



UNITED STATES
NUCLEAR REGULATORY COMMISSION

Enclosure 3

REGION IV
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ARLINGTON, TEXAS 76011

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION
DOCKET NO. 50-267
ENVIRONMENTAL QUALIFICATION OF ELECTRIC EQUIPMENT IMPORTANT TO SAFETY

Background

As part of the ongoing review of licensees' conformance to the requirements for environmental qualification, the staff raised a number of issues concerning the adequacy of the Fort St. Vrain program. By letter dated January 28, 1985, Public Service Company of Colorado (PSC) was requested to provide additional information in order to determine the extent of compliance with the requirements of 10 CFR 50.49, the rule on environmental qualification of electric equipment important to safety. PSC provided a response to that request in a letter dated March 28, 1985.

Additional information on environmental qualification was provided by the licensee in a letter dated March 25, 1985 in response to Generic Letter 84-24, Certification of Compliance to 10 CFR 50.49.

A meeting with the licensee to discuss the status of the Fort St. Vrain equipment qualification was held in Bethesda, Maryland on April 3, 1985. As a result of the information provided at this meeting and the licensee's letter further clarifying information was requested by the staff in a letter dated May 7, 1985. The response to that request is a letter from PSC dated June 11, 1985.

On July 2, 1985 staff members from NRR and Region IV again met with the licensee to discuss the current status of the Fort St. Vrain equipment qualification program. A letter dated July 11, 1985 was sent by PSC to address followup issues.

Staff Evaluation

A summary of the results of the staff review and evaluation of the information provided follows.

10 CFR 50.49 requires each holder of an operating license to establish a program for qualifying electric equipment important to safety. The program must include and be based on the time-dependent temperature and pressure conditions at the location of the equipment resulting from the most severe design basis accident during or following which the equipment is required to remain operable. The program must also include and consider, if applicable, the effects of humidity, chemical spray, radiation, aging, submergence, and synergism.

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In accordance with 10 CFR 50.49, equipment for Fort St. Vrain may be qualified to the criteria specified in either the DOR Guidelines or NUREG-0588, except for replacement equipment. Replacement equipment installed subsequent to February 22, 1983 must be qualified in accordance with the provisions of 10 CFR 50.49, using the guidance of Regulatory Guide 1.89, unless there are sound reasons to the contrary.

The rule requires that operating reactors achieve environmental qualification of all equipment by no later than March 31, 1985 unless an extension is granted by the Director of the Office of Nuclear Reactor Regulation. A record of qualification, including all necessary documentation, must be maintained in an auditable form for the period of time the covered item is installed or stored for future use.

The licensee's March 25, 1985 response to Generic Letter 84-24 concludes that all equipment which is required to be qualified has been qualified and that Fort St. Vrain is in full compliance with 10 CFR 50.49. This position was reiterated in the letter of June 11, 1985. However, the staff review of the information provided by the licensee in support of this claim leads to the following observations:

1. The Fort St. Vrain equipment qualification program is based on the environmental conditions which result from an assumption that a main steam line break can be isolated within 4 minutes. If isolation cannot be accomplished within 4 minutes, the temperature continues to increase and could invalidate any claim of environmental qualification. The adequacy of this assumption is under review by the staff and the results could have an impact on the equipment qualification program.
2. For each equipment item, age-related degradation which could prevent operation of the equipment must be identified and the equipment replaced or repaired as necessary. The qualified life of the equipment cannot be exceeded before corrective action is taken.

The licensee has stated that aging effects are not presently included in the qualification program but an effort in this area has begun. One necessary element which will establish the validity of the Fort St. Vrain qualification program is that the results of the aging analysis must be used to determine that equipment is currently qualified, and must be factored into the surveillance/replacement intervals to assure that equipment is maintained in a qualified state. Corrective action must be taken before, not after, the equipment has exceeded its qualified life.

3. Operability times have not been established for specific pieces of equipment in compliance with the requirement in 10 CFR 50.49 to demonstrate the capability to perform the required function for the time the equipment is required to remain operable.

The licensee has committed to perform a study to establish operability time requirements. Qualification cannot be considered demonstrated until the licensee determines that the equipment can perform its intended function for the period of time it is required to operate during and following an accident.

4. The licensee has identified a number of outstanding items to be completed as part of the qualification program and has provided a schedule for resolution of these items. The scheduled completion dates for these items extend to March 1986 and are inconsistent with the schedule requirements in 10 CFR 50.49.

Conclusion

As summarized above, a number of deficiencies are evident in the qualification program and in the information provided to the NRC for review. Also, guidance regarding the content and auditability of environmental qualification files was provided to licensees and applicants in IE Information Notice 85-39, dated May 22, 1985. Based on the information provided by PSC, it is clear that documented evidence of qualification does not now exist for equipment in Fort St. Vrain. Therefore, contrary to the assertions made by the licensee, the NRC staff cannot at this time conclude that conformance to the requirements of 10 CFR 50.49 has been demonstrated for Fort St. Vrain.

As a result of the discussions during the July 2, 1985 meeting and the licensee letter of July 11, 1985, the staff decided that the facility should not be allowed to go to full power operation until all environmental qualification issues are resolved to the extent that conformance with 10 CFR 50.49 can be demonstrated. The licensee is actively pursuing the means to resolve these issues.

For the interim period, the licensee has proposed a hold on reactor power to levels less than 15% of rated power to allow initiation of moisture dryout in the reactor vessel stating that the lower energy release rates at these power levels result in significantly lower peak equipment temperatures.

The staff has reviewed the information provided by the licensee in support of the proposed low power operation. Based on the results of that review, we find that operation pending resolution of these issues is allowable. The staff agrees that operation of the plant at power levels not exceeding 15% will preclude any significant effects on the equipment in question should an accident occur and that such interim operation will not adversely affect the health and safety of the public.

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