

Docket No. 50-346

License No. NPF-3

Serial No. 1217

November 30, 1985



JOE WILLIAMS, JR.
Senior Vice President - Nuclear
(419) 249-2300
(419) 249-5223

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton:

NRC letter dated October 30, 1985 (Log 1844) requested additional information regarding main steam piping. Specifically, Question No. 5 requested:

"Provide an analysis of main steam pipe vibration due to dynamic loadings such as steam hammer, particularly as it affects main steam safety valve, atmospheric vent valve, and main steam isolation valve operability of proposed piping modifications."

Toledo Edison's response dated October 30, 1985 (Serial No. 1208) committed to providing the analysis of main steam pipe vibration and a description of proposed piping modification. This letter is in response to that commitment.

Main Steam Line A exits Steam Generator No. 2 (SG-2) and Main Steam Line B exits Steam Generator No. 1 (SG-1). Operation and maintenance data indicated more wear and setpoint drift occurred in the Main Steam Safety Valves (MSSVs) of Line A when compared to Line B. The setpoint data from Wyle Laboratory (attached) is consistent with this drift.

Toledo Edison has evaluated this data and determined a modification to Line A is appropriate to be consistent with the dynamic characteristics of Line B. The proposed piping modification consists of the addition of a 5" hydraulic shock suppressor (snubber) between PSV SP17A1 and PSV SP17A7. These valves are the second and third MSSVs from the turbine on Line A. This snubber will be installed prior to restart.

Analyses of the lines with the proposed design change to Line A, SG-2 result in almost identical natural frequencies of 13.55 Hzs. The attached letter (BT-15977) from Bechtel to Toledo Edison dated November 20, 1985, discusses these analyses and provides drawings of the proposed design change (FCR 85-224).

Very truly yours,

Joe Williams Jr

JW:RRS:mj

8512100232 851130
PDR ADOCK 05000346
P PDR

cc: DB-1 NRC Resident Inspector

THE TOLEDO EDISON COMPANY EDISON PLAZA 300 MADISON AVENUE TOLEDO, OHIO 43652

Acc 11

Davis-Besse Main Steam Safety Valves (as received condition)

Wyle Test Data

Valve Position	Parameter	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6	Leakage	Disposition
A1	Disc lift	1.16	0.20	1.16	1.18				
	Setpoint	1024	995	993	1009			No Leakage	Rebuild
	Blowdown	3.8	NH	1.1	2.8				
A2	Disc lift	1.06	1.06	1.04					
	Setpoint	1020	1025	1015				Yes	Rebuild
	Blowdown	4.3	19.0	2.7					
A3	Disc lift	1.13	1.14	0.25	1.14				
	Setpoint	1025	1020	1031	1025			No Leakage	Rebuild
	Blowdown	1.3	2.5	NH	1.8				
A4	Disc lift	0.62	1.12	1.12	1.12				
	Setpoint	1014	1015	1006	1005			No Leakage	Rebuild
	Blowdown	NH	5.3	5.7	5.2				
B1	Disc lift	1.15	1.14	1.16	NH	1.14			
	Setpoint	1042	1041	1044	1044	1040		Yes	Rebuild
	Blowdown	4.6	4.5	5.2	5.2	19.7			
B2	Disc lift	1.12	1.09	1.10	1.09*	1.10	1.10		
	Setpoint	1051	1037	1037	1042	1043	1049	No Leakage	Passed
	Blowdown	4.8	3.2	2.7	2.6	2.8	3.1		
B3	Disc lift	1.16	1.20	1.20	1.20				
	Setpoint	1074	1070	1077	1070			Yes	Rebuild
	Blowdown	1.8	2.8	2.4	3.4				
B4	Disc lift	1.20	1.20	1.18					
	Setpoint	1080	1071	1069				Yes	Rebuild
	Blowdown	3.3	2.5	2.3					

All disc lifts in inches

All setpoints in psi

All blowdown in percent

NH Indicates the parameter was not measured

*Compression screw was adjusted one flat clockwise prior to this run.

R. K. S.

Bechtel Associates
Professional Corporation (Ohio)

Please address reply to:

15740 Shady Grove Road
Gaithersburg, Maryland 20877-1454
301-258-3000



Mr. J. F. Helle
Director, Nuclear Facility Engineering
The Toledo Edison Company
P. O. Box 929
Toledo, Ohio 43652

NOV 20 1985

Dear Mr. Helle:

The Toledo Edison Company
Davis-Besse Nuclear Power Station
Bechtel Job 12501
FCR NO. 85-224
MAIN STEAM SYSTEM
File: 0270, 1496
BT-15977 (A218)

Main Steam Line B in the Auxiliary Building was reanalyzed per FCR No. 85-224 in October, 1985. A snubber in the Z-direction (similar to line A) was added on the main header between safety valves PSV-SP-17A7 and SP-17A1. A complete FCR package was issued by letter BT-15919 on November 8, 1985.

