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SUBJECT: Notifies that util intends to pursue steam generator snubber replacement program. Objective of program to replace six of eight hydraulic snubbers during Feb 1988 refueling outage. Brief technical description of analysis encl.

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September 22, 1987

U.S. Nuclear Regulatory Commission
Document Control Desk
Attn: Mr. Carl Stahle
PWR Project Directorate No. 1
Washington, D.C. 20555

Subject: Steam Generator Snubber Replacement Program
R. E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Stahle:

Rochester Gas and Electric intends to pursue a steam generator snubber replacement program. The objective of this program is to replace six of the eight hydraulic snubbers per steam generator with rigid structural members during the refueling outage beginning in February 1988. This replacement will reduce required maintenance activities and aid in keeping radiation exposures as low as reasonably achievable (ALARA).

Enclosed is a brief technical description of the analysis that will be performed to provide the justification for the snubber replacement. This analysis will involve the application of both updated pipe break design criteria to reduce maximum loads on the reactor coolant loop support system, and the change to MEB BTP 3-1 (Generic Letter 87-11) to eliminate arbitrary intermediate breaks in the main steam lines.

Consistent with your discussions with members of the RG&E staff, it is our intention to perform this replacement as a plant modification subject to review per 10CFR50.59. There are no changes to the Technical Specifications required beyond those previously submitted on August 1, 1983 (last updated July 24, 1987) which retains operability and surveillance requirements for snubbers but which removes the lists of snubbers from the Technical Specifications. We anticipate that approval of that proposed change to the Technical Specifications will occur by the 1988 outage.

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We are planning to meet with the NRC Staff on September 28, 1987 to discuss this matter further. We request that a written indication of your concurrence with this application of 10CFR50.59 be received no later than October 23, 1987 as changes or additional reviews beyond this date could prevent the replacement from occurring during the 1988 outage. If no written indication is received by this date, we will assume your concurrence and proceed with the program as planned.

Very truly yours,

Roger W. Kober

Roger W. Kober

Enclosure

ROCHESTER GAS & ELECTRIC CORPORATION
STEAM GENERATOR HYDRAULIC SNUBBER REPLACEMENT PROGRAM
TECHNICAL SUMMARY

1.0 Introduction

The upper portion of each of the two steam generators at Ginna Station are currently restrained against lateral seismic and pipe break loads by eight, large (532,000 lb. capacity) hydraulic shock arrestors (snubbers) as shown in Figure 1. An independent set of supports provide lateral and vertical restraint to the lower portion of each SG. The required maintenance, in-service inspection and testing are performed during annual refueling outages. Surveillance activities are performed periodically throughout the year.

2.0 Program Description

The intent of the proposed upper lateral support modification is to replace six of the eight hydraulic snubbers per SG with rigid structural members (bumpers), thereby minimizing the number of hydraulic snubbers in service for this application. In this way, annual maintenance activities and, consequently, ALARA radiation exposures to maintenance personnel can also be minimized. The hydraulic snubbers replaced with bumpers will be refurbished, and stored for use as spares. It is expected that spare parts procurement, as well as utilization of shop facilities and rigging equipment, can be optimized as a result of this replacement. A pair of existing snubbers will remain in place at each SG in the direction of reactor coolant loop (RCL) thermal growth as shown in Figure 3. This arrangement provides sufficient design load capacity and represents a reliable support configuration. The design of the existing hydraulic snubbers (manufactured by Anker-Holth) employs a passive-type orifice design. Control valves are not used and, therefore, the failure of such valves (the predominant failure mode of other large-bore snubbers as discussed in IE Bulletin 86-102) is not applicable. The rigid structural members (bumpers) which will replace some of the hydraulic snubbers will be equally, if not more, reliable.

3.0 Design Basis Loads

The SG hydraulic snubber replacement program will assure that adequate support capacity is maintained with respect to the design basis loads. The current controlling design load for the SG upper lateral support system is an intermediate pipe break in the horizontal main steam line near the top of the SG (See Figure 2). NRC Generic Letter 87-11, "Relaxation

in Arbitrary Intermediate Pipe Rupture Requirements", provides guidance for elimination of arbitrary intermediate breaks and will be applied to this program. Previous piping upgrade program analyses (recently reviewed in NRC Inspection 87-11), using ANSI B31.1 criteria, have been reviewed and will be revised as necessary to reflect changes resulting from this snubber replacement program. Consistent with Generic Letter 87-11, these analyses have established that no intermediate pipe breaks need to be postulated in the Main Steam (MS) or Feedwater (FW) piping. Terminal-end breaks at the FW inlet nozzles are now the limiting load and are the new design basis loads.

