

December 5, 1983

SBN- 592
T.F. B7.1.2

United States Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

References: (a) Construction Permits CPPR-135 and CPPR-136, Docket
Nos. 50-443 and 50-444
(b) USNRC Letter, dated February 12, 1982, "Request for
Additional Information," F. J. Miraglia to W. C. Tallman
(c) PSNH Letter, dated March 12, 1982, "Response to 430 Series
RAIs; (Power Systems Branch)," J. DeVincentis to
F. J. Miraglia
(d) PSNH Letter, dated November 19, 1982, "Revised Response to
RAIs 430.67 and 430.68; (Power Systems Branch),"
J. DeVincentis to F. J. Miraglia

Subject: Revised Responses to RAIs 430.67 and 430.69; (Power Systems
Branch)

Dear Sir:

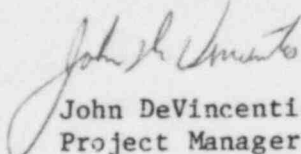
In FSAR Section 7.4.2 (as revised in Amendment 49), we eliminated two areas from those that we consider necessary to be manned during Remote Safe Shutdown. The two locations are RHR Vault A and RHR Vault B. As a result of the elimination of the two locations, emergency lighting and communications for these areas are no longer necessary.

Enclosed are annotated responses to RAIs 430.67 and 430.69, which reflect these emergency lighting and communication changes. These will be included in a future OL Application Amendment.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

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John DeVincentis
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Enclosure

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Boo!
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430.67
(9.5.2)

The information regarding the On-Site Communication System (Section 9.5.2) does not adequately cover the system capabilities during transients and accidents. Provide the following information:

- (a) Identify all working stations on the plant site where it may be necessary for plant personnel to communicate with the Control Room or the emergency shutdown panel during and/or following transients and/or accidents (including fires) in order to mitigate the consequences of the event and to attain a safe cold plant shutdown.
- (b) Indicate the maximum sound levels that could exist at each of the above identified working stations for all transients and accident conditions.
- (c) Indicate the types of Communication Systems available at each of the above identified working stations.
- (d) Indicate the maximum background noise level that could exist at each working station and yet reliably expect effective communications with the Control Room using:
 1. the page party Communication System, and
 2. any other additional Communication System provided that working station.
- (e) Describe the performance requirements and tests that the above on-site working stations Communication Systems will be required to pass in order to be assured that effective communication with the Control Room or emergency shutdown panel is possible under all conditions.
- (f) Identify and describe the power source(s) provided for each of the Communication Systems.
- (g) Discuss the protective measures taken to assure a functionally operable On-Site Communication System. The discussion should include the considerations given to component failures, loss of power, and the severing of a communication line or trunk as a result of an accident or fire.

RESPONSE: (a-d) The station design provides for bringing the plant to cold shutdown from the Control Room. Therefore, if the Control Room is available, there is no need to man remote locations to mitigate the consequences of an event or to attain a safe cold plant shutdown.

For those events which require Control Room evacuation, the following table lists the areas required to be manned to achieve and maintain cold shutdown including maximum sound level and communications available.

	Maximum Sound Level	Communication Systems			
		Sound Powered	Paging	Telephone	Radio
Switchgear Room A (Control Building El. 21'-6")	77 dba	Yes	Yes	Yes	Yes
Switchgear Room B (Control Building El. 21'-6")	77 dba	Yes	Yes	Yes	Yes
RHR Vault A (El. 0'-1-1/2")	63 dba	Yes	Yes	Yes	Yes
RHR Vault B (El. 0'-1-1/2")	63 dba	Yes	No (Note 1)	No	Yes
Diesel Generator Control Panel A (Diesel Generator Building El. 21'-6")	120 dba	Yes	Yes	Yes	Yes
Diesel Generator Control Panel B (Diesel Generator Building El. 21'-6")	120 dba	Yes	Yes	Yes	Yes

NOTE:

- 1) Paging station shared with RHR Vault A because of close proximity to RHR Vault B.

Attachment 1, Tabulation of Communication Equipment, identifies by building elevation the communications available throughout the nuclear island buildings. This extensive communication network assures that communications are in close proximity to other areas where it may be desirable to monitor, operate or maintain equipment. Additionally, the radio system with the repeater and radiax (Note 1) is designed to provide communication between all areas of the station (except the Containment Building) via hand-held portable radios. Even without the radiax the hand-held portable radios will assure that communications are available at the locations that are required to be manned to bring the station to hot and cold shutdown for all design basis events.

