

TEK-FINS, INC. TULSA, OKLAHOMA

CUST: Kinder Morgan
P.O. NO. #616595-0-STAT

DESIGN TEMPERATURE =
IMPACT TESTING

300
EXEMPT BY UCS 66

MDMT= -20

INPUT INFORMATION:

DESIGN PRESSURE	1300
WIDTH	5
HEIGHT	7.5
WRAPPER THICKNESS	1.125
TUBE/PLUG SHT THICKNESS	1.75
CORROSION ALLOWANCE	0.063
ALLOWABLE STRESS	20000
TUBE OD	1
TUBE PITCH	2.3125

MEMBRANE STRESSES PSI:

WRAPPER	4667.51
TUBE/PLUG SHEET	3678.85

BENDING STRESSES PSI:

WRAPPER @ CTR SPAN	2598.36
WRAPPER @ CORNER	20116.64
TUBE/PLUG @ CTR SPAN	22261.62
TUBE/PLUG @ CORNER	7972.13

COMBINED STRESSES PSI:

WRAPPER PL @ CTR SPAN	7265.88
WRAPPER PL @ CORNER	24784.15
TUBE/PLUG PL @ CTR SPAN	25940.47
TUBE/PLUG PL @ CORNER	11650.98

MEMBRANE STRESSES MAY NOT EXCEED ALLOWABLE STRESS.
COMBINED STRESSES MAY NOT EXCEED 1.5 TIMES OR

30000

END PLATE IN ACCORDANCE WITH UG-34

MIN END PLATE THICKNESS = 0.84

DATE 3-12-07 APPROVED BY M. O'Banion

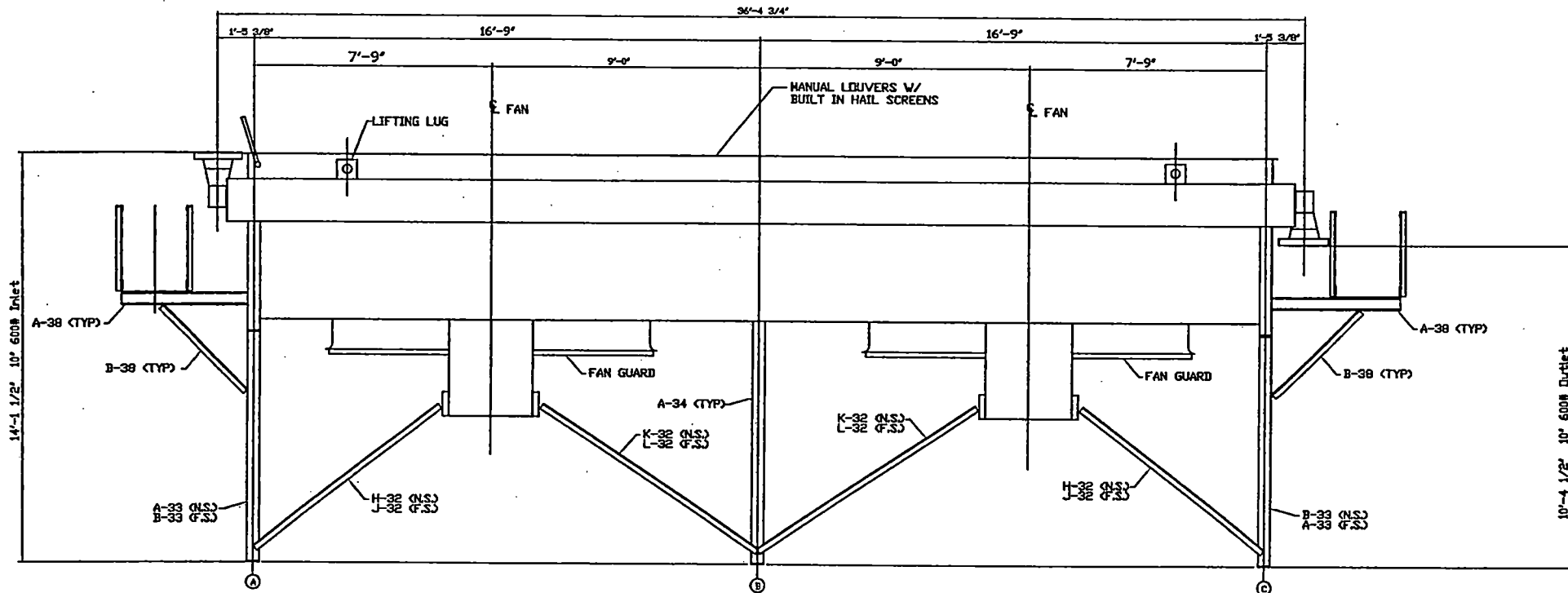
THESE CALCULATIONS ARE IN ACCORDANCE WITH SECTION VIII
APPENDIX 13 OF THE ASME CODE 2006 ED., 2006 A. FIG. 13.2(a) SKETCH (1)