Mr. R. Kies recently informed us that the safety relief valves on the main steam line have been designed for a first natural frequency of 17 Hz which should be modeled in the stress analyses to determine if the piping is still within the code allowables. Both steam lines were then reanalyzed with the safety relief valves first natural frequency of 17 Hz.

The results of the analyses showed that the first natural frequency had dropped considerably when compared with the previous analyses. This drop was due to the change in the model of the safety relief valve. The acceleration input for the excitation of the valves were within the design criteria. Both the lines (A and B) had almost identical first natural frequencies of 13.55 Hzs. and the stresses were found to be within the code allowables.

NOV 20 1985

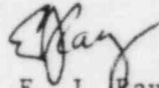
Mr. J. F. Helle

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BT-15977

If you have any questions, please contact us.

Very truly yours,



E. J. Ray
Project Engineer

EJR/NT/jil

cc: J. K. Wood
T. P. Beeler
C. T. Daft
J. W. Fay, Jr.
R. D. Kies
Records Management - Mail Stop 3021
R. Zeigler



BECHTEL
GAITHERSBURG, MD.

DRAWING CHANGE NOTICE

JOB NO	DRAWING NO	REV NO
12501	12501-C-279A	1
DCN NUMBER	PAGE	OF
C-279A-1	1	6

CHANGE REQUESTED BY: Client ☒ Engineering ☐ Field ☐ Supplier/Contractor ☐

REASON FOR CHANGE:

ISSUED FOR FCR 85-224

OTHER DOCUMENTS (including PURCHASE ORDERS) AFFECTED BY THIS CHANGE:

SEE FCR CHECK LIST

PM, MR OR OTHER DOCUMENTS
PREPARED FOR DCN CHANGE?

YES ☐ NO ☒

MATERIAL
PROCUREMENT
RESPONSIBILITY

BECHTEL



BECHTEL FIELD



CLIENT



SUPPLIER/CONTRACTOR



NONE REQUIRED



DISPOSITION OF
AFFECTED MATERIAL

Rework



Scrap



Use AS IS



As Noted



DESCRIPTION OF CHANGE:

FOR PLAN VIEW SEE PAGE 2

FIELD VERIFICATION OF CHANGE (Q - Only) - ACCEPTED

TED - QC Insp./Date

REVIEWED WITHOUT COMMENT	PLANT FACILITIES/ARCH PJC	CIVIL/PIPE SUPPORTS M. FRANZEN	ELECTRICAL/CONTROL SYSTEMS 2005/12/14	MECHANICAL, PROCESS & FIRE PROTECTION MSW
ORIGINATOR RH	CHECKED BY S. Kline	GROUP SUPERVISOR [Signature]	PROJECT ENGINEER [Signature]	DATE 11/8/11

