

U-600221
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ILLINOIS POWER COMPANY



CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

August 19, 1985

Docket No. 50-461

Director of Nuclear Reactor Regulation
Attn: Mr. W. R. Butler, Chief
Licensing Branch No. 2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

50-461

Subject: Clinton Power Station
Containment Continuous Purge Isolation Valve
Operability Qualification Analysis
(SER Confirmatory Issue #69ii)

Dear Mr. Butler:

Illinois Power (IP) letter U-600173, dated July 15, 1985, committed to provide the NRC Staff with a detailed analysis of the Clinton Power Station (CPS) Containment Vent & Purge valves supplied by CLOW Corporation (i.e., the 12 inch Tricentric butterfly isolation valves used in the CPS Containment Continuous Purge System). The attached CLOW Corporation report, entitled "Purge and Vent Valve Operability Qualification Analysis", fulfills this commitment.

The CLOW report describes the design of the Tricentric butterfly valve and the Bettis pneumatic actuator used to operate the valve. In addition, descriptions of various tests performed to determine flow and torque characteristics and application of this test data to the installed conditions of the four subject isolation valves are presented. Information as to the structural integrity of the valve components and operator assembly under combined seismic and Design Basis Loss of Coolant Accident (LOCA) loadings is also presented. To substantiate previous model tests and show the validity of the computer model used in these calculations, CLOW performed an aerodynamic choked flow operational test of a full-size 12" valve (same size used at CPS) at Vought Corporation in November 1981. This test demonstrated that the valve would operate under the choked flow test conditions, that mass flows were as predicted, and that use of the CLOW computer model to predict torques was a conservative method (peak measured torque was approximately 65% of that predicted). This test also incorporated a static 11.0g seismic load to the actuator (nearly three times the CPS seismic acceleration requirement).

Valve Bench Tests, with the valve operating under normal service conditions, show the opening time for the 12" CLOW Tricentric model used at CPS is about 5 seconds and the closing time is about 4 seconds. For a LOCA condition, the torques for the subject valves are positive (closing) torques for all disc positions. This indicates the valves will be fully operable in both the open and closed directions under worst-case conditions.

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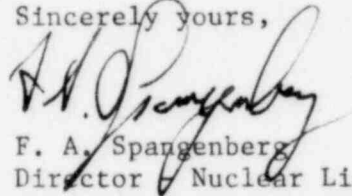
Encls To: NRR/DE/EQO - 3
B. Siegel - 1
NRR/Fields, M. - 1
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Based upon these tests and detailed analyses, IP believes these Vent & Purge valves fully meet the NRC valve operability criteria contained within NUREG-0800, Branch Technical Position CSB 6-4. As such, the qualification program fulfills the applicable requirements of TMI Action Plan Item II.E.4.2(6) regarding provisions for containment isolation valve operability. The information contained herein should be sufficient for the Staff to close CPS Safety Evaluation Report Confirmatory Issue #69(ii).

If you should have any questions on this matter, please contact me.

Sincerely yours,



F. A. Spangenberg
Director, Nuclear Licensing
and Configuration
Nuclear Station Engineering

TLR/lab

Attachment

cc: B. L. Siegel, NRC Clinton Licensing Project Manager
NRC Resident Office
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety