JCP&L / GPU

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August 31, 1979

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

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Fire Protection - Additional Information

By letter dated March 3, 1978, we received the NRC Safety Evaluation Report (SER) on the Oyster Creek Fire Protection Program. Certain items in this report were marked with an asterisk to indicate that the NRC would require additional information concerning the items so marked. Enclosure 1 presents the additional information requested. Additionally, enclosure 2 presents the additional information requested in your letter of August 8, 1979.

Very truly yours,

Ivan R. Finfrock, Jr.
Vice President

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Enclosures

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ENCLOSURE 1

Additional Information on SER Items

SER Item 3.1.3 Dampers

Response:

Our letter dated August 1, 1978, Re: Door and Penetration Analysis provides the requested information for this item. See also our response to SER Item 3.'.16 Ventilation System Changes.

SER Item 3.1.4 Fire Detectors

Response:

Table 1 presents a listing of the proposed fire detectors by fire area. The listing includes identification of the area, type of detectors, number of detectors, and pertinent remarks. The detection system has been/will be designed, constructed, and installed in accordance with NFPA #72D.

SER Item 3.1.5 Halon Suppression Systems

Response:

Total flooding Halon 1301 systems have been proposed for the 480 volt switchgear room, the control room panels, and the A & B battery room (completed). These systems have been/will be designed, constructed, and installed in accordance with NFPA #12A. Design specifications for these systems are as follows:

1. 480 volt Switchgear Room

   Soak time: 10 minutes
   Concentration: Minimum 6% by volume
   Application Rate: 10 seconds
   Alarm location: Local and in Control Room
   Supervisor Signal Location: Control Room
   Method of Detection: Crossed zone
   Manual Release Location: Northside corridor of the 480 volt switchgear room (cylinder location).

2. Control Room Panels

   Soak time: 10 minutes
   Concentration: Minimum 8% by volume
   Application Rate: 6% by volume in 10 seconds and 8% by volume in 15 seconds
   Alarm location: Control Room
   Supervisory Signal location: Control Room
   Method of Detection: Crossed zone POC
   Manual Release locations: Southside corridor of the Control Room (cylinder location)

3. A & B Battery Room (completed)

   Soak Time: 5 minutes
   Concentration: Minimum 6% by volume
   Application Rate: 10 seconds
   Alarm Location: Local and Control Room
   Supervisory Signal Location: Control Room
   Method of Detection: Crossed Zone POC
   Manual Release Location: Corridor outside battery room entrance.

SER Item 3.1.6 Water Spray Systems

Response:

Water spray systems have been proposed for the main transformer bus penetration, reactor building cable tray protection, and the cable spread room. All of the proposed systems have been/will be designed, constructed and installed in accordance with NFPA #15. All nozzles have been spaced to provide the proper water density to the particular area being protected; therefore, physical spacing may vary from system to system. The determining factor is that the area of protection will receive the required water spray density. The number of nozzles, water spray density, and methods of actuation are as follows:

1. Main Transformer Bus Penetration

   Number of Nozzles: 6
   Spray Density: .15 GPM/sq. ft.
   Actuation: Thermal detection

2. Cable Trays Reactor Building (51'-3" elev. south)

   Number of nozzles: 51
   Spray Density: .15 GPM/sq. ft.
   Actuation: Crossed zone POC

3. Cable Trays Reactor Building (51'-3" elev. north)

   Number of nozzles: 69
   Spray Density: .15 GPM/sq. ft.
   Actuation: Crossed zone POC

4. Cable Trays Reactor Building (23'-6" elev. south)

   Number of nozzles: 82
   Spray Density: .15 GPM/sq. ft.
   Actuation: crossed zone POC

5. Cable Trays Reactor Building 23'-6" elev. north)

   Number of nozzles: 149
   Spray Density: .15 GPM/sq. ft.
   Actuation: Crossed zone POC

6. Cable Spreading Room

   Number of Nozzles: 198
   Spray Density: .15 GPM/sq. ft.
   Actuation: Crossed zone POC

SER Item 3.1.7 Sprinkler Systems

Response:

Water sprinkler systems have been proposed for the 119' elevation of the reactor building, the area over the spent fuel pool cooling system, above the false ceiling in the Monitor and Change Room, below the ceiling of the Monitor and Change room, the fire pump house and outside diesel fuel tanks, and the condenser bay and the Turbine building basement south. All of the proposed systems have been/will be designed, constructed, and installed in accordance with NFPA #13. The number of heads, water density, and head spacing are as follows:

1. 119' elevation reactor building

   Number of heads: 180
   Water density: .15 GPM/sq.ft.
   Head Spacing: 93.8 sq.ft./head

2. Spent Fuel Pool Cooling Pumps

   Number of heads: 5
   Water Density: .15 GPM/sq.ft.
   Head Spacing: 60 sq. ft/head

3. Monitor and change area (above ceiling)

   Number of heads: 16
   Water Density: .15 GPM/sq. ft.
   Head Spacing: Spaced as required to yield specified water density.

