

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-498/88-06
50-499/88-06

Operating License: NPF-71
Construction Permit: CPPR-129

Dockets: 50-498
50-499

Licensee: Houston Lighting & Power Company (HL&P)
P.O. Box 1700
Houston, Texas 77001

Facility Name: South Texas Project (STP), Unit 1

Inspection At: U.S. NRC Region IV Office, Arlington, Texas, and STP-1 site,
Bay City, Texas

Inspection Conducted: January 5-15, 1988, in the RIV office and
January 26-29, 1988, at STP site

Inspectors: Robert J. Evans 2-22-88
R. J. Evans, Reactor Inspector, Operational Programs Section, Division of Reactor Safety Date

D. R. Hunter 2/22/88
D. R. Hunter, Chief, Technical Support Staff Division of Reactor Projects Date

Approved By: J. E. Gagliardo 3/11/88
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Inspection Summary

Inspection Conducted January 5-15 and 26-29, 1988 (Report 50-498/88-06;
50-499/88-06)

Areas Inspected: A special inspection of selected South Texas Project Electric Generating Station Unit 1 (STP-1) Licensee Events Reports (LERs), written reports, was performed in the Region IV office and at the STP-1 site.

Results: Two of the written reports reviewed (LER 87-12, paragraph 2.a.1) and LER 87-17, paragraph 2.b.1) - described events considered as significant by the NRC. The additional details on LER 87-17 are documented in NRC Inspection Report 50-498/87-71. Both the matters were discussed with the licensee during an enforcement conference conducted on December 30, 1987.

DETAILS1. Persons ContactedHL&P

R. Beavers, RMS Supervisor
 J. Bouton, Licensing Engineer
 C. Ayala, Supervising Licensing Engineer
 R. Ferguson, Licensing Engineer
 *S. D. Phillips, Engineer
 *J. S. Phelps, Supervising Engineer
 *G. E. Vaughn, Vice President, Operations
 *T. J. Jordan, Project QA Manager
 *J. T. Westermeier, Project Manager
 *J. E. Geiger, Nuclear Assurance Manager
 *S. M. Head, Supervisor, Operations Licensing
 *H. E. Dudley, Nuclear Training Supervisor
 *M. A. McBurnett, Operations Support Licensing Manager

NRC

H. F. Bundy, Project Engineer
 G. L. Constable, Chief, Project Section D
 *R. J. Evans, Reactor Inspector
 D. R. Hunter, Chief, Technical Support Staff
 *D. M. Hunnicutt, Senior Project Engineer
 *A. B. Beach, Deputy Director, Division of Reactor Projects
 *J. P. Jaudon, Deputy Director, Division of Reactor Safety

*Denotes those attending the exit interview.

2. Area Inspected (In-Office Review of LERs)

The Licensee Event Reports (LERs) 87-01 through 87-25 were reviewed to determine whether the LERs described any specific or generic operational safety problems. The reports were generally accurate and of acceptable quality. Two of the LERs (87-01 and 87-08) were determined by the licensee to describe nonreportable events. The LERs reviewed involved personnel errors, surveillance procedure deficiencies, and the Toxic Gas Monitoring System.

a. Personnel Errors

The review of STP-1 Licensee Event Reports (LER) identified four LERs resulting from operator error (87-01, 87-04, 87-05, 87-12), and four LERs resulting from nonoperations personnel errors (87-06, 87-13, 87-22, and 87-24). Two additional LERs, 87-02 and 87-15, identify possible switch/controls manipulation without the knowledge or concurrence of operations personnel. The inspectors also noted two

LERs (87-21 and 87-25) which had root causes that were not conclusively identified, but were associated with personnel error.

The following weaknesses were identified from the LERs reviewed:

- (1) LER 87-12 reported the operator error that led to the High Head Safety Injection (HHSI) System being declared inoperable due to the cold leg injection valves being closed while in Mode 4. Illuminated alarms were not recognized or responded to properly, and the operators failed to recognize that the valves had been closed for 51 hours. This described situation indicated a lack of attention by operations personnel to the control board lineup and a failure of the operations staff to identify alarms that were valid for the mode of operation. The closing of these valves is significant because Technical Specifications (TS), Section 3.5.3.1.c requires that two of the three HHSI valves be open while in Mode 4. This matter was discussed with HL&P management in an enforcement conference conducted on December 30, 1987, in Region IV.
- (2) LER 87-05 described a control room ventilation actuation to recirculation mode (ESF actuation) due to a loss of power to the toxic gas monitors. The power loss was due to personnel error, followed by an incorrect operator response to a local inverter alarm. There was no indication in LER 87-05 whether or not the operator used the procedure to respond to the local alarm or to line up the inverter.
- (3) LER 87-25 described a loss of offsite power event. Although the root cause could not be conclusively established, the event appeared to be the result of the failure of maintenance personnel to follow written procedures verbatim.