4.0 Piping Systems Analysis

The effect of the new design basis loads upon the RCS equipment and piping support system are being analyzed by Westinghouse. An independent review by a consultant with broad experience in RCS support design is also planned.

The use of rigid structural members (bumpers) in the SG upper lateral support system will change the degree of stiffness with which the SGs are restrained against dynamic loads (See Figures 4 and 5). These new stiffnesses have been calculated and results so far indicate that RCS stresses and deflections will not change significantly. Loads from a pipe break postulated to occur in an auxiliary line (RHR, SI accumulator or surge line) branch connection will also be determined using the new upper lateral support stiffnesses to assess the effect on the reactor coolant loop piping, equipment supports and the new SG upper support configuration.

The seismic response spectra and damping values used in this work will conform to Regulatory Guide 1.60 and 1.61, respectively. Modal responses and spatial components will be combined in accordance with Regulatory Guide 1.92. Results of the existing RCS Leak Before Break (LBB) analysis will be reviewed (resolution of the Asymetric Loads issue which employed LBB is documented in an NRC letter dated September 9, 1986).

5.0 Rigid Structural Members (Bumpers)

The replacement support hardware consists of individual structural assemblies which will be installed wherever an existing hydraulic snubber is removed. A typical assembly is shown in Figure 6. Each assembly is structurally rigid under compression but will allow freedom of movement in the tensile direction. Each assembly is individually adjustable in the field to ensure that clearances at each bumper position are adequate for expansion but do not exceed those permitted by the analysis. The assembly and its subparts

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

are sized, and analyzed, to withstand the new Design Basis Load. The assemblies will be designed and constructed to the requirements of the American Institute of Steel Construction (AISC), which was the industry code used for the original plant major component supports. Detailed design of the rigid structural members is being performed by RG&E. Fabrication will be performed by a qualified supplier.

Load combinations will be combined in accordance with the Standard Review Plan Section 3.9.3 Appendix A and NUREG-0484.

6.0 Licensing Activities

No revisions to the Ginna Technical Specifications are comtemplated. Previous applications have been made to remove the specific listing of safety-related snubbers from Technical Specifications. Operability and surveillance requirements for remaining snubbers have not been changed. A safety evaluation of the modification in accordance with 10CFR50.59 will be performed. The Ginna Station Updated Safety Analysis Report (UFSAR) will be revised as appropriate.

