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MEMORANDUM FOR: Arthur T. Howell, Chief
Projects Section D
Division of Reactor Projects
Region IV

FROM: Jack E. Rosenthal, Chief
Reactor Operations Analysis Branch
Division of Safety Programs
Office for Analysis and Evaluation
of Operational Data

SUBJECT: AEOD INPUT FOR SOUTH TEXAS SALP

AEOD has reviewed the LERs submitted by Houston Lighting & Power Company during the SALP period from February 1, 1990 to April 30, 1991. Our review concentrated on the safety importance of the events, trends, and reporting completeness.

The enclosure provides observations from our review of LERs. If you should have any questions regarding this report, please contact either myself or Chuck Hsu of my staff (FTS 492-4443).

Original signed by
Jack E. Rosenthal, Chief
Reactor Operations Analysis Branch
Division of Safety Programs
Office for Analysis and Evaluation
of Operational Data

Enclosure: As stated
cc: Joseph I. Tapia, SRI, RIV
George F. Dick, PM, NRR

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ENCLOSURE

AEOD INPUT TO SALP REVIEW FOR SOUTH TEXAS UNITS 1 AND 2

Houston Lighting & Power Company submitted 46 reports for the two units at South Texas, not including updates, in the assessment period from February 1, 1990 to April 30, 1991. Our review included the following LERs:

Unit 1	Unit 2
90-003 to 90-026	90-002 to 90-018
91-001 to 91-004	91-001 to 91-002

The LER review followed the general instructions and procedures of NUGEG-1022. The specific review criteria and our findings follow:

1. Important Operating Events

There were six reported events at South Texas that were identified as important events by the AEOD screening and review process in this assessment period. These events were:

LER 50-498/90-007: The unit was in Mode 6 for a refueling outage when the licensee discovered that all three trains of the Engineered Safety Features Actuation System (ESFAS) had been placed in test and had been incapable of automatic actuation for approximately 35 minutes. This disabled the automatic actuation of containment ventilation isolation which is required to be operable by the plant technical specifications. The event was attributed to an inadequate maintenance procedure which did not identify that the procedure could not be performed during core alterations. The procedure was modified and a training bulletin was issued to inform operation personnel of the event. (Event date:4/30/90)

LER 50-498/90-014: With the unit at 15% power while performing synchronization of the main generator to the grid, a reactor trip occurred due to undervoltage to the reactor coolant pumps. During the synchronization, a spurious actuation of a generator breaker pole failure relay caused a generator breaker lockout which led to a loss of power to both the Main and Unit Auxiliary Transformers. Loss of power to the Unit Auxiliary Transformer caused a loss of power to the reactor coolant pumps. The erratic actuation of the relay was probably due to setpoint drift. The licensee had also failed to perform recommended maintenance checks on the relay. The event involved an unexpected component performance with generic implications. The licensee's corrective actions included calibrating the relay and adding a preventative maintenance program to check the calibration on an annual basis. (Event date:6/20/90)

LER 50-498/90-018: The plant was operating at full power when the train A main feedwater isolation valve (FWIV) failed to stroke closed during an operability test. Since the operability of the isolation valve is required by the plant technical specifications, a plant shutdown was initiated and notification of unusual event was declared. The cause of this event was the

failure of two hydraulic fluid dump valves to open as required. Corrective actions included replacing the dump valves for the isolation valve and testing of new dump valves and the remaining FWIVs on both units to verify that the other dump valves operate as required. (Event date:7/7/90)

LER 50-498/90-026: With the unit in Mode 5, while attempting to transfer power to standby bus 1G from the unit 2 standby transformer to the unit 1 standby transformer, a Train B Loss of Offsite Power actuation occurred. This resulted in a loss of offsite power to the 4.16 kv Engineered Safety Feature (ESF) bus E1B. The cause of this event was failure of the unit 2 standby transformer to the standby bus supply breaker to open. The existence of hardened grease, combined with friction between the trip arm linkage and a metal cover, had prevented the breaker from opening. The licensee's maintenance record indicated that no preventive maintenance had been performed on the breaker since startup of the unit and other breakers also could have had problems attributable to hardened grease. The maintenance program was revised to include a preventive maintenance procedure. (Event date:12/19/90)

LER 50-499/90-007: The unit was operating at full power when the licensee responded to a high slump level alarm and discovered approximately five inches of water accumulation on the floor of the standby diesel generator (SDG) 22 room. At that time, additional water was still leaking through the removable panels located on the north exterior wall from a severe rainstorm. The event was attributed to lack of procedure control. There were no procedure controls to ensure that the removable panels were reinstalled in accordance with design requirements. The event involved a flood which could have caused a loss of SDG when needed to prevent an accident. Procedural controls and improved design requirements were developed to ensure proper reinstallation or the removable panels. (Event date:4/26/90)