The number of LERs associated with operations/personnel errors indicates a need for continued training in the use of procedures in the areas of plant operations and maintenance at STP. Use of procedures during alarm responses also should be stressed. Observation of correct procedures used should be considered by HL&P management. The control and verification of plant status at all times, but particularly during mode changes, should be evaluated extensively by HL&P management.

b. Surveillance Procedure Deficiencies

Three LERs (87-09, 87-17, and 87-19) were the result of surveillance procedure deficiencies.

The following weaknesses were identified:

- (1) LER 87-17 described the event where the pressurizer low pressure SI setpoint was found to be low (setpoints less conservative

than TS requirements) due to surveillance procedural errors. The LER 87-17 stated, ". . . No violations of the Technical Specifications occurred." The TS sections quoted were 3.3.2 and Table 3.3-3. The pressurizer pressure-low instrumentation is required to be operable in Modes 1-3 with a footnote on Mode 3: "Trip function may be blocked in this mode below the P-11 (Pressurizer Pressure Interlock) setpoint." The NRC staff considers the pressurizer low pressure channels to have been inoperable due to setpoint errors; therefore, the applicability of the footnote does not appear to be relevant to the operability issue as applied by the licensee in LER 87-17. An apparent violation of TS violation, Section 3.3.2, occurred due to the instrumentation channels being inoperable during Mode 3 operation on November 22, 1987. This matter was discussed with HL&P management in an enforcement conference conducted on December 30, 1987, in Region IV (Reference: NRC Inspection Report No. 50-498/87-71).

- (2) LER 87-09 documents an event that was the result of a procedure not being updated when the TS were revised. The licensee needs to implement measures that ensure changes to the license, or TS, are reflected as appropriate in the program and procedures.

The failure to ensure procedures were updated/correct following a change to the TS appears to be the root cause of these events. The controls established to provide program and procedure changes when appropriate should be reviewed by HL&P management. In addition, the interpretation of the TS by HL&P in LER 87-17 was not acceptable.

c. Toxic Gas Monitoring System

Seven LERs involved the Toxic Gas Monitoring System, including a loss of power (87-05, 87-13), equipment failure (87-07, 87-11, 87-20), detection of paint fumes (87-14), and inoperability following a channel check (87-22). LER 87-20 indicated corrective action which included modification (two inoperable monitors on loss of power or malfunction to initiate an ESF actuation) to the Toxic Gas Monitoring System. The purpose of this modification was to reduce the number of Engineered Safety Feature actuations and subsequent LERs due to a single monitor failure.

The high number of LERs associated with the Toxic Gas Monitoring System indicates that a review of the design may be in order to reduce unnecessary actuation, thus preventing premature wear and damage to the control room ventilation equipment.

3. Areas Inspected (Onsite Followup of LERs)

To supplement the in-office review of LERs, an onsite followup was performed. Three LER/Station Problem Report (SPR) packages were inspected onsite. All three (LERs 87-01, -06, and -07) had been closed by the

licensee. The corrective actions to four LERs were inspected in the field to verify completion (LERs 87-01, -04, -14, and -24). Additionally, requests for additional information on five other LERs were directed to STP Licensing Engineering Group by the NRC (LERs 87-02, -06, -12, -15, and -20).

The details of the inspection are described below by LER number.

a. LER 87-01

The corrective actions and completed LER/SPR package of LER 87-01 were inspected. The panel Rm-11 displays were observed with no concerns. The SPR package No. 870337 was inspected to verify LER closeout. The LER event date was August 24, 1987, and the LER closeout date was January 23, 1988. The lack of timeliness on closeout of the LER was noted. NRC closeout of LER 87-01 is not required since this LER is considered "voluntary."

b. LER 87-02

A request was made to inspect local radiation monitor skids to verify completion of corrective actions. The licensee stated that corrective actions a through c may be revised since the original corrective actions were rejected during an engineering review. Because of the possibility of an LER 87-02 revision, the field verification was not attempted. LER 87-02 is open.

c. LER 87-04

The corrective actions of LER 87-04 were field inspected. Panel ZCP-023 was inspected, with one incomplete action noted. Corrective Action Item No. 4, the placement of red warning tape on the panel, was not completed. A licensee representative stated that the tape was placed, then removed, from the panel at a later date. The NRC inspector determined that the tape was not necessary since corrective action item No. 3 placed warning labels on the panel which performs the same function as the red tape. LER 87-04 is open.

d. LER 87-06

The root causes and corrective actions of LER 87-06 were inspected. As stated in the LER, the cause of the event was the use of the wrong procedure by a technician while changing a filter on the radiation monitoring system. The corrective actions consisted of technician training. The cause of the event was a technician using the wrong procedure but the root cause may have been inadequate supervision, improper training or any similar programmatic errors.