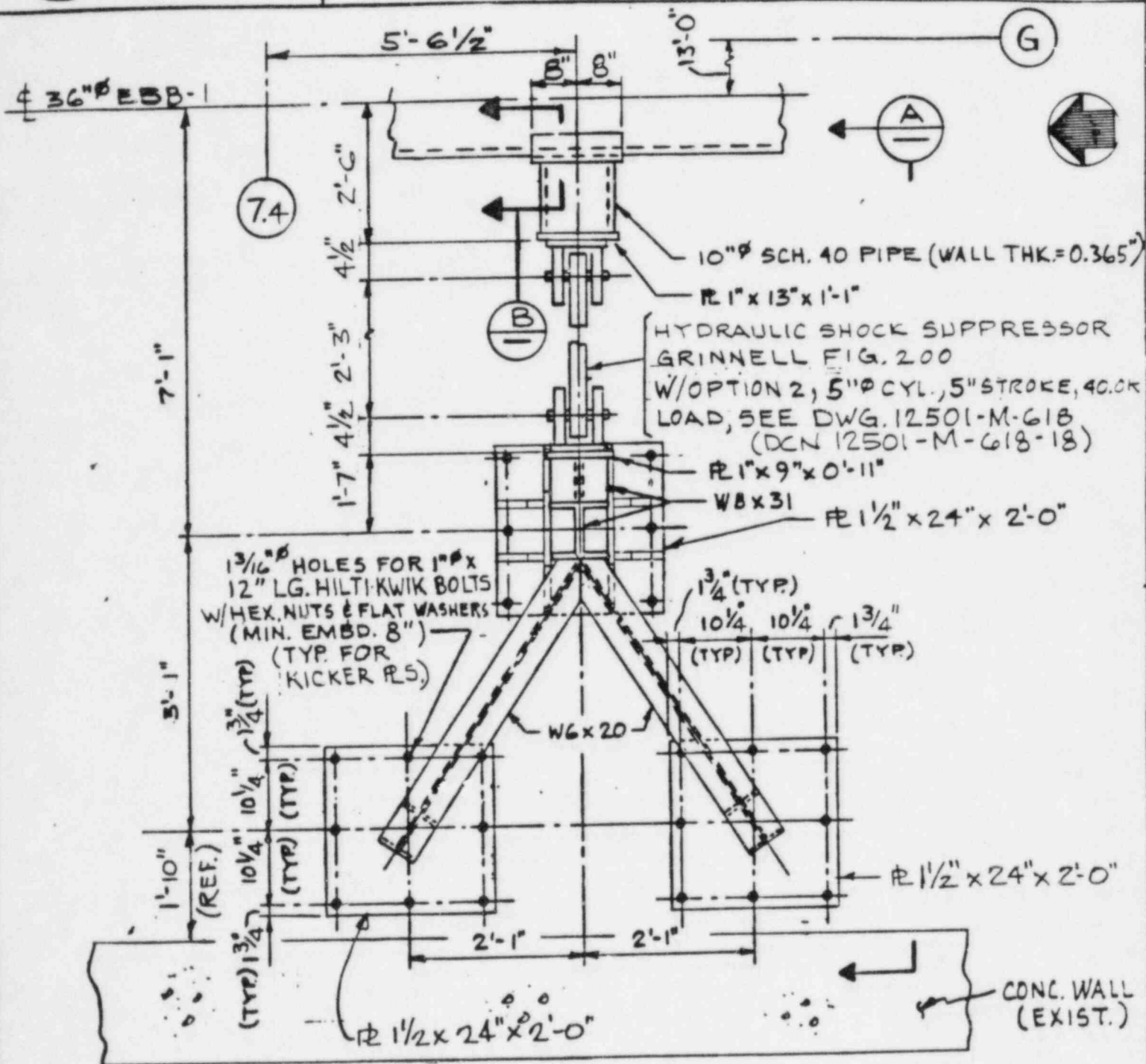
990-12812 Rev. 6/05



BECHTEL
BAITHERSBURG, MD.

DRAWING CHANGE NOTICE

JOB NO	DRAWING NO	REV NO
12501	12501-C-279A	1
DCN NUMBER C-279A-1		
CONTINUATION SHEET		
PAGE	2	OF 6



AUX. BLDG.

PART PLAN @ EL 643'-0"

SR-48

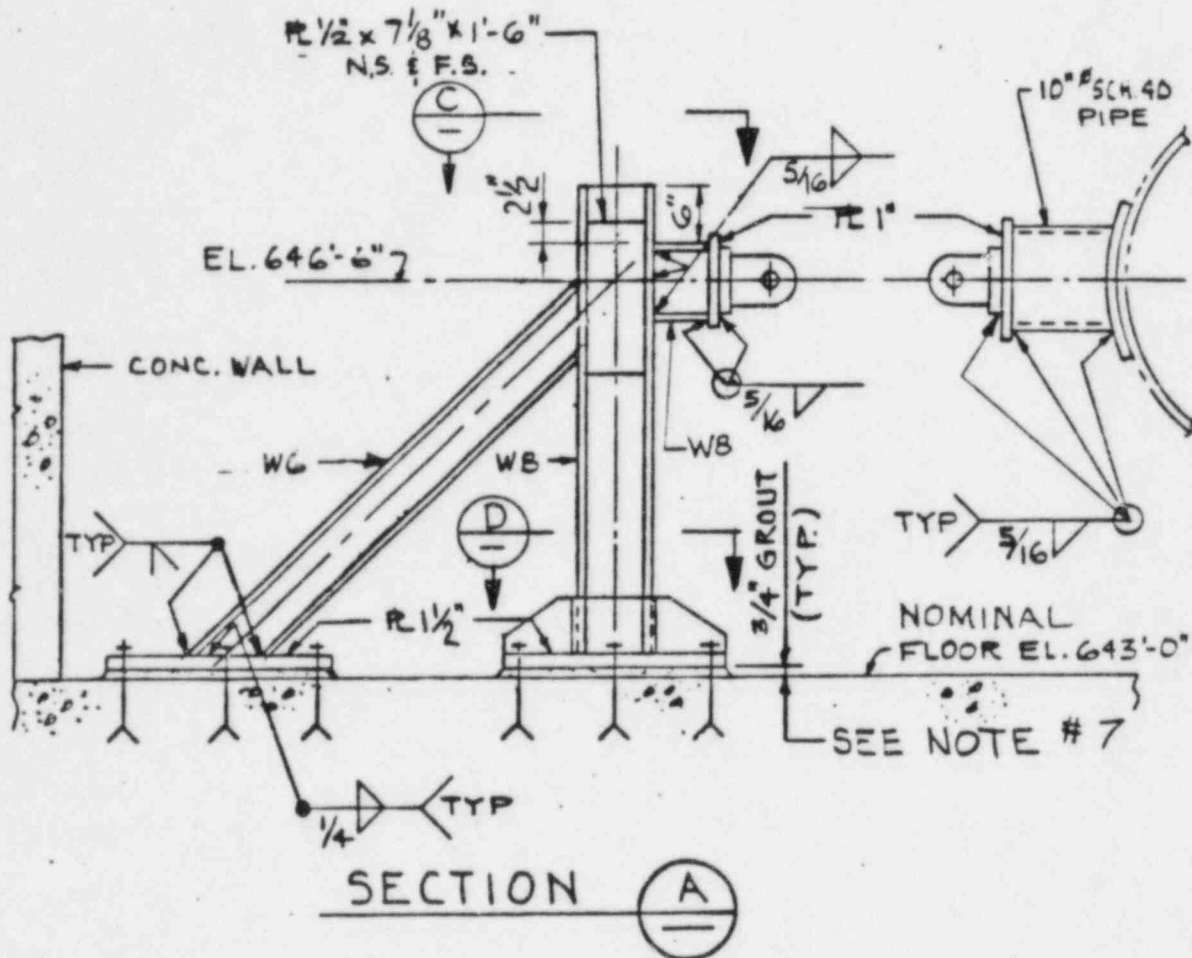
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BECHTEL
GAITHERSBURG, MD.

