1996 refueling outage which included the following activities: audits, surveillance, condition reports, and radiological awareness reports; planning and preparation; training and qualifications of personnel; external exposure control; internal exposure control; control of radioactive materials, contamination, surveys, and monitoring; and maintaining occupational exposures as low as is reasonably achievable.

Results:

Plant Support

- Management oversight was excellent. The quality assurance audit of the radiation protection program provided a comprehensive, thorough review of program activities. Surveillances were well balanced and provided a thorough review of that portion of the radiation protection program being reviewed (Section 2.1).
- The as low as is reasonably achievable organization was actively involved in outage planning activities (Section 2.2).

- Overall, the contractor radiation protection training program was good. The radiation protection training personnel were experienced and well qualified to perform their training function. Industry lessons-learned were not included in the contractor radiation protection technician training lesson plans, and a written examination was not given on required reading training material for contractor radiation protection technician returnee's (Section 2.3).
- A noncited violation was identified for failure to follow a radiation protection personnel training and qualification procedure (Section 2.3).
- High radiation area and locked high radiation area controls were effective (Section 2.4.1).
- Shift turnover held by the radiation protection staff were clear, concise, and attentive (Section 2.4.2).
- All radiation, high radiation and locked high radiation areas were found to be appropriately surveyed, and posted (Section 2.4.3).
- A noncited violation was identified for failure to post two radiation areas (Section 2.4.3.1).
- One example of a violation was identified involving the failure to post an airborne radioactivity area (Section 2.4.3.2).
- Housekeeping controls were acceptable (Section 2.4.3.3).
- A second example of a violation was identified involving failure to ensure that radiological work was performed by technically qualified individuals (Section 2.4.4).
- In general, internal exposure controls were effectively maintained and implemented (Section 2.5).
- The radiation protection instrumentation program was effectively maintained (Section 2.6.1).
- Two additional examples of a violation were identified involving the failure of plant workers to follow radiation protection procedures (Section 2.6.2).
- In general, contamination controls were properly maintained (Section 2.6.4).
- Overall, a good ALARA program was maintained (Section 2.7).

Summary of Inspection Findings:

- A noncited violation was identified (Section 2.3)
- A noncited violation was identified (Section 2.4.3.1).
- Violation 458/9606-01 was opened (Sections 2.4.3.2, 2.4.4 and 2.6.2).

Attachment:

- Attachment - Persons Contacted and Exit Meeting

## DETAILS

### 1 PLANT STATUS

During the inspection the plant was conducting its sixth scheduled refueling outage. All fuel assemblies were loaded in the reactor vessel, and licensee was assembling the upper portions of the reactor.

### 2 OCCUPATIONAL EXPOSURE DURING EXTENDED OUTAGES (83750)

The radiation protection program was inspected to determine agreement with the commitments specified in Chapter 12.5 of the Updated Final Safety Analysis Report, compliance with Technical Specifications, and the requirements of 10 CFR Part 20.

#### 2.1 Audits, Surveillance, Condition Reports, and Radiological Awareness Reports.

The inspector reviewed the licensee's audit, surveillance, condition report, and radiological awareness reporting programs, to determine the effectiveness of oversight of radiation protection activities. Particular attention was devoted to the licensee's self-assessment programs that identified and corrected programmatic weaknesses. The quality and timeliness of the responses to assessment findings were also reviewed.

##### 2.1.1 Audits

The inspector reviewed the radiological audit performed between July 31, and August 11, 1995, to ensure compliance with 10 CFR Part 20.1101(c). The inspector concluded that this audit was a comprehensive, thorough review of the licensee's radiological programs. The audit team consisted of highly qualified plant personnel, as well as, personnel from corporate health physics and other nuclear power facilities.

Four radiological awareness reports were generated and 21 "team opinion items for improvement" were identified during the audit. The 4 radiological awareness reports had been evaluated in a timely manner, 2 had been closed and 2 remain open as of the date of this inspection. The inspector noted that there was no formal process in place to evaluate and incorporate "team opinion items of improvement." During discussions with the licensee's radiation protection management, the inspector determined that some of "team opinion items" had been evaluated and implemented, but greater than 50 percent had not been evaluated. The licensee stated that although no formal program was in place they planned to evaluate all the items.