- (e) The telephone is designed to provide satisfactory performance under the following conditions:

Up to 60 dba - Standard Handset
Up to 70 dba - Volume Control Handset
Over 70 dba - Sound Absorbent Booths

The paging stations are designed to provide satisfactory performance under the following conditions:

Up to 100 dba - Standard Handset
Over 100 dba - Sound Absorbent Booths

Headphones will be provided as necessary to assure effective communication via the sound powered system.

Mobility and individual volume control on hand-held portable radios assure that this system will provide effective communications under the maximum expected noise levels.

Functional tests will be conducted under conditions that simulate the maximum plant noise levels being generated during the various operating conditions and accident conditions to demonstrate system capabilities.

- (f) The telephone system PABX is located in the construction office building and is powered by an off-site construction power source. Following completion of Unit 2, power will be supplied from a Unit 2 non-safety power system. Back-up power to the telephone system PABX is provided by a dedicated engine generator unit that supplies power to the telephone system and its HVAC System only.

The Public Address (PA) System for Unit 1 is powered from a Unit 1, Train "A" UPS bus. The PA System for Unit 2 is powered from a Unit 2, Train "A" UPS bus.

The hand-held portable radios are powered by rechargeable batteries. The repeaters for the station radio system are powered from a non-safety power system. Back-up power is provided by dedicated batteries rated for 8-hour use.

The sound-powered telephone system requires no external power supply to maintain its function.

(g) The following protective measures have been taken to assure a functionally operable on-site Communication System:

- The power supplies for the various communication systems are diverse (see Response (f)).
- The Communication Systems are physically separated. The telephone PABX is located in the construction office building. The paging control cabinet for Unit 1 is located in the Unit 1 Turbine Building Relay Room. The paging control cabinet for Unit 2 is located in the Unit 2 Turbine Building Relay Room. The radio system repeater stations are located on Elevation 50'-0" of Unit 1 and Unit 2 Turbine Buildings.
- Cables for the PA System are run in Train A raceways that are different from those used for the telephone system.
- The jacks for the dedicated sound-powered loop which provide communications between the remote shutdown locations are mounted in seismically qualified equipment or are mounted in individual junction boxes which are seismically supported. Many of the jacks on the other sound-powered loops are also mounted in equipment which is seismically qualified. The switching panel for the sound-powered Communication System is located in the Control Room and is seismically supported.

Note 1: Radiax is a slotted coax cable designed to function as a continuous antenna both for receiving and transmitting.

TABULATION OF COMMUNICATION EQUIPMENT

<u>LOCATION</u>	<u>NO. OF NET CO. TELEPHONES</u>	<u>NO. OF PA SYSTEM HANDSET STATIONS</u>	<u>NO. OF PA SYSTEM SPEAKERS</u>	<u>SOUND-POWERED SYSTEM</u>		<u>RADIO SYSTEM EQUIPMENT</u>
				<u>NO. OF TELEPHONE JACKS</u>	<u>NO. OF CHANNELS</u>	
1. CONTROL BUILDING, EL. 21'-6"	10	2	16	32	3	YES
2. CONTROL BUILDING, EL. 50'-0"	2	--	4	--	--	YES
3. CONTROL BUILDING, EL. 75'-0"	19	4	19	43	3	YES
4. EMERGENCY FEEDWATER PUMP ROOM, EL. 27'-0"	3	1	3	2	3	YES
5. D.G. BUILDING, EL. (-) 16'-0"	2	--	2	--	--	YES
6. D.G. BUILDING, EL. 21'-6"	4	2	4	6	3	YES
7. D.G. BUILDING, EL. 51'-6"	2	--	8	--	--	YES
8. CABLE TRAY TUNNEL, EL. 0'-0"	--	--	1	--	--	YES
9. ELEC. PENET. AREA, EL. 0'-0"	1	--	1	1	1	YES
10. CABLE TRAY TUNNEL, EL. (-) 20'-0"	--	--	1	--	--	YES
11. ELEC. PENET. AREA, EL. (-) 26'-0"	1	--	2	1	1	YES
12. CONTAINMENT BUILDING, EL. (-) 26'-0"	3	1	12	8	3	---
13. CONTAINMENT BUILDING, EL. 0'-0"	2	1	9	14	3	---
14. CONTAINMENT BUILDING, EL. 25'-0"	8	3	7	5	3	---
15. MAIN STEAM TUNNEL, EAST	2	--	6	5	6	YES
16. MAIN STEAM TUNNEL, WEST	4	--	6	2	3	YES
17. MECH. PENET. AREA, EL. (-) 11'-2-1/2"	1	--	--	--	--	YES

TABULATION OF COMMUNICATION EQUIPMENT
(Continued)

