

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report No. 50-382/92-07

Operating License No. NPF-38

Licensee: Entergy Operations, Inc. (EOI)
P.O. Box B
Killona, Louisiana 70056

Facility Name: Waterford-3 Steam Electric Station (WSES)

Inspection At: WSES near Killona, Louisiana

Inspection Conducted: April 20-24, 1992

Inspectors: Dr. D. Blair Spitzberg, Emergency Preparedness Analyst
(Lead Inspector)

Stephen L. McCrory, License Examiner, Operator Licensing
Section

Accompanying

Personnel: Dan Barss, Emergency Preparedness Program Branch
Office of Nuclear Reactor Regulation

Approved:

Blaine Murray
Blaine Murray, Chief, Facilities Inspection
Programs Inspection

5/13/92
Date

Inspection Summary

Inspection Conducted April 20-24, 1992 (Report No. 50-382/92-07)

Areas Inspected: Routine, announced inspection of the operational status of the emergency preparedness program, including changes to the emergency plan and implementing procedures; emergency facilities, equipment and supplies; organization and management control; training; and independent internal reviews and audits.

Results: Within the areas inspected, no violations or deviations were identified. One exercise weakness is discussed in paragraph 7. The following is a summary of the inspection results:

- o The functional area of emergency preparedness had been maintained in an excellent state of operational readiness.
- o Changes to the emergency plan had been reviewed properly and submitted to NRC. Current, controlled copies of the emergency plan and implementing procedures were in place for use by emergency response personnel.
- o Emergency facilities, equipment, and supplies had been maintained in a state of operational readiness.
- o A good staffing level of trained emergency response had been maintained. The emergency response organization was staffed with experienced personnel and had received good senior management support.
- o The training program for emergency response personnel was found to have improved since the previous inspection and was implemented effectively. During walkthroughs with operating crews, a weakness was identified concerning problems in assessing the consequences of a release and in formulating proper protective action (see paragraph 7).
- o Excellent audits of the emergency preparedness program had been performed and the audits were effective at identifying problem areas in need of corrective action.

DETAILS

1. PERSONS CONTACTED

EOI

- *F. J. Dummond, Director, Site Support
- *R. F. Burski, Director, Nuclear Safety
- *D. W. Vinci, Operations Superintendent
- *J. J. Zabritski, Manager, Quality Assurance
- *M. J. Langan, Supervisor, Technical Training
- *J. J. Lewis, Supervisor, Onsite Emergency Planning
- *J. M. O'Hern, Supervisor, Operations Training
- *T. J. Gaudet, Supervisor, Operational Licensing

NRC

W. F. Smith, Senior Resident Inspector

The inspectors also held discussions with other station personnel during the course of the inspection.

*Denotes those present during the exit meeting.

2. FOLLOWUP ON PREVIOUS INSPECTION FINDINGS (92701)

(Closed) Weakness (382/9017-01): This weakness was identified during walkthrough evaluations with operating crews and involved errors in calculating offsite doses and in interpreting radiation monitor readings, weak knowledge of certain decisionmaking guidelines, and weak information flow in the control room. During walkthroughs conducted on April 21 and 23, 1992, crews were evaluated responding to scenarios which created performance challenges similar to those previously identified as weak. The crews performed well in these specific tasks areas.

(Closed) Exercise Weakness (382/9127-01): This weakness was identified during the annual exercise and involved the failure of the control room staff to calculate properly offsite dose rates. Errors were made using both the computer dose assessment program and the manual nomogram method. During this inspection, the inspectors reviewed changes made to the dose assessment methods to improve the ease of use and reduce the risk of input errors like those observed previously. During the walkthroughs conducted, the inspectors observed control room staff perform offsite dose rate calculations accurately using both the computer based and manual nomogram methods.

3. EMERGENCY PLAN AND IMPLEMENTING PROCEDURES (82701-02.01)

The inspectors reviewed changes in the licensee's emergency plan and implementing procedures to verify that these changes had not decreased the effectiveness of emergency planning and that the changes had been reviewed properly and submitted to NRC. Since the previous inspection, there had been four emergency plan revisions submitted to NRC. The plan revisions were submitted in accordance with 10 CFR 50.54(q) and were determined not to decrease the effectiveness of the emergency plan. The inspectors reviewed the site support instruction which governs the internal review process for plan changes and found that the depth of review and the documentation supporting it were well defined and adequate.