### 2.1.2 Surveillance Reports

The inspector reviewed the following quality assurance surveillance reports issued by the licensee's quality assurance department that involved radiation protection activities:

- Surveillance Report 506004, "Radiation Protection Surveys," dated June 30, 1995.
- Surveillance Report 508016, "Posting Inspection of Radiological Controlled Area," dated August 24, 1995.
- Surveillance Report 509004, "Radioactive Material Control," dated September 13, 1995.
- Surveillance Report 512005, "Radioactive Material Control, Labeling and Radioactive Postings," dated December 20, 1995.
- Surveillance Report 601010, "Radiation Protection and Radioactive Contamination Controls," dated January 12, 1996.

The inspector noted that appropriate reference procedures and guidance documents were used to perform the above surveillances. Surveillances were well-balanced and provided a thorough review of that portion of the radiation protection program being reviewed.

The inspector determined through interviews held with the quality assurance management that the quality assurance department had implemented an effective assessment program. The inspector noted that in addition to performing an independent review of the radiation protection program, the quality assurance department solicited areas that the radiation protection organization believed needed to be reviewed.

The inspector reviewed the qualification of the quality assurance personnel assigned to perform surveillances of radiation protection activities. The inspector noted that these individuals had radiation protection knowledge and experience, enabling them to assess radiation protection performance. One individual had a number of years of extensive radiation protection practical and technical experience, working as radiation protection supervisor, as well as a radiation protection trainer before transferring to the quality assurance department. The inspector determined that the assessments performed by quality assurance were a program strength.

### 2.1.3 Condition and Radiological Awareness Reports

The licensee's corrective action program consisted of (1) the condition reporting system and (2) the radiological awareness reporting system. The condition reporting system was an upper level system used by the plant to

report and track significant station wide issues of all types. The radiological awareness reporting system was used to track and trend less significant radiological issues.

Selected examples of both reporting systems were reviewed by the inspector. The inspector noted no adverse trends in the radiation protection program during the review of these reports. The inspector determined that the condition reporting system was effectively used by the licensee to identify, track and resolve radiological issues.

The inspector noted that unlike the condition reporting system, which had a management expectation of 30 days to close out a condition report, the radiological awareness reporting system had no expectation date as to close out or evaluate radiological awareness reports. The inspector noted that approximately 25 percent of the radiological awareness reports written in 1995 had not been closed out as of February 1, 1996. A number of these open radiological awareness reports were written as early as March and April 1995. The licensee stated that they would review the program and take appropriate action.

## 2.2 Planning and Preparation

The inspector discussed refueling outage planning and preparation activities with representatives in the radiation protection and training departments. The inspector also reviewed an ALARA job package for completeness and the inclusion of lessons-learned from previous similar work.

Based on discussions and field observations, the inspector determined that the radiation protection department provided proper staff, equipment, and protective clothing to support outage work activities.

During the outage, the permanent radiation protection staff was supplemented with 36 senior radiation protection contractor technicians and 4 junior radiation protection contract technicians. Radiation protection support functions were staffed for continuous outage support. The outage radiation protection organization was properly staffed to support the outage workload and minimize work delays.

The inspector reviewed the ALARA job package for in-service inspection activities, which was estimated to involve 65 person-rem. The inspector determined that the ALARA job package was complete and thorough. Past lessons learned from the industry and the site were evaluated in the development of the ALARA package. Radiation protection department job guide (JG-3), which was included in the package, was reviewed by the inspector and found to be complete. The inspector noted that the job guide summarized lessons-learned, precautions, and prerequisites when performing in-service inspection activities.



In discussions with the ALARA coordinator, the inspector determined that for outage-related activities, the ALARA organization was involved in the early planning stages to allow adequate time to research and provide meaningful input into the work package to ensure that proper ALARA practices were implemented.

The radiation protection department had assigned four radiation protection representatives, (two management and two technicians) to the plant's planning department. These individuals worked with the maintenance planners incorporating ALARA considerations in the maintenance work packages during the developmental stage of the packages. Additionally, these individuals wrote radiation work permits for scheduled work, utilizing historical radiological data, and lessons-learned from previous similar work. The inspector viewed the assignment of these individuals to the planning department as a management commitment to maintaining exposures ALARA. Additionally, the majority of the licensee's radiation protection technicians were individually assigned as point of contacts for major outage activities. This arrangement provided the work groups a name of an individual in the radiation protection department to contact if radiological questions arose prior to starting a task.

