

# CATEGORY 1

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SUBJECT: Responds to NRC 961216 ltr re violations noted in insp rept  
50-261/96-12. Corrective actions: MOV program improvements  
will be implemented.

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Robinson File No: 13510E  
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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261/LICENSE NO. DPR-23  
NRC INSPECTION REPORT NO. 50-261/96-12  
REVISED REPLY TO A NOTICE OF VIOLATION

Gentlemen:

This provides a revised reply to the Notice of Violation identified in NRC Inspection Report No. 50-261/96-12 for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. The Notice of Violation was transmitted by NRC letter dated December 16, 1996, and the Carolina Power and Light (CP&L) Company reply was dated January 15, 1997. NRC letter dated January 29, 1997, requested the response to Violation B and C be supplemented by further describing when full compliance will be achieved. Violation B involves inadequate evaluation of Motor Operated Valve (MOV) test results. Violation C involves inadequate MOV design controls. Accordingly, the enclosure restates each violation, followed by its reply. The revisions to the previous response are denoted with revision bars. As stated in the enclosure, full compliance will be achieved on September 29, 1997. This date allows time for the completion of a self-assessment of the MOV testing program. It is expected that this self-assessment will confirm HBRSEP Unit 2 readiness for a Generic Letter 89-10 NRC close-out inspection.

Should you have any questions regarding this matter, please contact Mr. H. K. Chernoff at (803) 857-1437.

Very truly yours,

*C. S. Hinnant*  
C. S. Hinnant  
Vice President

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## REPLY TO A NOTICE OF VIOLATION

### Violation B

10 CFR 50, Appendix B, Criterion XI, Test Control, specifies requirements for testing performed to demonstrate that components will perform satisfactorily in service. This criterion requires that test results shall be documented and evaluated to assure that test requirements have been satisfied.

Contrary to the above, licensee evaluations of the results of the Motor Operated Valve (MOV) tests did not assure that test requirements had been satisfied, in that:

- (1) The licensee's evaluation (documented in Calculation RNP-M/MECH-1473, Rev. 0) of the results of a dynamic test performed on valve SI-870A failed to identify that the intended differential pressure and flow may not have been produced. Diagnostic trace and downstream pressure data indicated appropriate test conditions were not achieved. Data for tests performed for MOVs MS-V1-8B and FP-248 indicated similar deficiencies.
- (2) The licensee's evaluations of MOV opening diagnostic test results failed to consider measurement equipment uncertainty. This uncertainty was described in Customer Service Bulletin 31 issued by the vendor of the licensee's VOTES diagnostic equipment.
- (3) The licensee's evaluation of the dynamic test results for opening valve MS-V1-8B failed to establish whether an anomaly in the force measurements resulted in invalid test results. This anomaly was documented in calculation RNP-M/MECH-1406, Rev. 1.

### Reply

CP&L agrees that the violation occurred as described.

#### 1. The Reason for the Violation

This violation was caused by a failure to maintain adequate management oversight of the Motor Operated Valve (MOV) program to ensure improvements to the program were implemented. As a result, a programmatic deficiency was created in that the program did not require a documented evaluation of MOV test data and the use of current vendor information for the valve(s) setup. In addition, the responsible MOV engineers did not question the field interpretation of test data, and did not provide sufficient documentation of their reviews.

The initial MOV program and procedures were developed between 1989 and 1991 in response to NRC Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," and subsequently revised to include guidance to evaluate the effects of different test conditions, and the need to extrapolate data from test to design conditions. However, the CP&L procedures did not include sufficient methods for documenting evaluations of test data demonstrating that the valves will operate at their design conditions. In addition, the program failed to consider extrapolation error in the open direction as specified by the VOTES diagnostic equipment manufacturer.

2. The Corrective Steps That Have Been Taken and the Results Achieved

A preliminary evaluation conducted of the valve factors for a sample of MOVs indicated that there is adequate margin, and no operability concerns exist.

