

ENCLOSURE

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REGION IV

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Report No.: 50-498/97-13
50-499/97-13

Licensee: Houston Lighting & Power Company

Facility: South Texas Project Electric Generating Station, Units 1 and 2

Location: FM 521 - 8 miles west of Wadsworth
Wadsworth, Texas

Dates: September 2-4, 1997

Inspectors: T. H. Andrews, Emergency Preparedness Analyst, Plant Support
Branch
S. L. McCrory, Reactor Engineer, Operations Branch

Approved By: Blaine Murray, Chief, Plant Support Branch
Division of Reactor Safety

ATTACHMENT: Supplemental Information

EXECUTIVE SUMMARY

South Texas Project Electric Generating Station, Units 1 and 2
NRC Inspection Report 50-498/97-13; 50-499/97-13

This routine, announced inspection focused on the operational status of the licensee's emergency preparedness program. Emphasis was placed on changes that had occurred since the last routine emergency preparedness inspection.

Operations

- The crews demonstrated good operational skills in the areas of communication, diagnostics, procedure use, and supervision. There was a lapse in communication discipline in the latter part of the second walkthrough. The licensee's process for identifying the declaration time for emergencies was identified as an area for enhancement (Section O4).

Plant Support

- All events reported to the NRC operations center since March, 1996, were properly evaluated and classified. There were no emergency action level declarations between March 21, 1996 and September 4, 1997 (Section P1).
- Emergency kits and telephone circuits were properly maintained. Spare breathing air bottles were inspected and stored properly. Management expectations were clarified regarding actions to be taken by a non-licensed operator who could not be fitted with a self-contained breathing apparatus. Emergency response facilities were maintained in a state of readiness (Section P2).
- Emergency response organization personnel were very knowledgeable regarding recent changes to emergency plan implementing procedures. On-shift staffing for health physics technicians was consistent with the licensee's emergency plan. Drills and exercises were performed consistent with the licensee's emergency plan (Section P3).
- The licensee conducted training on new requirements for all acting radiation managers in a timely manner. A noncited violation was identified related to tracking and maintaining emergency responder qualifications. Examinations used to certify emergency responders were of mixed quality (Section P5).

- The licensee performed very good audits and self assessments. Audits were performed by qualified personnel and provided good findings and served to identify areas needing improvement. Corrective actions for audit and assessment findings were addressed in a timely and correct manner (Section P7).

Report Details

I. Operations

O4 Operator Knowledge and Performance

a. Inspection Scope

The inspectors conducted walkthroughs with two operating crews using a dynamic simulation developed by the licensee and run on the plant-specific control room simulator. The inspectors assessed the ability of control room teams to recognize accident conditions. The inspectors also observed the interactions of the crew members to verify that authorities and responsibilities were clearly defined and understood. The walkthrough was structured to last approximately 90 minutes for each crew and consisted of a sequence of events requiring an escalation of emergency classifications, culminating in a general emergency.

b. Observations and Findings

The inspectors reviewed the scenario prior to the on-site inspection and determined that it was adequate to assess on-shift emergency response capability.

The scenario started with an increasing reactor coolant system leak rate in containment, with containment purge in progress. When high radiation alarms were received, operators attempted to isolate containment purge. The first isolation valve failed to fully close, but the second valve successfully closed. A fire in a vital electrical bus prevented operation of one train of vital equipment. An alert was declared due to a fire affecting safety system operation. The reactor leak dramatically increased, causing a reactor trip and increased pressure in containment. An site area emergency was declared due to the loss of coolant. Three control rods stuck out of the core. Due to the inability to cool the core, some fuel damage occurred. Containment leakage increased, which lead the licensee to declare a general emergency based upon loss of two barriers, with a potential loss of the third.

During the first walkthrough, the simulator malfunctioned which precluded observing the crew through the entire scenario. The malfunction occurred when the emergency director was considering a site area emergency classification for loss of two fission product barriers. Up to that point the crew demonstrated good communications, good diagnostic skills, good procedure use, and good supervisory oversight. The crew recognized plant conditions that warranted emergency classification and used the appropriate emergency action level.

After making minor changes to the scenario, the simulator performed without incident during the second walkthrough. This permitted the inspectors to observe emergency plan implementation through the general emergency classification. The crew demonstrated performance consistent with that observed in the first crew throughout most of the scenario. However, in the latter part of the scenario, after the general emergency had been declared, communication discipline declined. While the unit supervisor was conducting a crew briefing and soliciting additional information from control room personnel, the emergency director was carrying on a separate communication with support personnel in a manner that impacted the communication flow between the unit supervisor and the control room operators.

The inspectors observed the shift supervisors from both crews during emergency action level reviews and event declaration. Both individuals used the practice of telling the communicator that an event or upgrade was going to be declared, then briefing the operating crew on the decision to declare an event. However, the inspectors noted that the time logged for the event declaration was the time the announcement was made to the control room. This was 1-4 minutes after the decision to declare the event had been made.

The inspectors pointed out that guidance contained in NUREG-0654/FEMA REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," states that for prompt notification, the time starts when operators recognize conditions exist that satisfy the requirements to declare an emergency. Procedure EPPOS-02 provided guidance on event recognition and assessment. According to guidance provided by Procedure EPPOS-02, operators have approximately 15 minutes to recognize and assess plant conditions.

In the examples observed, the assessment process was considered ended since there was no further review of emergency action levels, bases for these levels, plant parameters, and there was no further consultation with other on-shift personnel.

This observation was discussed with the licensee. According to the licensee, the practices observed were consistent with the training and management expectations. The licensee acknowledged the information contained within the regulatory guidance and recognized the importance of prompt declaration leading to prompt notification of offsite agencies. The licensee agreed to review the definitions of assessment time and notification time as it pertained to classification and notification of emergency events and make changes, as needed. The inspectors determined that this action was appropriate.

c. Conclusions

The crews demonstrated good operational skills in the areas of communication, diagnostics, procedure use, and supervision. There was a lapse in communication discipline in the latter part of the second walkthrough. The licensee's process for identifying the declaration time for emergencies was identified as an area for enhancement.

IV. Plant Support

P1 Conduct of Emergency Preparedness Activities (93702)

The inspectors reviewed event notifications made to the NRC operations center by the licensee since March 21, 1996, to determine if the events were properly classified. The licensee had made no emergency action level declarations during that time. The inspectors reviewed the event details against the emergency action level thresholds in Procedure OERP01-ZV-IN01, "Emergency Classification," Revision 3. The inspectors concluded that the licensee had correctly determined that no event classifications were warranted.

P2 Status of Emergency Preparedness Facilities, Equipment, and Resources

a. Inspection Scope (82701-02.02)

The inspectors:

- Toured key facilities and reviewed equipment inventories and condition to determine if they were adequately maintained and determine whether changes made since the last inspection were technically adequate, met NRC requirements, licensee commitments, and were appropriately incorporated into the emergency plan and implementing procedures. Licensee offsite communication circuits were included in this determination.
- Reviewed communications equipment in the emergency response facilities to determine if equipment was operable and if communication drills were conducted as required.

b. Observations and Findings

The emergency kits were properly maintained and stocked. The inspectors reviewed the inspection frequency and found that the inspections were performed per the licensee's procedures.

The inspectors found examples where respirator face pieces were stored such that the sealing surfaces could become distorted. This was identified to the licensee and the condition was immediately corrected. The licensee also took action to ensure that personnel who inspect equipment in these lockers were aware of the proper storage of respirator face pieces. The inspectors considered these actions to be appropriate.

Telephone circuits were tested during the tour of emergency response facilities. All of the telephones tested were operable. The inspectors reviewed records showing the frequency of communication tests. When problems were identified during testing, they were corrected expeditiously.

The inspectors noted that the emergency telephone directory listed the telephone number for the NRC Region IV switchboard as a "24 hour" telephone number. Because the Region IV switchboard is only staffed during normal office hours, the listing was identified as an error in the licensee's telephone book. The licensee initiated a change to the telephone directory to correct the error. In addition, the licensee stated that the process used to verify telephone numbers would be modified to include confirmation that the numbers listed were actually telephone numbers that would be answered 24 hours a day. The inspectors determined that these actions were comprehensive and adequate.

During the tour of the control room, the inspectors observed the storage area for spare breathing air bottles. Documentation on the bottles indicated that the bottles were inspected on an appropriate frequency, and the pressure gauges on each bottle indicated an acceptable pressure. The inspectors determined that the spare breathing air bottles were stored and maintained properly.

The inspectors noted that the licensee only used medium sized face pieces for self-contained breathing apparatus. The inspectors discussed the respirator qualification process for emergency response organization personnel. The inspectors were informed that there was one, on-shift, non-licensed operator who was not able to qualify to wear a respirator due to failing the fit test. By being on-shift, this individual was considered to be included in the "essential personnel" category.