### 2.3 Training and Qualifications

The inspector reviewed the training and qualifications for contract radiation protection technicians brought on site to support outage activities. The inspector interviewed plant radiation protection personnel assigned to review contractor resumes and the training department radiation protection instructor. The inspector also reviewed contractor radiation protection training lesson plans, resumes, and station procedures to determine whether contract radiation protection personnel were appropriately qualified to perform their assigned responsibilities.

The radiation protection training personnel were well experienced and qualified to perform their training function. The inspector determined that each person had several years of technical and operational radiation protection experience. The radiation protection instructors routinely worked with the plant radiation protection staff to assess the effectiveness of the training program. Training lesson plans were well organized, documented, and included site lessons learned. The inspector noted that industry lessons learned were not included in the training lesson plans. When this was discussed with the licensee's training representative, he stated that he would re-evaluate the need to include this information in the training program.

The Northeast Utilities' radiation protection screening program was used to evaluate the general radiological knowledge of the contract radiation protection technicians brought on site to support outage activities. The Northeast Utilities program is recognized and approved by a number of utilities as an acceptable method to evaluate radiation protection

technician's general radiological knowledge. This test was properly controlled to ensure that it was not compromised and had a sufficient bank of appropriate questions needed to establish a technician's basic health physics knowledge.

An 8-hour training class was required for all contractor radiation protection technicians who had never been to River Bend Station, or had not worked at the station within the previous 2 years. The training covered site-specific radiological procedures and a written examination on the training materials.

For returnees, (less than 2 years away from the station) training consisted of a self-study program of required reading training material. A written examination was not given on this material. The inspector reviewed the self-study material and determined that it was appropriate. The inspector asked the licensee's training department representative and radiation protection department management if they assessed the returnee's knowledge of the self-study training material. Radiation protection management stated that they assessed the returnee's comprehension of the self-study material during informal discussions with the individuals. The training department representative stated that they plan to re-assess the returnee's self-study program to determine if a written examination should be included as a method to evaluate worker knowledge.

The inspector reviewed several contractor senior radiation protection technician's resumes. All resumes reviewed, met or exceeded the requirements of ANSI/ANS N18.1-1971. A large number (greater than 50 percent) of senior radiation protection technicians on site for the 1996 outage had previously worked at River Bend Station.

The inspector reviewed several contractor radiation protection technicians training packages and noted that some of the documentation was not completed in accordance with Station Procedure TPP-7-016 Revision 6, "Radiation Protection Personnel Training and Qualifications." Section 6.8.1 states that contractor personnel will complete applicable sections of Attachment 1. Attachment 1 includes such sign off items as: "completed required reading; completed personnel data sheet; and copy of resume validated." The inspector noted that in a number of cases a supervisor or his designee signed for the technician.

Additionally, the inspector reviewed the qualification/evaluation form (Attachment 4 to the above procedure) for selected individuals and noted that they were signed by a radiation protection supervisor approximately 10 days after the individuals were assigned job assignments. Attachment 4 states, . . . "based upon an evaluation of the above named individuals' training and work history he/she meets the requirements of: senior technician ANSI N3.1-1978; technician ANSI 18.1; or junior technician." Section 6.8.1 of Station Procedure TPP-7-016, Revision 6, states, "Qualification requirements will be commensurate with their job assignments and experience level as depicted on Attachment 4."



When these items were discussed with radiation protection management they stated that they would review the contractor radiation protection technician qualification documentation process and take appropriate action to ensure that qualification procedures were properly implemented.

This failure to follow Plant Procedure TPP-7-016 constitutes a violation of minor significance and is being treated as a Non-Cited Violation, consistent with Section IV of the NRC Enforcement Policy.

## 2.4 External Exposure Control

The inspector reviewed the external exposure control program, which included: personnel dosimetry program, control of high radiation areas, posting and labeling, radiation work practices and procedures, access control, housekeeping, and radiation work permit system. The inspector conducted several tours of the radiological controlled area, including the drywell to observe work in progress. Additionally, the inspector conducted several independent radiation surveys within the radiological controlled area and protected areas to verify that these areas had been properly surveyed, posted, and controlled.

### 2.4.1 High Radiation Area and Dosimetry Controls

The inspector determined that access control to high radiation areas greater than 100 millirem per hour was appropriate. All barricades and postings required by Technical Specifications were found to be in place. During a review of the radiological awareness reports, the inspector noted that recently there were two instances where high radiation area ropes were not returned to their original position after leaving the area. These ropes were secondary barricades that were not required by Technical Specification. The licensee was still investigating the cause of this problem at the time of the inspection.