LER 50-499/90-011: With the plant at full power, the "2D" steam generator power operated relief valve (PORV) was removed from service to perform maintenance on a limit switch. During post-maintenance activities, it was discovered that the valve did not meet the stroke time requirements and thus could not be returned to service. The failure was due to chemical breakdown of the hydraulic fluid in the actuator assembly. It was determined that steam leakage past the valve bonnet had impinged on the actuator and caused the chemical breakdown. Since the repair needed an extensive time and could not be completed within the action statement time required by the plant technical specifications, the plant was shutdown for a maintenance outage. The event involved a previously unrecognized inter-dependence between components with generic implications. In addition to replacing the hydraulic fluid and repairing the steam leak, the licensee's corrective actions included a design change to minimize moisture intrusion into the valve actuator. (Event date:6/28/90)

2. AEOD Technical Study Reports

There were no AEOD study reports during this assessment period that addressed specific events at the South Texas plants.

3. Abnormal Occurrences and Other Events of Interest

No events occurring during this assessment period were classified as Abnormal Occurrences for inclusion in the NUGEG-0090 report to Congress.

4. PNs Issued in Assessment Period

Ten Preliminary Notifications of Events of Unusual Occurrence reports were issued for the South Texas plants by Region IV during the assessment period. Eight of the events described in the PNs appear to be reportable, and LERs for these events were submitted by the licensee.

5. 10 CFR 50.72 Reports

The licensee made forty-five 10 CFR 50.72 reports in this period. The licensee's reportability analyses for forty-four events were acceptable. Based on the guidelines of 50.73(a)(2)(iv), we believe an LER should have been submitted for the remaining one event which involved inadvertent actuation of the RHR system (EN No. 19875 dated 11/06/90).

6. LER Quality

The LER adequately described the major aspects of each event.

7. Other Issues

The licensee was not able to determine the cause for five events (LER 50-498/90-005, 91-003, LER 50-499/90-002, 016, and 018) in this reporting period. Of the 46 LERs submitted, 5 were not submitted within 30 days of discovery of the reportable events. Causes of the events are distributed among various categories. However, a high number (19) of the LERs were associated with human factor deficiencies, i.e., personnel error, inadequate procedure and programmatic deficiencies.

TECHNICAL SPECIFICATION CHANGE REGARDING THE NUMBER OF DIESEL GENERATORS REQUIRED DURING MODE 5 AND 6 FOR SOUTH TEXAS PROJECT UNITS 1 & 2 (TAC NO. M90798 AND M90799)

ATTACHMENT 2

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

FACILITY NAME South Texas Project, Units 1 and 2

SUMMARY OF REVIEW

By letter dated November 7, 1994, and supplemented by letters dated December 20, 1994 and January 23, 1995, Houston Lighting and Power (HL&P) the licensee for South Texas Project Electric Generating Station (STPEGS) Units 1 and 2, submitted a proposal to change their Technical Specifications (TS). Specifically, the changes are to TSs 3.8.1.2, 3.8.2.2, 3.8.2.3 and 3.9.1? In addition STPEGS proposed to add an additional TS, 3.8.1.3. The Reactor Systems Branch has reviewed the portion of the submittal that pertains to the additional TSs and found the request acceptable. The remaining portions of the submittal are being reviewed by the Technical Specifications, Plant Systems, and the Electrical Systems Branches.

NARRATIVE DISCUSSION OF LICENSEE PERFORMANCE - SAFETY ASSESSMENT/QUALITY VERIFICATION

The licensee original request was modified to ensure safe operation. The licensee was cooperative and prompt in their response to our questions. In the future a greater lead time would be beneficial to the reviewer.

AUTHOR: S. Brewer
DATE: _____

E/1

Attachment 2

Memorandum dated 3/17/95 from: Carl H. Berlinger
to: William D. Beckner

SAFETY EVALUATION OF REVISED TECHNICAL SPECIFICATIONS FOR ELECTRICAL POWER SYSTEMS (DC SOURCES) DURING OPERATION **SALP INPUT** SOUTH TEXAS PROJECT, UNITS 1AND 2 TAC NO.M90868)

FACILITY NAME: SOUTH TEXAS PROJECT, UNITS 1 AND 2

SUMMARY OF REVIEW/INSPECTION ACTIVITIES

In a letter dated November 8, 1994, Houston Lighting and Power Company proposed a revision to Technical Specification (TS) 3.8.1.2 for the South Texas Project, Units 1 and 2. The staff has reviewed the proposed revisions and concludes that the proposed change is acceptable, as noted in the safety evaluation.

