



ENERGY
SERVICES

101 California Street, Suite 1000, San Francisco, CA 94111-5894

415-397-5600

July 31, 1984
84056.013

Mr. J. B. George
Project Manager
Texas Utilities Generating Company
Highway FM 201
Glen Rose, Texas 76043

Subject: Pipe Support Review Questions
Comanche Peak Steam Electric Station
Independent Assessment Program - Phase 4
Job No. 84056

Dear Mr. George:

Attached please find a list of pipe support questions resulting from the Phase 4 analytical reviews and walkdowns. The remaining questions are scheduled for submittal to TUGCO on August 6, 1984.

If you have any questions or require clarification prior to responding to any of these questions don't hesitate to call.

Very truly yours,

N. H. Williams

N. H. Williams
Project Manager

Attachments

cc: Mr. G. Grace (w/attachment)
Mr. D. Wade (w/attachment)
Mr. S. Burwell (w/attachment)
Mr. S. Treby (w/attachment)
Mrs. J. Ellis (w/attachment)

50-445
446

8409040471 840731
PDR ADOCK 05000445
A PDR

ADD. NSIC
Region II
Hool
1/1

PIPE SUPPORT QUESTIONS

1. In reviewing ITT-Grinnell snubber rear-brackets (Figure 307N), Cygna has found that the dimensions used in the design calculation match those in the field, but not those from Revision 15 of the DRS. Is there an earlier or later revision from which these brackets were taken? If so, please provide the appropriate reference.

Examples: CC-1-028-004-A33K (6-1/2 x 9-3/4 vs. 4-1/2 x 6-3/4)
CC-1-028-022-S33K (6-1/2 x 9-3/4 vs. 4-1/2 x 6-3/4)
CC-1-019-011-A43K (4-7/8 x 3-1/2 vs. 2-7/8 x 2)
CC-X-080-001-001-A43K (4-7/8 x 3-1/2 vs. 2-7/8 x 2)

2. In examining Quality Control procedure QI-QAP-11.1-28, Cygna has noted that there is no written direction or set limits for the QC inspectors to accept or reject support material distortions. Please explain how TUGCO assures that material distortions, such as warped tube steel, are checked in the field and accounted for in the design calculations as necessary.
3. During the walkdown, Cygna noted a number of supports with incorrect tag numbers. It is Cygna's understanding that the BRHL drawings will not be part of the permanent plant records. Given these facts, how will TUGCO be able to match a support design calculation to a particular support in the field or perform modifications on the correct support, once operation has commenced?

Examples: CC-1-028-017-S33R marked as CC-1-087-002-S33R
CC-1-028-023-S33R marked as CC-2-008-714-S33R
CC-1-019-006-A43R marked as CC-1-028-003-S33R
CC-1-019-010-A43R marked as CC-1-051-010-A43K
CC-1-019-014-A43R marked as CC-1-051-014-A43K

4. In reviewing procedure QI-QAP-11.1-28, which is used by QC for inspections, Cygna has found two tolerances which do not seem reasonable for all possible applications:
 - a) Working Point Dimensions = $\pm 1"$
 - b) Location on Support Steel = $\pm 2"$

In case a) there is no limit set on the working point dimension. For example, in support CC-1-028-023-S33R, the U-bolts in Section A-A are actually 3" apart, not 4". Although this is within the $\pm 1"$ tolerance, 5" stresses by 25%. As another example, in CC-1-028-001-A33R, the dimension in section C-C from the bracket centerline to the right edge should be 8-3/8" instead of 7-3/8", i.e., the baseplate is 14" wide. While the bolt hole is located in the proper position, this change in plate size could affect the prying action.

In case b) there is also no lower limit set. For example, in support CC-1-077-005-S33R, the top of the rear bracket does not extend 1/4" above the steel as specified, but is 15/16" below it. Again, it could have extended 2-1/4" above the steel and still be within the required tolerance. This would affect weld stresses.

What justification does TUGCO have that the above tolerances are acceptable for all dimension ranges?