Locked high radiation area control was effective, and all doors challenged by the inspector were found to be secured. All high radiation area and locked high radiation area entrances were uniquely marked with a brightly colored "stop sign" stating "Tech Spec Monitoring Required" as a reminder to personnel entering the area that additional controls were needed to enter the area. The inspector questioned workers at random pertaining to the meaning of these signs and verified that the workers understood what was required.

The licensee used the services of Arkansas Nuclear One Station, which was certified in all eight national voluntary laboratory accreditation program processing categories, to process the station's thermoluminescent dosimeters. The inspector verified that individuals entering the radiological controlled area wore the required personnel monitoring devices. Electronic dosimetry was worn by all workers observed in the radiological controlled area. All workers questioned by the inspector were knowledgeable of the proper response to the electronic dosimeter alarms.

#### 2.4.2 Access Controls and Shift Turnover Briefings

An improved radiological controlled area access system was recently installed. The system used a computerized bar code screen in conjunction with electronic dosimetry. The system was controlled by the radiation protection staff. The inspector noted little or no congestion at the access control point during some of the busiest times, such as shift turnovers. In addition to the normal access and check point, other control points were established to support outage activities.

Briefings and shift turnovers of the radiation protection staff observed by the inspector were clear, concise, and attentive. Thorough discussions pertaining to work in progress and changes in radiological conditions were highlighted.

#### 2.4.3 Postings and Housekeeping

Independent radiation area surveys were performed, and postings were reviewed by the inspector. All radiation, high radiation, and locked high radiation areas were found to be appropriately surveyed and posted in accordance with regulatory requirements.

##### 2.4.3.1 Licensee Identified Posting Event

On November 27, 1995, the licensee wrote a Radiological Awareness Report (RAR 95-127) after a radiation protection technician found two radiation areas not posted while performing a routine posting audit. The first event occurred on November 22, 1995, in the turbine building 67-foot elevation. The licensee's investigation determined that a contract radiation protection technician removed the radiation area posting during the clean up of a contaminated area, without realizing the area was still a radiation area. The second event occurred on November 24, 1995, in the turbine building 95-foot elevation. The licensee's investigation determined that a licensee radiation protection technician removed a radiation area posting to allow plant workers to paint the area. Both areas had dose rate levels of approximately 10 millirem/hour at 30 centimeters. On November 28, 1995, a Condition Report CR95-1124 was written pertaining to these events.

The inspector reviewed the two events and found them to be in violation of Procedure RPP-0005, Revision 10, "Posting of Radiological Controlled Areas," Section 6.2, which requires areas where the dose rate exceeds 5 millirem in 1 hour at 12 inches (30 centimeters) to be posted as: "Caution Radiation Area." Technical Specifications, Section 5.4.1, requires procedures for access control of radiation areas.

The inspector reviewed the licensee's corrective actions regarding the events and found the corrective actions to be satisfactory to prevent a similar occurrence. Thus, this licensee identified and corrected violation is being treated as a non-cited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy.

#### 2.4.3.2. Inspector Identified Posting Event

Technical Specifications 5.4.1.a. requires, in part, that written procedures be established, implemented, and maintained covering the activities recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Section 7.e(3) of Appendix A of this regulatory guide includes procedures for airborne radioactivity monitoring.

On January 31, 1996, during the review of air sample data provided to the inspector by the licensee, the inspector determined that on January 28, 1996, at approximately 11 p.m. until January 29, 1996 at 7 a.m., air sample results taken from inside the reactor cavity exceeded the levels requiring posting the reactor cavity as an airborne area. Air sample records indicated that air sample results were 90 and 55 percent of the derived airborne concentration values listed in Appendix B of 10 CFR 20. Section 6.8 of Procedure RPP-0005, Revision 10, "Posting of Radiological Controlled Areas," requires airborne radioactivity levels greater than or equal to 30 percent of the derived airborne concentration values listed in Appendix B, of 10 CFR 20 to be posted as: "Caution or Danger, Airborne Radioactivity Area".

The inspector reviewed the radiation protection supervisor/lead technician refueling log book for the time period in question. The inspector noted that there was no indication or documentation in this log book that the licensee's radiation protection staff was aware of the airborne condition in the reactor cavity. In discussions with the licensee's radiation protection supervision the inspector was told that changes to radiological conditions would normally be documented in the supervisor/lead technician log books for briefing and shift turnover purposes.