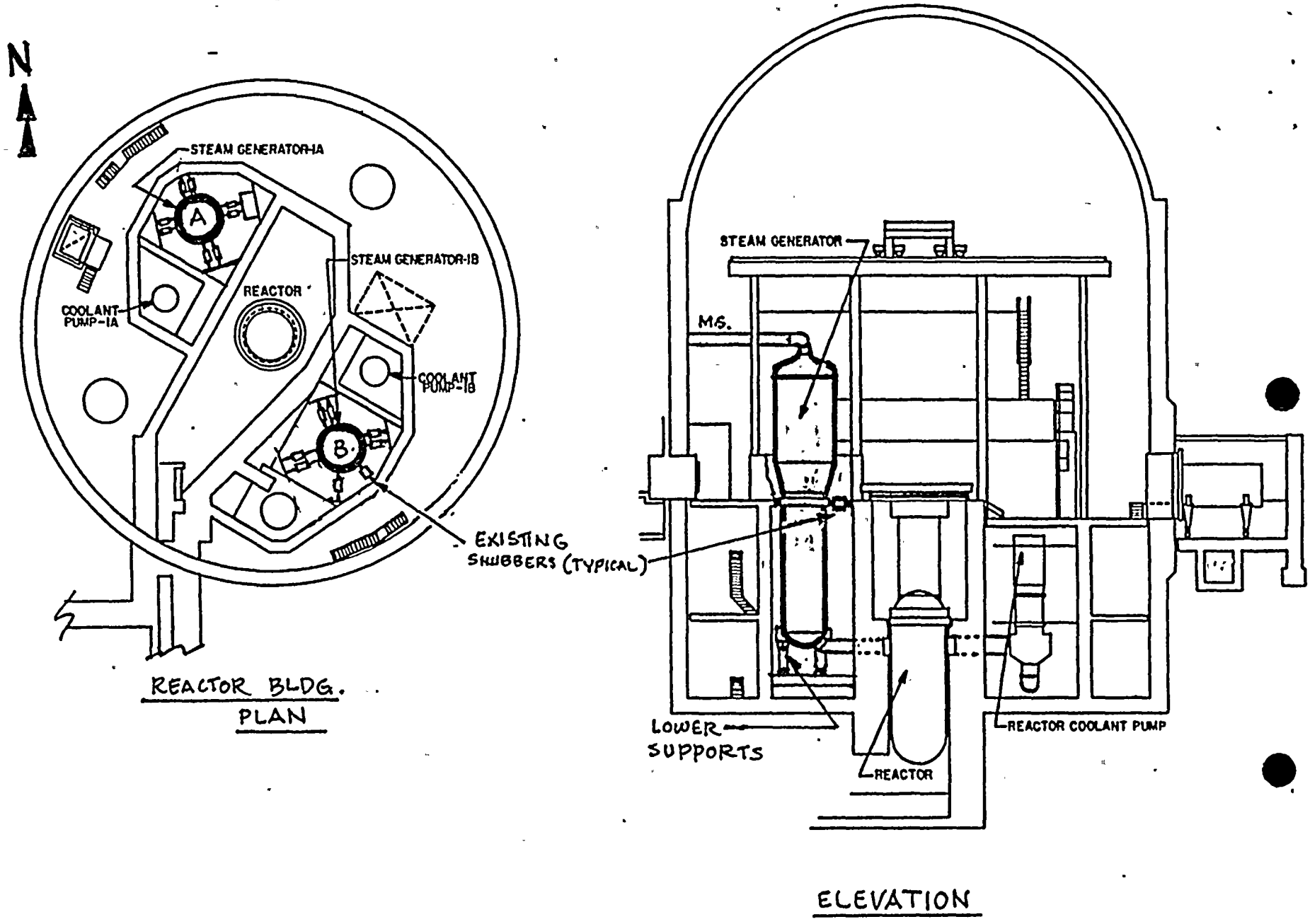

FIGURE 1

GINNA STATION STEAM GENERATOR SNUBBERS - LAYOUT

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