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MIDDLE SOUTH UTILITIES SYSTEM

March 1, 1985

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A4.05

Director of Nuclear Reactor Regulation
Attention: Mr. G. W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Knighton:

Subject: Waterford 3 SES
Docket No. 50-382
Revised Fire Hazards Analysis for High Radiation
Vertical Pipe Chase (Fire Area RAB 23A)

The completion of masonary wall rework required by Item A.3 of Attachment 1 to the Waterford 3 Facility Operating License has resulted in the need to revise the fire hazards analysis for the high radiation vertical pipe chase located adjacent to the north wall of the Reactor Auxiliary Building (RAB). The subject pipe chase was originally considered in evaluations of Fire Area RAB 23. However, with the completion of masonary wall rework in response to CAT Findings 6.2 and 6.3, this pipe chase became completely isolated by 3-hour rated fire boundaries from the remainder of the RAB. This in effect created a new fire area for which a revised fire hazards analysis is provided as Attachment 1. We have designated this new fire area as RAB 23A.

Included in the attached analysis is a request for exception to the requirements to provide smoke detection and automatic fixed suppression. In view of our current operating schedule, your timely response is greatly appreciated. We trust sufficient information is provided to satisfactorily complete your review. Should you require any additional information please contact our Safety and Environmental Licensing Coordinator, R. J. Murillo at (504) 595-2838.

Very truly yours,

K W Cook

K. W. Cook
Nuclear Support & Licensing Manager

KWC:KNC:plc

cc: E. L. Blake, W. M. Stevenson, D. M. Crutchfield, J. Wilson, D. Kubicki, R. D. Martin, G. L. Constable

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Fire Hazards Analysis
Fire Area RAB 23A
High Radiation Vertical Pipe Chase - North Wall RAB

1. Description:

   a. Chase is located between column lines L/2A and L/6A
   b. Approximate internal dimension - 6'W x 60'L x 30'H
   c. Enclosed by 3 hour rated ceiling/wall/floor structures
   d. Normal access is not provided to the space - (access is provided via removable block wall requiring 3 to 4 hours for removal).

2. Contents

   a. 13 essential/associated safe shutdown cables located in three control trays and one low level tray, each approximately 6 ft. long; non essential cables constitute the remainder of tray fill.

   b. 14 essential/associated safe shutdown and several non essential cables are contained in 30 conduits each approximately 6 ft. long.

   c. For a complete listing of essential/associated cables and related devices see Table 1 (attached). All cables in chase are IEEE-383 qualified.

   d. Redundant 2 inch DG fuel oil supply lines separated by 23 feet and two-1 inch fuel oil gravity drain lines.

   e. Piping from system originating from adjacent portion of the RAB (i.e. CCW, S/G Blowdown, Gaseous Rad Waste, Instrument Air, etc.).

3. Justification for exception from smoke detection and automatic fixed suppression for chase area:

   a. Protection of electrical cables.

      - The power cables are all in conduit.
      - Control and Instrumentation cables run in dedicated trays.
      - Per FSAR Appendix 9.5a, Section IV, page 9.5A-8 Amendment 36, the power and control cables are isolated by protection devices which operate in sufficient time to clear an electric fault before damage occurs to the cable insulation, thus precluding a fire. Instrumentation cables carry low level power well within the cable's continous energy carrying capability.

      - For power cables in conduits double protection is afforded:

        Electrical - The only possible source of ignition is due to cable overloads or short-circuiting. For these cases, the cabling is provided with protective devices which insure therefore precluding the creation of a high temperature condition in the raceway.

Mechanical - All power cables passing through the pipe chase run in conduit. In case of overload or short-circuit, the limited heat released by the cables will be contained within the conduit.

b. Exclusion of transient combustibles - Lack of normal access to this space precludes the introduction of transient combustibles.

c. Negligible insitu fire load - Combustible load (i.e. exposed cable) is approximately 9,500 BTU/Sq. Ft. equivalent to less than 7 min. fire duration.

d. No loss of Safe Shutdown capability - Loss of all cables within the chase would not preclude the ability to safely shutdown, since: (1) redundant counterpart cables exist undamaged in other areas of the plant, or (2) alternate shutdown capabilities exist. (For detailed explanation see Table 2 attached).

e. No loss of offsite power event - There are no circuits within the chase, that if damaged would cause a loss of offsite power condition.

f. The Diesel Generator Fuel Oil piping within the chase consists of two-2 inch fuel oil fill lines and two-1 inch fuel oil gravity drain lines. The fuel oil piping is of welded construction. The fill lines are Safety Class 3, Seismic Category I. The drain lines are designed to ANSI B 31.1, however, they are seismically supported. The drain lines are non-pressurized gravity drain lines from the diesel drip pans to the storage tanks.

The fuel oil supply lines are 2-inch schedule 80 (i.e. wall thickness - .218 inch) welded pipe. Considering the low levels of insitu combustible material (i.e. exposed cable in tray) which is equivalent to approximately 9,500 BTU/Sq. Ft. or approximately 7 minutes fire duration, it is our judgement that such a fire condition could not adversely affect the structural integrity of the piping.

List of Essential/Associated Safe Shutdown Cable Within Pipe Chase

A. Cables passing thru pipe chase North or Col. 1 Above El. - 4.00'

Cables in Tray	Device
30302D-SA	2CH-F1518A/B
30302F-SA	2CH-F1518A/B
30302K-SA	2CH-F1518A/B
30385A-NA	PT-212 INST CAB C11A
30385B-NA	FT-212 INST CAB C11A
30392B-SB	2SI-V326B
30597B-SA	2SI-V327A
30380B-NA	2CH-F1529A/B
31134C-SA	2CC-F155A2, 2CC-F159A2
31134D-SA	2CC-F154A1, 2CC-F158A1
31134G-SA	3CC-TM148A
31137D-SB	2CC-F156B1, 2CC-F160B1
31137G-SB	3CC-TM149B

Cable in Conduit	Device
30592A-SB	2SI-V327A

B. Cables Passing Thru Pipe Chase North of Col. 1 Above EL +35.00'

Cables in Conduit	Device
30715K-SA	TE-CC7077AS
30749F-SA	3CC-B201A
30752A-SA	AUX CCWP "A"
31643D-SA	PT-MS0303AS INST CAB C11A
31643E-SA	VA:2MS-PM629A
32349A-SA	XFMR 3A315S
32349B-SA	XFMR 3A315S
32402A-SA	MCC 3A314S
32488A-SA	MCC 3A314S
32488D-SA	AUX PNL 1C
32507A-SB	MCC 3A314S
32513A-SB	MCC 3A314S
32513D-SB	AUX PNL 2C

Explanation of Impact of Fire on Essentail/Associated Cable within Chase

1. Letdown Containment Isolation Valve - 2CH-F1518A/B - Cables affected: 30302 D, F, K-SA. This is a fail close valve which closes on loss of power. Letdown is not required for safe shutdown, however the above valve can be manually operated to restore letdown when desired.

2. Charging Flow and Pressure - FT-212 and PT-212 - Cables affected: 30385A, B-NA. These cables provide indication only. Pressurizer Level and Pressure provide alternate indication.

3. Shutdown Cooling Isolation Valves - 2SI-V326B and 2SI-V327A - Cables affected: 30592A, B-SB and 30597B-SA. These motor operated valves are not required to achieve and maintain hot standby. They are located outside containment, and can be manually operated when required. Shutdown Cooling Isolation is insured above cold shutdown conditions by procedurally racking out supply breakers to selected isolation valves.

4. Charging Header Isolation Valve - 2CH-F1529A/B - Cable affected: 30380B-NA. This is a fail open valve that can be opened manually in the wing area by shutting off the instrument air or by turning the handwheel.

5. Containment Fan Coolers Component Cooling Water Valves - 2CC-F155A2, 2CC-F159A2, 2CC-F154A1, 2CC-F158A1, 3CC-TM148A, 2CC-F156B1, 2CC-F160B1 and 3CC-TM149B - Cables affected: 31134C, D, G-SA and 31137D, G-SB. All of these valves fail open. Allowing only one spurious actuation at a time, only 2 fan coolers can be affected and this can be quickly rectified through manual operation of valves.

6. Ultimate Heat Sink "A" - Wet Cooling Tower Automatic Fan Controls, Dry Cooling Tower Isolation Valve 3CC-B201A, ACCW Pump "A" - Cables affected: 30715K-SA, 30749F-SA and 30752A-SA. The "B" ultimate heat sink is not affected by a pipe chase fire.

7. Atmospheric Dump Valve and Associated Instrumentation - PT-MS0303 and Valve 2MS-PM629A - Cables affected: 31643D, E-SA. The ADV for steam generator No. 2 is not affected, and manual operation is available to operate ADV 2MS-PM629A for steam generator No. 1.

8. Feed to Transformer 3A315S - Cables affected: 32349A, B-SA. This transformer supplies the ultimate heat sink "A" fans. The 3B315S transformer provides complete redundancy and is not affected by a pipe chase fire.

9. Power to the Fuel Handling Building Motor Control Centers - Cables affected: 32482A-SA, 32488A, D-SA, 32507A-SB, and 32513 A, D-SB. Not required for safe shutdown. Redundant systems exist for fuel pool inventory control.