

# The Light company

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

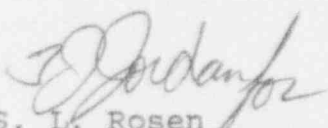
May 13, 1993  
ST-HL-AE-4444  
File No.: G02.04  
10CFR2.201

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

South Texas Project  
Unit 1  
Docket No. STN 50-498  
Reply to Notice of Violation 9314-02  
Regarding Failure to Perform Corrective Maintenance and  
Exceeding Manway Cover Stud Elongation Measurements

Houston Lighting & Power Company (HL&P) has reviewed Notice of Violation 9314-02 dated April 13, 1993, and submits the attached reply. HL&P will submit a supplemental report on this Notice of Violation to describe the corrective action to prevent recurrence of Example IA. The supplemental report will be submitted by May 21, 1993.

If there are any questions regarding this matter, please contact Mr. A. W. Harrison at (512) 972-7298 or me at (512) 972-7138.

  
S. L. Rosen  
Vice President,  
Nuclear Engineering

HRP/nl

Attachment: Reply to Notice of Violation 9314-02

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C:

Regional Administrator, Region IV  
Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011

Lawrence E. Kokajko  
Project Manager  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555 13H15

J. I. Tapia  
Senior Resident Inspector  
c/o U. S. Nuclear Regulatory  
Commission  
P. O. Box 910  
Bay City, TX 77414

J. R. Newman, Esquire  
Newman & Holtzinger, P.C., STE 1000  
1615 L Street, N.W.  
Washington, DC 20036

D. E. Ward/T. M. Puckett  
Central Power and Light Company  
P. O. Box 2121  
Corpus Christi, TX 78403

J. C. Lanier/M. B. Lee  
City of Austin  
Electric Utility Department  
721 Barton Springs Road  
Austin, TX 78704

K. J. Fiedler/M. T. Hardt  
City Public Service  
P. O. Box 1771  
San Antonio, TX 78296

Rufus S. Scott  
Associate General Counsel  
Houston Lighting & Power Company  
P. O. Box 61867  
Houston, TX 77208

Institute of Nuclear Power  
Operations - Records Center  
700 Galleria Parkway  
Atlanta, GA 30339-5957

Dr. Joseph M. Hendrie  
50 Bellport Lane  
Bellport, NY 11713

D. K. Lacker  
Bureau of Radiation Control  
Texas Department of Health  
1100 West 49th Street  
Austin, TX 78756-3189

U.S. Nuclear Regulatory Comm.  
Attn: Document Control Desk  
Washington, D.C. 20555

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I. Statement of Violation:

Criterion XVI of 10 CFR 50, Appendix B, states, in part, "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..."

Contrary to the above:

- A. Corrective maintenance was not promptly performed in regard to the identification on March 28, 1991, of evidence of leakage at the Steam Generator 1B hot leg primary side manway cover (i.e., boric acid crystals were observed to be present at bolts 3, 5, and 14). An outstanding service request, SG-115696, which was intended to correct this condition, remained unplanned as of the February 25, 1993, discovery date of active leakage at this manway.
- B. Elongation measurements in April 1990, of the hot leg and cold leg primary side manway cover studs for Steam Generator 1A and 1B resulted in values which exceeded the permissible range stipulated by Department Procedure OPMP04-RC-0004, "Steam Generator Primary Manway Cover Removal and Reinstallation," Revision 6. These values were neither identified as a nonconforming condition, nor formally evaluated for determination of required corrective actions.

These two examples constitute one Severity Level IV violation (Supplement I) (498/9314-02)

II. Houston Lighting & Power Position on Example IA of Cited Violation:

HL&P concurs with example IA of the cited violation.

III. Reason for Violation:

On May 03, 1991, Service Request (SR) SG-115643, which was initiated to repair boric acid leakage bolts 3, 5, and 14 on Steam Generator 1B, was voided. The work activity for SG-115643 was to be performed on SG-115696. The additional scope of work was noted on SR SG-115696. SG-115696, originally scheduled for Unit 1 Fourth Refueling Outage (1RE04), was rescheduled. Personnel rescheduling the work were unaware of the additional scope transferred from the voided SR SG-115643.

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IV. Corrective Actions:

The boric acid leaks were corrected under SRs SG-158293 and SG-179924.

The Work Management System (WMS) entry for SG-115696, a recurrent SR to perform plant maintenance on the steam generator during outages, has been updated to include the additional work scope of the voided SG-115643.

V. Date of Full Compliance:

HL&P is in full compliance.

VI. Houston Lighting & Power Position in Example IB of Cited Violation:

HL&P does not concur with example IB of the cited violation. HL&P does not consider that the data constituted a nonconforming condition. As such, no further remedial or corrective action was deemed necessary.