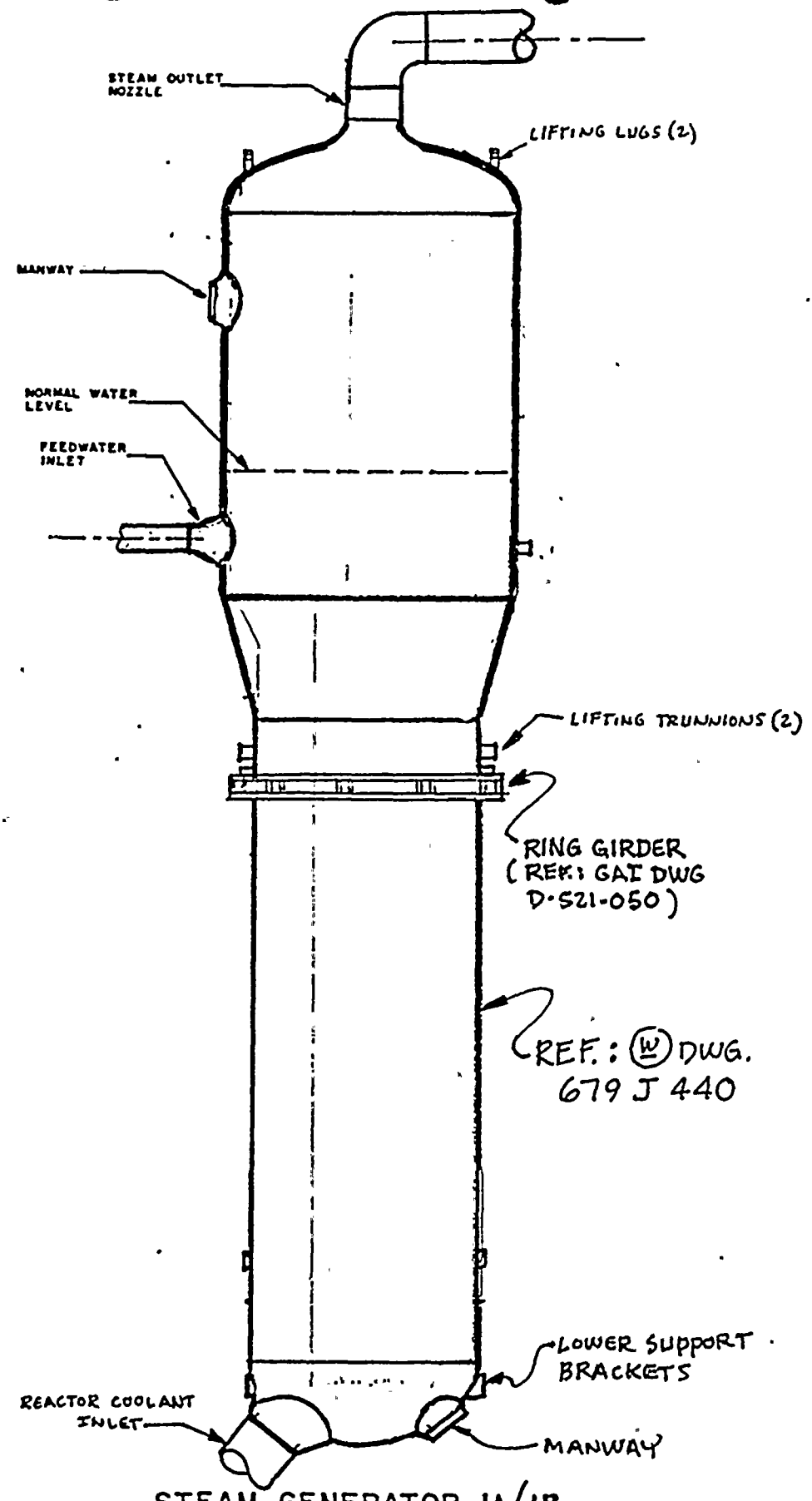

FIGURE 2

STEAM GENERATOR 1A/1B
(TYPICAL)

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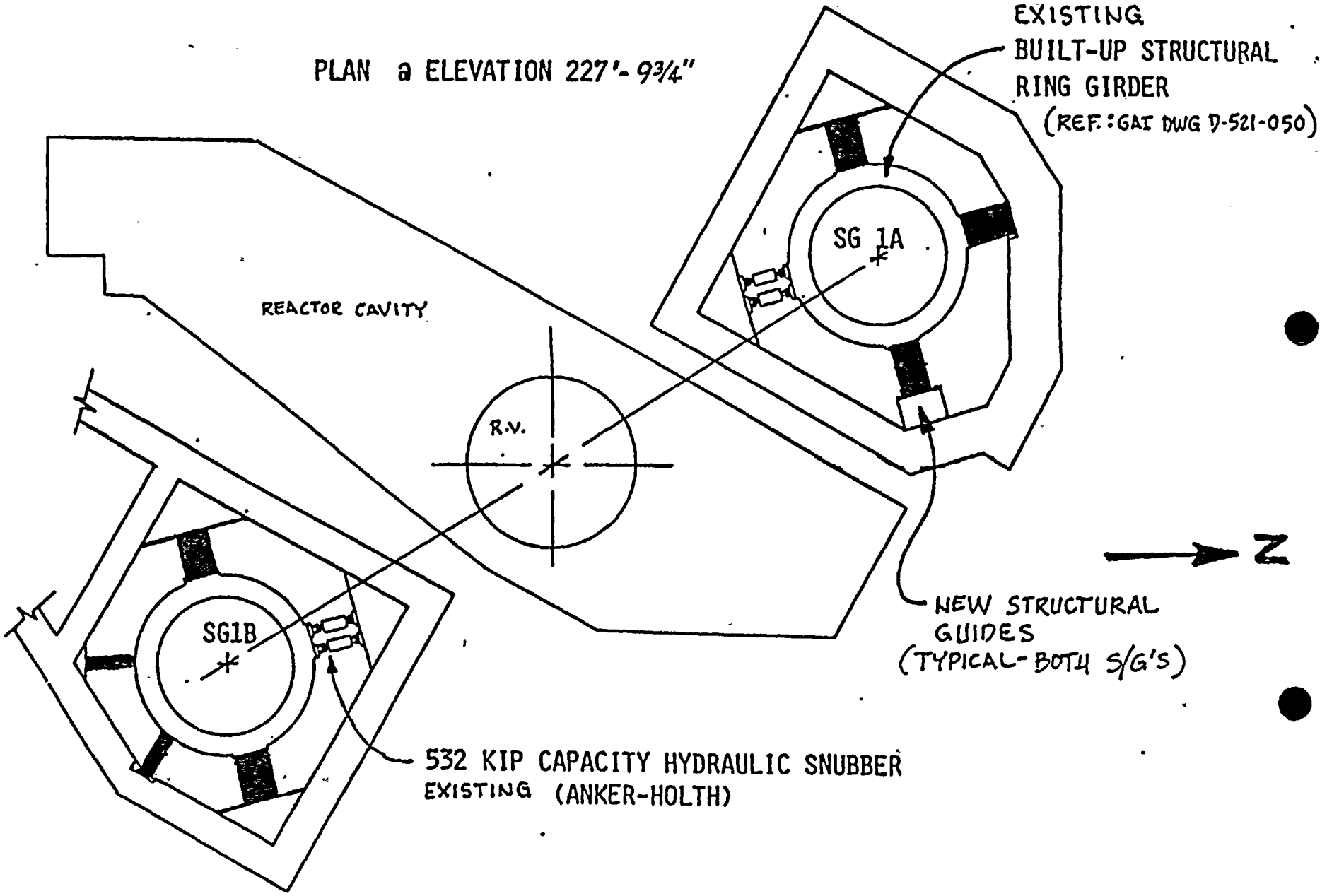