The inspectors reviewed management expectations for the emergency response role assigned to the individual who could not be fitted with a medium face piece. The licensee confirmed that this individual was not assigned a role that would require using a respirator. The inspectors discussed the actions to be taken during a toxic gas emergency. Management's expectation was that this individual would evacuate with other plant personnel in the event of a toxic gas emergency. However at the time of the discussion with the inspectors, it was not certain that this expectation was known by the individual or shift supervision. The licensee informed the individual and shift supervisors of this expectation.

The inspectors reviewed the impact on minimum on-shift staffing in the event this individual had to evacuate. The licensee confirmed that this individual was not counted when determining if minimum shift staffing requirements were met. The inspectors determined that the licensee's actions regarding this individual were appropriate.

c. Conclusions

Emergency kits and telephone circuits were properly maintained. Spare breathing air bottles were routinely inspected and stored properly. Management expectations were clarified regarding actions to be taken by a non-licensed operator who could not be fitted with a self-contained breathing apparatus. Emergency response facilities were maintained in a state of readiness.

P3 Emergency Preparedness Procedures and Documentation

a. Inspection Scope (82701-02.01)

The inspectors reviewed:

- Changes incorporated by Revision 18 to the licensee's emergency plan to determine if the changes adversely affected the licensee's overall state of emergency preparedness and to determine if the changes had been appropriately incorporated into emergency plan implementing procedures.
- The licensee's process for documenting annual reviews of and changes to emergency action levels by state and local agencies.
- Emergency plan to determine if the licensee has taken steps to understand how state and local officials will use the licensee protective action recommendations to make protective action decisions. Procedures and aids were reviewed to determine if appropriate offsite agency telephone numbers and contacts were listed.
- On-shift staffing to determine the adequacy of minimum staffing levels to perform the tasks identified in the licensee's emergency plan. The licensee's staff augmentation plan was reviewed. The results of augmentation drills were reviewed to determine if the results were consistent with the licensee's plan.
- The licensee's program for tracking exercise objectives, drills, and exercises to determine if the required elements were properly scheduled.

b. Observations and Findings

The licensee recently implemented a new procedure to incorporate severe accident guidelines. According to the latest emergency plan, the emergency director had the non delegable authority to implement the severe accident guidelines procedure. The inspectors reviewed the procedure and then asked shift supervisors questions related to the new procedure. The personnel questioned understood the purpose of the procedures and that, as a shift supervisor, they were in a potential position to declare entry into this procedure. The inspectors determined that the licensee had adequately trained personnel on the use of this new procedure.

While reviewing minimum on-shift staffing, the inspectors referred to Table C-1 in Revision 18 to the licensee's emergency plan. With regard to on-shift health physics technician staffing, the emergency plan stated the following:

- One senior health physics technician was on-shift to perform dose assessment
- Two health physics technicians were on-shift to perform onsite/offsite surveys
- Two health physics technicians were on-shift to perform access control, radiation protection job coverage, personnel monitoring, and dosimetry. These could be covered by on-shift personnel assigned other functions.

The inspectors confirmed that the on-shift staffing included a minimum of two health physics technicians and a senior health physics technician. According to the licensee, the other two health physics technicians were covered by on-shift, non-licensed operators.

The licensee stated that a large number of health physics technicians recently transferred and became non-licensed operators. These individuals were maintaining their qualifications as health physics technicians. As such, they could be routinely assigned to perform duties other than health physics activities, and be used to fulfill the roles of access control, job coverage, personnel monitoring, and dosimetry in the event of an emergency. The inspectors determined that this process was appropriate. However, the inspectors pointed out that a mechanism may be needed to ensure that health physics technician qualifications were maintained and to ensure a minimum number of alternatively qualified personnel were on-shift.

The inspectors reviewed the licensee's emergency response division plan for drills, exercises, and training. Reports for selected drills and exercises were reviewed. The inspectors determined that these drills and exercises were consistent with the licensee's emergency plan.

c. Conclusions

Emergency response organization personnel were very knowledgeable regarding recent changes to emergency plan implementing procedures. On-shift staffing for health physics technicians was consistent with the licensee's emergency plan. Drills and exercises were performed consistent with the licensee's emergency plan.

P5 Staff Training and Qualification in Emergency Preparedness

a. Inspection Scope (82701-02.04)

The inspectors reviewed the training program procedure, training records for selected individuals, and records and documents associated with emergency drills and exercises. The inspectors focused on new training requirements and the status of qualifications of individuals in the emergency response organization. The inspectors also reviewed examinations administered to certify competence in required skills for emergency responders.

b. Observations and Findings

Procedure OPGP03-ZT-0139, "Emergency Preparedness Training Program," Revision 4, identified the required initial and annual training for emergency response organization personnel. The latest revision of the procedure added a new requirement for the on-shift responder position "acting radiation manager" to receive annual training in prompt dose assessment and protective action recommendations. The inspectors reviewed the training records for all personnel qualified as acting radiation managers and determined that all had received the new training.