3. The Corrective Steps That Will Be Taken to Avoid Further Violations

The following MOV program improvements will be implemented.

MOV procedures will be revised by April 28, 1997, to require documentation of acceptability of valve test parameters, a MOV engineer's presence and preliminary review of each dP diagnostic test at the test location, and consideration of extrapolation error.

Previous MOV test evaluations and test procedures will be reviewed to verify the accuracy of the test parameters used in the reconciliation calculations by May 26, 1997. As a result of this review, set-up and reconciliation calculations will be revised accordingly by June 30, 1997.

Classroom training in the interpretation of the test data will be conducted for MOV personnel by September 29, 1997. Additional retraining on-site by MOV contractors in interpretation of test data will be conducted during Refueling Outage 18, currently scheduled for May 1998.

MOV program controls will be revised by April 28, 1997, to require periodic program assessments utilizing industry-recognized experts to maintain adequate management oversight and inclusion of necessary industry improvements. A self-assessment of the MOV program will be conducted by September 29, 1997, utilizing industry recognized specialist(s).

4. The Date When Full Compliance Will Be Achieved

Full compliance will be achieved by September 29, 1997.

Violation C

10 CFR 50, Appendix B, Criterion III, Design Control, requires measures which assure that the applicable regulatory requirements and design basis for safety-related components are correctly translated into specifications, drawings, procedures, and instructions. When this translation is accomplished through calculations, the measures must assure that the assumptions and data used in performing the calculations are justified and correct.

Contrary to the above, the licensee's measures did not assure that the applicable regulatory requirements and design basis for safety-related components would be correctly translated into specifications, drawings, procedures, and instructions. Calculations which the licensee used to determine the settings to be specified for MOVs to perform their design-basis functions used unjustified assumptions and incorrect data inputs, as follows:

- (1) The licensee did not adequately justify the valve factors, rate of loading and stem friction coefficients, (VF, ROL, and SFC) that were assumed for calculating settings for MOVs that did not have satisfactory dynamic tests. The licensee had no documented evaluation or analysis which demonstrated that the values used were applicable to the Robinson MOVs.
- (2) The valve factor calculations for opening valves such as MS-V1-8B, AFW-V2-14A, FP-248, and SI-880D, incorrectly accounted for the MOV stem rejection force. The stem rejection load used in the calculation was obtained from dynamic data taken after the system pressure and, therefore, the rejection force had decreased.

Reply

CP&L agrees that the violation occurred as described.

1. The Reason for the Violation

This violation was caused by a failure to maintain adequate management oversight of the MOV program to ensure improvements to the program were implemented. As a result, personnel responsible for the MOV program failed to recognize that the plant specific data was the most reliable information to use for valve factor, rate-of-loading, and the stem factor. In addition, procedural guidance for calculating the open valve factor from the diagnostic traces did not adequately address the potential for changes in the stem rejection force which is greater at the beginning of the open stroke than when the running load was measured. This was not recognized by the MOV design engineer during evaluation of the diagnostic test data.

2. The Corrective Steps That Have Been Taken and the Results Achieved

A preliminary evaluation conducted of the valve factors for a sample of valves indicated that there is adequate margin and no operability concerns exist.

3. The Corrective Steps That Will Be Taken to Avoid Further Violations

The following MOV program improvements will be implemented, in addition to the actions described in the reply to Violation B.

MOV test procedures will be revised by April 28, 1997, to add restrictions on the use of alternate methods for calculating open valve factors, to provide guidance for calculating the stem factor, and to provide clarifications on the use of valve factor for non-dP tested valves. Training for MOV personnel will be conducted on these procedure revisions by June 30, 1997.

Previous MOV test evaluations and test procedures will be reviewed to verify the accuracy of the test parameters used in the reconciliation calculations by May 26, 1997. As a result of this review, set-up and reconciliation calculations will be revised accordingly by June 30, 1997.

4. The Date When Full Compliance Will Be Achieved

Full compliance will be achieved by September 29, 1997.