

July 31, 1985

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USNRC

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

'85 AUG -2 A11:09

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
GEORGIA POWER COMPANY, et al.)
)
(Vogtle Electric Generating)
Plant, Units 1 and 2))

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

Docket Nos. 50-424
50-425

APPLICANTS' STATEMENT OF MATERIAL FACTS AS
TO WHICH NO GENUINE ISSUE EXISTS TO BE
HEARD REGARDING CONTENTION 10.5
(ASCO SOLENOID VALVES)

Pursuant to 10 C.F.R. § 2.749(a), Applicants submit in support of Applicants' Motion for Summary Disposition of Joint Intervenors' Contention 10.5 that no genuine issue exists to be heard with respect to the following material facts:

1. Joint Intervenors' Contention 10.7 questions the environmental qualification of solenoid valves utilized in safety-related functions at the Vogtle Electric Generating Plant ("VEGP") that were manufactured by the Automatic Switch Co. ("ASCO").

2. Four models of ASCO solenoid valves, model numbers NP8316, NP8320, NP8321, and 206-381-6F, are used in safety-related applications at VEGP. Affidavit of Richard B. Miller dated July 26, 1985 ("Miller Affidavit") at ¶3; Affidavit of Victor L. Gonzales dated July 29, 1985 ("Gonzales Affidavit") at ¶3.

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3. Valves representative of those four models of ASCO solenoid valves were tested as part of an environmental qualification testing program jointly conducted by ASCO and Westinghouse in 1980 and 1981. That testing program consisted of performance tests; thermal, mechanical, and pressure aging; normal environment radiation testing; vibration aging, operating basis earthquake simulation, and resonance testing; safe shutdown earthquake simulation; design basis event environmental radiation testing; and high energy line break ("HELB") environmental testing (composite of the loss-of-coolant accident ("LOCA") and main stream line break ("MSLB") environmental conditions). Gonzales Affidavit at ¶¶7,9; Miller Affidavit at ¶¶8,10.

4. The joint Westinghouse/ASCO testing program was conducted pursuant to the standards set by IEEE Standard 323-1974, IEEE Standard 344-1975, and IEEE Standard 382-1974. That testing program qualified the ASCO model NP8316, NP8320, and 206-381-6F solenoid valves to the following environmental extremes: (a) a peak temperature of 420°F, (b) pressure of 57 psig, and (c) a chemical spray of 2500 ppm boron buffered with sodium hydroxide to a pH of 10.5. Gonzales at ¶¶8-9; Miller Affidavit at ¶¶9,17.

5. The test valve representative of the model NP8321 valve failed to function properly on the twelfth day of

the HELB environmental testing. As a result of that failure, ASCO does not consider that model valve to be qualified for use under the extreme conditions utilized in the joint ASCO/Westinghouse test program. Instead, it bases the environmental qualification of that model valve upon a testing program conducted earlier by Isomedix, Inc. on behalf of ASCO. Gonzales Affidavit at ¶¶10-11. In that qualification program the model NP8321 valves were qualified to the following environmental extremes: (a) a peak temperature of 346°F, to which the test valves were exposed for three hours; (b) a peak pressure of 110 psig; and (c) a chemical spray of 3000 ppm boron buffered with sodium hydroxide to a pH value of 10. Id. at ¶13.

6. In 1983, the Franklin Research Center released the results of tests that it had performed on various ASCO solenoid valves pursuant to a contract with the Nuclear Regulatory Commission ("NRC") staff. Included among the valves that Franklin Research Center tested were two model NP8316 valves, a model NP8320 valve, a model NP8321 valve, and a model 206-381-6F valve. Gonzales Affidavit at ¶¶14,20; Miller Affidavit at ¶¶19,23.

7. With the exception of one of the NP8316 valves, all the valves tested by Franklin Research that were representative of valves used at VEGP were artificially aged to simulate a four year life at 140°F. After being irradiated to a total integrated dose of 50 megarads,

those valves were exposed to 268°F for fifteen days. The valves were cycled 2000 times while at that temperature. Gonzales Affidavit at ¶14; Miller Affidavit at ¶19.

8. The artificial aging process utilized by Franklin Research Center was more severe than that used in the joint Westinghouse/ASCO qualification program, in which the valves were cycled 200 times at elevated temperatures and 1800 times at room temperature. Gonzales Affidavit at ¶14; Miller Affidavit at ¶19.

9. Following the artificial aging, the model NP8321 valve was removed from the test program because of what Franklin Research Center characterized as "excessive" seat leakage. The leakage rate reported by Franklin Research Center for that valve, however, was significantly below any leakage rate that might affect the ability of that model valve to function adequately. Gonzales Affidavit at ¶15,29.

10. One of the model NP8316 valves tested by Franklin Research Center was naturally aged by exposure to 140°F for three years. That valve was not irradiated in the aging process but was cycled 2000 times at room temperature. Gonzales Affidavit at ¶16; Miller Affidavit at ¶19.