TUBE WALL AND NOZZLE NECK CALCULATIONS

PER ASME SECTION VIII, DIV. 1, 2004 EDITION, 2006 ADDENDA

Job Number: 1843 **Date:** 7/30/2007
Kinder Morgan
Design Pressure: 1300 PSI
Design Temperature: 300 Deg. F
Corrosion allowance: 0.0625 Inch
Tube Wall Calculation Material: SA-179
Tube Description: 1.000 " O.D. X 0.083 inch Min.
Design Pressure (P): 1300 PSI
Tube OD (D): 1.000 Inch
Tube Stress (S): 13400 PSI (Allowable)

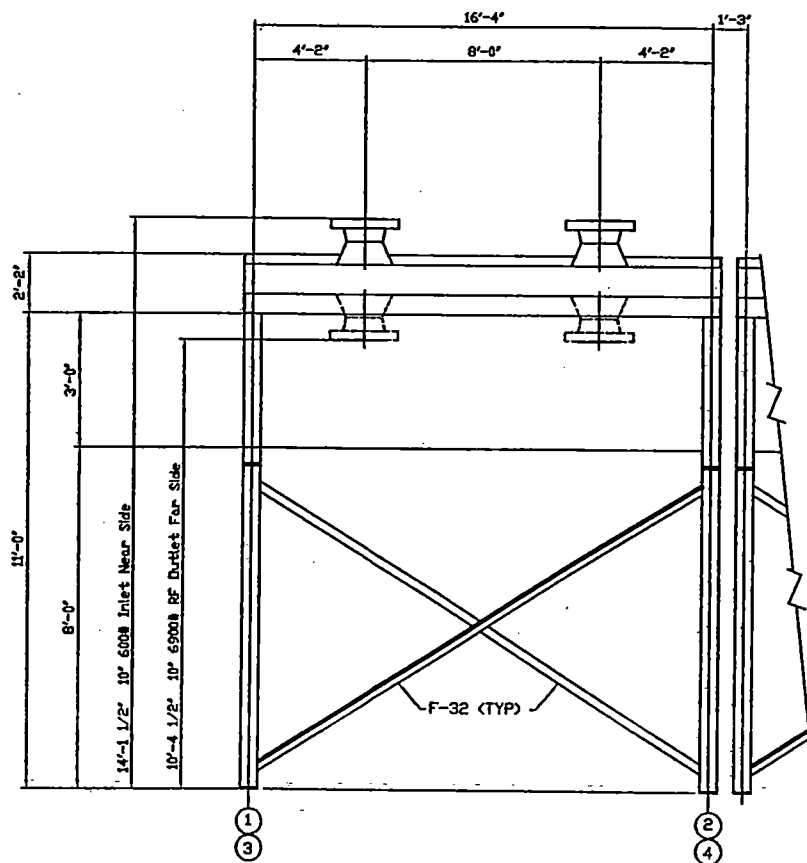
Minimum Req'd Wall = $(P \times D/2)/(.4P+S) = 0.046695 \text{ inch}$
Actual Min. Tube Wall = 0.083 inch