FIGURE 3

GINNA STEAM GENERATOR SNUBBERS-STRUCTURAL MODIFICATION

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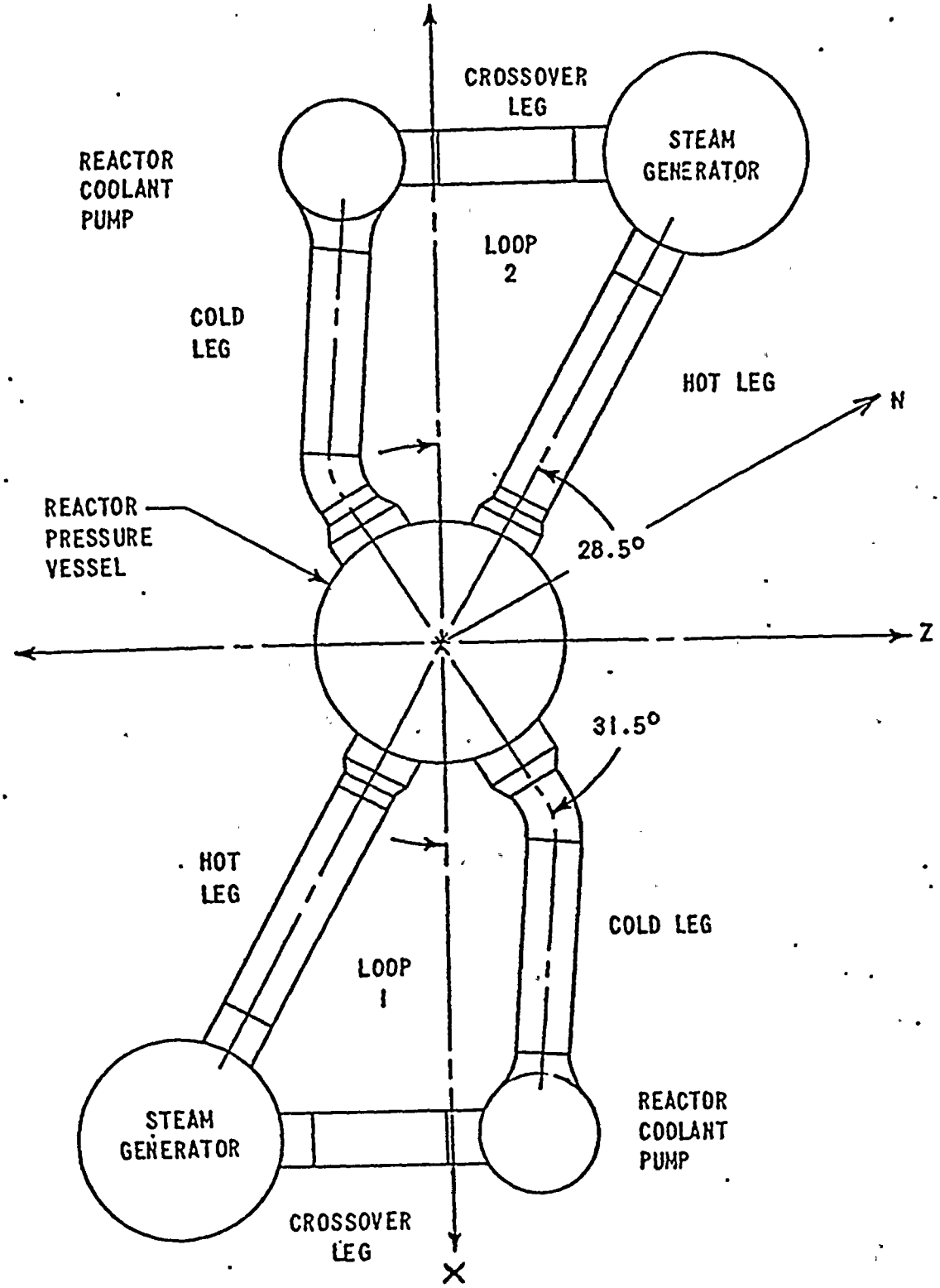