Between 11 p.m. on January 28, and 7 a.m. on January 29, 1996, a number of workers entered the reactor cavity to perform work. A review of the contamination log by the inspector indicated that some of the workers who entered the reactor cavity during this time period were found to be contaminated. However, a review of the whole body counting records indicated that none of these workers received an internal dose requiring assessment.

The radiation protection manager stated that elevated airborne conditions were expected during certain evolutions of reactor cavity work, as discussed in the reactor disassembly and reassembly work plan. A review of the reactor disassembly and reassembly work plan did not reveal any statements that the reactor cavity airborne conditions would require posting the reactor cavity as an "airborne radioactivity area" during certain evolutions of reactor cavity work. A statement on page eight of the plan, listed under the lessons learned section, stated: "Planned and unplanned activities could create elevated airborne conditions that must be considered at all times."

On February 6, 1996, the radiation protection manager faxed the inspector a copy of the pages in the refueling coordinator's log book for the time period in question. On the afternoon of February 6, 1996, the inspector spoke with the radiation protection manager by phone to discuss the refueling coordinator's log book entries. On page 106 there was an entry which stated that at 1:50 a.m. on January 29, 1996: "During RPV [reactor pressure vessel] head lift RP said have airborne activity on floor." A second entry at 2:27 a.m. stated: "RP cking [checking] air sample sent to chemistry." A third entry at 4:05 a.m. stated: "Preliminary air sample bad, sending to chemistry to double check and also take a backup [air sample] in reactor cavity." In discussions with the radiation protection manager, the inspector questioned the fact that nowhere in the logs did it state or indicate that, prior to workers entering the reactor cavity at 00:50 a.m. on January 29, 1996, radiation protection personnel were aware that the reactor cavity had elevated airborne radioactivity concentrations that required posting. Allowing workers to enter airborne radioactivity areas that have not been properly evaluated by radiation protection personnel could lead to an internal exposure and an unplanned radiation dose.

The inspector determined that failure to post the reactor cavity as an airborne radioactivity area, as required by Procedure RPP-0005 is a violation of Technical Specification 5.4.1.a. This was a first example of a violation involving the failure to follow plant procedures (458/9606-01).

#### 2.4.3.3. Housekeeping

Tours of the radiological controlled area by the inspector indicated that housekeeping controls were acceptable.

#### 2.4.4. Radiation Work Permit System

The inspector reviewed selected radiation work permits and determined that they were written clearly and were easy to read and understand.

Technical Specifications 5.4.1.a. requires, in part, that written procedures be established, implemented, and maintained covering the activities recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Section 7.e(1) of Appendix A of this regulatory guide includes procedures for the radiation work permit system.

During the review of the radiation work permit system the inspector reviewed Radiation Work Permit 96-0006-00, "Reactor Operations and Surveillance," dated January 1, 1996, which was issued to authorize the handling of radioactive sources for calibration of the digital radiation monitoring system by the instruments and controls department. The inspector reviewed the radiation work permit to determine what instructions or precautions were given to the workers when handling these radioactive sources and if the establishing of radiological boundaries was addressed when the sources were exposed.



During the calibration process, two radioactive sources were used, Source Numbers "RT 10" and "RT 11". Both sources were cesium-137 and with activities of approximately 7 milliCuries and 77 milliCuries, which created a radiation dose rate of 1000 millirem/hour and 3200 millirem/hour on contact and 16 millirem/hour and 180 millirem/hour at 12 inches (30 centimeters), respectively, when removed from the lead transport pig. The inspector determined during interviews with licensee personnel that the digital radiation monitors were located throughout the plant and were normally located in radiological controlled areas (less than 5 millirem/hour) and radiation areas (less than 100 millirem/hour).

The inspector determined that the radiation work permit did not provide the worker with instructions, precautions, or proper radiological boundary control when the radioactive source was exposed.

The inspector reviewed the lesson plans, "Source Users Training," dated March 1, 1994, and on-the-job training program, which was used to train personnel to handle radioactive sources. The inspector noted that the source users training did not qualify the worker to post and establish radiological boundaries that were created by exposing radioactive sources.