DRAWING CHANGE NOTICE

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12501	12501-C-279A	1
DCN NUMBER C-279A-1		
CONTINUATION SHEET		
PAGE 3 OF 6		

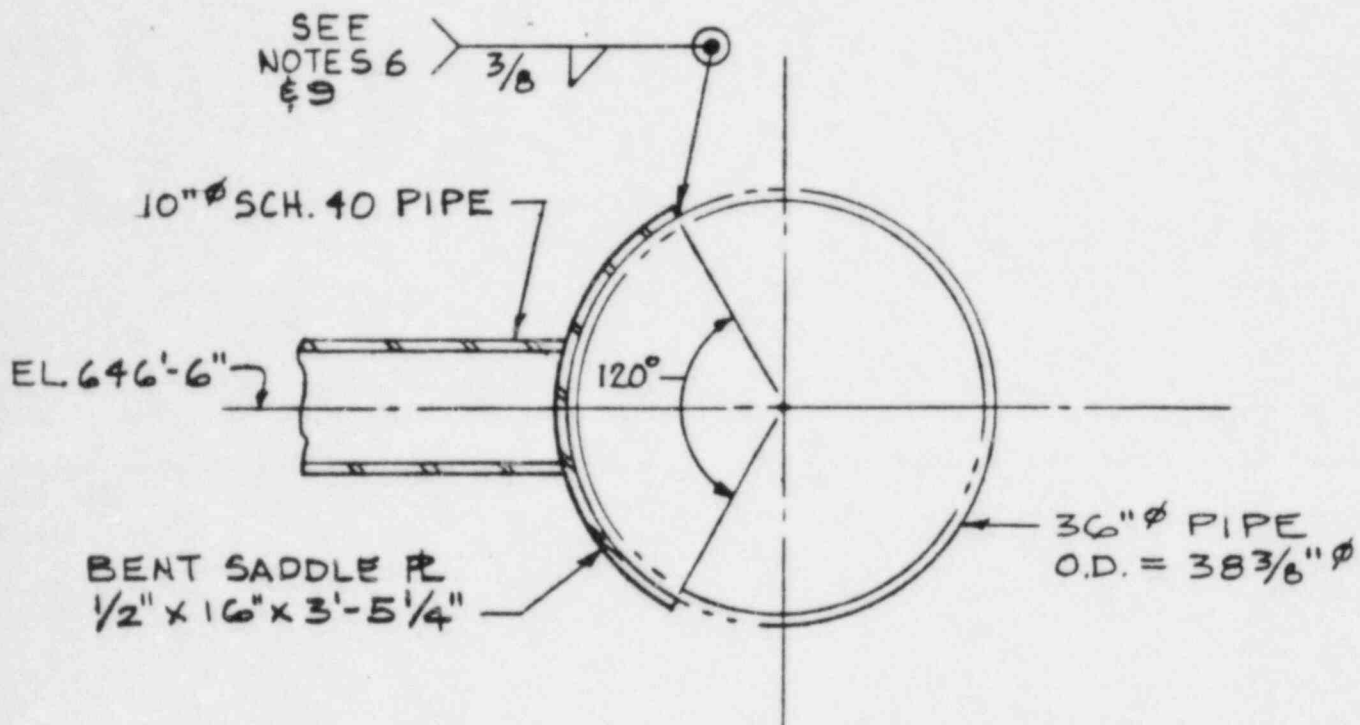




BECHTEL
SAITHERSBURG, MD.