4. Monitor & Change Area (below ceiling)

   Number of heads: 8
   Water Density: .15 GPM/sq. ft.
   Head Spacing: Spaced as required to yield specified water density

5. Fire Water Pump House & Diesel Fuel Tanks

   Number of heads: 16
   Water Density: .25 GPM/sq. ft.
   Head Spacing: 77 sq. ft/head

6. Condenser Bay

   Number of heads: 17 sealed nozzles
   Water Density: .15 GPM/sq. ft.
   Head Spacing: One nozzle per every 9'-11" along length of cable tray.

7. Turbine Building Basement (south end)

   Number of heads: 118 sprinkler heads, 27 sealed nozzles
   Water Density: .2 GPM/sq. ft. (sprinklers)
   .15 GPM/sq. ft. (cable tray coverage)
   Head Spacing: 100 sq. ft./head (sprinklers)

SER Item 3.1.16 Ventilation System Changes

Response:

As indicated in our letter of October 3, 1977, there are two situations which could allow recirculation of smoke from one area to another. The first of these is the 480 volt switchgear room. Smoke from a fire in the Monitor and Change Area could have been drawn into the 480 volt switchgear room through faulty HVAC expansion joints. This situation has been rectified by repairing the expansion joints. The repairs were inspected by our fire protection consultant, and he concurs that the present configuration will prevent the recirculation of smoke.

The second area of concern was the 4160 volt switchgear room. It is possible that smoke from a transformer fire could be drawn into this area. As part of the 4160 volt emergency switchgear modification, a vault will be installed isolating this switchgear from the 4160 volt room area. The ventilation system for this vault will be isolated when smoke is detected within the vault area. Furthermore all doors and penetrations will also be isolated. In the event of a transformer fire, operators in the control room would be alerted to the situation and will dispatch the fire brigade. Should it be necessary, the ventilation fans to the 4160 volt room will be shut down. Our fire protection consultant agrees that these measures are adequate to provide the required level of protection.

SER Item 3.1.20 Alternate Water Supply to the Yard Loop

Response:

Our letter dated June 26, 1979, Re: Alternate Water Supply, provides the additional information for this SER item.

SER Item 3.1.21 Protection from Water Damage

Response:

The potential for water damage to safety related equipment as a result of fire protection modifications has been addressed in the design phase. Each system description was reviewed for this potential in performing the safety evaluation required by 10 CFR 50.59. In all cases where such potential exists, positive steps have been taken to prevent water damage to safety related equipment by the installation of curbs, drains, or shields. Specific protection includes installing curbs around stairwells in the reactor building, rerouting reactor building drains to prevent flooding of corner rooms, shielding safety related equipment where it is in the vicinity of proposed water systems, and installing a drain in the cable spread room. All measures taken to prevent water damage are addressed in the specific system description and attendant safety evaluation which are available for NRC review as required by 10CFR50.59.

SER Item 3.1.22 New Battery Room and Rerouting of Battery Cables

Response:

Our letter dated September 18, 1978, Re: New Battery Room Cable Routing, provides the additional information for this SER item.

SER Item 3.1.23 Remote Shutdown Station

Response:

Preliminary design work on this project has been completed; however, this preliminary design is now under review to determine its acceptability. It will not be possible at this time to supply the additional design details requested by this SER item since the information now available is subject to change. Once our review is completed and a specific design is decided upon, we will submit the requested information.