5. In examining support CC-1-031-009-S33R, Cygna noted that the edge of a baseplate from CC-1-028-038-S33R is welded to the embedment plate within 6" of the baseplate for this support. It is Cygna's understanding, based on discussions with Gibbs and Hill, that the embedment plate allowable loads in specification 2323-SS-30 are based on applied point loads spaced a minimum of 12" apart. Since there appears to be no direction given to QC for determining the acceptability of attachment spacing to embedded plates, please provide justification that the use of embedment plates at CPSES is in agreement with the assumptions used to derive allowable loads, i.e., no applied loads closer than 12" spacing.
6. In response to a Phase 3 question regarding load sharing on double struts or snubbers, TUGCO responded by referencing the Affidavit by Dr. Iotti and Mr. Finneran, "Regarding Consideration of Force Distribution in Axial Restraints." That study does not account for the initial fit-up effect. During the Phase 4 walkdowns, Cygna found two cases with double struts in which one strut was loose enough to move by hand (MS-1-002-002-S72R, CC-1-028-034-S33R). Please justify this phenomena in the context of the force distribution.
7. CC-1-028-024-S33R, drawing revision 11. In Section C-C, the lower rear bolt (just past the canted bolt) is located 2" from the tube steel centerline, rather than on the centerline as shown in the drawing. Since this is outside the $\pm 1/4$ " bolt hole tolerance specified in QI-QAP-11.1-28, please justify this omission from the inspection report records.
8. MS-1-002-004-S72R, drawing revision 2. The 1/2" minimum gap between the nut and item 31 shown on the drawing does not exist in the field. Please justify this discrepancy. Note: The inspection report for this support was not available at the time of Cygna's review.
9. MS-1-004-003-S72R, drawing revision 4. Looking toward the concrete wall, the left hand side double nuts are not snugged up against each other. This could allow the nuts to loosen due to inplant vibration and prevent the support from functioning. Please explain this omission from the inspection report.

10. MS-1-003-007-C72K, drawing revision 10. In the original review of support MS-1-003-007-C72K, Cygna did not find sufficient dimensioning in section J-J detail 46 to determine where the rear bracket was welded to item 35. During the Phase 4 walkdown, Cygna was able to measure the actual dimensions as shown on the attached sketch.

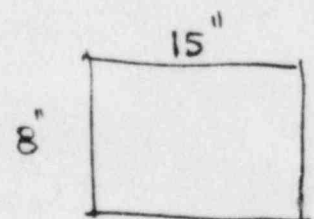
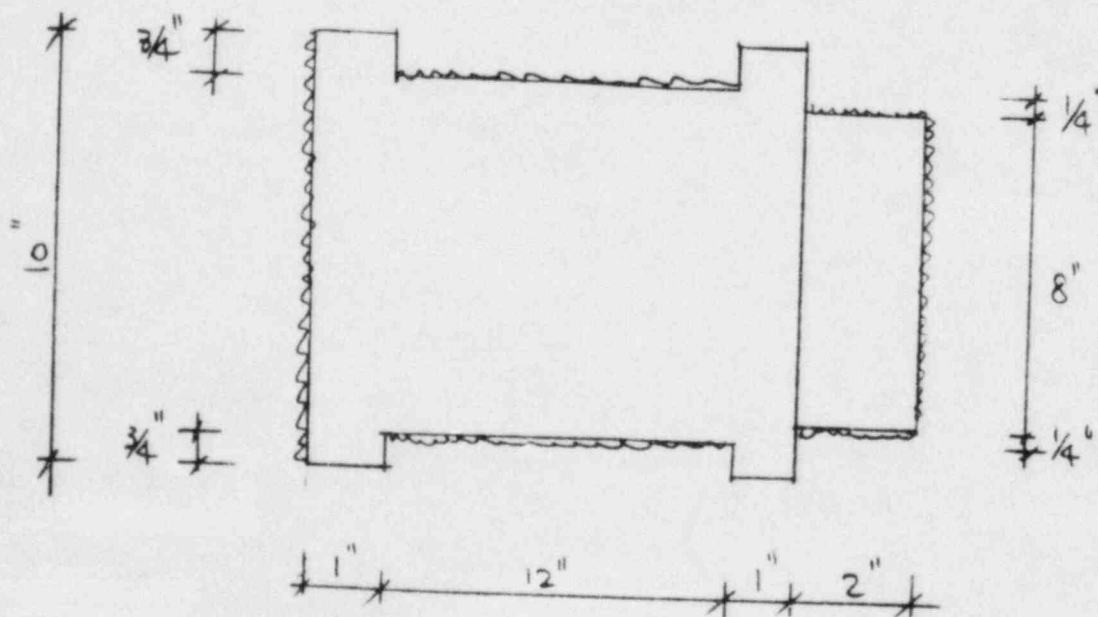
- a) Did the designers size item 35 without dimensions based on assumptions which were not stated?
- b) Given the as-built data, please provide calculations showing item 35 is adequate to transfer the load from the rear bracket to item 22.