SIDE ELEVATION
ONE OF TWO (2) REQUIRED BAYS

MODEL 2-1736T125

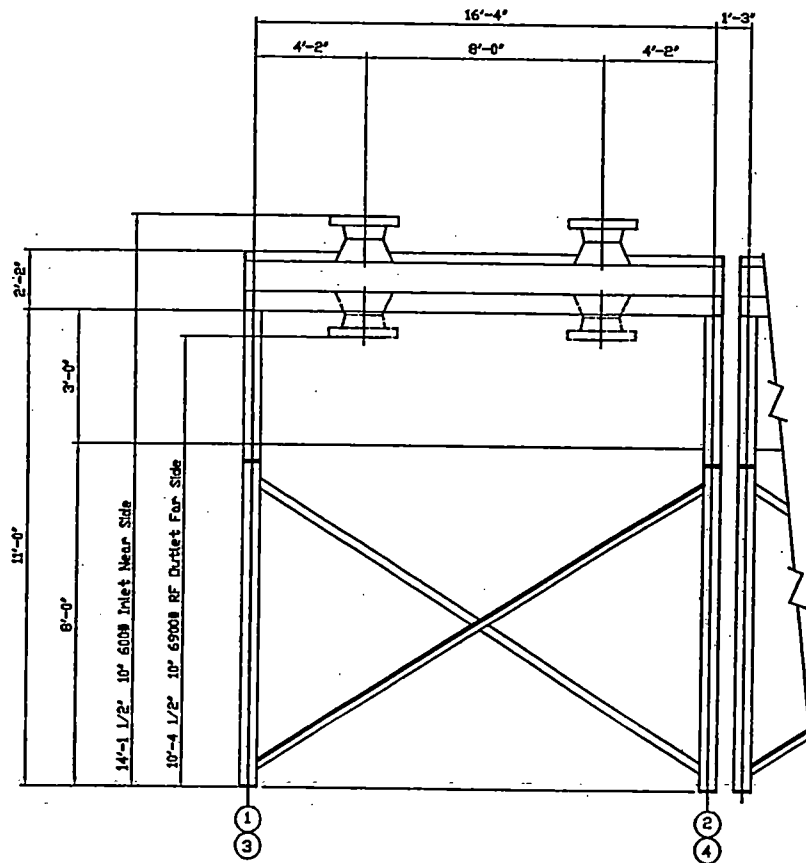
CUST: KINDER MORGAN		DRAWN BY BH	TITLE FIELD ERECTION SIDE ELEVATION
P.O. NO: 616594-0-STAT		DATE 11-29-2006	
LOCATION: NEW CANEY, TEXAS		CHECKED BY	
ITEM NO: STATION 302 HAL-2310		TEK-FINS INC. TULSA, OKLAHOMA	
REV.	DATE	DESCRIPTION	BY
-	-	-	-
DWG. NO.		REV.	
1843-1-FE1		0	



INLET END ELEVATION
ONE OF TWO (2) REQUIRED BAYS

MODEL 2-1736T12.5

CUST: KINDER MORGAN		DRAWN BY BM	TITLE FIELD ERECTION INLET END ELEVATION
P.O. NO: 6165940-STAT		DATE 11-29-2006 CHECKED BY	
LOCATION: NEW CANEY, TEXAS		TEK-FINS INC. TULSA, OKLAHOMA	
ITEM NO: STATION 302 HAL-2310			
REV.	DATE	DESCRIPTION	BY
-	-	-	-
DWG. NO. 1843-1-FE2		REV. 0	



