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July 17, 1979
IPN-79-51

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

Attention: Mr. Albert Schwencer, Chief
Operating Reactor Branch No. 1
Division of Operating Reactors

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Fire Protection Program Review

Dear Sir:

In response to your letter of May 21, 1979, enclosed please find ten (10) copies of the Authority's responses to your request for additional information (Attachment 1) and staff positions (Attachment 2).

In the Authority's October 23, 1978 submittal to the NRC, a commitment was made in the response to staff question 1.d to install an automatic, dry-pipe, preaction sprinkler system in the MCC area of the Primary Auxiliary Building (El. 55.'-0").

Please be advised that this system will not be installed. Instead, the Authority will provide fire barriers between cable trays containing redundant safety related cables in this area. Smoke detectors will be provided and fire suppression will utilize a manual hose station located in this area. In a phone conversation on June 20, 1979 between the Authority's staff and Messrs. Olshan and George of your staff, it was concluded that this modification was acceptable. A revised response to the previously mentioned staff question 1 is enclosed.

Very truly yours,

Paul J. Early
Assistant Chief Engineer-Projects

Drawings To Reg Files

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ATTACHMENT 1

RESPONSES TO NRC REQUEST OF

MAY 21, 1979 FOR

ADDITIONAL INFORMATION

ON FIRE PROTECTION PROGRAM

POWER AUTHORITY OF THE STATE OF NEW YORK

INDIAN POINT 3 NUCLEAR POWER PLANT

DOCKET NO. 50-286

JULY 13, 1979

Question 1

Verify that changes to safety systems will not degrade safety systems, (e.g., new isolation switches, control switches, and instrumentation, should meet the same design criteria and standards in the FSAR for electrical equipment in the system that the switch is to be installed; cabinets that the switches and instrumentation are to be mounted in should also meet the same criteria (FSAR) as other safety related cabinets and panels, including seismic, and a single transfer switch or other new device should not be a source for a single failure to cause loss of redundant safety systems)

Answer

Changes to safety systems will be reviewed as required by 10CFR50.59 to ensure that the change does not constitute an unreviewed question. This review ensures that the same design criteria and standards specified in the FSAR are followed.

Question 2

Verify that procedure(s) will be developed which describe the tasks to be performed to effect the alternate shutdown method. Provide a summary of these procedures to be reviewed by the staff.

Answer

A new procedure will be developed which describes the tasks to be performed to safely shut down the plant using the alternate shutdown capability.

The procedure will address when to switch to the alternate shutdown method, the switches that must be operated and any special precautions that must be followed before and after switching.

Changes to portions of existing procedures may also have to be made. This determination will be made upon completion of the design.

Question 3

Identify the manpower required to achieve safe shutdown independent of the cable spreading room. Verify that the manpower required to perform the alternate shutdown functions using the procedures of 2. as well as to provide fire brigade members to fight the fire is available as required by the fire brigade technical specifications.

Answer

The manpower required to achieve safe shutdown independent of the cable room will be performed with the existing shift complement. These personnel are sufficient to provide plant shutdown capability as well as provide fire brigade members.

Question 4

Describe the acceptance tests to be performed. These should verify that: equipment operates from the local control station when the transfer or isolation switch is placed in the "local" position and that the equipment cannot be operated from the control room; and that equipment operates from the control room but cannot be operated at the local control station when the transfer or isolation switch is in the normal position.

Answer

In addition to calibration tests of instrumentation, functional testing of the new components will be performed to demonstrate their capability to perform their intended function. This testing will include verification that equipment operates from the local control station when the transfer or isolation switch is placed in "local" position and that equipment cannot be operated from the control room, and that equipment operates from the control room but cannot be operated from the local control station when the transfer or isolation switch is in the normal position.

Question 5

Technical Specifications including the surveillance requirements and limiting conditions for operation for new instrumentation should be provided.

Answer

Technical Specifications including surveillance requirements and limiting conditions for operation for new instrumentation will be provided when the design is completed.

Question 6

Provide simplified one line diagram(s) showing typical circuits for diesel generator control, diesel generator breaker control and instrumentation at the new instrument panel after modifications. The drawing or sketch should show normal and remote control points and identify those portions of the circuit that are located in the cable spreading room.

Response

Please refer to the attached drawings which provide the information requested.

6604-164-F-SK-1 Block Diagram-Diesel Generator and Breaker Controls

6604-164-F-SK-3 Block Diagram-New Instrumentation

6604-164-F-SK-4 Cable Routing-New Instrumentation

Question 7

On equipment layout or cable raceway layout drawings, show the routing of generator control cables, of generator breaker control cables, and cables for the new instrumentation that will be used to effect safe shutdown independent of the cable spreading room.

Response

Please refer to the attached drawings which the information requested.