W12 x 58.
 $t_f = 0.641'' \approx 5/8''$

115-1-03-007-C72K
SKETCH

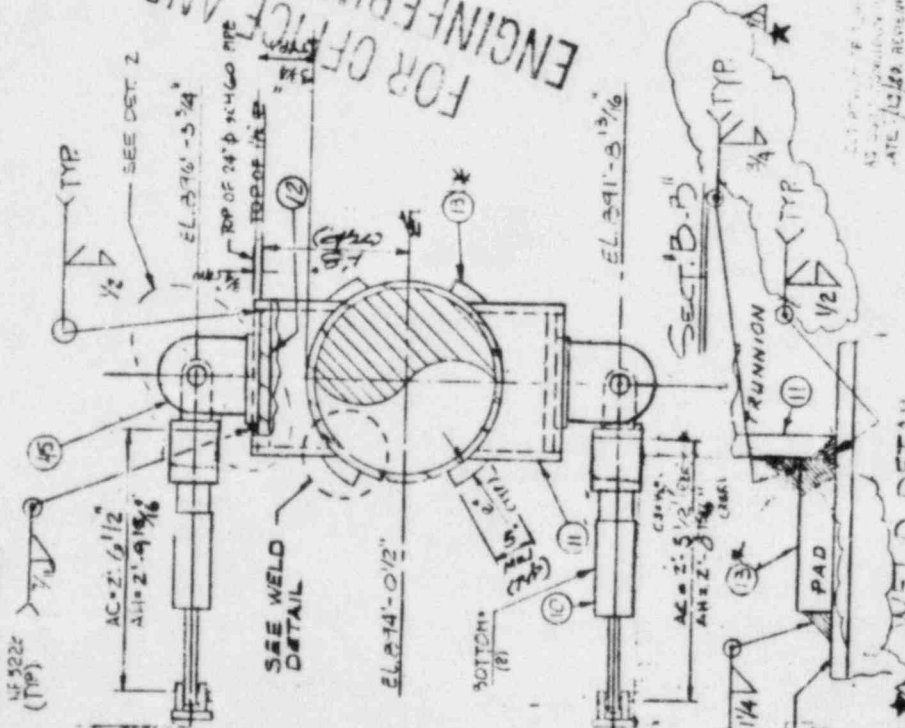
A hand-drawn technical sketch of a mechanical assembly, likely a bracket or support structure. The drawing includes the following dimensions and features:

- Top Dimensions:**
 - Overall width: $4\frac{1}{4}"$
 - Top flange thickness: $\frac{3}{4}"$ (TYP)
- Left Side Dimensions:**
 - Vertical distance from top flange to centerline: $1.5"$
 - Vertical distance from centerline to bottom flange: $2.25"$
- Bottom Dimensions:**
 - Overall width: $5\frac{1}{4}"$
 - Distance from left edge to centerline: $2\frac{1}{2}"$
 - Horizontal distance between two vertical lines: $12"$
 - Small horizontal offsets: $1"$, $1"$, $1"$
- Right Side Dimensions:**
 - Overall height: $11"$
 - Top flange thickness: $\frac{1}{2}"$
 - Vertical distance from top flange to centerline: $8"$
 - Vertical distance from centerline to bottom flange: $10"$
 - Bottom flange thickness: $\frac{1}{2}"$
- Internal Features:**
 - A central rectangular cutout.
 - A horizontal slot on the right side with a width of $1.25"$.
 - A break symbol (zigzag line) on the right side of the main body.