DRAWING CHANGE NOTICE

JOB NO	DRAWING NO	REV NO
12501	12501-C-279A	1
DCR NUMBER C-279A-1		
CONTINUATION SHEET		
PAGE 4 OF 6		



SECTION



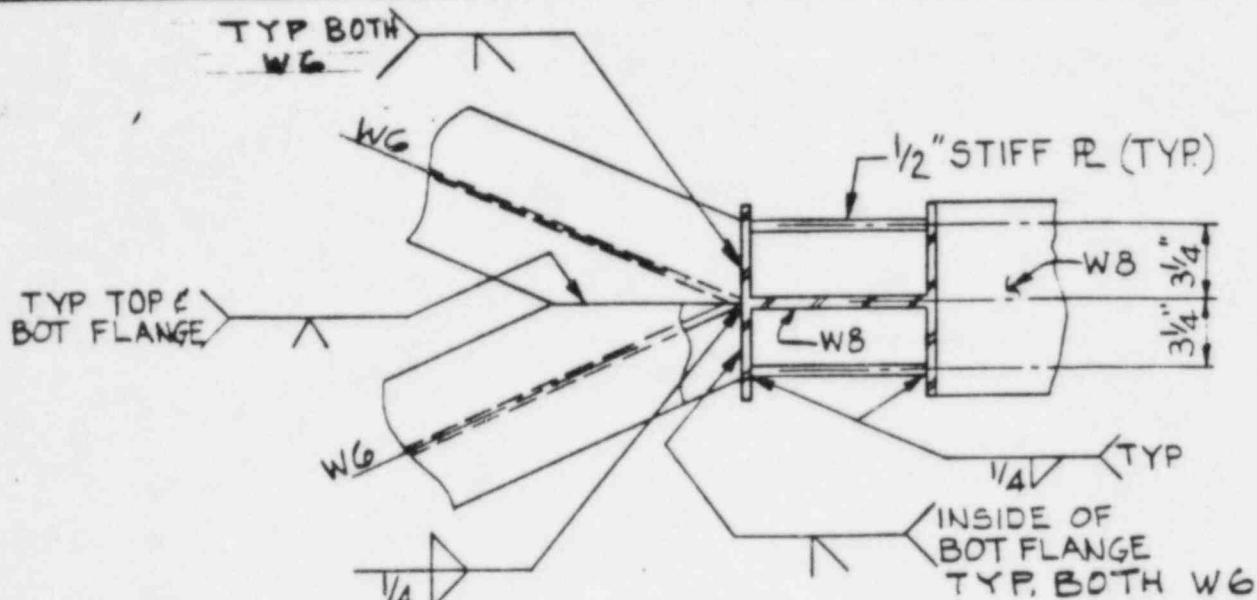
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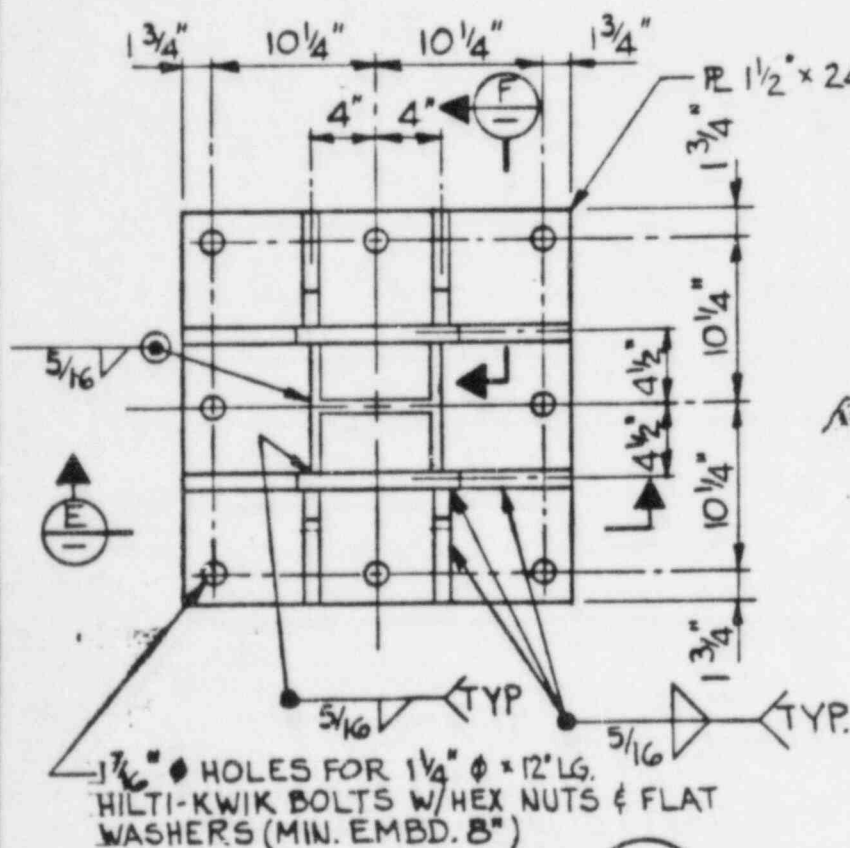
BECHTEL
SAN FRANCISCO, CALIF.

