POWER AUTHORITY OF THE STATE OF NEW YORK

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October 3, 1980
IPN-80-90

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Electrical Override/Bypass

Dear Sir:

On June 2, 1980 (IPN-80-54) the Authority submitted the additional information requested by your April 11, 1980 letter regarding electrical override/bypass aspects of the containment purge system. In several cases we indicated that the information has been requested from Westinghouse and that it will be supplied at a later date. Attachment I to this letter contains the remaining information as promised in our June 2, 1980 response.

Very truly yours,

J. P. Bayne
Senior Vice President
Nuclear Generation

cc: Mr. T. Rebelowski
Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 38
Buchanan, New York 10511

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ATTACHMENT 1

REQUEST FOR ADDITIONAL INFORMATION

POWER AUTHORITY OF THE STATE OF NEW YORK
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
OCTOBER 3, 1980

8. Indian Point 3 must meet the conditions of General Design Criteria, 1,2,4 and 23 of Appendix A and Sections III and XI of Appendix B (to 10 CFR Part 50) and the national standards identified in Part II "Acceptance Criteria" of Standard Review Plan Section 3.1 (which includes IEEE Std. 323). To ensure that these conditions are met:

   1) Provide the information requested in Parts 2 thru 6 below for the following equipment:

      a) MG6 latching relay

      b) "RESET" switches used in the logic circuits for Containment Ventilation Isolation, Containment Isolation, Containment Spray and Safety Injection

      c) The inverters that supply power to the Safeguards Cabinets

      d) The Safety Injection reset timer, and

      e) The slave relays

   2) For each item listed in Part 1 above, provide the design specification requirement including:

      a) The system safety requirements.

RESPONSE:

The safeguards actuation circuitry comprised of the equipment listed in Part 1 above, with the exception of the item (c) inverters*, is designed to maintain circuit isolation through the bistable operated logic relays. The safeguards bistables drive redundant logic matrix relays "A" and "B". The "A" and "B" logic matrices operate master relays (MG6 latching relays) for actuating channels "A" and "B". These redundant actuating channels operate the various safeguards components through the slave relays.

The availability of power to the engineered safety features instrumentation is continuously monitored. The sensing circuits are in a normally energized state and go to a de-energized state to initiate action. The loss of instrument power to the sensors, instruments, logic or actuating devices in the engineered safety features instrumentation will initiate the trip sequence of the effected channel, except for the containment spray which requires instrument power for actuation.

*The item (c) inverters do not provide power to the Safeguards Actuation Circuity and therefore are not addressed in this submittal.

The channelized design, physical arrangement and the initiation of tripping sequence upon loss of power reduces the probability of a single event impairing the vital functions of the system.

2) b) An environmental envelope as a function of time that includes all extreme parameters, both maximum and minimum values, expected to occur during plant shutdown, normal operation, abnormal operation, and any design basis event (including LOCA and MSLB), and post event conditions. The envelope shall include an explicit statement of the range of energy supply and electrical loads.

RESPONSE:

The equipment listed on Part 1, with the exception of the inverters, is located on the Safeguards Relay Rack or supervisory panels which are situated in the Central Control Room (CCR). The CCR is served by redundant air conditioning units. The environmental envelope within the CCR is defined by 75-78^{o}F temperature, approximately 50% relative humidity and less than .1 mr/hr radiation. With exception of radiation levels, the environmental conditions in the CCR are expected to remain constant during plant shutdown, normal operation, abnormal operation and design basis events including post event conditions. In the case of radiation levels, under abnormal conditions, habitability considerations dictate that they be limited to 30 rem thyroitd dose for eight hours following a LOCA.

The loss of one air conditioning unit will cause the temperature to increase to 100^{o}F with all lighting loads on and 93^{o}F with only emergency lighting on. These temperatures are lower than the maximum tolerable upper limit of 120^{o}F for the safety equipment located in this room.

2) c) Time required to fulfill its safety function when subjected to any of the extremes of the environmental envelope specified in 2 (b) above.

RESPONSE:

Since these components are in a controlled environment the time required to fulfill their safety function will not be affected.

3) Provide the qualification test plan, test setup, test procedures, and acceptance criteria for each of the items listed in (1) above. If any method other than type testing was used for qualification (operating experience, analysis, combined qualification, or ongoing qualification), describe that method in sufficient detail to permit an evaluation of its adequacy.

RESPONSE:

The qualification test plan, setup, procedures and acceptance criteria for the Safeguards Relay Rack are explained in WCAP-7817 and WCAP-7817

Supplement 2 published by Westinghouse Electric Corp. The above documents refer to seismic tests.

4) For each piece of equipment identified in (1) above, state the actual qualification envelope simulated during testing (defining the duration of the testing environment and the margin in excess of the design requirements). If any method other than type testing was used for qualification, identify the method and define the equivalent qualification envelope so derived.

RESPONSE:

The seismic envelope for the Safeguards Relay Rack tested can be found in WCAP-7817, Figures 13, 14 and 15, and in WCAP-7817 Supplement 2 pages A-14, A-15 and A-16. Since this equipment is on a controlled environment, environmental testing was not necessary.

5) Summarize the test results that demonstrate the adequacy of the qualification programs described above.

RESPONSE:

Based on the results of the seismic tests and environmental conditions in the control room, it has been concluded that the equipment is capable of performing its function both during and after a design basis event.

6) Identify the qualification documents which contain detailed supporting information, including test data for items (3), (4) and (5) above.

RESPONSE:

The supporting documents for above equipment are contained in WCAP-7817 and WCAP-7817 Supplement 2 as well as supporting documentation maintained by Westinghouse for audit of WCAP-7817 and WCAP-7817 Supplement 2.

9. For the relays that are listed in Question 8 (1) above, provide the following information:

3) The voltage at which it was seismically qualified.

RESPONSE:

The voltage during the seismic test of the relays was 125VDC constant.

5) Justify the seismic qualification of any relay that was not qualified by test at its minimum operating voltage, or that was not tested in both the energized and de-energized state.

RESPONSE:

The system was tested with nominal voltage applied since there are only slight deviations in the normally supplied voltage. The system was tested with the relays in their normal operating position at the beginning of the test. The performance of the system was verified during the test by exercising the relays.