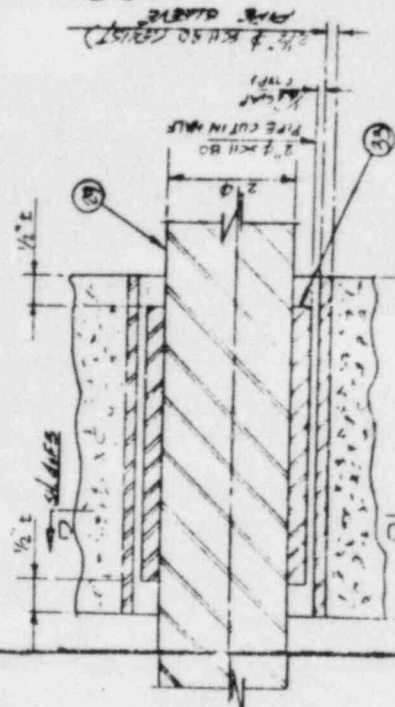
assume weld shape

NOTE: NO WASHERS ARE REQUIRED ON ITEM #6



FOR OFFICE AND
ENGINEERING USE ONLY

ITEM NO	PART NO.	DESCRIPTION	QTY	UNIT	PRICE	TOTAL	REMARKS
1	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
2	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
3	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
4	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
5	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
6	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
7	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
8	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
9	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
10	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
11	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
12	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
13	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M
14	10364	2" x 12" x 1/2" PLATE	1	PC	1.50	1.50	ASME OR 4.5" M



VENDOR CERTIFIED
DRAWING REV. NO. 10
BY System DATE 7-2-84

★ CHANCE NOT MADE

REV	DATE	CHK	CHK	DATE	DESCRIPTION
1	8/21	OK			REV. VENDOR CERTIFICATION.
2	9/18	OK			REV. VENDOR CERTIFICATION
3	9/18	OK			REV. VENDOR CERT. 2007, 2008
4	9/18	OK			CMS 07075 P. 1
5	8/22	OK			REV. VENDOR CERT 2007, 2008
6	8/22	OK			REV. 06/23

DET. LIL 9810


SEE NOTE pg. 205

*FIELD TRIM POST

REV	DESCRIPTION	REV	DATE	CHK'D	DATE	APPRO'D	DATE
3321-A	PAINTE	3321-B	10/24/67	JLT	10/24/67	[Signature]	8-9-68
3322-M	ZONE						

P.O. NO. CP-0049 AT MFG. REL. 1/77

PRODUCTION ORDER	SERIAL NUMBER	SHEET
		20th


Brown & Root, Inc.
 ENGINEERING • CONSTRUCTION
 HOUSTON, TEXAS
 28-1180

Brown & Root, Inc.

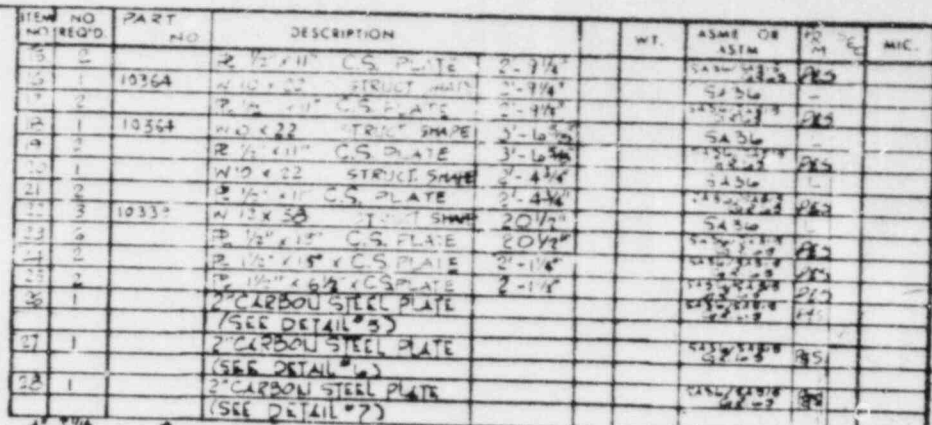
HOUSTON, TEXAS

[illegible]

ENGINEER
GIBBS & HILL INC.

NOV 10 1964

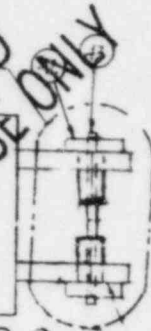
USE ONLY ONE HEX
NUT & UPSET THRODS
ON ROD
THIS SIDE ONLY



*FIELD TRIM TO SUIT.