Figure 4 Reactor Coolant Loop Coordinate System

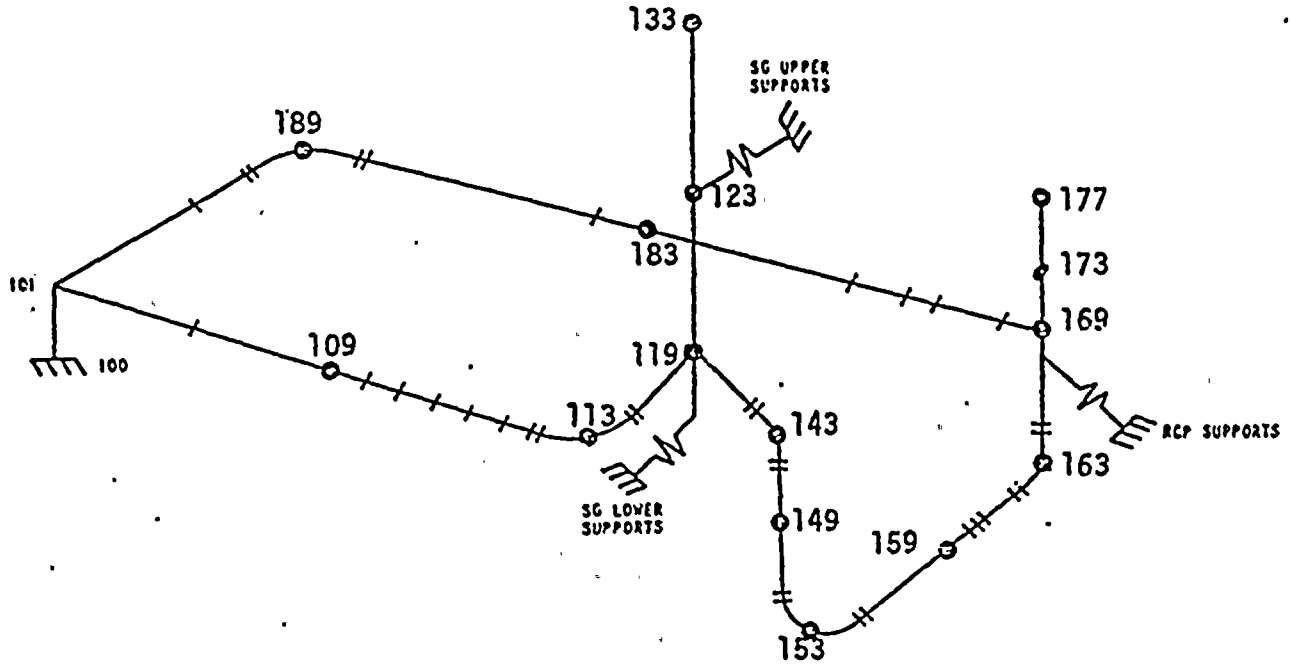
133
SG UPPER SUPPORTS
189
123
177
183
173
101
169
109
119
100
113
143
RCP SUPPORTS
163
SG LOWER SUPPORTS
149
159
153