VII. Basis For Disputing Example IB of Cited Violation:

During Unit 1 First Refueling Outage (1RE01), the primary manway closure stud elongation was measured using digital depth micrometers. Following the outage, the digital depth micrometers were decontaminated and returned to the Metrology Laboratory (MET Lab) for scheduled calibration. The instruments were found corroded and calibration was impossible. A Metrology Laboratory Evaluation Form was generated to document the condition of the instruments, the lack of "as found" data, and the action required. A Service Request (SR) 128151 was initiated to verify the as-left stud elongation measurements on SGs 1A, 1B, 1C, and 1D during the Unit 1 Second Refueling Outage (1RE02). Since the originating problem was identified on the Met Lab Evaluation Form, a SR was selected to track and document this action.

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VII. Basis For Disputing Example IB of Cited Violation: (Con't)

During 1RE02, stud elongation measurements were taken on all primary manway closure studs as required by SR 128151. Two sets of stud elongation measurements were requested by Plant Engineering Department (PLD), one using a standard depth micrometer and the second using a digital depth micrometer. The results were to be reported to PED for an engineering evaluation.

The two sets of elongation measurements yielded data which was not comparable to the 1RE01 as-left stud elongation measurements since they showed an apparent growth. However, the original (1RE01) stud elongation data was evaluated by Engineering and was deemed to be acceptable, and no further action was required based on:

- 1RE01 relaxed stud length (baseline) measurements were considered questionable since the instruments used did not receive a post calibration and the 1RE02 as-found measurements showed an apparent increase in stud lengths.
- Stud elongation is not possible without additional force applied.
- 1RE01 total elongation values (difference of the relaxed stud length and tensioned length) were considered correct.
- Variables that affect stud elongation (stud temperature and primary system pressure and temperature) were not recorded nor controlled during 1RE01 or 1RE02. Stud temperature affects the relative lengths of the stud and the internal rod as a result of the different thermal expansions of these materials. Primary system pressure affects the magnitude of the forces exerted on the studs and changes the stud length. Primary system temperature affects the stud temperature. Therefore, measurements taken at atmospheric pressure will vary from measurements taken with the primary system pressurized.

In March, 1993, the NRC staff reviewed copies of elongation data compiled from 1RE01 through 1RE04. From that review, the NRC staff concluded that there was an apparent growth in stud length to the point of plastic deformation. The NRC staff requested HL&P to justify the acceptability of the studs prior to the Unit 1 startup.

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VII. Basis For Disputing Example IB of Cited Violation: (Con't)

HL&P provided justification for the acceptability of the studs during a conference call on March 26, 1993. This justification included an evaluation of the original 1RE01 relaxed stud length data, a calculation of the elongation necessary to exceed minimum yield, an evaluation of the stud tensioning equipment capability to plastically deform the studs, and the result of the standard go/no-go gauge tests. This justification included the following points:

- The original 1RE01 data was approximately 0.004 inches shorter than data obtained in 1RE02. Data taken in February, 1993, indicates that there is good corroboration with the 1RE02 measurements. The original baseline measurements taken in 1RE01 probably do not represent the actual dimension. However, these values do provide the correct magnitude of the distance from the top of the stud to the internal rod.
- An engineering calculation determined that a total elongation of 0.0241 inches would be required to reach the minimum stud yield stress. A comparison of the relaxed stud length data to the 1RE02 elongation measurements, shows that no studs were stressed beyond yield.
- The equipment and procedures used to tension the studs were evaluated for the capability to stretch the studs beyond the minimum yield stress. Using conservative assumptions, the maximum stretch the equipment could produce was 0.0167 inches which is below the 0.0241 inches required for minimum yield. Therefore, the equipment capacity and procedure guidelines preclude the studs from being stretched beyond yield.
- The result of the standard go/no-go gauge tests were evaluated and all but three passed these tests satisfactorily. All studs exhibited elastic behavior when detensioned. When the manway closure was assembled, the studs were retensioned successfully.



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VII. Basis For Disputing Example IB of Cited Violation: (Con't)

Pursuant to the criteria of 10CFR50, Appendix B, Criterion XVI, HL&P considers that established measures were used to assure that the condition was promptly identified and corrected. The lack of "as-found" calibration data for the digital micrometers was identified in the Met Lab Evaluation Form and action to reverify the as-left measurements was performed.

HL&P Engineering reviewed the stud elongation data and concluded that the stud elongation was acceptable and that the as-left measurements from 1RE01 were not comparable to the 1RE02 as-found measurements. Reevaluation of the data in March, 1993, reaffirms that the decisions made and conclusions reached in 1RE02 were correct and demonstrate a sound engineering basis. Therefore, no nonconformance existed and no additional evaluation nor documentation was required. SR 128151 documented the stud elongation data and the Engineering conclusion.