SEE DET



DETAIL NO. 2

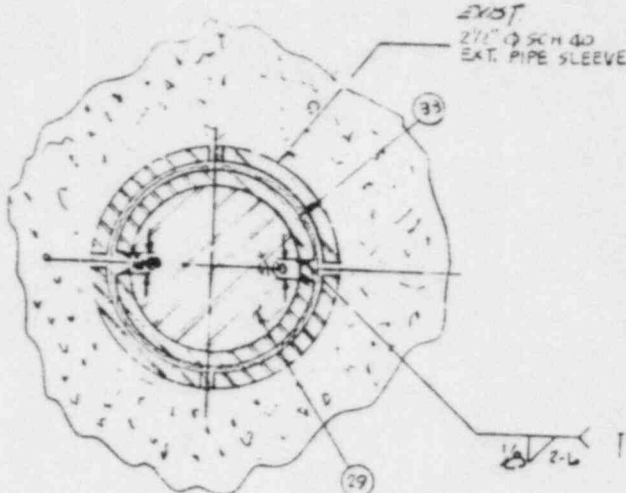
VENDOR CERTIFIED
DRAWING REV. NO. 12
BY Handwritten signature DATE 7-2-84

✓ LATCH WELD WHERE REQD
TO ALLOW VIBRATION OF
KEYS IN RTR BRKT PIN

REV	DATE	OWN	CNE	APP	DESCRIPTION	MVTS (IN.)	SEISMIC	REFERENCE DRAWINGS	ISOMETRIC	REV	PIPING	REV	ELECTRICAL	REV	CODE/CLASS	DRAWN	DATE	CHK'D	DATE	APP'D	DATE	
1	1/1/80				REV BRIDGE CRT					2323-M			2323-E			1/1/80	1/1/80	1/1/80	1/1/80	1/1/80	1/1/80	
2	1/1/80				REV MGR M-14280				FAB. ISOMETRIC	REV	STRUCTURAL	REV	M.V.A.C.	REV	PAINT	1/1/80	1/1/80	1/1/80	1/1/80	1/1/80	1/1/80	
3	1/1/80				REV VENDOR CRT				MS	2323-S			2323-M		LONE	1/1/80	1/1/80	1/1/80	1/1/80	1/1/80	1/1/80	
						OWNER	TEXAS UTILITIES SERVICES INC.						Brown & Root, Inc.									
						PROJECT	COMANCHE PEAK UNITS NO. 1 & 2						Brown & Root, Inc.									
						ENGINEER	GIBBY & HILL INC.						Brown & Root, Inc.									
						SC-21-3							Brown & Root, Inc.									

BLUELINE: 12-17-81
AS-BUILT

VENDOR CERTIFIED
DRAWING REV. NO. 1
BY DATE 7-2-84



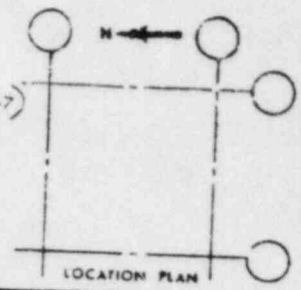
SECTION D-D

FOR OFFICE AND
ENGINEERING USE ONLY

ITEM NO.	REQ'D.	PART NO.	DESCRIPTION	WT.	ASME OR ASTM	QTY	MIC.
27	4	DET-10	1/2" x 3/4" x 3/4" BOLLARD DET.		SA-302	4	
30	16	DET-2	HEA NUT		SA-307	16	
31	14	DET-12	ROD		SA-307	14	
32	4		4" x 4" x 1/2" WOOD BLOCK		SA-307	4	
33	4	10043	P 2" x 3/4" x 3/4" PIPE		SA-307	4	
44	+		(CUT IN HALF) SEE DET-10				
35	1		NAME IN NAME PLATE				
36	1		FILLER PLATE		SA-307	1	
37	1		FILLER PLATE		SA-307	1	
38	1		2" CARBON STEEL PLATE (SEE DET-10)		SA-307	1	
39	3		R 1/2" x 1/2" x 1/2" L.G.C.S.		SA-307	3	
40	1		R 1/2" x 1/2" x 1/2" L.G.C.S.		SA-307	1	
41	24	FNH12	HEA NUTS		SA-307	24	

