



NORTHERN STATES POWER COMPANY

MINNEAPOLIS, MINNESOTA 55401

July 5, 1972

Mr B H Grier  
Regional Director  
United States Atomic Energy Commission  
Directorate of Regulatory Operations  
Region III, 799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Dear Mr Grier:

MONTICELLO NUCLEAR GENERATING PLANT  
Docket No. 50-263 License No. DPR-22

Inspection of Support Hangers for Emergency Core  
Cooling System Suction Header

The following report is being submitted in response to your request for information as outlined in Directorate of Regulatory Operations Bulletin 72-1.

At Monticello, a general visual inspection of the torus externals is performed after each plant shut down involving relief valve operation. On Tuesday, May 23, 1972 such an inspection revealed a damaged bolt in one of the vertical support sections for the 20" torus suction ring header. The nut had backed off and the bolt was moderately bowed and exhibited crushed threads in the load-bearing area.

On Thursday, June 1, 1972 six bolts were removed for examination and replaced with SAE Grade 9 bolts. Subsequent inspections were performed on June 5 and 6, 1972 of the entire 20" torus suction ring header support assembly system, with photographs taken for documentation. On June 8, 1972 some reinspection was performed to complete the photographic records. All bolts were replaced with SAE Grade 8 and 9 bolts and all support assemblies were examined for conformance with the original design.

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The support structure and bolting arrangement are exhibited in Figures 1 and 2. For clarity, the bolting arrangement has been identified as "upper vertical, lower vertical, outboard horizontal and inboard horizontal". The sixteen mitered sections of the torus have been numbered arbitrarily for ease of inspection location as indicated on Figure 1. Of these sections only twelve are support assembly locations. As specified by the Chicago Bridge and Iron Company the bolting should consist of 3/4" HEX HD BOLTS, 2 3/4" in length and 3/4" REG HEXLOCK NUTS both meeting ASME specification A307.

The "as found" bolting consisted of 3/4" HEX HD BOLTS, 2 3/4" in length, full threaded and without lock nuts. No identification markings were stamped on the bolts to specify grade. The bolts exhibited thread damage on the bearing surface varying from crushed threads to moderate thread damage. In several instances localized thread damage was apparent due to the irregularity of a torch cut hole. Of the 48 bolts, only one other exhibited bowing and that to a slight extent.

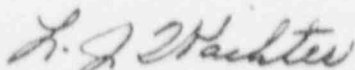
As indicated in Table 1, nine sections had torch cut holes in the bracket gusset plate, pipe web or support straps. The torch cut holes were in addition to the drilled hole. A hydraulic jack was required for removal of the outboard horizontal bolts in section nine and section three, indicating horizontal compressive loading on the torus at these points. A qualitative judgment based on the jack size and discussion with the personnel who performed this work indicates the horizontal loading force at these points was in the range of one to two thousand pounds.

A visual inspection of the welds was completed on June 8th. The torus butt plates and padeyes were welded all around with a 1/4" fillet. The pipe webs were spaced welds with 1/4" fillets on both sides providing approximately 15" of lineal weld. The only discrepancies noted were that the web was not flush with the ring header in five sections. All welds were magnetic particle inspected by Twin City Testing and Engineering Laboratory Inc. and no defects or discontinuities were found. Static loads on each vertical hanger have been measured and range from 0 to 8340 pounds.

As of June 8, 1972, all the support bolts for the 20" torus suction ring header were replaced with SAE grade 8 or 9; 3/4" HEX HD partially threaded bolts having no threads in the shear load area. The bolts were locked with double nuts.

General Electric and Chicago Bridge and Iron are providing services to return the support assembly system to the original design. A static load analysis of vertical loading has been completed to provide a basis for adjusting the system to balanced loading on the support assemblies. Welding and inspection procedures for repair of bolt holes are currently being reviewed. It is intended that all bolting will be replaced with ASME A325 HEX HD 3/4" BOLTS with no threads in the load-bearing area, and lock nuts will be provided. Any replacement of support straps will be made using original specification material. We currently anticipate completion of all work by the end of July 1972.

