

# The Light company

Houston Lighting & Power South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

September 22, 1994  
ST-HL-AE-4898  
File No.: G02.04  
10CFR2.201

Director, Office of Enforcement  
U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

South Texas Project  
Units 1 and 2  
Docket Nos. STN 50-498; STN 50-499  
Reply to Notice of Violation and  
Proposed Imposition of Civil Penalty, Revision 1  
Inspection Report 93-08; Enforcement Action 93-047

Houston Lighting & Power Company has reviewed the Notice of Violation and Proposed Imposition of Civil Penalty dated April 19, 1993, and submits the attached revised reply to violations I.A.

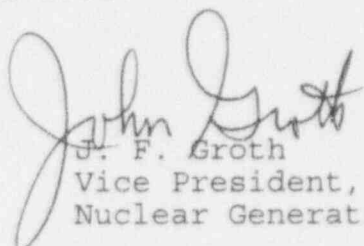
Houston Lighting & Power did not protest the proposed civil penalty, and an electronic wire transfer has been made, payable to the Treasurer of the United States, for this civil penalty.

In the cover letter to the Notice of Violation, the Nuclear Regulatory Commission recommended that Houston Lighting & Power examine the frequency of grease inspections for motor operated valves. Houston Lighting & Power believes that the current inspection interval is adequate. Current diagnostic testing now includes a process called "pack mate" that compresses the spring pack to assure proper operation. Compression of the spring pack essentially removes the old grease and precludes accumulation of old grease. Hence, with the "pack mate" process as part of the diagnostic testing, inspection frequency is adequate to assure that hardened grease does not accumulate in the motor operated valve spring packs.

Houston Lighting & Power believes that grease hardening was not the primary factor in the original valve motor failure. Motor failure was due to thermal binding/pressure locking of the valve gate in the valve body as a result of rapid cooling of the valve body when the valve was closed. This information was provided to members of the Regional Staff during the process of the Unit 1 and 2 Restart inspections. This revision documents the Houston Lighting & Power change in the identified cause of the SI-31A valve motor failure.

TEH

If you have any questions, please contact S. M. Head at  
(512) 972-7136 or me at (512) 972-8664.

  
J. F. Groth  
Vice President,  
Nuclear Generation

DNB/esh

- Attachments: 1. Affidavit
2. Reply to Notice of Violation and Proposed  
Imposition of Civil Penalty EA 93-047,  
Violation I.A.

Houston Lighting & Power Company  
South Texas Project Electric Generating Station

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C:

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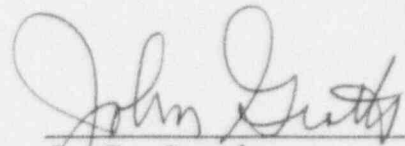
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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter	)	
	)	
Houston Lighting & Power	)	Docket Nos. 50-498
Company, et al.,	)	50-499
	)	
South Texas Project	)	
Units 1 and 2	)	

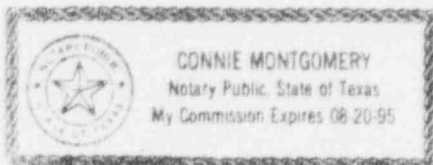
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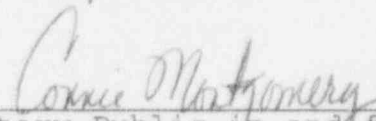
I, J. F. Groth, being duly sworn, hereby depose and say that I am Vice President, Nuclear Generation, of Houston Lighting & Power Company; that I am duly authorized to sign and file with the Nuclear Regulatory Commission the attached Reply to Notice of Violation and Proposed Imposition of Civil Penalty (Nuclear Regulatory Commission Inspection Report 93-08; Enforcement Action 93-047); that I am familiar with the content thereof; and that the matters set forth therein are true and correct to the best of my knowledge and belief.

  
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J. F. Groth  
Vice President,  
Nuclear Generation

STATE OF TEXAS       )  
                              )  
                              )

Subscribed and sworn to before me, a Notary Public in and for the State of Texas, this 22 day of September 1994.