6604-164-F-SK-2 Cable Routing-Diesel Generator and Breaker Controls

6604-164-F-SK-3 Block Diagram-New Instrumentation

6604-164-F-SK-3 Cable Routing-New Instrumentation

Question 8

Control circuits that may be used to effect safe shutdown typically contain fuses for overcurrent protection. These fuses may be blown by the effects of a cable spreading room fire and thus power may not be available for these control circuits even after isolating the cable spreading room cables by operating remote disconnect or transfer switches. Verify that for systems required to effect safe shutdown independent of the cable spreading room, spare fuses are available in the area of the existing control circuit fuses and the procedure used for shutdown by this method informs the operator to check these fuses if equipment fails to operate.

Answer

For systems required to effect safe shutdown independent of the cable spreading room, spare fuses will be available in the area of the existing control circuit fuses. The procedure specified in Question 2 will require the operator to check the fuses if equipment fails to operate.

ATTACHMENT 2

RESPONSES TO NRC STAFF POSITIONS

OF MAY 21, 1979

ON FIRE PROTECTION PROGRAM

POWER AUTHORITY OF THE STATE OF NEW YORK

INDIAN POINT 3 NUCLEAR POWER PLANT

DOCKET NO. 50-286

JULY 13, 1979

Position 1

During the site visit of May 3 and 4, 1979, it was noted that some cabling was located in a below-floor space in the MCC area of the Primary Auxiliary Building. If any of these cables are safety related, smoke detection devices should be located in the below floor space.

Response

The Authority will provide smoke detection devices in the below-floor space in the MCC area of the Primary Auxiliary Building.

Position 2

During the above referenced site visit, we were informed of the planned location for the 3-hour wall referenced in the PASNY letter of April 16, 1979 to be located between the cable tunnels and cable spreading room. With this location, an open area would exist between the end of the tunnels and the new wall. This open area will contain redundant safe shutdown cables. The staff concern is that the proposed fire protection using closed heads adjacent to the trays may not be effective in detecting and suppressing a fire in this area. Although manual suppression may be available to suppress a fire and protect redundant cables, we perfer to not place primary reliance on the fire brigade to prevent a fire from affecting redundant safety divisions. To provide adequate overall protection for cables in this area between the cable spreading room and the cable tunnels, one of the following should be provided:

a. Extend the floor/ceiling separating the tunnels with a 3-hour rated barrier up to the new wall;

b. Extend the closed head spray nozzles into the tray area so that nozzles are located above the trays, and use horizontal sidewall type nozzles to provide coverage of the trays. This type arrangement should extend for at least 15 feet into the tunnels, or

c. Use open head spray nozzles in this area and extending for at least 15 feet into the tunnel. The system should be actuated by detection devices located above the cable trays.

If alternative (b) or (c) is chosen, the suppression systems protecting cables on each side of this open area should be on separate feeds such that failure or isolation of any section of fire suppression piping will nto incapacitate both systems.

Response

The Authority will comply with the above requirement. The alternatives stated above are presently being evaluated and a decision on which one will be provided is expected by early September, 1979. The Authority will notify you of its decision.

Position 3

Barriers are provided at certain locations inside containment to separate redundant safe shutdown instrumentation cabling. No barriers are provided between redundant instrumentation cabling at the penetration area. To provide adequate separation between redundant cabling, both the following should be met:

a. Provide test data to demonstrate the adequacy of the existing barriers to prevent a fire below the barrier from damaging cables in trays above the barrier, or install tested thermal barriers, such as Kao-Wool, to insulate the lower cable tray containing instrumentation cables of one channel where the redundant instrumentation cable trays are stacked above each other. The fire barrier installation should conform to a design which has been tested to demonstrate a 1-hour fire rating, and

b. Thermal barriers, as above, should also be installed to enclose one channel of safe shutdown instrumentation both where the cabling crosses from the stack of trays over to the penetration area, and at the penetration area. An alternative to this would be to provide tested barriers to separate cable trays presenting an exposure hazard to the safe shutdown instrumentation. The channel to be protected should also be the channel that is located in the lowest tray where the redundant instrumenation cable trays are stacked above each other (channel 4).

Response

The Authority will comply with the above requirement. The alternatives stated above are presently being evaluated and a decision on which one will be provided is expected by early September, 1979. The Authority will notify you of its decision.