Yours very truly,



L. J. Wachter, Vice President  
System Operation & Power Production

LJW/ma

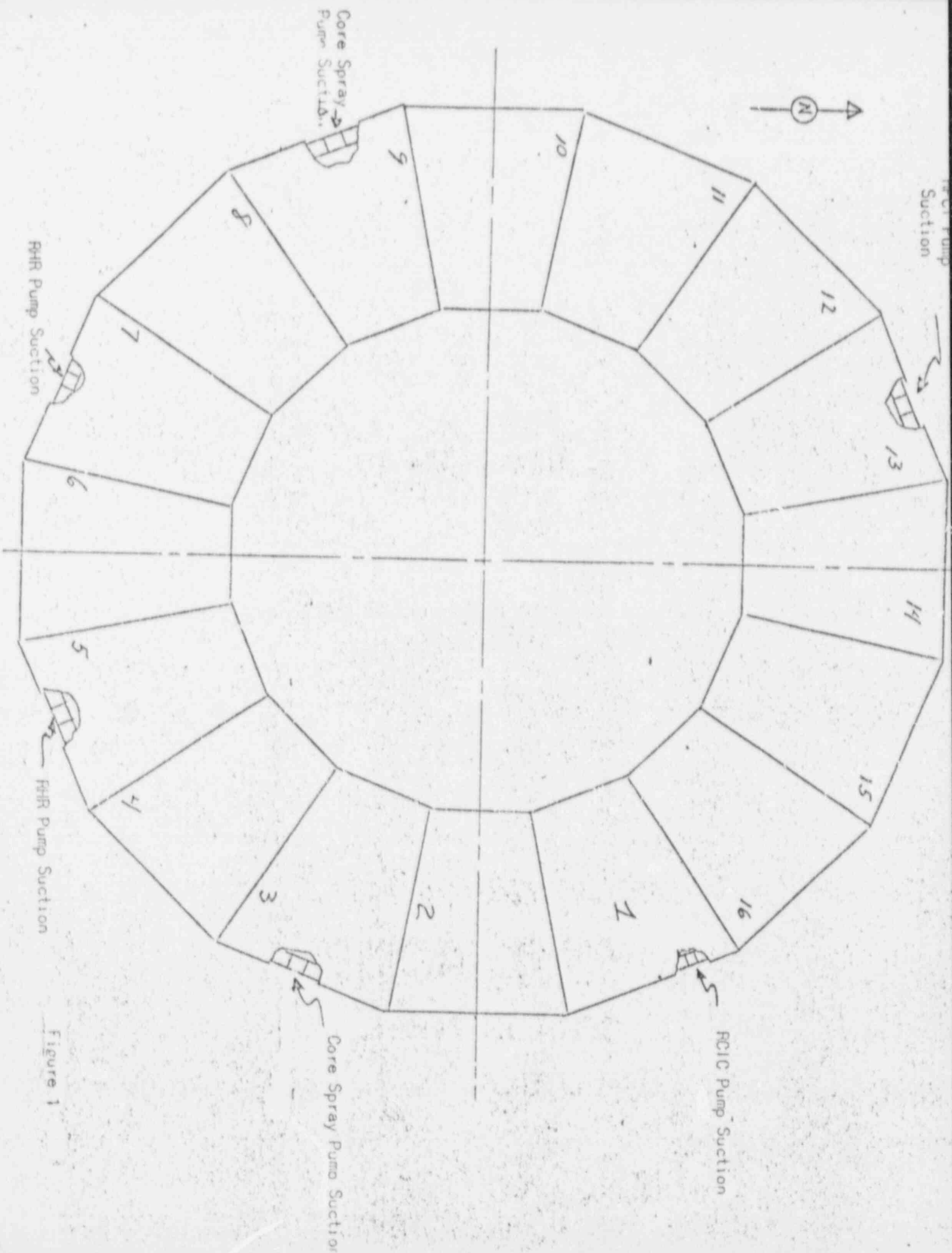
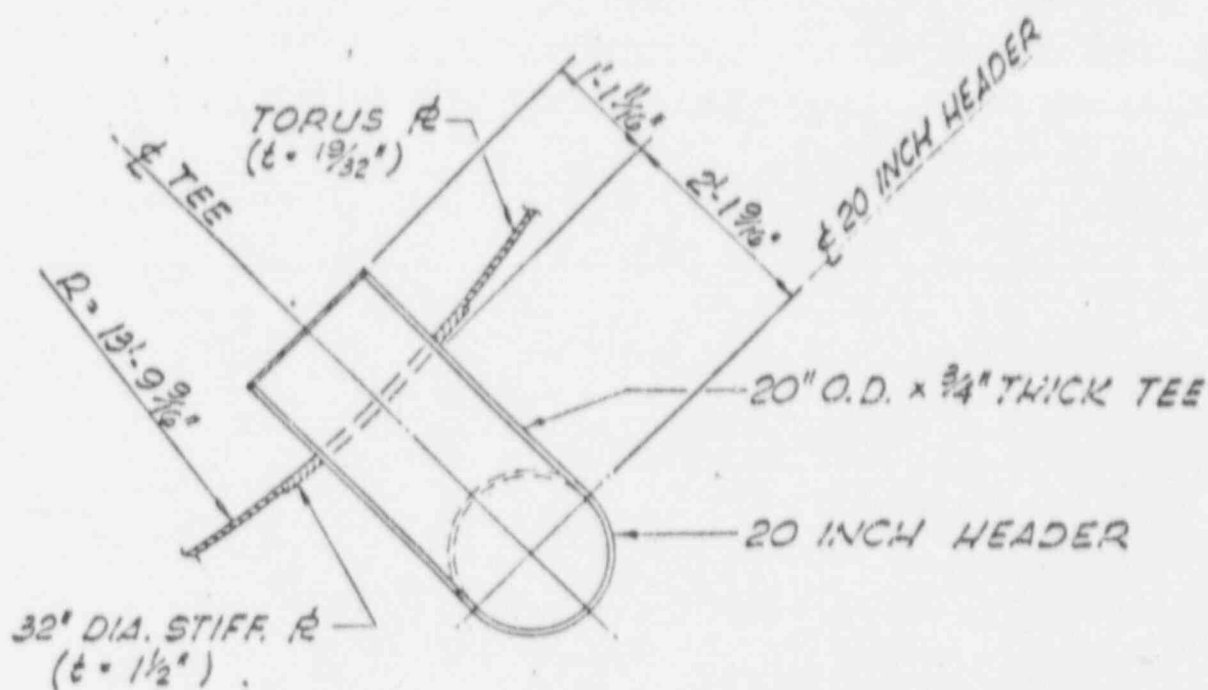