NOTES:- INSTALLATION INSTRUCTION
FOR DETAIL 29 & 33

1. CUT 2" ϕ SCH. 40 PIPE IN HALF LENGTHWISE.
2. POSITION ONE HALF OF PIPE ON BOLT AFTER FORMING IT TO A 2" ϕ I.D., ASSURING A TIGHT FIT ALL AROUND.
3. WELD PIPE HALF TO BOLT.
4. REPEAT STEPS 2 THROUGH 3 USING OTHER HALF OF PIPE.
5. PLACE ALL ANCHOR BOLTS IN EXISTING SLEEVES.
6. MEASURE C-C SPACING OF BOLTS AND DRILL BASE R TO FIT. C-C SPACING MAY VARY ON OPPOSITE SIDES OF WALL. FIELD TO VERIFY ALL DIMENSION BEFORE DRILLING THE BASE R.

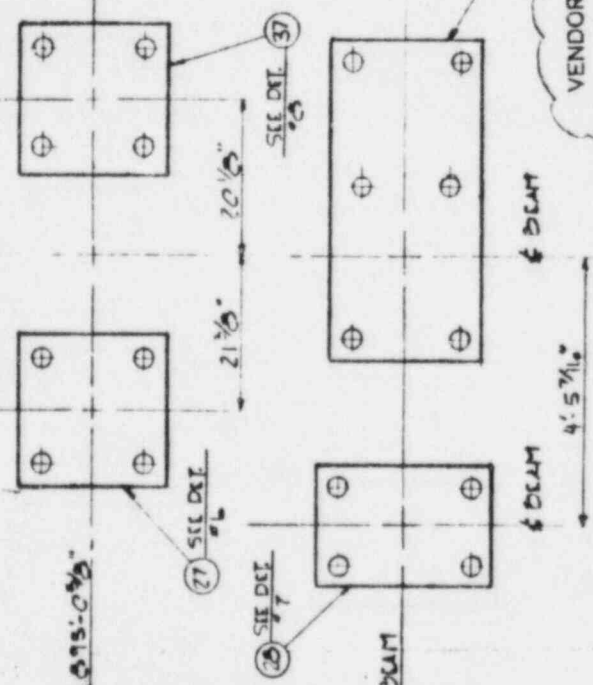


FIELD REVIEWED BY: [Signature]
AS BUILT - SECTION 100A - 201
DATE: 3/1/82 REVIEWED BY: M.A.C.

LOAD (LBS)	GRAV.	THER.	HYDRO.	OSB	SSB	DESIGN LOADS	MVTS (IN.)	SEISMIC	REFERENCE DRAWINGS	ISOMETRIC REV.	PIPING	REV.	ELECTRICAL	REV.	CODE/CLASS.	DRAWN	DATE	CHK'D	DATE	APP'D	DATE
UP							VERT.			2323-W		2323-W		2323-E							
DN										2323-W	STRUCTURAL	2323-W		2323-E							
N										2323-W		2323-W		2323-E							
S										2323-W		2323-W		2323-E							
E										2323-W		2323-W		2323-E							
W										2323-W		2323-W		2323-E							

OWNER	TEXAS UTILITIES SERVICES INC.	ENGINEER	GIBBS & HILL INC.
PROJECT	COMANCHE PEAK UNITS NO. 1 & 2		
PRODUCTION ORDER	446A	MR. NO. MS-1-03-007	REV 10