<u>LOCATION</u>	<u>NO. OF NET CO. TELEPHONES</u>	<u>NO. OF PA SYSTEM HANDSET STATIONS</u>	<u>NO. OF PA SYSTEM SPEAKERS</u>	<u>SOUND-POWERED SYSTEM</u>		<u>RADIO SYSTEM EQUIPMENT</u>
				<u>NO. OF TELEPHONE JACKS</u>	<u>NO. OF CHANNELS</u>	
18. MECH. PENET. AREA, EL. (-) 20'-0"	1	--	3	--	--	YES
19. MECH. PENET. AREA, EL. (-) 34'-6"	--	--	--	2	3	YES
20. RCA & CLEAN TUNNELS	3	--	8	--	--	YES
21. FUEL STORAGE BUILDING, EL. 7'-0"	1	--	4	2	3	YES
22. FUEL STORAGE BUILDING, EL. 25'-0"	4	1	6	1	3	YES
23. FUEL STORAGE BUILDING, EL. 64'-0"	1	--	2	2	3	YES
24. PAB BLDG., EL. 7'-0"	8	2	10	7	3	YES
25. PAB BLDG., EL. 25'-0"	8	1	14	13	3	YES
26. PAB BLDG., EL. 53'-0"	6	1	12	11	3	YES
27. PAB BLDG., EL. 81'-0"	2	--	2	4	3	YES
28. PAB BLDG., EL. (-) 6'-0"	2	--	7	1	3	YES
29. PAB BLDG., EL. (-) 26'-0"	1	--	1	1	3	YES
30. PAB RHR VAULTS, EL. (-) 61'-0"	2	--	4	2	3	YES
31. PAB RHR VAULTS, EL. (-) 50'-0"	2	--	2	2	3	YES
32. PAB RHR VAULTS, EL. (-) 31'-10"	2	--	2	--	--	YES
33. PAB RHR VAULTS, EL. (-) 9'-0"	2	--	--	--	--	YES

TABULATION OF COMMUNICATION EQUIPMENT
(Continued)

LOCATION	NO. OF NET CO. TELEPHONES	NO. OF PA SYSTEM HANDSET STATIONS	NO. OF PA SYSTEM SPEAKERS	SOUND-POWERED SYSTEM		RADIO SYSTEM EQUIPMENT
				NO. OF TELEPHONE JACKS	NO. OF CHANNELS	
34. RHR SHUTDOWN LOC., EL. 0'-1-1/2"	1	1	2	3	3	YES
35. WALKWAY CB TO PAB, EL. 20'-8"	1	1	2	--	--	YES
36. ELEC. TUNNEL CB TO PAB, EL. 30'-8"	--	--	1	--	--	YES
37. SERVICE WATER PUMP ROOM, EL. 21'-0"	2	1	5	2	3	YES
38. SERVICE WATER ELEC. ROOM, EL. 22'-0"	2	--	2	2	3	YES
39. COOLING TOWER ELEC. ROOM, EAST, EL. 22'-0"	1	2	2	3	3	YES
40. COOLING TOWER PUMP ROOM, EAST, EL. 46'-0"	1	--	2	1	3	YES
41. COOLING TOWER ELEC. ROOM, WEST, EL. 22'-0"	1	2	2	3	3	YES
42. COOLING TOWER PUMP ROOM, WEST, EL. 46'-0"	1	--	2	1	3	YES

SB 1 & 2
FSAR

RAI 430.69

Identify the vital and hazardous areas where essential and emergency lighting is needed for safe shutdown of the reactor and the evacuation of personnel in the event of an accident. Tabulate the lighting system provided in your design to accommodate those areas so identified. Include the degree of compliance to Standard Review Plan 9.5.1 regarding emergency lighting requirements in the event of a fire.

RESPONSE:

The following tabulation identifies lighting systems available at each area required to be manned for safe shutdown of the reactor.

	<u>AREA</u>	<u>NORMAL LIGHTING</u>	<u>ESSENTIAL LIGHTING</u>	<u>EMERGENCY LIGHTING</u>
1.	Control Room	Yes	Train A & B	Station Battery 8 hours
2.	Emergency Switchgear Rooms A & B	Yes	Train A & B	Station Battery 8 hours
3.	Diesel Gen. Room A	Yes	Train A & B	Station Battery 8 hours
4.	Diesel Gen. Room B	Yes	Train A & B	Station Battery 8 hours
5.	RHR Vault A	Yes	Train B	Battery Pack 8 hours
6.	RHR Vault B	Yes	Train B	Battery Pack 8 hours

In compliance with 10 CFR Part 50, Appendix R, Section III J, all the above areas are also provided with eight-hour-rated self-contained battery packs for access and egress lighting. All other plant areas are provided with 1½ hour rated self-contained battery packs for egress lighting.

In addition, fire brigade and operation personnel required to achieve safe plant shutdown will be provided with suitable sealed beam battery-powered, portable hand lights.