INLET END ELEVATION
ONE OF TWO (2) REQUIRED BAYS

2. SEE DWG 1843-1-09 FOR FINISH
1. ALL HOLES 3/4 DIA UNLESS NTD.

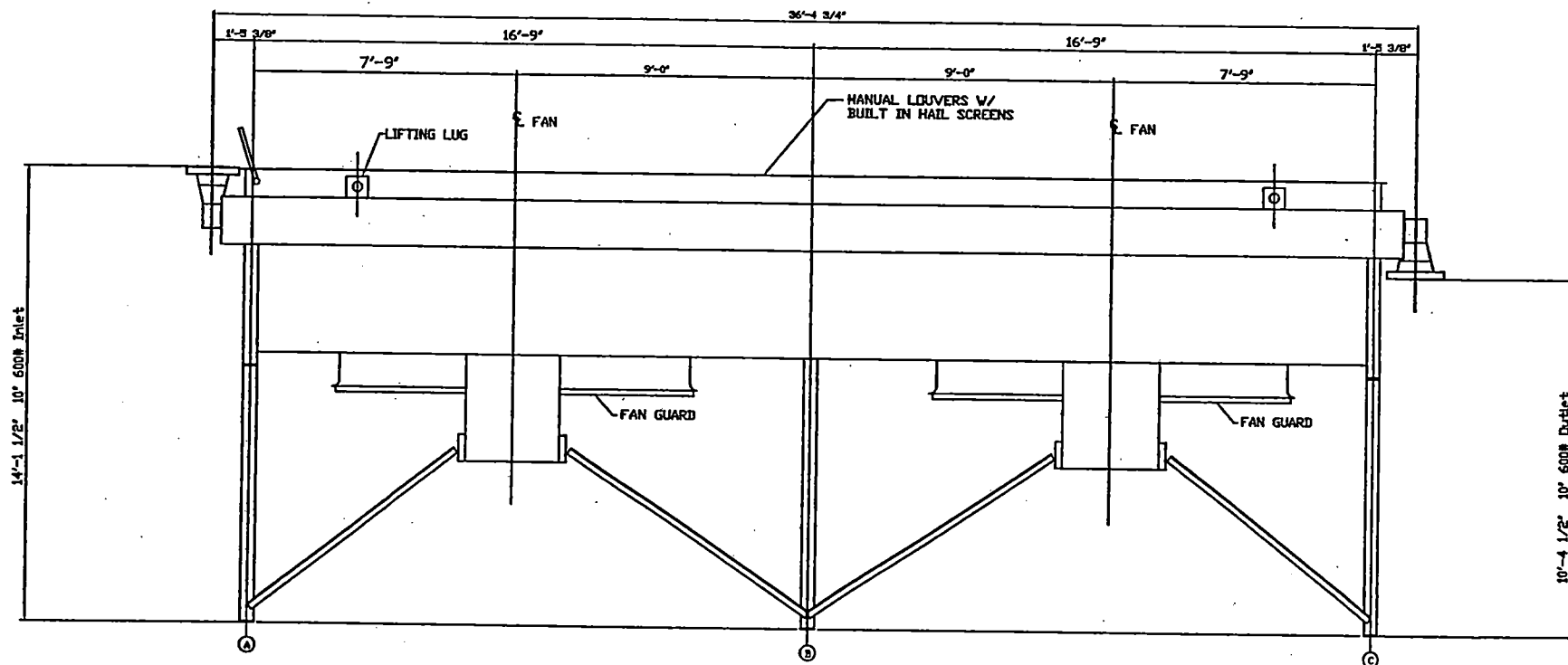
NOTES:

CERTIFIED FOR CONSTRUCTION

BY
DATE

MODEL 2-1736T12.5

CUST: KINDER MORGAN		DRAWN BY BM	TITLE INLET END ELEVATION	
P.O. NO: 6165940-STAT		DATE 11-29-2006		
LOCATION: NEW CANEY, TEXAS		TEK-FINS INC.		
ITEM NO: STATION 302 HAL-2310		TULSA, OKLAHOMA		
REV.	DATE	DESCRIPTION	BY	
1	3/12/07	REVISED UNIT SIZE	MOB	
DWG. NO.		1843-1-01		REV. 1



SIDE ELEVATION
ONE OF TWO (2) REQUIRED BAYS

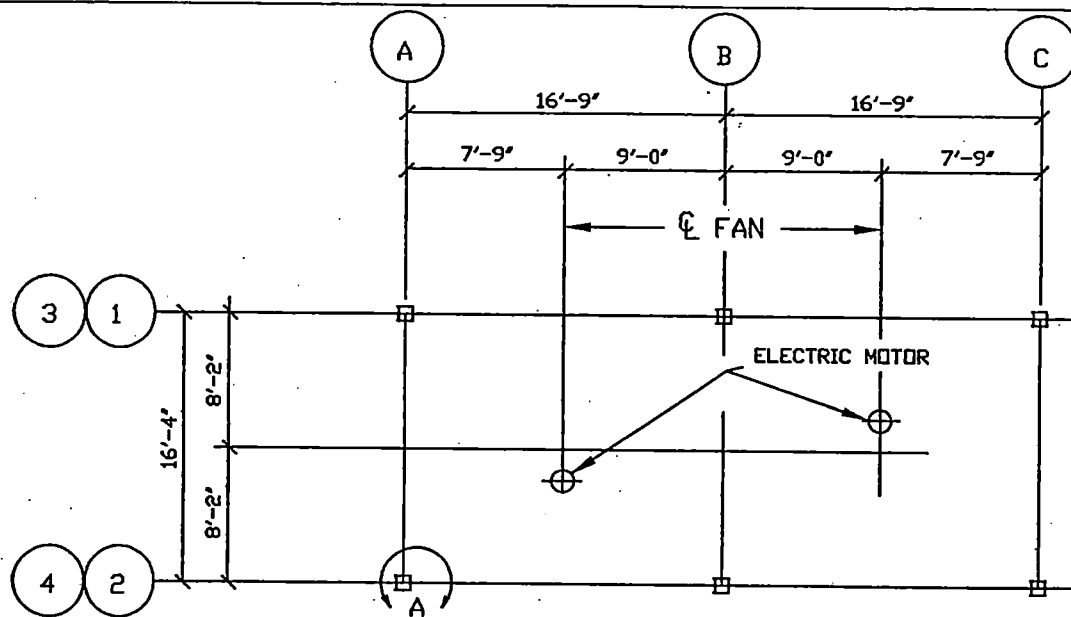
MODEL 2-1736T125

CUST: KINDER MORGAN		DRAWN BY BM	TITLE SIDE ELEVATION
P.O. NO: 616594-0-STAT		DATE 11-29-2006	
LOCATION: NEW CANEY, TEXAS		CHECKED BY	
ITEM NO: STATION 302 HAL-2310		TEK-FINS INC. TULSA, OKLAHOMA	
REV.	DATE	DESCRIPTION	BY
1	3/13/07	REVISED UNIT SIZE	MOB
2	4/13/07	REMOVED WALKWAYS	MOB
DWG. NO.		REV.	
1843-1-02		2	

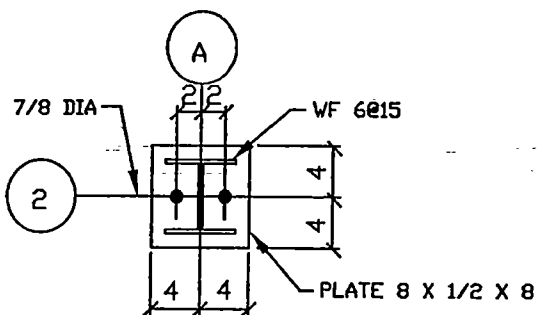
- NOTES:
2. SEE DWG 1843-1-09 FOR FINISH
 1. ALL HOLES 3/4 DIA UNLESS NTD.

CERTIFIED FOR CONSTRUCTION

BY
DATE



ANCHOR BOLT PLAN



DETAIL A
(TYP 12 PLACES)

COLUMN LOADS

		A	B	C
1	DL	6813	13625	6813
	S	1005	2010	1005
	R $\pm$	1232	2464	1232
2	DL	6813	13625	6813
	S	1005	2010	1005
	R $\pm$	1232	2464	1232