DRAWING CHANGE NOTICE

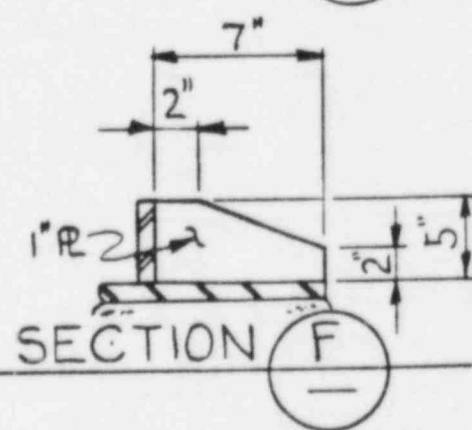
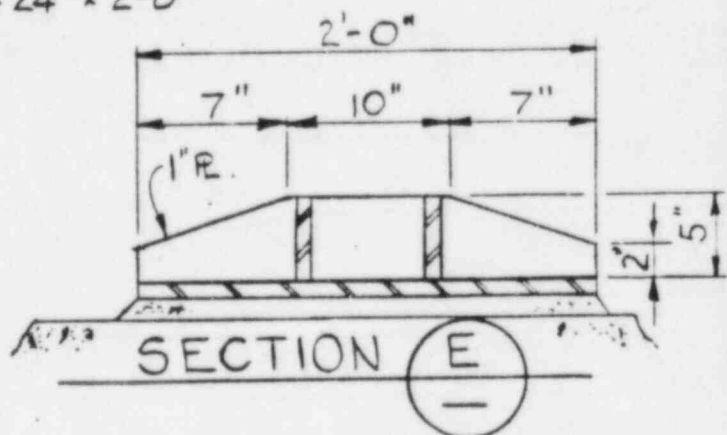
JOB NO	DRAWING NO	REV NO
12501	12501-C-279A	1
DCN NUMBER C-279A-1		
CONTINUATION SHEET		
PAGE 5 OF 6		



SECTION C



SECTION D



SECTION F



BECHTEL
GAITHERSBURG, MD.

DRAWING CHANGE NOTICE

JOB NO	DRAWING NO	REV NO
12501	12501-C-279A	1
DCN NUMBER		
C-279A-1		
CONTINUATION SHEET		
PAGE 6 OF 6		

NOTES:

1. STRUCTURAL MEMBERS AND PLATES SHALL BE ASTM A-36 FURNISHED IN ACCORDANCE WITH SPECIFICATION 12501-C-303Q AND FABRICATED IN ACCORDANCE WITH SPECIFICATION 12501-C-403Q.
2. GROUT SHALL BE FIVE STAR NON-SHRINK GROUT AS MANUFACTURED BY U. S. GROUT CORP., FURNISHED IN ACCORDANCE WITH SPECIFICATION 12501-C-401Q AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. EXPANSION BOLTS SHALL BE FURNISHED IN ACCORDANCE WITH SPECIFICATION 12501-C-306Q AND SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATION 12501-C-406Q.
4. PIPE SHALL BE ASTM A-53, TYPE S, GRADE B OR ASTM A-106, GRADE B FURNISHED IN ACCORDANCE WITH SPECIFICATION 12501-C-303Q AND FABRICATED IN ACCORDANCE WITH SPECIFICATION 12501-C-403Q.
5. PAINTING AND TOUCH-UP OF EXISTING SURFACES SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION 12501-A-24N.
6. MAXIMUM GAP AT THE PERIPHERY OF THE SADDLE PLATE TO BE 1/8 INCH. INCREASE THE SIZE OF THE FILLET WELD BY THE AMOUNT OF THE GAP.
7. FIELD CHECK SLOPE OF FLOOR BEFORE CUTTING LENGTHS OF POST AND BRACES AND ADJUST LENGTHS ACCORDINGLY.
8. NO REBAR MAY BE CUT IN THE FLOOR SLAB WHEN DRILLING HOLES FOR THE EXPANSION BOLTS.
9. 200° PREHEAT, WELD AND NDE (MAG. PARTICLE EXAM) SHALL BE IN ACCORDANCE WITH ASME SECTION III, SUBSECTION NC. PRESSURE TESTING IS EXEMPT PER ASME SECTION XI, SUBSECTION IWA-4400.

Q



BECHTEL
GAITHERSBURG, MD.

DRAWING CHANGE NOTICE

JOB NO	DRAWING NO	REV NO
12501	151M-203B	2
DCN NUMBER	PAGE	OF
151M-203B-1	1	1

CHANGE REQUESTED BY: Client ☒ Engineering ☐ Field ☐ Supplier/Contractor ☐

REASON FOR CHANGE:

FCR 85-224

OTHER DOCUMENTS (including PURCHASE ORDERS) AFFECTED BY THIS CHANGE:

See FCR Checklist

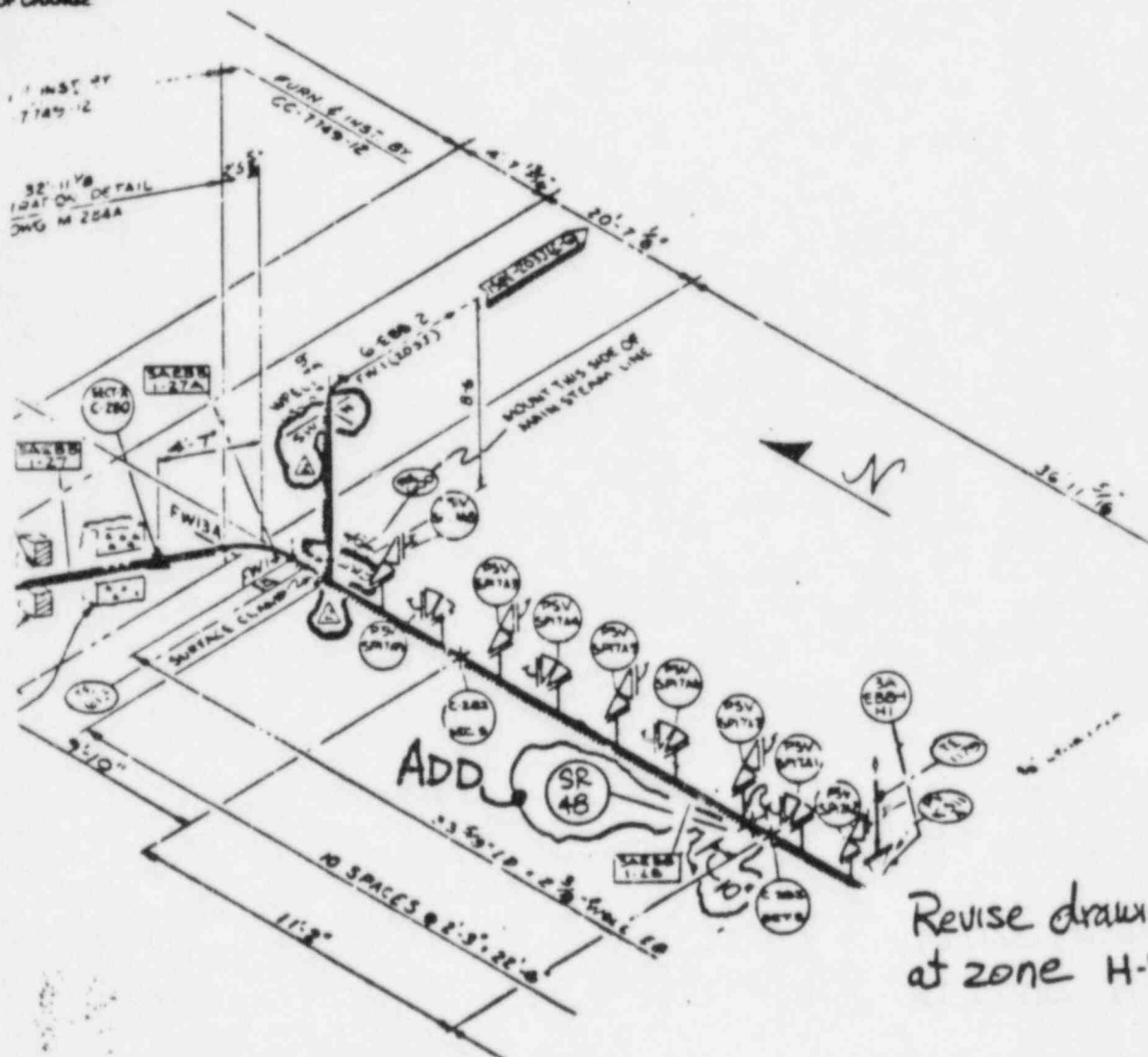
PM, HR OR OTHER DOCUMENTS
PREPARED FOR DCN CHANGE?

YES ☐ NO ☐

MATERIAL PROCUREMENT RESPONSIBILITY: BECHTEL ☐ BECHTEL FIELD ☐ CLIENT ☐ SUPPLIER/CONTRACTOR ☐ NONE REQUIRED ☒

DISPOSITION OF AFFECTED MATERIAL: Rework ☐ Scrap ☐ Use AS IS ☐ As Noted ☐ NONE

DESCRIPTION OF CHANGE



FIELD VERIFICATION OF CHANGE (Q-Only) — ACCEPTED

TED - QC Insp./Date

REVIEWED WITHOUT COMMENT	PLANT FACILITIES/ARCH.	CIVIL/PIPE SUPPORTS	ELECTRICAL/CONTROL SYSTEMS	MECHANICAL PROCESS & FIRE PROTECTION
	N/A	M. FRANZEN	N/A	MSW
ORIGINATOR	CHECKED BY	GROUP SUPERVISOR	PROJECT ENGINEER	DATE
H. Kense	D. Storch	M. J. Wasserman	E. Ray	11/8/95

QND-12812 Rev. 08/95



BECHTEL
GAITHERSBURG, MD.

DRAWING CHANGE NOTICE

JOB NO	DRAWING NO	REV NO
12501	HL-203B	0
DCN NUMBER	PAGE	OF
HL-203B-1	1	1

CHANGE REQUESTED BY: Client ☒ Engineering ☐ Field ☐ Supplier/Contractor ☐

REASON FOR CHANGE:

ISSUED FOR FCR B5-224

OTHER DOCUMENTS (including PURCHASE ORDERS) AFFECTED BY THIS CHANGE:

SEE FCR CHECK LIST

PM, MR OR OTHER DOCUMENTS
PREPARED FOR DCN CHANGE?