Figure 1



Section - Torus Suction Header Supply

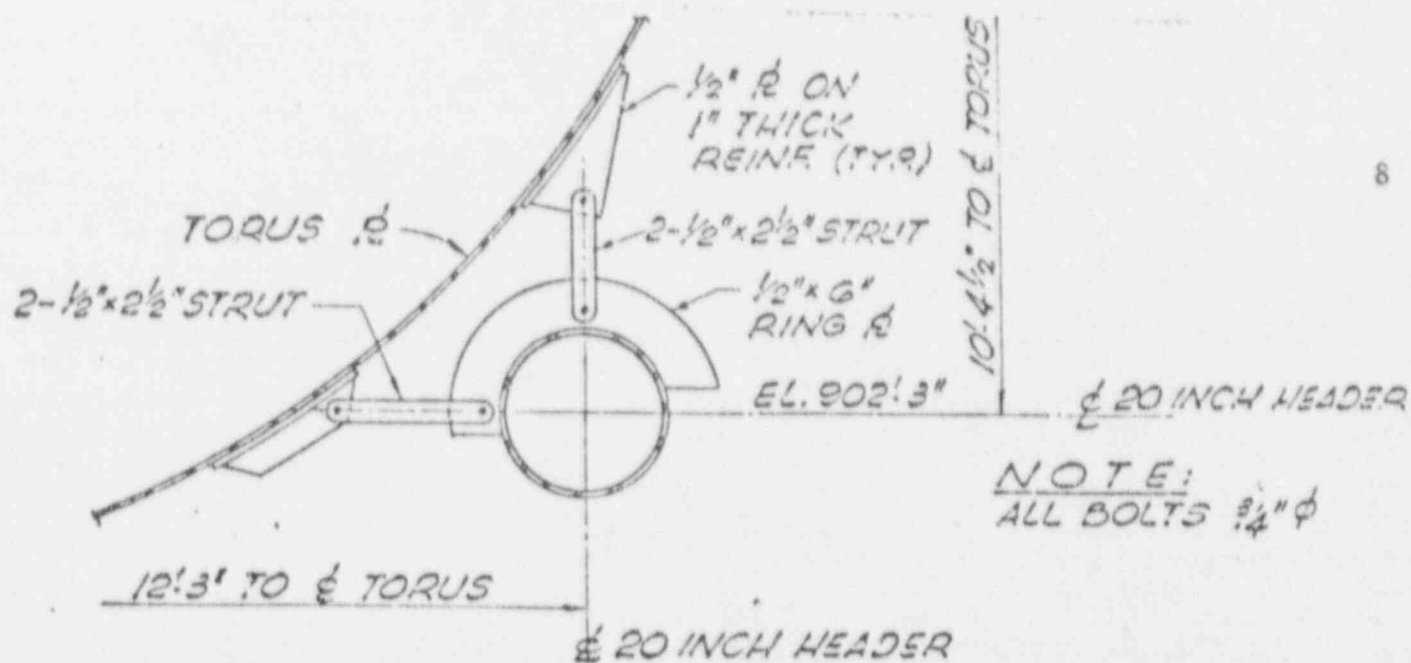


TABLE 1

<u>Section</u>	<u>Upper Vertical</u>	<u>Lower Vertical</u>	<u>Outboard Horizontal</u>	<u>Inboard Horizontal</u>
1	Torch cut and partially drilled	Drilled	Drilled	Drilled
2	Drilled	One Torch cut. One drilled	Web Drilled and Strap Torch Cut.	Drilled
3	Drilled	One Drilled and one Torch Cut	One Drilled and one Torch Cut	Web Drilled and Strap Torched
4	<u>Torus Suction Header Supply Line - No Additional Supports</u>			
5	Drilled	Drilled	Drilled	Drilled and Partial Torch Cut
6	Drilled	Drilled	Drilled	Drilled
7	Drilled	Drilled	Drilled	Drilled
8	<u>Torus Suction Header Supply Line - No Additional Supports</u>			
9	Drilled	Torch Cut	Drilled	Web and Strap Torch Cut
10	Drilled	Drilled	Drilled	Drilled
11	Drilled	One Drilled and one Torch Cut	One Drilled and one Torch Cut	Drilled
12	<u>Torus Suction Header Supply Line - No Additional Supports</u>			
13	One Torch Cut and One Drilled	One Torch Cut and One Drilled	One Torch Cut and One Drilled	Drilled
14	Drilled	One Torch Cut and One Drilled	One Torch Cut and One Drilled	Drilled
15	Drilled	Three Torch Cut Holes	Drilled	Drilled
16	<u>Torus Suction Header Supply Line - No Additional Supports</u>			