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SUBJECT: Forwards responses to NRC questions on Condensation Oscillation load reduction for Unit 1 re 931105-16 telcon. Diagram encl.

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November 30, 1993
NMP1L 0791

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Gentlemen:

During the telephone conversations on November 5 and 16, 1993, our staffs discussed the Condensation Oscillation load reduction associated with the Nine Mile Point Unit 1 Torus. The specific matter related to the assumed load to be used in any subsequent analysis of the Torus shell in the vicinity of the mitre joint/ring girder between the four and eight downcomer bays should such an analysis become warranted. Attachment 1 to this letter provides documentation of Niagara Mohawk's position with respect to this issue.

Very truly yours,

C. D. Terry
Vice President
Nuclear Engineering

MJJ/lmc

Attachment

xc: Regional Administrator, Region I
Mr. R. A. Capra, Director, Project Directorate I-1, NRR
Mr. B. S. Norris, Senior Resident Inspector
Mr. D. S. Brinkman, Senior Project Manager, NRR
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ATTACHMENT 1

Nine Mile Point Unit 1
Torus Load Reduction Submittal of May 14, 1993
(TAC No. M85003)

Question:

Define the Condensation Oscillation loads to be used for Torus shell evaluation in the vicinity of the ring girder/mitre joint.

Response:

Teledyne Engineering Services (TES) Technical Report TR-7353-1 (Reference 1) differentiates between the Condensation Oscillation loads to be used for the free shell evaluations in the four and eight downcomer bays but is silent on the loads to be used for the local region near the ring girder. Should evaluation of the Torus shell in the "immediate vicinity" of the ring girder and mitre joint be necessary in the future, Niagara Mohawk will conservatively use Condensation Oscillation loads associated with the bays containing eight downcomers rather than the four downcomers regardless of whether the evaluation is on the eight downcomer or four downcomer side of the ring girder.

The term "immediate vicinity" will be defined as one-square-root-of-mean radius-times-thickness ($1.0\sqrt{Rt}$) from the intersection of the ring girder or mitre joint measured longitudinally along the Torus bay. This is the ASME Code definition of a local region caused by a structural discontinuity and is the region used in TR-6801-2 (Reference 2). Attached Figure 1 depicts this region.

The Mark I Containment Program minimum thickness requirements at the midbay (free-shell) location of the torus shell are governed by the primary membrane stress (P_M) obtained from the one-fortieth Stardyne model considering the various Mark I Containment Program event combinations. For the Torus shell adjacent to the ring girder (local shell), a gross structural discontinuity, the minimum thickness requirements are governed by the primary local stress (P_L). The primary local stress region extends for a distance of 8.6325 inches or $1.0\sqrt{Rt}$ from the intersection of the ring girder longitudinally along the eight downcomer torus bays. In addition, on the mitre side of the ring girder, i.e., the bays containing four downcomers, the local region extends 8.6325 inches beyond the mitre away from the ring girder. The remainder of the Torus shell is governed by the midbay thickness requirements.

References:

1. TES Technical Report TR-7353-1, Revision 2, "Nine Mile Point Unit 1, Reduction in Mark I Torus Program Condensation Oscillation Load Definition and Resulting Effect on Minimum Shell Thickness Requirements," dated January 14, 1992.

2. TES Technical Report TR-6801-2, Revision 1, "Mark I Torus Shell and Vent System Thickness Requirements, Nine Mile Point Unit 1 Nuclear Station," dated January 19, 1988.

LOCAL TORUS SHELL STRESS REGIONS
NINE MILE POINT UNIT 1 NUCLEAR STATION

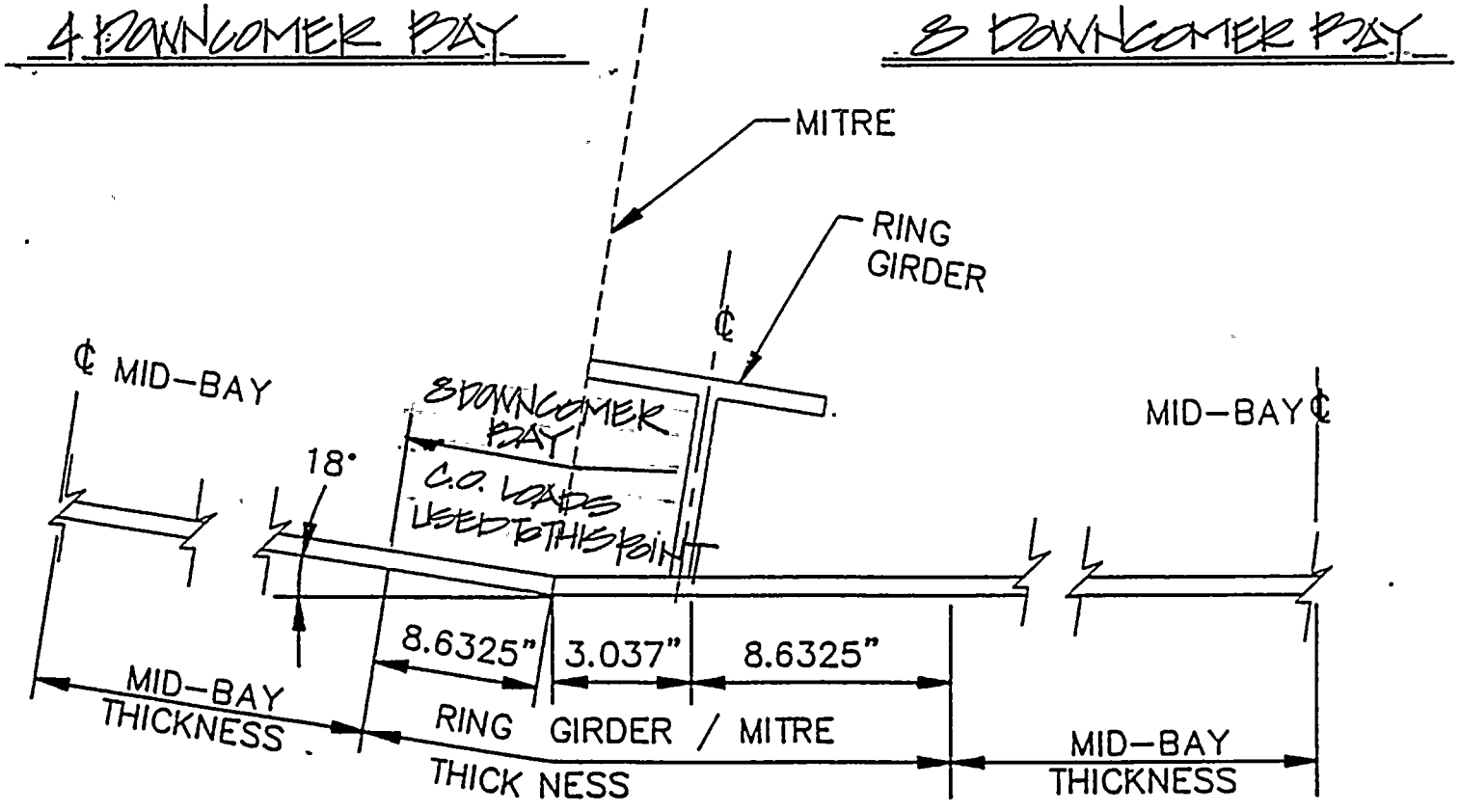

FIGURE 1