11. One of the tests performed on the valves by Franklin Research Center was a simulated composite LOCA and MSLB. In that composite LOCA/MSLB simulation, the

valves were exposed to two temperature and pressure transients. While the targeted peak temperature in the test was 420°F, thermocouple data from the test chamber indicated that certain areas in the chamber experienced higher temperatures than the intended test conditions. The temperature of the naturally aged model NP8316 valve (which lags behind the temperature in the test chamber) increased to 410°F, which was significantly above the 350°F to 360°F temperatures reached by the other valves in the test chamber. Miller Affidavit at ¶20.

12. The ASCO model NP8320 and 206-381-6F valves performed satisfactorily through all of the tests. Gonzales Affidavit at ¶19; Miller Affidavit at ¶21. Although the model NP8320 experienced what Franklin Research Center described as "severe" seat leakage following the LOCA/MSLB simulation, that seat leakage did not prevent the valve from being operated to perform its intended safety function. Gonzales Affidavit at ¶19. The rate of seat leakage encountered by Franklin Research Center with the model NP8320 valve was well below any leakage rate that might affect the ability of the valve to perform its safety function. Id. at ¶¶25-26.

13. Neither of the model NP8316 valves tested by Franklin Research Center could be cycled properly during the composite LOCA/MSLB test. Miller Affidavit at ¶21.

14. In IE Information Notice No. 84023, the NRC staff assessed the results of the testing performed by the Franklin Research Center. Because of the severity of the aging process adopted by Franklin Research Center, the NRC staff discounted the failure of the artificially aged valves, deciding that those test results were inclusive. Addressing the failure of the naturally aged model NP8316 valve, the NRC staff concluded that that model valve might not be suitable for use in the environmental conditions to which it was tested in the joint Westinghouse/ASCO qualification program and should be used only in applications where it would not be exposed to adverse conditions more severe than the conditions to which that model valve had been tested in earlier qualification testing conducted by Isomedix, Inc. on behalf of ASCO. As part of that testing, the model NP8316 valve was exposed to a temperature of 346°F for three hours Miller Affidavit at ¶24; Gonzales Affidavit at ¶21.

15. In January 1985, the NRC staff reiterated those conclusions concerning the Franklin Research Center test results in IE Information Notice 85-08. Miller Affidavit at ¶25; Gonzales Affidavit at ¶21.

16. The joint Westinghouse/ASCO testing program established the environmental qualification of the ASCO model NP8320 and 206-381-6F solenoid valves for use at VEGP. As described above, the adverse conditions to which

these valves were exposed in the joint Westinghouse/ASCO program envelope the most extreme conditions to which those model valves might be exposed at VEGP. Gonzales Affidavit at ¶¶7-9,33; Miller Affidavit at ¶¶17,38.

17. The joint Westinghouse/ASCO qualification program, as supplemented by a thermal lag analysis performed by Westinghouse, has also demonstrated the environmental qualification of the model NP8316 solenoid valve for use at VEGP. That analysis determined the temperature that the model NP8316 valve would itself reach upon exposure to the composite LOCA/MSLB conditions. The thermal lag analysis showed that when exposed to environmental extremes as adverse as those reflected in the composite LOCA and MSLB profile for VEGP, which profile has a temperature peak of 400°F lasting for approximately three minutes, the temperature of the model NP8316 solenoid valve would not exceed the temperature of 346°F reached by the valves in the Isomedix test program, because of the short duration of that peak temperature. Miller Affidavit at ¶¶26-34; Gonzales Affidavit at ¶¶22-23. As the NRC staff concluded in IE Information Notice Nos. 84-23 and 85-08, the results of that testing program by Isomedix have not been called into question by the valve failures experienced in the Franklin Research Center qualification testing under significantly more severe environmental conditions. Miller Affidavit at ¶¶24-26.

Therefore, the model NP8316 solenoid valve is environmentally qualified for use at VEGP.

18. The model NP8321 valves used at VEGP have been shown to be environmentally qualified by the testing program conducted by Isomedix, Inc. The conditions to which that valve was exposed in the testing performed by Isomedix envelope the most adverse conditions to which that valve might be subjected at VEGP. Gonzales Affidavit at ¶¶27-29,35.

Respectfully submitted,

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Dated: July 31, 1985

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CERTIFICATE OF SERVICE

I hereby certify that copies of Applicants' Statement of Material Facts as to Which No Genuine Issue Exists to Be Heard Regarding Contention 10.5 (ASCO Solenoid Valves), dated July 31, 1985, were served upon those persons on the attached Service List by deposit in the United States mail, postage prepaid, or where indicated by an asterisk (*) by hand delivery, this 31st day of July, 1985.

James E. Joiner
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Attorney for Applicants

Dated: July 31, 1985

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of)
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(Vogtle Electric Generating Plant,) 50-425
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