The inspectors reviewed documentation of emergency plan implementing procedure changes. There had been 46 revisions submitted to NRC of emergency plan implementing procedures since the previous inspection. The procedure changes were submitted to NRC within 30 days following implementation as required by 10 CFR Part 50, Appendix E.V.

The inspectors reviewed the document control process for emergency plan and implementing procedure changes and determined that controlled copies were maintained for use in all emergency response facilities. The inspectors verified that letters of agreement with offsite emergency support organizations were on file and that annual letters had been sent to all support organizations requesting their review and acknowledgement that the terms of the agreements remained current.

No violations or deviations were identified.

Conclusion

The licensee had reviewed properly and submitted to NRC changes in its emergency plan. Current, controlled copies of the emergency plan and implementing procedures were in place for use by emergency response personnel.

4. EMERGENCY FACILITIES, EQUIPMENT, INSTRUMENTATION, AND SUPPLIES (82701-02.02)

The inspectors reviewed the licensee's emergency equipment and supplies inventories and provisions for maintaining emergency facilities, equipment, and supplies in a state of operational readiness.

The inspectors toured onsite emergency response facilities and the offsite emergency operations facility and found that they were maintained in a proper state of readiness. The emergency equipment lockers contained dedicated supplies that were ready for use. Several controlled drawing aperture cards and forms referenced in emergency response implementing procedures were selected randomly by the inspectors to verify current revision numbers. Based

on this sampling, it was determined that drawings and forms have been maintained in accordance with the governing procedures on document control in both the emergency operations facility and the technical support center. Emergency facility layout and inventories were found to be as described in the emergency plan.

On April 22, 1992, the inspectors observed the successful use and reconstitution of the emergency operations facility during a scheduled emergency training drill.

No violations or deviations were identified.

Conclusion

Emergency facilities, equipment, and supplies have been maintained in a proper state of operational readiness.

5 ORGANIZATION AND MANAGEMENT CONTROLS (82701-02.03)

The inspectors reviewed the emergency response organization to determine conformance with the emergency plan. Since the previous inspection, the only changes to positions within the organization were in the corporate command center, and these changes did not decrease the effectiveness of the plan. Emergency response organization positions were defined properly with specific responsibilities attached to the positions.

The inspectors reviewed the emergency planning and preparedness organization and found that staffing levels had remained at an appropriate level. The inspectors found that the planning group was staffed with qualified and experienced professionals. The emergency planning organization had received good support by senior management.

No violations or deviations were identified.

Conclusion

The licensee had maintained good staffing levels of well trained emergency response organization personnel. The emergency preparedness planning organization was staffed with experienced personnel and the organization had received good senior management support.

6. TRAINING (82701-02.04)

The inspectors met with training department personnel and reviewed the licensee's program for emergency response training to determine compliance with the requirements of 10 CFR Part 50.47(b)(15); 10 CFR Part 50, Appendix E.IV.F; and the emergency plan.

6.1 Emergency Response Training

The inspectors observed that improvements had been made regarding previously identified weak areas in the emergency preparedness training program. Further, those areas previously identified as working well continued to be at the same or higher levels of proficiency as had been observed in the last inspection (NRC Inspection Report 50-382/90-17). However, some areas for improvement and of programmatic vulnerability were observed during this inspection.

The training department had developed an examination question bank for use in preparing initial and requalification examinations. The inspectors applied the guidelines of NUREG/BR-0122, "Examiners' Handbook for Developing Operator Licensing Examinations," and Section 602 of NUREG-1021, "Operator Licensing Examiner Standards," while reviewing examination construction and individual questions. During preparation, the examination from the previous cycle was reviewed to ensure that no more than 60 percent of the questions were repeated in the draft examination prepared for the upcoming cycle. However, only one examination was developed for a particular cycle and was administered to emergency responders over a 6-weeks period. This provided the opportunity for loss of examination integrity through compromise during the course of administration. The training department reported that verbal admonitions were the means used to help preserve examination integrity and there had been no evidence of compromise in past examination cycles. The scope of an examination was based largely on the perceptions of the individual preparing the examination rather than a programmatic evaluation of training emphasis and identified weaknesses.