FIGURE 5

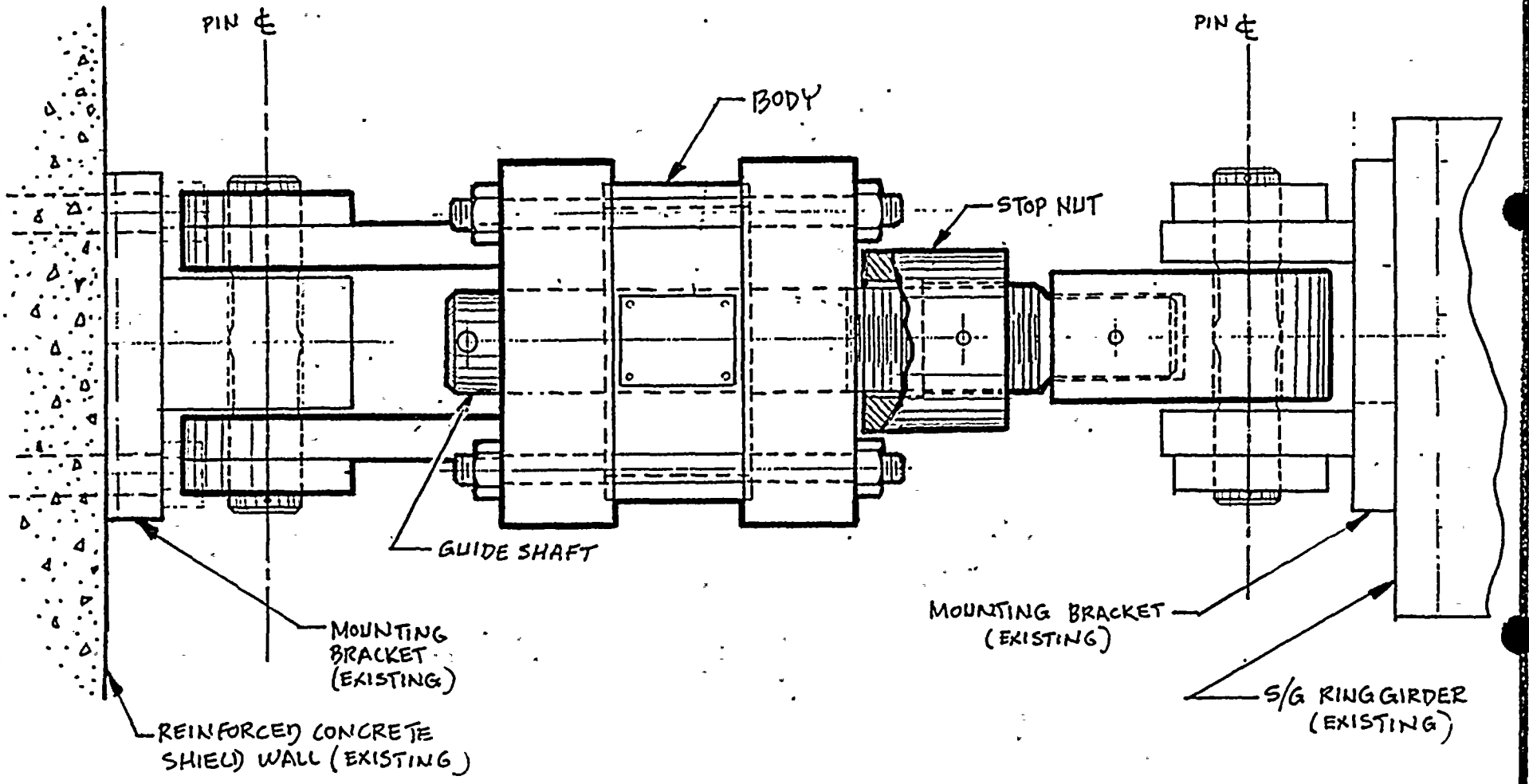

FIGURE 6

RIGID STRUCTURAL MEMBER (BUMPER)

(TYPICAL)

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