The inspectors reviewed the qualifications of selected emergency response organization personnel (onshift and call-out). Procedure OPGP05-ZV-0703, "Emergency Response Organization," Revision 2, step 5.2.4, stated, "An individual shall not be assigned to the ERO until training and qualification is complete." Step 5.3.1 of the same procedure stated, "ERO members shall maintain qualifications in accordance with OPGP03-ZT-0139, 'Emergency Response Training Program'." On September 3, 1997, the inspectors identified two cases in which individuals in the emergency response organization had not received the proper initial or annual training for their assigned position.

One individual identified by the inspectors was assigned as an assistant radiation manager on the emergency response organization call-out roster. The position was not part of the minimum response organization identified in the licensee's emergency plan.

The other individual identified by inspectors was assigned to the on-shift response organization as one of three or four plant operators capable of performing the state/county communicator responder function. Procedure OPGP03-ZT-0139, "Emergency Response Training Program," Revision 4, Section 4.4.4 stated "Personnel filling the position of Control Room State/County Communicator shall receive offsite notification training annually." The individual had participated in an exercise or drill within the past year in the assigned emergency responder position and demonstrated the ability to make notifications. However, drill participation could not be substituted for the required annual training. Additionally, while the emergency director in the control room could have obtained another individual from the shift organization, there was nothing to signify that any of plant operators on shift was not currently qualified. When the inspectors identified the condition to the licensee, both individuals were promptly removed from the emergency response organization lists.

The licensee had identified a generic issue regarding emergency responder qualification maintenance and documented its findings in Condition Report 97-4678, dated February 27, 1997. The licensee continued to identify problems subsequent to the initial condition report and had consolidated the analyses and corrective actions of several condition reports into a single condition report (97-6993 dated April 10, 1997). Several of the corrective actions were still in the initial implementation phase and some had not yet begun. The licensee's root-cause analysis identified poor control of information in their database as the reason that individuals' lapsed qualifications were not detected during normal reviews.

The inspectors discussed the quality of the training program procedure that established the various qualification requirements. The inspectors pointed out that the various qualification requirements were cumbersome to identify and understand, especially for someone who did not review and use the procedure regularly. In one case, the procedure did not identify the training course being used to maintain the qualifications of security force emergency responders. The procedure did not indicate which, if any, courses could be substituted for a specific requirement. However, the licensee allowed the emergency director course to be substituted for the emergency support course. The licensee acknowledged that there was room for improvement in the training program procedure and expressed an intent to revise it to improve its usefulness.

The inspectors reviewed the licensee's corrective actions to date, and the plans for additional corrective actions plans and concluded that they appeared adequate to prevent a repeat violation when fully implemented. The inspectors determined that the significance of these findings to be minor because:

- The first individual identified was not assigned to a minimum staffing position on the emergency plan

- There were sufficient numbers of qualified personnel to fill the position assigned to the second individual

The inspectors concluded that the two cases identified during the inspection were part of the overall condition previously identified by the licensee where corrective actions were still being implemented, rather than a new violation, and that the safety significance of the specific examples was low. 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 (50-498;-499/97013-01).

The inspectors assessed the quality of the examinations administered to emergency responders as a part of required training. The licensee developed examinations for emergency responders performing dose assessment and protective action recommendations that were of high quality. The individual questions focused on task relevant knowledge, discriminated at the proper level, and contained very few construction deficiencies. However, the examinations developed for the basic emergency direction and emergency support training courses contained a number of flaws that reduced the discrimination capability of the examinations. A number of questions were true-false or "true-false" in nature which increased the ability of the student to guess the correct answer. Other questions contained multiple choice distractors that could easily be discarded due to low credibility. Additionally, there were a few instances of double jeopardy in which the same knowledge was tested in two or more questions.

During interviews with operations personnel, the inspectors learned that these individuals had not been trained on the process used to change bottles while wearing a self-contained breathing apparatus. In the event of a toxic gas emergency, operations personnel would need to don these self-contained breathing apparatus. When the bottle air supply was exhausted, they would have to change out the bottle with one that was charged with air. This process would have to be done within the toxic gas environment. This issue was identified to the licensee.

In response, the licensee confirmed that fire brigade personnel were trained to change out air bottles as part of the fire brigade training. However, the licensee noted that the routine respiratory protection course did not address this topic. The licensee initiated a condition report to evaluate potential enhancements to the respiratory protection training program. The inspectors determined that this action was appropriate.

c. Conclusions

The licensee conducted training on new requirements for all acting radiation managers in a timely manner. A noncited violation was identified for a licensee-identified problem in tracking and maintaining emergency responder qualifications. Examinations used to certify emergency responders were of mixed quality.