The question bank consisted of multiple choice and short answer questions requiring cognitive skills ranging from recognition to interpretation and application. Test item development and review were an on-going process to upgrade and expand the question bank to cover all training objectives identified in classroom lesson plans. The inspectors observed that the point weighing for the questions was inconsistent in some aspects and was not derived from any endorsed method for valuating question responses. This had the potential to distort examination results such that important weaknesses may not have been highlighted through the examination process.

Lesson plans for emergency preparedness training were current and comprehensive with clearly stated learning and training objects. However, the inspectors noted that there were no learning objectives with respect to medical emergencies for emergency preparedness organizations who direct or otherwise interface with the medical emergency responders. Lesson Plan J400018.07, Emergency Plan SS/CRS/NPO/Operations Coordinator, was reviewed in detail. It was noted that there were no learning objectives for dealing with either fire or medical emergencies that occurred while the emergency plan was being implemented. The training instructor was able to identify an alternate lesson plan for shift operators which contained learning

objectives for response to a fire emergency (N590-411-00, FP-1-020 Fire Emergency/Fire Report). During the course of the inspection, no other lesson plan was identified which similarly contained learning objectives for response to a medical emergency by shift operators. Additionally, in the debrief following a facility emergency plan drill conducted during the inspection, the leader of the medical emergency response team indicated that medical response efforts were impacted by a lack of a clearly defined command and control structure. Multiple emergency response organizations were communicating and providing direction to the medical emergency team.

Training records for emergency plan responders were accurate and complete. The training records for 17 individuals who participated in the inspection walkthroughs were reviewed for completeness and currency with respect to qualification according to emergency plan response function. The qualification of all individuals was current as specified in Procedures NTP-203, "Emergency Plan Training," NTC-216, "Emergency Plan Training Initial," and NTC-217, "Emergency Plan Continuing Training." The only mandatory training for all functional areas was a 1-day course given annually and followed immediately by the qualification examination. The remainder of training consisted of exercises, drills, seminars, supplemental reading packages, and special supplemental reading packages. Participation in these various forms of training was documented by attendance sheets for classroom type training and by acknowledgement forms for reading packages. In interviews with the training and emergency plan staff, it was reported that the training records were not reviewed formally to ensure adequate coverage aside from the annual mandatory training. Mandatory training was reviewed monthly to identify individuals whose qualification was nearing expiration. The interviewees acknowledged that there were no interim measures to evaluate training effectiveness between annual examinations. This was of concern to the inspectors with regard to the supplemental reading packages which were a principal means for informing emergency plan responders of procedure changes. In addition to not measuring the effectiveness of information dissemination, the interviewees could not explain why some qualified emergency plan responders had not acknowledged completing various reading packages. The lack of specific procedures that would provide guidance regarding training activities requirements was discussed during the exit meeting on April 24, 1992. The licensee stated that they plan to conduct a review to determine if additional procedures should be developed.

Overall, emergency plan training appeared to be implemented effectively. However, there appeared to be a significant vulnerability in that most of the emergency plan training practices were not proceduralized. Rather, the program relied heavily on corporate memory and "skill-of-the craft" of the key individuals responsible for its maintenance and implementation. There was little assurance that the program would continue to be implemented effectively if one or two principal individuals were to become unavailable.

The lack of specific procedures that would provide guidance regarding training activities' requirements was discussed during the exit meeting on April 24, 1992. The licensee stated that they plan to address the need for additional procedures.

6.2 Knowledge and Performance of Duties - Operating Crew Walkthroughs

The inspectors conducted a series of evaluations on the plant-specific control room simulator to evaluate the current knowledge and ability of personnel assigned emergency response duties in the control room. The scenario used in the evaluation was developed by the inspectors to determine if control room teams were able to classify events accurately, to perform the required notifications in a timely manner, to perform offsite dose assessment, and to make adequate protective action recommendations. The inspectors also assessed the capabilities of the control room teams to respond to a toxic chemical release from a nearby chemical refinery.