YES ☐ NO ☒

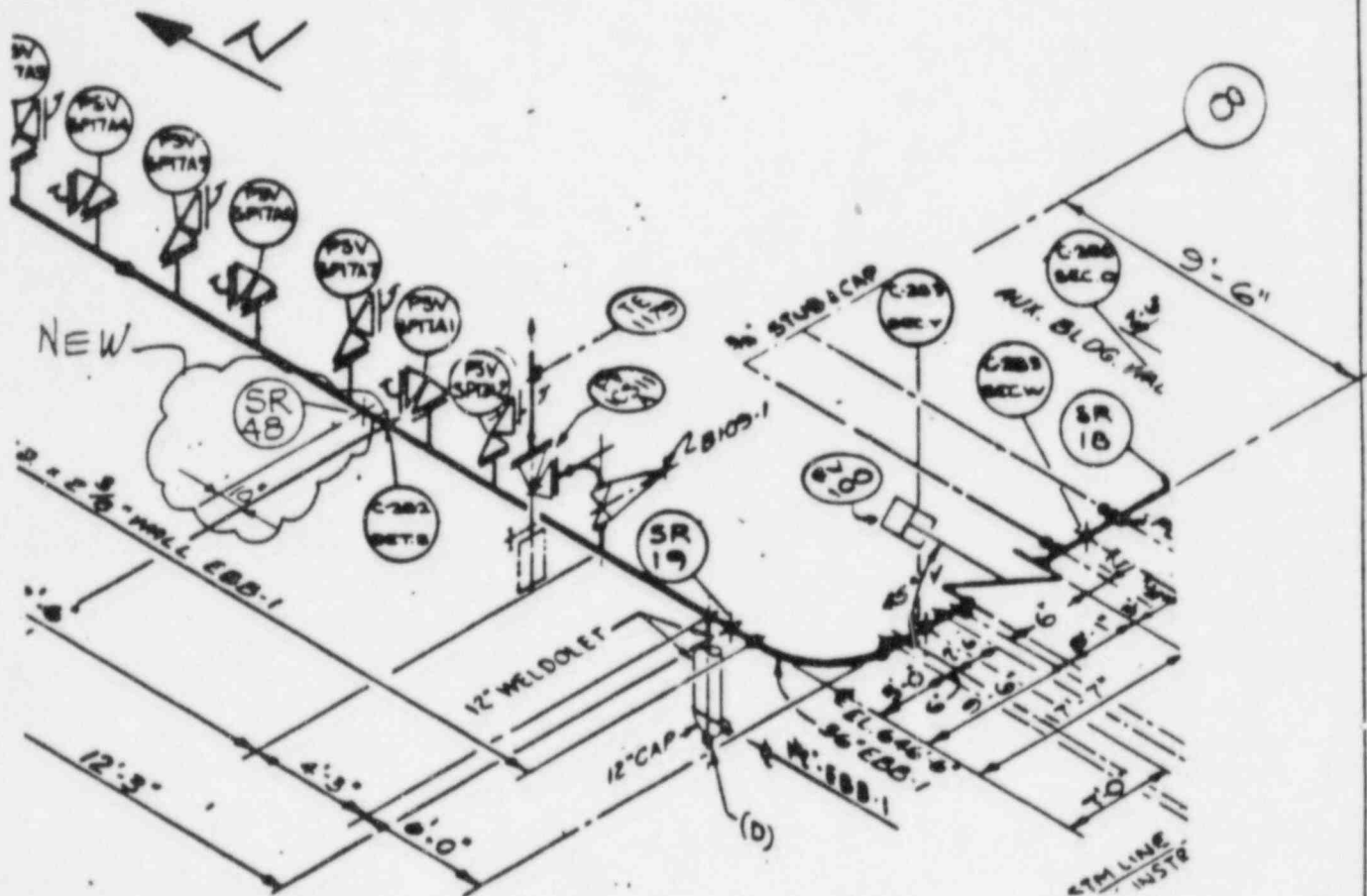
MATERIAL
PROCUREMENT
RESPONSIBILITY:

BECHTEL ☐ BECHTEL FIELD ☐ CLIENT ☒ SUPPLIER/CONTRACTOR ☐ NONE REQUIRED ☐

DISPOSITION OF
AFFECTED MATERIAL

Rework ☐ Scrap ☐ Use AS IS ☐ As Noted ☒

DESCRIPTION OF CHANGE:



CTMT. BLDG.

PART PLAN-MAIN STM. SYSTEM GEN. 1-2

FIELD VERIFICATION OF CHANGE (Q - Only) — ACCEPTED

FED. QC Insp./Date

REVIEWED WITHOUT COMMENT	PLANT FACILITIES/ARCH. ALC	CIVIL/PIPE SUPPORTS M. FRANZEN	ELECTRICAL/CONTROL SYSTEMS N/A	MECHANICAL, PROCESS & FIRE PROTECTION MSW
ORIGINATOR RH	CHECKED BY A. Kline	GROUP SUPERVISOR [Signature]	PROJECT ENGINEER [Signature]	DATE 11/8/85

SPD-12872 Rev. 8/85