P7 Quality Assurance in Emergency Preparedness Activities

a. Inspection Scope (82701-02.05)

The inspectors examined independent and internal review and audit reports for the licensee's emergency preparedness program since the last inspection to determine compliance with NRC requirements and licensee commitments.

The inspectors evaluated the effectiveness of the licensee's controls in identifying, resolving and preventing problems by reviewing corrective action systems, root cause analyses, safety committees, and self assessment in the area of emergency preparedness.

The inspectors evaluated the licensee's corrective actions for audit identified deficiencies and those identified during drills and exercises.

b. Observations and Findings

Audits of the emergency preparedness program were performed on a regular basis as required by the emergency plan. The audits were performed by personnel who were familiar with emergency preparedness program implementation, regulations, and requirements. As such, the issues identified were very well focused and indicated areas where improvement was needed. The inspectors considered the audits of the emergency preparedness program to be very good.

The inspectors reviewed the assessment of the offsite interfaces for the emergency preparedness program. The assessment indicated that the licensee had fostered a very good working relationship with offsite agencies that was maintained through routine contacts with offsite officials. The transmittal of the offsite interface assessment to offsite agencies was documented appropriately.

The licensee performed numerous self assessments related to various facets of the emergency preparedness program. These self assessments often identified areas for improvement. When issues were identified, corrective actions were initiated using the condition report system. This practice provided a consistent method for tracking, assigning priorities, and ensuring proper resources were assigned to the issue. Based upon the inspector's review, condition reports associated with issues identified during audits, self assessments, drills, and exercises were generally processed in a timely manner.

c. Conclusions:

The licensee continued to perform very good audits and self assessments. Audits were performed by qualified personnel and provided good findings and served to

identify areas needing improvement. Corrective actions for audit and assessment findings were addressed in a timely and correct manner.

P8 Miscellaneous Emergency Preparedness Issues (92904)

P8.1 (Closed) Inspector Follow-up Item 50-498:499/9613-01: Offsite Protective Action Recommendations

An exercise weakness was previously identified involving the failure to follow procedures for issuing offsite protective action recommendations. Two examples were discussed. The first example involved the failure to consider protective action recommendations at the site area emergency as required by the licensee's procedures. The second example involved the failure to notify offsite agencies within 15 minutes as required by the protective action recommendation procedure.

During the simulator walkthroughs, the inspectors observed an operating crew properly evaluate the potential need for protective action recommendations at the site area emergency and make timely offsite notifications.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at an exit meeting on September 4, 1997. The licensee acknowledged the findings presented. No proprietary information was identified. The licensee confirmed that all confidential documents provided by the licensee had been returned.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

L. Barton, Offsite Program Specialist
J. Enoch, Staff Emergency Planning Specialist
J. Hessling, Shift Supervisor
R. Hutchinson, Staff Emergency Planning Specialist
K. Keyes, Staff Emergency Planning Specialist
S. Murry, Emergency Response Technician
F. Puleo, Emergency Response Supervisor
P. Serra, Manager, Emergency Planning
V. Wagon, Emergency Response Specialist

INSPECTION PROCEDURES USED

82701 Operability Status of the Emergency Preparedness Program
92904 Followup - Plant Support
93702 Prompt Onsite Response to Events at Operating Power Reactors

LIST OF ITEMS OPENED AND CLOSED

Opened

50-498;499/9713-01 NCV Emergency Response Organization Training

Closed

50-498;499/9613-02 IFI Offsite Protective Action Recommendations
50-498;499/9713-01 NCV Emergency Response Organization Training

LIST OF DOCUMENTS REVIEWED

Emergency Plan Implementing Procedures

OPGP03-ZT-0139	Emergency Preparedness Training Program	Revision 4
OPGP03-ZT-0139	Emergency Preparedness Training Program	Revision 4
OERP01-ZV-IN01	Emergency Classification	Revision 3
OPGP05-ZV-0001	Emergency Response Exercises and Drills	Revision 2

Other Documents

Emergency Response Roster August 26, 1997, run date

Emergency Response Organization - Emergency Preparedness Training tracking August 27, 1997, run date

All 10CFR50.72 event reports related to South Texas Project from March 21, 1996, through August 12, 1997

Dress Rehearsal Drill Report for July 10, 1997

Condition Report 97-6993

Condition Report summary for condition reports related to Emergency Response since February 1, 1996