The inspectors evaluated three control room teams, each representative of a normal group of early responders to an emergency. Each crew consisted of an emergency coordinator (shift supervisor), control room supervisor, shift technical advisor, two or three reactor operators, and a control room communicator. The scenario required entry into the emergency plan at the Alert classification level and did not allow for any personnel augmentation during the approximate 90-minute duration of the dynamic scenario. Following the Alert condition, simulated plant conditions were established to require escalation to General Emergency classifications.

Operationally, the crews responded well to a challenging scenario. Weaknesses identified during the previous inspection were improved notably. The communication flow from the controls area of the control room to the emergency coordinator was timely and thorough. This aided the emergency coordinator in arriving at accurate and timely classifications. Additionally, command and control by the emergency coordinator was effective in allocating personnel resources and delegating certain actions to more efficiently implement the emergency plan. Abnormal and emergency operating procedures were executed appropriately to evaluate and mitigate the numerous malfunctions and major transients presented in the scenario.

During the walkthroughs, required notifications to offsite authorities were made in a timely manner. Several problems in the crews abilities to formulate protective actions and to assess the offsite consequences of the emergency were noted as follows:

- o One crew sheltered onsite personnel during a toxic gas release instead of evacuating these personnel as specified in Emergency Plan Implementing Procedure EP-004-010 for the specific conditions posed by the scenario.

- o One crew made an error in estimating the release rate and subsequently communicated the erroneous estimate to offsite authorities. The erroneous estimate was 1000 curies per second (Ci/s) or over 3 times the actual release rate of about 300 Ci/s. Errors such as this could lead to confusion by offsite decisionmakers in attempting to correlate the offsite dose projections to the release rate estimate and in independently assessing the release using licensee provided release rate estimates.
- o One crew made an error in transcribing the correct meteorological data onto the Alert notification form and, as a result, communicated the incorrect data and erroneous affected geographical sectors to offsite agencies.
- o One crew made a protective action recommendation to the state of evacuation of all sectors out to 5 miles. Such a protective action recommendation could not be arrived at using EP-2-052, "Protective Action Guidelines." This protective action recommendation, if implemented, would have caused the evacuation of populations located in the upwind direction between 2-5 miles.
- o One crew made a baseline protective action recommendation at the general emergency of shelter the 2-mile radius and the downwind sectors out to 5 miles. Although the protective action recommendation was valid for the classification, the crew did not consider dose projections calculated before the protective action recommendation was made which showed offsite doses exceeding protective action guidelines and, thereby, suggesting evacuation of these sectors.

Problems observed with the crews abilities to assess properly the onsite and offsite consequences of a release and to formulate proper protective actions was identified as a weakness (382/9207-01).

No violations or deviations were identified.

Conclusion

The licensee's training program for emergency response personnel was found to have improved since the previous inspection and was implemented effectively. During walkthroughs with operating crews, a weakness was identified for problems in assessing the consequences of a release and in formulating proper protective action.

7. INDEPENDENT AND INTERNAL REVIEWS AND AUDITS (82701-02.05)

The inspectors examined independent and internal audits of the emergency preparedness program performed since the last inspection to determine

compliance with the requirements of 10 CFR 50.54(t). The inspectors also met with quality assurance personnel to determine whether the licensee's audit program had been conducted in accordance with governing procedures and included a corrective action system that would ensure timely followup on weak or deficient areas.

The inspectors reviewed documentation of the last two annual audits of the emergency preparedness program which were conducted since the previous inspection (SA-91-026.1; SA-92-026.1). The scope and depth of these audits were noted to be consistent with the requirements of 10 CFR 50.54(t). Each of the audits included on the audit team an emergency preparedness specialist from another nuclear facility. The licensee's surveillance program for emergency preparedness was reviewed and was found to focus predominately on evaluating licensee emergency drills.

The inspectors reviewed training and certification documentation for the audit team leaders and found that they were qualified to American National Standards Institute Standard N45.2.23-1978.

No violations or deviations were identified.

Conclusion

Annual internal audits of the emergency preparedness program had been performed in accordance with 10 CFR 50.54(t) and had been effective at identifying problem areas in need of corrective action.

8. EXIT INTERVIEW

The inspectors met with the licensee representatives denoted in paragraph 1 on April 24, 1992, and summarized the scope and findings of the inspection 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.