The corrective actions stated in LER 87-06 were verified complete by the NRC. The LER 87-06 (SPR No. 870356) event date was September 5, 1987, corrective actions were completed on September 23, 1987, but closure date by licensee was January 28, 1988. This event report is considered closed.

e. LER 87-07

A review of the LER/SPR No. 870359 package was performed. The LER 87-07 was closed by the licensee on January 3, 1988. The event date was September 6, 1987. No concerns were noted with the package closeout by the NRC. This event report is considered closed.

f. LER 87-12

The licensee's immediate corrective actions on this event were inspected by the senior resident inspector in November 1987. Subsequent corrective actions were inspected during this inspection to verify completion. Corrective actions were verified to be complete, including the following:

- (1) updating of Plant Heatup Procedure IPOP03-ZG-0001 (Revision 6) to include a step to open the LHSI and HHSI cold leg injection valves;
- (2) addition of a safety function checklist (Modes 1-4) to Plant Operations Shift Turnover Procedure OPGP03-ZA-0063 (Revision 6); and
- (3) updating of RHK System Operation Procedure IPOP02-RH-0001 (Revision 7) to verify correct valve, switch and breaker lineup.

The event described by LER 87-12 was discussed in an enforcement conference on December 30, 1987, and is being considered for escalated enforcement action (EA-240). This event report remains open.

g. LER 87-14

The corrective actions of LER 87-14 were verified to be only partially complete. Corrective Action Item No. 1, placement of warning signs, was performed by the licensee and verified by the NRC. LER 87-14 is open.

h. LER 87-15

The corrective actions of LER 87-15 were verified complete. The MEAB log sheets (Procedure I PSP03-ZQ-0002-2, Revision 4) have been updated to ensure heaters of safety-related chillers are on. The LER is considered open by the NRC, because the LER/SPR package remains open by the licensee.

i. LER 87-20

Requests for information on the modifications suggested in LER 87-20 on the Toxic Gas Monitoring system could not be obtained. The licensee stated that the modification was rejected by the NSRB, requiring further investigation and review. The LER is open.

j. LER 87-24

Some of the corrective actions of LER 87-24 were verified complete in the field. Panel ZCP-023 was inspected (in conjunction with corrective action review of LER 87-04) for panel modifications. The LER is open.

k. During the onsite followup of LERs, several problem areas were noted:

- o Using LER 87-06 as an example, root causes of events need to be clearly identified to prevent a recurrence of the event. If only the cause is identified, and not the root cause, then the event could be repeated.
- o Ensure generic implications to other components and procedures have to be adequately considered. For example, if a component fails, find out what specific item of the component failed. Will this item probably fail in other similar applications? If so, replace all similar items.
- o An independent technical review of LERs should be performed to help assure root causes and associated corrective actions are properly identified.
- o Timeliness in closeout of LERs by the licensee needs improvement. For example, LER 87-06 was ready for closeout in September 1987, but was officially closed out in January 1988. Licensee closeout of an LER is required prior to closeout of the event by the NRC.

4. General Comments

Based on the review of the reports, the overall quality of the LERs appeared to be adequate regarding report content and clarity. However, specific items were noted where the LER could use improvement, including:

- a. commitment dates for implementation of stated corrected actions need to be delineated.
- b. several reports were submitted outside the 30-day period allowed by 10 CFR 50.73;
- c. the TS referenced in LER 87-12 (3.6.3.1 rather than 3.5.3.1.c) did not appear to be correct;

- d. ensuring acceptable performance levels regarding the establishment, maintaining, and implementation of procedures by operations and nonoperations personnel (paragraph 2.a.);
- e. the establishment of controls to ensure conservative interpretations of the Technical Specifications and to ensure changes to the license are reflected, as appropriate, in programs and procedures (paragraph 2.b.);
- f. ensure the needed detailed design review of the Toxic Gas Monitoring System addresses the system design requirements, including the equipment wear and single failures (paragraph 2.c.);
- g. the improvement in the timeliness in closeout of written reports (paragraph 3.k);
- h. root causes of events need to be clearly identified to prevent recurrence of the event (paragraph 3.k);
- i. generic implications to other components and procedures have to be adequately considered (paragraph 3.k); and
- j. an independent technical review of LERs should be performed to help assure root causes and associated corrective actions are properly identified (paragraph 3.k.).

5. Exit Interview

An exit interview was conducted on January 29, 1988, with attendees noted in paragraph 1. The scope and results of the inspection were presented to the licensee. The LER status was discussed: number of LERs reviewed, LER/SPR packages inspected, LERs considered closed, and which LERs were field inspected. Also, most of the general comments listed in paragraph 4 were presented to the licensee as recommendations by the NRC for LER process improvements.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during the inspection.