

Duke Power Company  
McGuire Nuclear Generation Department  
12700 Hagers Ferry Road (MG01VP)  
Huntersville, NC 28078-8985

T. C. McMEEKIN  
Vice President  
(704)875-4800  
(704)875-4809 Fax



**DUKE POWER**

September 27, 1995

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Subject: McGuire Nuclear Station, Units 1 and 2  
Docket Nos. 50-369 and 50-370  
NRC Inspection Report No. 50-369, 370/95-06  
Violation 50-369, 370/95-06-01  
Supplemental Reply to a Notice of Violation

Gentlemen:

Enclosed is a supplemental response to a Notice of Violation dated May 10, 1995 concerning Generic Letter 89-10 analysis and calculation errors. Previous correspondence concerning this violation includes the initial response dated June 9, 1995 and a supplemental response dated July 12, 1995. The commitment dates for completion of the corrective actions addressed in Section 3a, 3b and 3c of this response have been changed to December 28, 1995. This change reflects McGuire Nuclear Station's intention to extend closure of the Generic Letter 89-10 program to December 28, 1995.

Very Truly Yours,

T. C. McMeekin

Attachment

xc: (w/attachment)

Mr. S. D. Ebnetter  
Regional Administrator, Region II  
U. S. Nuclear Regulatory Commission  
101 Marietta St., NW, Suite 2900  
Atlanta, Georgia 30323

Mr. George Maxwell  
Senior Resident Inspector  
McGuire Nuclear Station

Mr. Victor Nerses  
U. S. Nuclear Regulatory Commission  
Office of Nuclear Reactor Regulation  
One White Flint North, Mail Stop 9H3  
Washington, D. C. 20555

U. S. Nuclear Regulatory Commission  
September 27, 1995

bx: (w/attachment)

A. V. Carr (PB05E)  
NSRB Staff (EC05N)  
J. E. Snyder  
R. J. Deese  
E. Burchfield (ON01RC)  
Z. L. Taylor (CN01RC)  
J. M. Frye (EC12A)  
ELL (EC050)  
RGC File: Inspection Report  
K. L. Crane  
L. R. Davison  
C. D. Painter  
S. H. Karriker

**McGuire Nuclear Station**  
**Supplemental Reply to a Notice of Violation**

Violation 50-369, 370/95-06-01

10 CFR 50 Appendix B, Criterion III, design control, requires design control measures which assure that regulatory requirements and design bases are properly translated into drawings, specifications, instructions, and procedures.

Contrary to the above, on March 29, 1995, the licensee's design control measures did not assure proper translation of design basis information into sizings and settings for motor operated valves. The following examples indicate where calculations for setting and sizing valves were incorrectly performed:

1. The current (Revision 3) engineering thrust calculations for Auxiliary Feedwater valves 1CA0054 and 2CA0050 failed to use the correct actuator output for the effects of high ambient temperature, resulting in inaccurate assessments of valve capability.
2. Engineering personnel did not note that the peak thrust measured during the static tests of Auxiliary Feedwater valves 1CA0038 and 1CA0161 fell outside the calibration range of the measurement sensor. This resulted in inaccurate assessments of valve capability.
3. The thrust calculation for PORV Block Valve 1NC0030 was incorrect due to a sign error. The error resulted in a non-conservative determination of valve capability.

This is a Severity Level IV violation (Supplement I).

Supplemental Reply to Violation 50-369, 370/95-06-01

1. Reason for the violation:

The reason for the violation is Inappropriate Action. Lack of attention to detail in performing the calculations and inadequate independent reviews resulted in the calculations for the setting and sizing of these valves to be performed with these errors undetected. None of the errors required any changes to the set-up of the valves in the field.

2. Corrective steps that have been taken and the results achieved:

- a) The thrust calculations for 1CA0050 and 2CA0054 were corrected, the VOTES traces re-marked and a VOTES summary report re-issued. While correcting the thrust calculations, it was determined that the VOTES dP Analysis Assessment spreadsheet was using values from the VOTES differential pressure tests that were overly conservative. The dP Analysis Assessment spreadsheet was revised to incorporate the new information. These actions confirmed that the valve field set-ups are acceptable. These corrective actions were completed by April 26, 1995.
- b) The structural limitations for 1CA0038 were immediately reviewed and it was determined that the new larger thrust was acceptable. Other occurrences of overthrusting were reviewed and it was determined that an overthrust evaluation for 1CA0161 did not include the error associated with extrapolating the calibration range. The new larger thrust for 1CA0161 was reviewed and determined to be acceptable. In addition, 1CA0054 and 2CA0050 were reviewed for exclusion

of extrapolation errors during VOTES testing. Each MOV's load increased as a result of adding extrapolation errors but quantified loads were within current structural guidelines endorsed by the actuator manufacturer. These corrective actions were completed on April 2, 1995.

- c) The thrust calculation for 1NC0033 (identified as 1NC0030 in the Notice of Violation) was corrected. A review was performed of all Generic Letter 89-10 gate valve electric motor operator (EMO) sizing calculations in which valve set-up data sheets had been provided to plant personnel for VOTES testing where this error had occurred. The following additional valves were determined to be affected: 2NC0033, 1,2 NC31, 35; 1,2 CF 151, 153, 155, 157; 2NV 94 and 95. The calculations were corrected and the resulting larger EPRI valve factor was reviewed against the original valve factor used in the EMO sizing calculation. In all cases, the original valve factor used was more conservative than the corrected EPRI valve factor and thus there is no change necessary to any of the field set-up data sheets. These corrective actions were completed on March 29, 1995.
- d) A review of the independent verification process for the EMO sizing calculations, VOTES test analysis summary report and the MPM test analysis report was performed. This review determined that the number of reviews this data receives during testing, analysis and final calculation verification is adequate and that the reviews are performed by a Valve Engineer qualified in VOTES test analysis.
- e) On May 24, 1995, Engineering management discussed the three examples cited in the violation with all Engineering personnel producing and checking validation calculations for Generic Letter 89-10 work at McGuire and counseled them on the importance of increased attention to detail when producing or checking these calculations.

No similar events have occurred since implementation of these corrective actions.

3. Corrective steps that will be taken to avoid further violations:

- a) A review performed for all other thrust calculations identified the following additional valves as having thrust calculation errors: 2CA0050, 1CA0054, 1,2 CA 38 and 66. These valves were reviewed and it was determined the valve field set-ups are acceptable. These thrust calculations will be corrected to use the high temperature stall torque value. Any additional calculation changes required as a result of the calculation corrections will also be addressed. All calculations will be corrected by December 28, 1995.
- b) MOV calculations will be revised to incorporate overthrust evaluations for 1CA0161, 1CA0038, 1CA0054, 2CA0050. This corrective action will be completed by December 28, 1995.
- c) As a result of identifying these examples of calculation errors, a complete review will be conducted of the Generic Letter 89-10 valve validation calculations to ensure all validation calculations are checked with increased attention to detail. This corrective action will be completed by December 28, 1995.

4. Date when full compliance will be achieved:

McGuire Nuclear Station will be in full compliance by December 28, 1995.