TABLE 1 FIRE DETECTORS

Fire Area	Location	Type of Detector	Number of Detectors	Remarks
1	119' Elev.	Water Flow	1	Closed Head Sprinklers
	95' Elev.	Ionization	28	
	75' Elev.	Ionization	26	
	51' Elev.	Ionization	30	
	38' Elev.	Ionization	6	
	23' Elev.	Ionization	29	
	- 19' Elev.	Ionization	8	2 in each corner room
2	Drywell	-	None	Inerted
3	New Battery Room	Ionization	2	
	Area (4160 volt)	Ionization	6	
	Vault (4160 volt)	Ionization	4	
4	Cable Spread Room	Ionization	17	
5	Control Room			
	Ceiling	Ionization	4	
	Panels	Ionization	6	
6	480 Volt Rm	Ionization	19	
7	Battery Room (Old)	Ionization	12	
8	M-G Set Rm.	Water Flow	1	Existing Sprinkler System
9	Office Building			
	1st floor	Ionization	3	
	2nd floor	Ionization	3	
	3rd floor	Ionization	5	
10	Monitor & Change			
	above ceiling	Ionization	12	
	below ceiling	Ionization	3	
11	Turbine Building			
	Condenser spray	Water Flow	1	Sprinkler System
	Basement	Water Flow	1	Sprinkler System
12	Main Trans&Cond.	Thermal Rate (of Rise)	34	Outside-Existing
13	Aux. Boiler House	Thermal (fixed temp)	8	
14	Circ. Water Intake		None	Outside Area
15,16,17	Diesel Generator	Thermal (fixed temp)	13	
		Ionization	2	

TABLE 1 (CON'T)

Fire Area	Location	Type of Detector	Number of Detectors	Remarks
18	Fire Pump House	Thermal (fixed temp)	4	
19	Old Rad Waste	Ionization	3	

ENCLOSURE 2

In your letter of August 8, 1979, it was requested that we provide additional information concerning our submittals dated April 7, August 1, and September 22, 1978. The requested additional information is as follows:

Question: Administrative Controls

Provide an implementation schedule for change to procedures identified in JCP&L letters of April 7, 1978 and September 22, 1978 concerning administrative Controls.

Response: The following table indicates the implementation schedule for the procedures identified in our letters of April 7, 1978 and September 22, 1978.

Procedure	Status/Implementation Date
1. Emergency Lighting	Completed
2. Control of Ignition Sources	Completed
3. Marking Access & Egress Routes	Completed
4. Communication Equipment	See "Communication Equipment"
5. Pre-fire Plans	December, 1979

Question: Radwaste Fires

The radwaste facility evaluation provided by letter of April 7, 1978 indicates that solid wastes are stored in drums, but that there is an accumulation of combustible contaminated material waiting to be compacted. Provide the results of an evaluation in terms of off-site releases for a fire that consumes these combustibles.

Response: The combustible material mentioned above is normal day to day low level waste from routine plant operations (i.e. paper, chem wipes, rags, etc.) This material is collected at the compaction station and pressed into steel drums for ultimate disposal. A fire which would consume this material would be confirned to the compaction area inside the rad waste building. The airborn particulates generated would be removed by the ventilation filters.

Please note that this material is extremely low level and of small quantity. Even if it were released to the atmosphere without filtration, there would not be any significant off site dose levels.

Question: Fire Barrier Penetrations

a. The JCP&L letter of August 1, 1978 provides an analysis of fire barrier penetration protection. Certain electrical cable penetration seals are to be upgraded to a 3-hour fire rating. Identify the construction of the new or modified cable penetration fire seals, and provide the results of tests to demonstrate the rating of these seals.

b. The above analysis indicates that the doors to the control room are being upgraded for security purposes, but will not be 3-hour fire rated doors. It appears from the drawings that all such doors are into corridors and not into other safety related areas or into the turbine building. Verify that no doors are provided between the turbine building and control room.

c. Provide an implementation schedule for completion of fire door and penetration modifications.

Response: a. The proposed modifications to electrical cable penetrations will be accomplished in a similar manner as used for other penetrations (i.e., cable spread room, batter room, electric tray room, etc.) which is discussed in our response dated October 3, 1977, to question 5 of your September 2, 1977, letter. At the present time a vendor has not been selected to perform this work and specifics of these modifications are not available.

b. There are no doors between the control room and the turbine building.

c. Fire door and penetration modifications will be completed as per Table 3.1, Supplement 1, of the NRC Safety Evaluation Report.

Question: Communications Equipment

The JCP&L letter indicates that a modification to the communications system will be made to provide communications between the control room and all safety related areas, and that the use of a repeater system was being considered to provide this capability. Please identify the modification that will be used and the implementation date for completion of this modification.

Response:

At the present time, we are in the process of evaluating several approaches to providing the required communication capability. Within the next two weeks we expect to test a 450 megacycle system at the Oyster Creek Station. In parallel with this testing we are evaluating another RF system consisting of a coaxial cable system in combination with power splitters and poleing receivers. It is expected that a decision on which system will be used will be made within the next month. At that time we will inform the NRC of our decision and provide a schedule for implementation.