NARRATIVE DISCUSSION OF LICENSEE PERFORMANCE
FUNCTIONAL AREA: ENGINEERING/TECHNICAL SUPPORT

The licensee gave the staff all the information needed to evaluate the proposed TS change. The original submittal was inadequate. The staff required several telephone conferences and additional submittals to complete its review. The licensee demonstrated a clear understanding of the change to the TS and satisfactorily answered NRC staff's questions.

Author: O. Chopra
Date: March 9, 1995

E/2

Memoranudm dated 3/27/95 from: Robert M. Gallo to: William D. Beckner
SALP INPUT FOR SOUTH TEXAS PROJECT (stp)

Facility Name: South Texas Project

Functional Area: Engineering

Summary of Inspection Activities

The Special Inspection Branch with support from Region IV, performed an engineering inspection at South Texas Project from January 9 through 27, 1995. The inspection focused on the effectiveness of Houston Lighting & Power Company's engineering organization to perform routine and reactive activities to support plant operations. The inspection team reviewed samples of such engineering documents as permanent and temporary modifications, calculations, condition reports, vendor documents, licensee event reports, and justification for continued operation. The team interviewed system engineers, design engineers, and managers. The team also reviewed the system engineering program, as well as engineering audit and self-assessment activities.

Narrative Discussion of Licensee Performance

The team determined that the performance of the engineering staff demonstrated good technical competence and familiarity with plant operations, and the capability to provide necessary technical support to plant operations. The team reviewed calculations and found that they were thorough and supported the design. The technical and safety evaluations of permanent and temporary modifications were generally good. Communications and working relationships between the design engineers and system engineers, and between operations and engineering groups were good. The licensee has implemented a good system engineering program. The engineering backlog was being managed in a planned manner, and the licensee was making diligent efforts to reduce the backlog. The audits of engineering activities were generally thorough, and the resultant findings and recommendations were directed toward improving performance.

Although the overall technical aspects of the engineering activities were good, the team noted four deficiencies: (1) not following procedures for revising plant documents that had been affected by plant changes, (2) failure to document the quarterly audits of temporary modifications, (3) not reporting the assessment of safety consequences and implications of pressurizer safety valve setpoint out-of-tolerance conditions, and (4) failure to issue a licensee event report on main steam safety valves that were outside the setpoint tolerances specified in the Technical Specifications. The team noted examples of insufficient details in safety evaluations and inadequate interdiscipline reviews of safety evaluations of modifications. There was no procedural requirement that preparers and reviewers of safety evaluations be appropriately trained. Some of the corrective actions for items from self-assessments and audits have not been timely.

E/3

Memorandum dated 5/3/95 from: Conrad E. McCracken to: William D. Beckner
INPUT TO SE FOR LICENSEE"S REVISED POSITION ON SBO EVENT
(TAC NOS. M90061 & M90062)

SPLB SALP INPUT

Plant Name: South Texas Project Electric Generating Station, Units 1 and 2
SER Subject: Input To SE For Licensee's Revised Position On SBO Event
TAC Nos.: M90061 and M90062

Summary of Review/Inspection Activities

Houston Lighting & Power Company (licensee) initially calculated a minimum acceptable duration of 8 hours for a station blackout (SBO) event at the South Texas Project Electric Generating Station (STPEGS) and proposed to use one existing Class 1E emergency diesel generator (Train B) as an AAC power source for the equipment needed to cope with an SBO event. Accordingly, the Safety Evaluation, issued by the staff on July 17, 1991, was based on the review of the licensee's coping capability/analysis for an SBO event of 8-hour duration at STPEGS. In August 1994, the licensee proposed to use any one of the three existing Class 1E emergency diesel generators as an AAC power source, and implemented the 73 mph hurricane shutdown criterion in plant procedures consistent with NUMARC 87-00 for an SBO event. Consequently, the duration for an SBO event at STPEGS was reduced from the previously calculated 8 hours to 4 hours. By letter dated March 1, 1995, the licensee provided coping analysis revised to reflect an SBO event of 4-hour duration.

Narrative Discussion of Licensee Performance - Functional Area

The licensee took a sound approach to increase the overall availability of EDG operation following a station blackout event and implemented the 73 mph hurricane shutdown criterion in plant procedures consistent with NUMARC 87-00 for an SBO event. The licensee's submittal was technically complete.

Author: D. Shum

Date: May 3, 1995

Attachment 2

E/4