  
\_\_\_\_\_  
Notary Public in and for the  
State of Texas

Reply to Notice of Violation and Proposed  
Imposition of Civil Penalty EA 93-047, Violation I.A.

I. Statement of Violation I.A:

10 CFR 50, Appendix B, Criterion XVI, states that "measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management."

Contrary to the above, in April 1989 and November 1989, the licensee identified a significant condition adverse to quality related to an inoperable motor on Unit 2 safety-related valve SI-31A, but did not replace the motor until October 1990. Further, the licensee did not determine the cause of the failure and take action to preclude recurrence, or document and report the condition to appropriate levels of management until the motor failed again under similar circumstances on February 9, 1993.

II. Houston Lighting & Power Position, Violation I.A:

Houston Lighting & Power concurs that the cited violation occurred.

III. Reason for Violation I.A:

The cause of this event was less than adequate operability determination and identification of corrective actions to correct the root causes of motor failures.

IV. Corrective Actions, Violation I.A:

1. Houston Lighting & Power has made significant improvements to the Operability Determination process since occurrence of the original event. The motor operated valve motor failure on February 9, 1993, which was correctly determined to be inoperable under the current process, demonstrates that the improvements made to this process assure that appropriate operability determinations are being made.

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IV. Corrective Actions, Violation I.A: (Cont'd)

2. Houston Lighting & Power reviewed historical operability tracking logs and a sample of key safety related service requests to determine if there were any additional cases of improper operability determination for either Unit. The purpose of this review was to determine if historical operability issues existed. This review was completed on June 9, 1993, with follow-up issues resolved on September 14, 1994. Additionally, the System Certification Process for restart of each Unit provided additional confidence that equipment will perform satisfactorily.
3. Houston Lighting & Power upgraded the program used to analyze and trend equipment history to assure that repetitive component failures are identified, and appropriate corrective actions are taken to prevent recurrence. This program change was initially implemented on October 15, 1993.

V. Additional Information:

The failure of the motor on SI-31A on February 9, 1993, was initially attributed to grease hardening in the spring pack. Houston Lighting & Power initially believed that grease hardening in the spring pack caused the motor operated valve torque switch to delay motor tripping at the appropriate torque level and the motor operated valve was shut with excessive force. The motor was believed to have failed later while attempting to open the motor operated valve due to this presumed closure with excessive force. This initial cause determination was questioned in August of 1993, when testing was performed to determine if thermal binding of the valve was the cause of motor failure. The empirical tests demonstrated that the valve body was cooled faster than the valve gate, which led to binding of the gate when commanded to open before the gate had reached an equilibrium temperature.



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V. Additional Information: (Cont'd)

To address the generic implications of this failure, a revision to Operations Procedure (OPGP02-RH-0001) was completed to provide enhanced direction to prevent future thermal binding/pressure locking of the SI-031 Valves. A special test (1TEP07-RH-001) was performed to confirm the adequacy of the procedure changes. Results were satisfactory. In addition, a thermal binding/pressure locking checklist was included in the design basis reviews which were part of the Generic Letter 89-10 effort at STP (Procedure EI 4.06).

Houston Lighting & Power initially assessed the motor operated valves with actuators that rely on a torque switch to turn off the motor. Of ninety-eight motor operated valves in Units 1 and 2 that were actuated by torque switches, only thirteen motor operated valves in Unit 1 had not been diagnostically tested. The thirteen Unit 1 motor operated valves were subsequently diagnostically tested. At the end of 2RE03, each of the Unit 2 motor operated valves had been diagnostically tested. The diagnostic tests demonstrated that the spring packs were functioning properly and not experiencing hydraulic effects from grease or hardened grease in the spring pack.

Houston Lighting & Power has additional assurance that hardened grease in the motor operated valve spring pack will not be a problem because the diagnostic tests included a process called "pack mating" where the spring pack was removed from the actuator and compressed to verify that it performed to manufacturers' specifications. If hardened grease is in the spring pack, then the process indicates an anomaly through increased stiffness or less than minimum compression. The "pack mate" process, because of the compression, squeezes the old grease out of the spring pack.

VI. Date of Full Compliance, Violation I.A:

Houston Lighting & Power is in full compliance.