Section 3.6 of Procedure RSP-0200 Revision 10, "Radiation Work Permits" states that a radiation work permit issued by radiological programs, functions to ensure that the radiological hazards associated with planned work are adequately addressed by technically qualified individuals. Because proper radiological controls were not addressed by the radiation work permit or the training program, the inspector determined that failure to provide technically qualified individuals when working with Radiation Work Permit 96-0006-00 as required by Procedure RSP-0200 is a violation of Technical Specifications 5.4.1.a. This was a second example of a violation involving the failure to follow plant procedures (458/9606-01).

During the review of the source users training program, the inspector noted that one instrument and control technician was "on-the-job" qualified on February 10, 1995. A review of the classroom training records showed that this individual received his classroom training on October 28, 1990, approximately 4 and 1/2 years prior to receiving his "on the job" training. The inspector noted that during this time there had been two complete rewrites of the source users training lesson plan. The last major rewrite was completed March 1, 1994. The lesson plan that was in effect in October 1990 was four pages, where as, the one that was in effect as of the date of this inspection was ten pages.

This observation was discussed with members of management in the instrument and control, radiation protection, and training departments. Licensee representatives stated that they would review the source handling training program to ensure all personnel were properly trained and qualified.



## 2.5 Internal Exposure Control

The inspector reviewed the internal exposure control program including: use of respiratory protection equipment, whole-body counting program, air sampling, and the calculation of committed doses from airborne intakes.

During this refueling outage, the licensee had not identified any elevated whole-body counts that required an internal dose assessment. No respirators had been issued for protection against airborne radioactive materials for outage related work at the time of this inspection.

During tours of the radiological controlled area, the inspector observed that the licensee had established appropriate air sampling equipment and air filtration units in the work place, with the exception of in the reactor cavity where work was being performed. When the inspector discussed this concern with radiation protection management, the licensee took appropriate action to obtain a representative air sample. The inspector noted that the licensee had few continuous air monitors throughout the radiological controlled area. This was discussed with radiation protection supervision. The licensee understood the benefits of using continuous air monitors and stated that additional continuous air monitors were on order.

The inspector observed that all air sampling equipment located in the work place had current calibration dates. Air filtration units had been placed in some potentially high contaminated areas to reduce airborne concentrations.

## 2.6 Control of Radioactive Materials, Contamination, Surveys, and Monitoring

The inspector reviewed the supply, maintenance, calibration, and performance testing of portable radiation detection instrumentation, proper use of portal monitors and friskers, records of survey results, and control of contaminated areas and trash.

### 2.6.1. Instrument Program

The inspector reviewed the station's radiological survey instrumentation program. The inspector determined that the licensee maintained an adequate supply of calibrated survey instruments. All instrumentation observed was performance checked according to station procedures and industry standards.

### 2.6.2. Use of Portal Monitors and Friskers

Portal monitors were used to detect radiological contamination or potential intakes when workers exited the radiological controlled area. All workers observed by the inspector used these monitors properly. The frisking and monitoring equipment was calibrated and had current calibration stickers.

Technical Specifications 5.4.1.a. requires, in part, that written procedures be established, implemented, and maintained covering the activities recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Section 7.e(4) of Appendix A of this regulatory guide includes procedures for contamination control.

On January 31, 1996, at approximately 10 a.m., while touring in the turbine building elevation 95 foot, the inspector witnessed two workers decontaminating the soles of their shoes near the supplemental radiological controlled area access point. A radiation protection technician was not present to provide oversight of radiological work activities. The inspector noted that the workers were using duct tape and masselin cloth in an effort to remove the contamination and that no radiation protection personnel were monitoring the process. The workers repeated the process of alarming the monitor and decontaminating their shoes two additional times prior to the arrival of a radiation protection technician.

The inspector questioned the workers as to what they were doing and why a radiation protection technician was not present. One of the workers informed the inspector that he had frisked his shoes and it showed "a small amount" [of contamination]. The other worker stated he had just alarmed the monitor and thought wiping the shoes was the right thing to do. The inspector then asked both workers if they knew what the initial contamination levels were. They both stated, they did not know.

