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USNRC REGIONAL OFFICE
ATLANTA, GEORGIA
VIRGINIA ELECTRIC AND POWER COMPANY, RICHMOND, VIRGINIA 23261

10 June
May 30, 1979

Mr. James P. O'Reilly, Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Serial No. 430
PSE&C/CGC:mac:wang

Docket No. 50-339

Dear Mr. O'Reilly:

We have reviewed IE Bulletin 79-04 concerning incorrect weights for 1500 psi swing check valves manufactured by Velan. All necessary modifications have been made to North Anna Unit 2, and the actual valve weights have been incorporated into our piping analysis where required.

Our review indicates that we have twelve 3" valves (designated 3" C58) and fourteen 6" valves (6" C58) in seismic category I piping systems in North Anna Unit 2. There are no 4", 8", or 10" 1500 psi Velan check valves in Unit 2.

We reported on March 21, 1979, under the provisions of 10CFR50.55(e) and 10CFR21, the presence of the 6" C58 valves in Unit 2. Much of the information requested in this IE Bulletin was given in our letters required by the 55(e) and Part 21; these letters were S.N. 189 of March 26, 1979, S.N. 189A of April 20, 1979, and S.N. 189B of May 8, 1979. Where the reporting requirements of this bulletin exceed the information given in those letters, we will provide it herein.

Below is our response to each of the action items listed in the IE Bulletin:

1. The 3" C58 valves are located in the Safety Injection and the Chemical and Volume Control Systems. The 6" valves are located in the Safety Injection System.
2. The check valve weights used in the original stress analyses were determined from the manufacturer's drawings. These weights were 225 lb. for the 6" C58 valve and 60 lb. for the 3" C58 valve. The correct weight of 450 lb. for the 6" C58 was identified in Westinghouse letter NAW-3365 of March 16, 1979; I.E. Bulletin 79-04 identified the correct weight of 85 lb. for the 3" C58. These corrected weights have been used in our re-evaluation.
3. Re-evaluation of the piping systems affected by the 3" and 6" C58 valves is complete. A brief description for each valve size follows:

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3" C58) Of the twelve 3" C58 valves, four are located in the class 2 and 3 portions of the Charging System. These lines are analyzed by the simplified method described in FSAR Section 3.7.3.1.3.7. Seismic qualification of these lines is assured by conservative support spacing and by conservatively high standard support design loads. The standard load for 3" category I lines at North Anna is 1000 lb. These standards allow for various in-line components such as valves, flanges, flow restrictors, etc. The exact weight of a specific component is not required.

The remaining eight 3" C58 valves are located in Class 1 lines. They are identified below by Stress Report number, problem number, and title:

| | | | |
|--------|---------|-----------------------------------------|----------|
| SSR-3 | 708&726 | High Head Safety Injection | 4 Valves |
| SSR-5 | 1022 | Pressurizer Spray | 1 Valve |
| SSR-11 | 744 | Charging System Upstream of Regen. HX | 1 Valve |
| SSR-12 | 743A | Charging System Downstream of Regen. HX | 2 Valves |

The method of review and evaluation of these Class 1 lines was to perform a worst case analysis in which all systems were reviewed in order to determine which would be the most severely affected by the weight change. This worst case system was determined to be SSR-5; it was fully reanalyzed by the computer methods described in FSAR Section 3.7.3. The results showed that the increase in stress was small and that the support load changes could be accommodated by the existing designs.

6" C58) The fourteen 6" C58 valves are located in Class 1 lines, identified below by Stress Report number, problem number, and title:

| | | | |
|-------|----------------------------------------|-------------------------|-----------|
| SSR-3 | 700, 703, 706, 707, 724, 727, 733, 734 | Safety Injection System | 14 Valves |
|-------|----------------------------------------|-------------------------|-----------|

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The method of review and evaluation of these Class 1 lines was to conduct a complete reanalysis of the above stress problems with the actual valve weight. The results indicated modifications were required as listed in item 4 below.

4. No changes are required in the 3" piping nor in the associated supports due to the increased weight of the 3" C58 valves. For the 6" C58 valves, we reported in our letter S.N. 189A of April 20, 1979 that 3 snubbers have been added in order to maintain the stresses below ASME code allowables and one rigid restraint required structural modification as a result of the increased load. The determination of where modifications were required was based on Code allowables.

The reanalysis of the worst case stress problem containing a 3" C58 valve using the actual valve weight resulted in loads on the most affected supports which still leave a 22% margin to the allowable. The highest pipe stresses resulting from this review and the allowables are summarized below:

| <u>Equation No.</u> | <u>Point No.</u> | <u>Calculated Stress (psi)</u> | <u>Allowable (psi)</u> |
|---------------------|------------------|--------------------------------|---------------------------------------------------------------|
| 9 | 290 | 18,285 | 52,500 |
| 10 | 172 | 173,323 | Not Applicable - Code requires solving for equations 12 & 13. |
| 12 | 172 | 27,167 | 51,540 |
| 13 | 172 | 4,032 | 51,540 |
| 12 | 171 | 27,861 | 51,540 |
| 13 | 443 | 43,564 | 52,350 |

The highest cumulative usage factor was at point no. 169 and was 0.44 which is less than 1.0 and, therefore, acceptable.

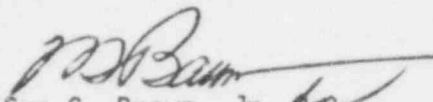
The current analyses for the system which contains the 6" C58 valves are based on the actual valve weight, and thus the design and actual weight are the same.

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5. The analytical techniques and the computer codes used for Unit 2 are described in FSAR Section 3.7.3.

If there are any questions, please inquire.

Very truly yours,



Sam C. Brown, Jr.
Senior Vice President - Power Station
Engineering and Construction

cc: Mr. John G. Davis, Acting Director
Office of Inspection & Enforcement

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation