REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8303290470 DOC. DATE: 83/03/22 NOTARIZED: NO DOCKET #
FACIL: 50-244 Robert Emmet Ginna Nuclear Plant, Unit 1, Rochester Gl 05000244
AUTH. NAME AUTHOR AFFILIATION
MAIER, J.E. Rochester Gas & Electric Corp.
RECIP. NAME RECIPIENT AFFILIATION
CRUTCHFIELD, D.M. Operating Reactors Branch 5

SUBJECT: Forwards resolution of open issues for SEP Topic III-5.B, re pipe break outside containment, including issues concerning screenhouse, relay room & air handling room, intermediate bldg & auxiliary bldg.

DISTRIBUTION CODE: A035S COPIES RECEIVED: LTR. 1 ENCL 1 SIZE: 14
TITLE: OR Submittal: SEP Topic

NOTES: NRR/DL/SEP 1cy. 05000244

	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL
	NRR ORB5 BC	01	3	3				
INTERNAL:	NRR/DL/ORAB	11	1	1	NRR/DL/SEPB	12	3	3
	NRR/DSI/AEB		1	1	NRR/DSI/CSB	07	1	1
	REG FILE	04	1	1	RGN1		1	1
EXTERNAL:	ACRS	14	6	6	LPDR	03	1	1
	NRC PDR	02	1	1	NTIS	5	1	1
NOTES:			1	1				

TOTAL NUMBER OF COPIES REQUIRED: LTTR 21 ENCL 21

| | | |

ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER, N.Y. 14649

JOHN E. MAIER
Vice President

TELEPHONE
AREA CODE 716 546-2700

March 22, 1983

Director of Nuclear Reactor Regulation
Attention: Mr. Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: SEP Topic III-5.B, Pipe Break Outside Containment
R. E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Crutchfield:

The final NRC staff evaluation of SEP Topic III-5.B, "Pipe Break Outside Containment", was transmitted to RG&E on September 4, 1981. The purpose of this letter is to provide an assessment of those pipe break issues not previously resolved, as described in the attachment. One issue which had been deferred from the SEP review of pipe break effects in the NRC's September 4, 1981 SER is "environmental qualification". This deferral was based on the Commission's Memorandum and Order of May 23, 1980, requiring that all safety-related electrical equipment must be qualified to operate in an adverse environment. This Order has, of course, been supplanted by the issuance of 10CFR 50.49. Although we agree that environmental qualification test reports should be reviewed by the Equipment Qualification Branch, we consider that the definition of the adverse environment due to postulated pipe breaks, and the definition of safety-related equipment required to cope with the postulated breaks, is more properly reviewed within the SEP Branch. The attached report provides the proposed modifications which RG&E believes are appropriate to resolve not only the pipe break issues of SEP Topic III-5.B, but also to resolve issues associated with the environmental effects of the breaks.

RG&E considers that the results of this report adequately resolve both the issue of pipe breaks outside containment (SEP Topic III-5.B), and environmental qualification of safety-related equipment located in areas subject to a steam heating or process line break.

Very truly yours,

A035

John E. Maier

8303290470 830322
PDR ADOCK 05000244
P PDR

Attachment

Attachment: Resolution of Open Issues for SEP Topic III-5.B, Pipe Break Outside Containment

1. Screenhouse: Three types of breaks are postulated in the screenhouse-moderate energy line cracks in the Service Water System and moderate energy line cracks in the Fire Protection System, which could cause jet spray on safety-related cabling, and high energy line breaks in the steam heating lines, which could cause damage to the Service Water pumps and electrical buses 17 and 18 due to adverse steam environment. The steam lines are sufficiently distant from the pumps and buses that jet impingement is not considered a concern.

   RG&E resolution: RG&E has made a comprehensive failure study of critical equipment located in the screenhouse, as well as a systems evaluation concerning alternative safe shutdown methods. Based on these studies, RG&E has concluded that alternative shutdown methods, assuming no additional physical protection for service water system equipment located in the screenhouse, would provide an acceptably high level of safe shutdown capability. The Ginna turbine-driven auxiliary feedwater system can use water from the Condensate Storage Tanks, which have a minimum of two hours of auxiliary feedwater capacity. After that source of water is exhausted, water from the 100,000 gallon condensate tank, and/or the 40,000 gallon hotwell, could be transferred to the CST's. None of the required equipment would be affected by a pipe crack or break in the screenhouse. Finally, RG&E has installed fire hose connections at both the diesel generators and at the Standby Auxiliary Feedwater System. Either the yard fire hydrant system, or a portable gasoline-driven fire pump located onsite, or a fire truck, which could be called onto the site, have sufficient capacity to provide auxiliary feedwater to the steam generators to maintain safe shutdown indefinitely. Also, the yard hydrant system has sufficient additional capacity to provide cooling to the diesel generators.

   With all of this capability available to provide the necessary auxiliary feedwater and cooling water in the event of pipe breaks in the screenhouse, RG&E considers that the present Ginna arrangement is acceptable, and all concerns relative to SEP Topic III-5.B in the screenhouse have been resolved.

2. Relay Room and Air Handling Room: Although the III-5.B evaluation found these arrangements acceptable because temperature monitors are available, RG&E has concluded that the environmental qualification level of this equipment requires that these areas must be maintained as a "mild environment". Thus, pipe cracks are not considered acceptable. RG&E has thus decided to replace the steam space heaters in the relay room with electric resistance heaters and replace or eliminate the heating coils in the air handling room.

Thus, the high energy lines in these rooms will be eliminated. This will be done on a schedule consistent with the requirement of 10CFR 50.49.

3. Intermediate Building: Although the steam heating lines traverse the intermediate building, the environmental effects due to high energy line breaks is controlled by the postulated crack failures of steam and feedwater piping. The modifications made to address the effects of these pipe cracks (e.g., installation of the Standby Auxiliary Feedwater System), precludes the need for any further modifications to specifically address the failure of steam heating line breaks.

4. Auxiliary Building: A heating or process steam line in the vicinity of safety-related equipment, such as an electrical bus, motor control center, or cable trays and conduit, could affect the operability of required safe shutdown equipment due to dynamic effects (jet impingement and pipe whip). Also, the general steam environment, although not expected to be severe throughout the entire auxiliary building, could possibly affect additional equipment required for safe plant shutdown.

   RG&E resolution: In order to maintain a safe plant shutdown, the turbine-driven auxiliary feedwater system, which would not be affected by a high energy line break in the auxiliary building, would be available to maintain auxiliary feedwater flow to the steam generators, and thus maintain a safe shutdown condition. The Condensate Storage Tanks have sufficient capacity to maintain auxiliary feedwater flow for at least two hours. The other sources of auxiliary feedwater described in Section 1 above would also be available, since they are located away from the auxiliary building. Thus, auxiliary feedwater and cooling water would be available indefinitely.

   In addition to auxiliary feedwater addition, a source of charging flow would be required within approximately 24 hours to maintain inventory. For this purpose, the charging pumps would be used. The charging pumps are located in the basement of the auxiliary building, in a separate concrete room, and thus are protected from the direct effects of a steam line break. Fire protection modifications presently contemplated by RG&E would seal off any openings in the doors, windows, and ventilation penetrations. Thus, no steam environment would affect the charging pumps. Any valves required to inject flow could be manipulated manually. The only equipment which might be affected by the steam line breaks could be the charging pump breaker at bus 16 (intermediate floor of the auxiliary building), and power and control cabling in the basement of the auxiliary building. In order to resolve these issues, RG&E proposes:

1) provide pipe whip and jet impingement protection for the steam line risers, located on the intermediate floor of the auxiliary building.

2) provide a spare charging pump breaker for bus 16, located in an area not subject to a heating or process steam line break.

3) provide spare power cable, which could be routed from bus 16 to the charging pump.

4) provide the necessary procedures to implement 2 and 3 above.

RG&E estimates that the auxiliary building could be restored to ambient conditions, and the breaker and power cabling for the charging pump could be installed, in less than 8 hours. Since charging flow is not required for approximately 24 hours, RG&E considers that sufficient margin exists. It should be noted that RG&E is presently formulating shutdown methods for fire protection as part of our Appendix R review. If any fire protection modifications change or supersede these commitments, RG&E will notify the NRC staff.

With the modifications proposed by RG&E in this letter, RG&E considers the issue of SEP Topic III-5.B to be completed. Further, RG&E considers that the auxiliary building can be considered a "mild environment" for purposes of environmental qualification of electrical equipment (10CFR 50.49), since none of the required safe shutdown equipment will have to operate while the Auxiliary Building environment is considered "harsh" (above 104°F).