A contractor radiation protection technician arrived, approximately 15 minutes later, and helped the workers decontaminate their shoes. The inspector noted that the radiation protection technician started the decontamination process prior to establishing the initial contamination levels of the worker's shoes and did not counsel the workers about decontaminating themselves prior to contacting radiation protection. Section 6.2.5 of Procedure RPP-0043, "Personnel Contamination Monitoring" Revision 7, states, (that a radiation protection technician shall) perform a survey of the individual, determine the extent, and magnitude of the contamination. Not determining the extent and magnitude of the contamination could make it difficult to determine a skin dose exposure. The inspector determined that the failure to have a radiation protection technician present in order to determine the extent and magnitude of the contamination prior to performing decontamination as required by Procedure RPP-0043 is a violation of Technical Specification 5.4.1.a. This was a third example of a violation involving the failure to follow plant procedures (458/9606-01).

Later that afternoon, at the same supplemental radiological controlled area access control point, the inspector witnessed a number of workers alarm the personnel contamination monitors and attempt to self-decontaminate themselves without radiation protection personnel present. Some workers returned to the radiological controlled area.

The inspector reviewed the radiation safety training lesson booklet, dated October 5, 1995, and noted that in the personnel contamination monitoring section, use of personnel contamination monitors states: "If display reads, Contaminated please step out, stand by the unit and contact RP. Do not leave the area." It also states, "DO NOT attempt decontamination yourself. Decontamination should be done under the direction of RP."

Section 4.1 of Procedure RPP-0018, "Personnel Decontamination", Revision 4, states: personnel decontamination is conducted under the direction of qualified radiological programs personnel. The inspector determined that the failure to perform personnel decontamination under the direction of qualified radiological programs personnel as required by Procedure RPP-0018 is a violation of Technical Specification 5.4.1.a. This was a fourth example of a violation involving the failure to follow plant procedures (458/9606-01).

### 2.6.3. Survey Results

The inspector reviewed a number of radiological surveys and noted that, in general, most surveys were written in a clear, consistent manner and were easy to read and understand.

### 2.6.4. Control of Contaminated Areas and Trash

The licensee provided good controls to prevent the spread of radioactive contamination. Contaminated areas were well posted and marked with tape or rope. Step-off pads were placed at the entries/exits to these areas to alert workers of the change from a contaminated area to a cleaner area. A sufficient inventory of protective clothing was available for work in contaminated areas. Receptacles provided for the collection of potentially contaminated protective clothing were periodically emptied, and the undressing areas were neatly kept to prevent inadvertent spread of contamination. All trash observed by the inspector was properly marked and controlled.

## 2.7 Maintaining Occupational Exposure ALARA

The inspector reviewed the licensee's ALARA program including worker awareness and involvement, ALARA goals and objectives, and ALARA committee activities.

During plant tours, the inspector noted that an aggressive temporary shielding program was in place to reduce the general radiation levels throughout the radiological controlled area.

The inspector determined that the radiation protection personnel assigned to the planning department were involved in planning for high exposure jobs. The inspector noted that the ALARA coordinator had many years practical and technical health physics experience.

The 1995 exposure goal was 100 person-rem, compared to the actual 1995 exposure of 79 person-rem. The inspector determined that excellent station support was the primary reason for accomplishing the person-rem goal. Each plant department assigned an individual as an ALARA representative, which required attendance at quarterly working level meetings. ALARA representatives solicited ways to improve the ALARA program from members of their departments and brought the ideas to these quarterly meetings.

As of January 30, 1996, the plant was in day 28 of the 1996 scheduled 32-day outage and approximately 105 hours behind schedule. Outage person-rem was 286 person-rem compared to the outage goal of 280 person-rem. The inspector determined that emergent work accounted for approximately 20 person-rem of this outage exposure. The inspector noted that outage collective dose was updated daily and distributed throughout the plant.

The inspector reviewed the minutes of selected ALARA meetings held during the last two quarters of 1995 and determined that the committee was fully supported by all plant departments. Meeting minutes were documented and distributed in a timely manner and the committee was appropriately involved with the plants exposure setting goals and the monitoring of these goals.

The ALARA work package reviewed by the inspector was thorough and included such items as radiation work permit recommendations, and specific ALARA concerns. Lessons-learned from previously performed site work and industry experiences were incorporated in the work package. The ALARA work package reviewed by the inspector indicated that adequate ALARA evaluations were routinely performed.

## 2.8 Review of The 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 descriptions. 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.

The inspector reviewed selected topics presented in Section 12.5, "Health Physics Program," of the UFSAR to ensure agreement with commitments. The following areas were reviewed: program and staff organization; radiation protection program; radiation protection facilities; portable survey instrumentation; and radiation and, contamination surveys. No deviations to commitments of the UFSAR were identified by the inspector.