DIAMETER



SECTION 5.5

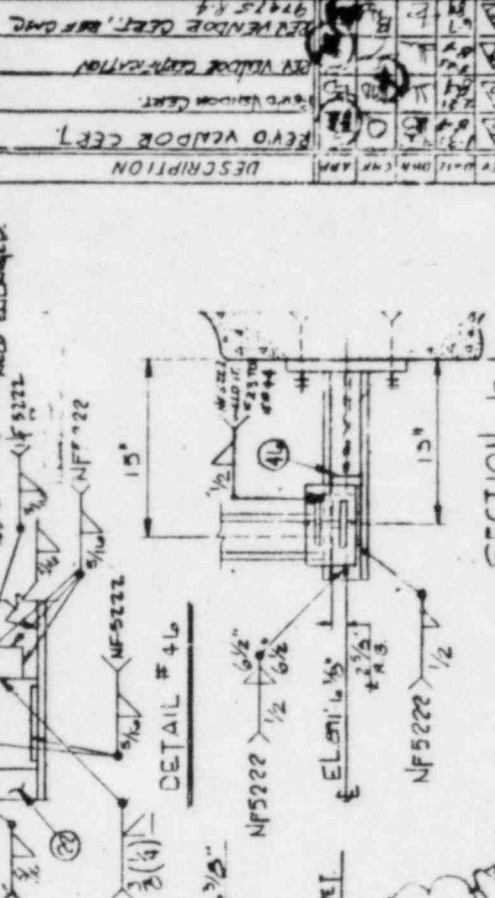
20

VENDOR CERTIFIED
DRAWING REV. NO. 10
BY: *Stewart* DATE: 7-7-84


NOTES

[illegible]

▲ ITEMS # 35 & 40 TO BE GROUND FLUSH WITH EACH OTHER.



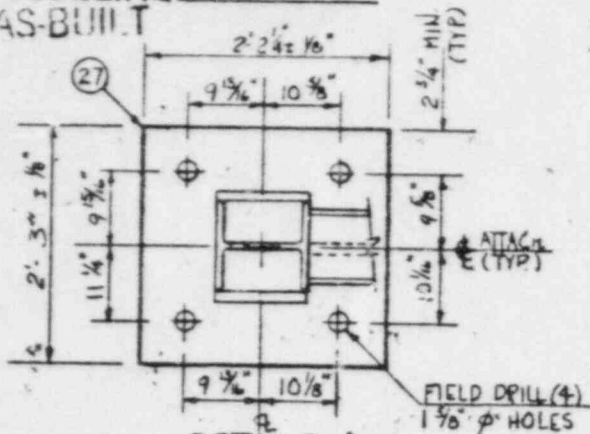
REV	ELECTRICAL	REV	CODE/CLASS: 47	DRAWN	CHK'D	DATE	APP'D	DATE
2333-E			PAINT/COLOR FIRE					
REV	M.V.A.C.	REV						
2333-M			ZONE					

6.05.65

Brown & Root, Inc.
 CONCRETE AND COMPOSITION
 INDUSTRIES, TEXAS
 28-1188

P.O. NO.	CP-0044A.1	MTQ. REL.	7C-1129
PRODUCTION ORDER		SERIAL NUMBER	
			SHEET
			6 of 8

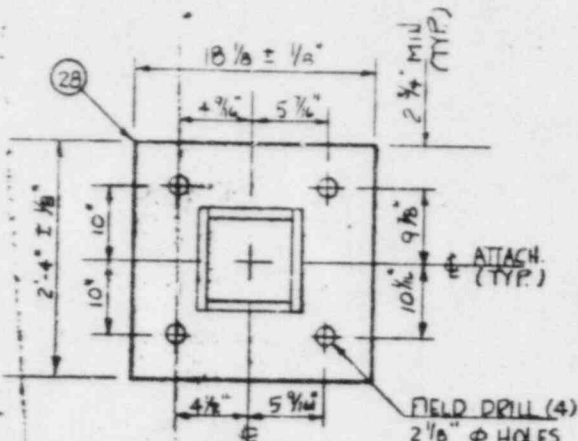
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BLUELINE 12-17-81
AS-BUILT



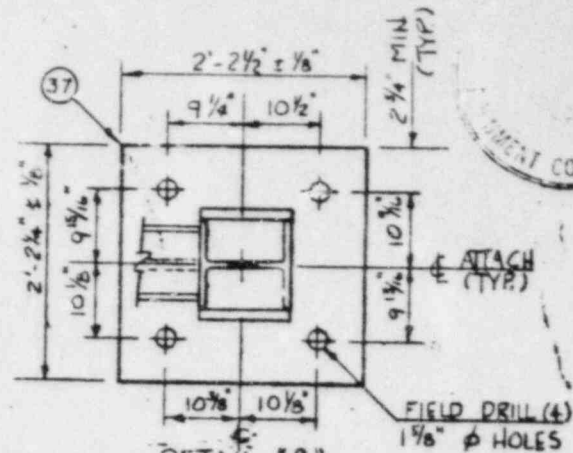
DETAIL "6"