SUPPLEMENTAL INFORMATION TO NRC REQUEST OF SEPTEMBER 29, 1978 AND NOVEMBER 28, 1978 FOR ADDITIONAL INFORMATION ON FIRE PROTECTION PROGRAM

POWER AUTHORITY OF THE STATE OF NEW YORK
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
JULY 13, 1979

Question No. 11

Provide the following design criteria details for proposed additons to fire protection systems:

a. Fire Pumps - number, rated capacity, rated pressure, type drive, electrical power arrangement, starting arrangement.

b. Fire Water Tanks - number, capacity

c. Fire Underground - drawings on location of piping, valves and hydrants.

d. Sprinklers (in safety-related areas) - type system, actuation method, design densities, water flow alarms.

e. Hose Stations - minimum nozzle pressure at design flow rates.

f. Fire Detection Systems - emergency power supply, electrical circuit supervision, use of approved components.

g. Fire Doors and Dampers - locations, fire ratings.

h. CO_2 Systems - concentrations, soak times, actuation method.

Response

a. Fire Pumps

Number	2
Rated capacity	2500 GPM
Rated pressure	110 psig
Type of drive	one electric motor driven one diesel engine driven
Electrical power arrangement	The Motor Driven Fire Pump will have its normal power supply from a new 480 volt switchgear to be located in the turbine bldg. at elevation 15 feet. A stand-by power feed will be provided from an existing 480 volt Class 1E Switchgear. If the normal power supply fails, the pump can be run from the standby Class 1E power source.

Starting arrangement — Automatic, on pressure drop in the main fire loop below a pre-set point.

b. Fire Water Tanks

Number — 2

Capacity — 350,000 gallons each, 300,000 gallons in each tank are reserved for Fire Protection

c. Fire Underground — Attached is a drawing MO95 showing the piping arrangement, valves and hydrants.

d. Sprinklers (in safety-related areas)

Area	Type of System	Actuation Method	Design Densities	Water Flow Alarms
Diesel Gen. Bldg. Gen.# 31,32, & 33	Wet-pipe Hydraulic design	Automatic	0.3 GPM/Ft^2 for entire area.	Yes
Penetration Area & Tunnel EL.33'-0"	Dry-pipe preaction	Automatic	30 GPM/Sprinkler (1.34 GPM/$Ft.^2$ of cable tray area).	Yes
Penetration Area & Tunnel EL.43'-0"	Dry-pipe preaction	Automatic	30 GPM/Sprinkler (1.34 GPM/$Ft.^2$ of cable tray area).	Yes

e. Hose Stations — Minimum nozzle pressure at design flow rates shall be in conformance with NFPA standard 14, not less than 65 psi at the outlet with 500 GPM flowing from the outlet.

f. Fire Detection Systems — Shall have emergency power supply. All circuits shall be electrically supervised. All components shall be UL approved and FM listed.

g. Fire Doors and Dampers

Location (see drawings AO19 and AO21)	Fire Rating
Control Bldg. to Turbing Bldg. EL. 15'-0"	U.L. 3 Hour Rating
Control Bldg. to Stair EL. 15'-0"	U.L. 3 Hour Rating
South Wall of Control Bldg. to Sump Pump Rm. EL. 15'-0"	U.L. 1½ Hour Rating
West Wall to Diesel Gen. Bldg. EL.15'-0"	U.L. 3 Hour Rating
Diesel Gen. Bldg. EL. 15--0" Between the three Gen. Rms. (4 Doors)	U.L. 3 Hour Rating
East Wall of Diesel Gen. Bldg. EL.15'-0"	U.L. 3 Hour Rating
Control Bldg. to Turbine Bldg. EL. 36'-9"	U.L. 3 Hour Rating
Control Bldg. to Stair EL. 33'-0"	U.L. 1½ Hour Rating
South Wall of Control Bldg. to Air EL. 33'-0"	U.L. 1½ Hour Rating
West Wall of Control Room to Turbine Bldg. EL. 53'-0"	Bullet resistant (class 4 as required by 10 CFR 73.55 (c) (6). Approved by American Nuclear Insurers (ANI).
East Wall of Control Room to Stair EL. 53'-0"	Bullet resistant (class 4) as requested by 10 CFR 73.55 (c)(6). Approved by American Nuclear Insurers (ANI).
Northeast Wall of Diesel Gen. Bldg. EL.43'-6"	U.L. 3 Hour Rating
North End of Diesel Gen. Bldg. EL. 43'-6" (Between the Gen. Rooms, Two doors)	U.L. 3 Hour Rating

Cable Tunnel Entry EL. 33'-0"	U.L. 3 Hour Rating
Fire Damper Between Turbine Bldg. & Control Bldg. EL. 33'-0"	U.L. 3 Hour Rating
Fire Damper Between Turbine Bldg. & Control Bldg. EL. 15"-0"	U.L. 3 Hour Rating

h. CO_2 System

System	Concentration	Application Time (Soak Time)	Actuation Method
Cable spreading rm. Control Bldg. EL. 33'-0"	50%	Total Flooding (10 min.)	Automatic - additional application manual
Relay Room Control Bldg. EL. 15'-0"	50%	Total Flooding (10 min.)	Automatic additional application manual