ATTACH. MAY VARY $\pm 1/4"$



DETAIL "7"

Q. ATTACH. MAY VARY $\pm \frac{1}{4}$ "

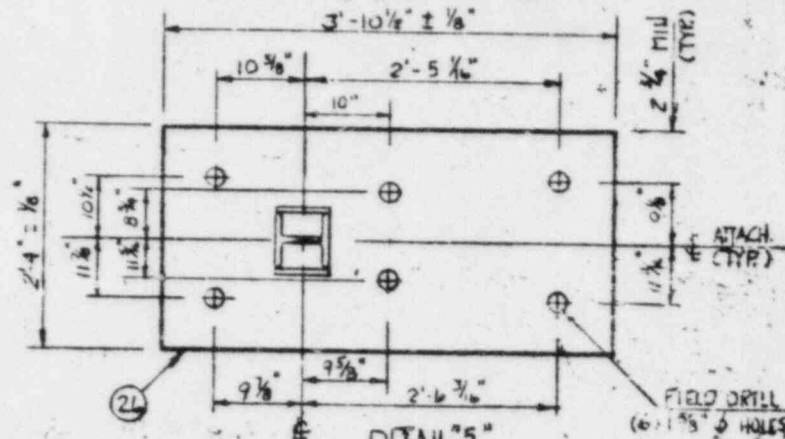


DETAIL '8'

Φ ATTACH. MAY VARY ± 1/4"

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VENDOR CERTIFIED
DRAWING REV. NO. 10
BY W. J. JONES DATE 7-2-84

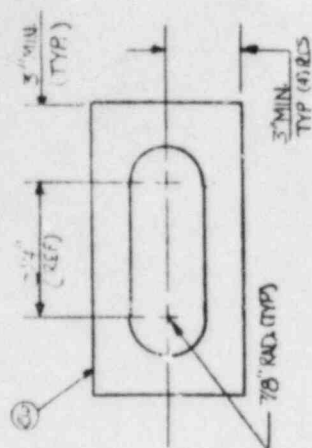


DETAIL "5"

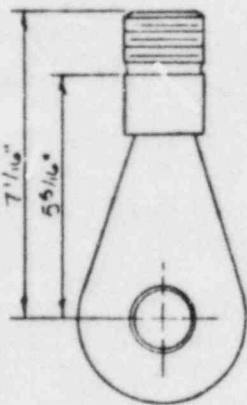
FIELD DRILL
(6) 1" 5/8" 6 HOLES

REV	DATE	CHK	CHK	APP	DESCRIPTION
1	1/21	P	G		REV'D VENDOR CERT.
2	1/21				REV'D VENDOR CERT.
3	1/21				REV. VENDOR CERTIFICATION
4	1/21				REV. VENDOR CERT. REV. INC
5	1/21				97475 0.4

REV	DATE	OWN	CHK	APP	DESCRIPTION	WYTS (IN)	SEISMIC	REFERENCE DRAWINGS	ISOMETRIC REV.	PIPING REV.	ELECTRICAL REV.	CODE/CLASS II/2	DRAWN	DATE	CHK'D	DATE	APP'D	DATE
A	6-10-84	8	84	84	REV VENDOR C&E			P&B ISOMETRIC	2323-M		2323-E							
	6-10-84	8	84	84	REV SEE H. 19280			MS-1-28-23	5	2323-S		2323-M						
	6-10-84	8	84	84	REV VENDOR C&E													
								OWNER	TEXAS UTILITIES SERVICES INC.				 Brown & Root, Inc. HOUSTON, TEXAS		P.O. NO. CR-3048-A-1		MFG. REL. TC-1129	
								PROJECT	COMANCHE PEAK UNITS NO. 1 & 2						PRODUCTION ORDER		SERIAL NUMBER	
								ENGINEER	GIBBS & HILL, INC.						440A		MR. NO MS-1-003-007-C72K	



DETAIL 12



FORWARD GRANT EYE DETAIL

FOR OFFICE AND
ENGINEERING USE ONLY

T.O. 3401

[illegible][illegible]