DL = DEAD LOAD + HYDRO TEST
S = HORIZONTAL WIND SHEAR
R $\pm$ = VERTICAL WIND LOAD

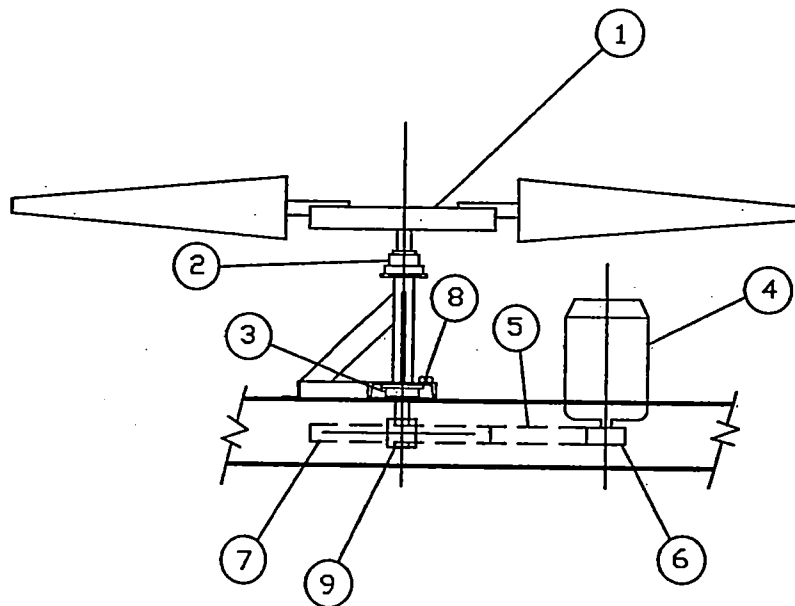
MODEL 2-14.536T11.5

CUST: <u>KINDER MORGAN</u>		DRAWN BY BM	TITLE ANCHOR BOLT PLAN		
P.O. NO: <u>616594-0-STAT</u>		DATE 11-29-2006			
LOCATION: <u>NEW CANEY, TEXAS</u>		CHECKED BY			
ITEM NO: <u>STATION 302 HAL-2310</u>		TEK-FINS INCORPORATED TULSA, OKLAHOMA			
SERIAL NO: _____					
REV.	DATE	DESCRIPTION	BY	DVG. NO. 1843-1-03	REV. 1
1	3/13/07	REVISED UNIT SIZE	MOB		

CERTIFIED FOR CONSTRUCTION

BY
DATE

NOTES:



BILL OF MATERIAL

- ① FAN MOORE 10000HD #42 12'-6" DIA
- ② DODGE TYPE E FLG BRG 2 7/16 BORE
- ③ DODGE TYPE SCM FLG BRG 2 7/16 BORE
- ④ ELECT MOTOR 10 Hp, 870 RPM, TEFC
480/3/60
CLASS B TEMP RISE
CLASS F INSULATION
- ⑤ V-BELT 4 BELTS 3VX1120
- ⑥ SHEAVE 5.3" 4 GROOVE FOR 3V SECTION
- ⑦ SHEAVE 25" 4 GROOVE FOR 3V SECTION
- ⑧ LUBRICATION POINTS
- ⑨ VIBRATION SWITCH MURPHY VS-2EX

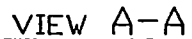
MODEL 2-1736T12.5

CUST: <u>KINDER MORGAN</u>		DRAWN BY BM	TITLE FAN DRIVE ASSEMBLY
P.O. NO: <u>616594-0-STAT</u>		DATE 11-29-2006	
LOCATION: <u>NEW CANEY, TEXAS</u>		CHECKED BY	
REV.	DATE	DESCRIPTION	BY
1	3/13/07	REVISED UNIT SIZE	MOB
DWG. NO. 1843-1-04			REV. 1

NOTES:

CERTIFIED FOR CONSTRUCTION

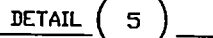
BY
DATE

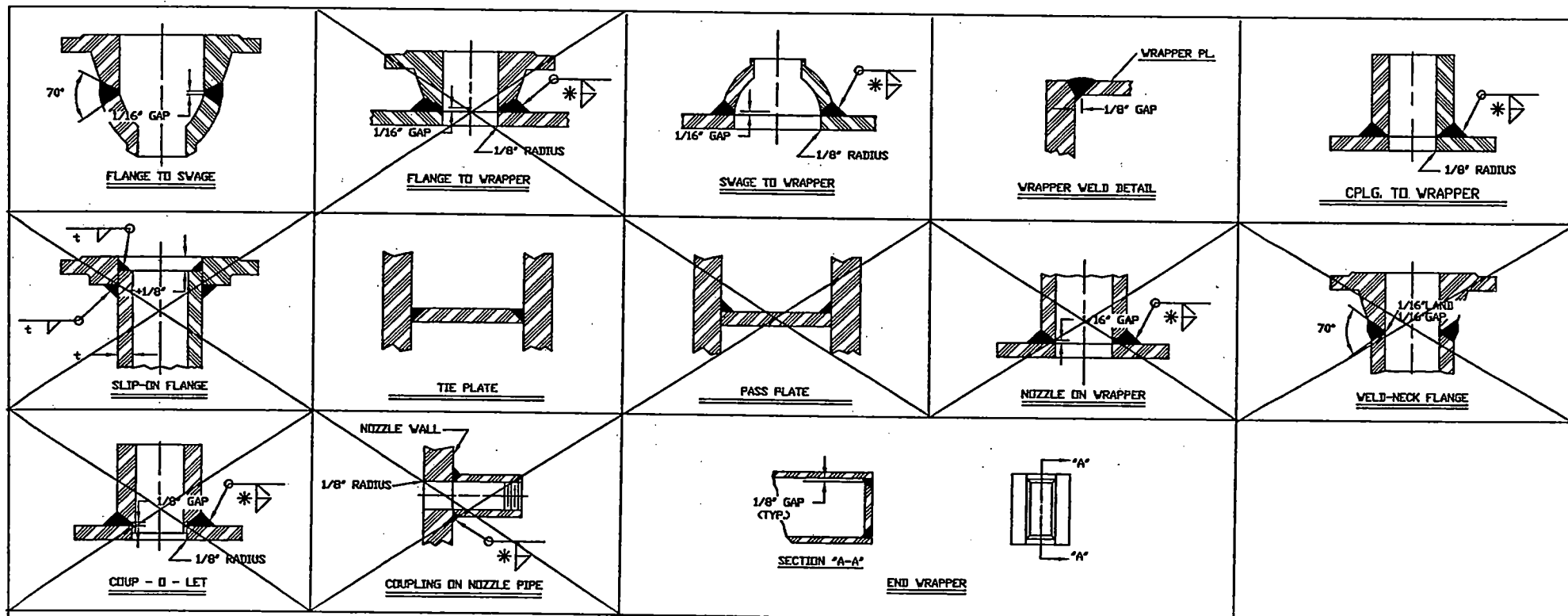


<u>CERTIFIED FOR CONSTRUCTION</u>				NO ROWS <u>5</u>		NO PASSES <u>1</u>		
BY _____ DATE _____				IMPACT TEST <u>EXEMPT BY UCS-66</u>				
CUST: <u>KINDER MORGAN</u>				DRAWN BY <u>JM</u>	TITLE FRONT HEADER BOX DETAIL			
P.O. NO: <u>616594-0-STAT</u>				DATE <u>11-29-2006</u>				
LOCATION: <u>NEW CANEY, TEXAS</u>				CHECKED BY				
ITEM NO: <u>STATION 302 HAL-2310</u>				TEKFINS INC. TULSA, OKLAHOMA				
SERIAL NO: _____								
REV.	DATE	DESCRIPTION	BY	DWG. NO. 1843-1-05				REV. 2
<u>1</u>	<u>3/13/07</u>	<u>REVISED UNIT SIZE</u>	<u>MOB</u>					
<u>2</u>	<u>4/13/07</u>	<u>REVISED HYDROTEST PRESSURE</u>	<u>MOB</u>					



VIEW A-A

REV.
2



NOTES:

- 1.) ALL WELDING TO BE IN ACCORDANCE WITH ASME CODE (SECTION IX)
- 2.) GRIND ALL INTERNAL NOZZLE WELDS SMOOTH.
- 3.) ALL FILLET WELDS 3/8" (MIN.) - UNLESS NOTED ON DETAILS

CUST: KINDER MORGAN

P.O. NO: 616594-0-STAT

LOCATION: NEW CANEY, TEXAS

TAG: STATION 302 HAL 2310

DRAWN BY
BM
DATE
11-29-2006
CHECKED BY

TITLE
**STANDARD
WELD DETAILS**

TEK-FINS INC.
TULSA, OKLAHOMA

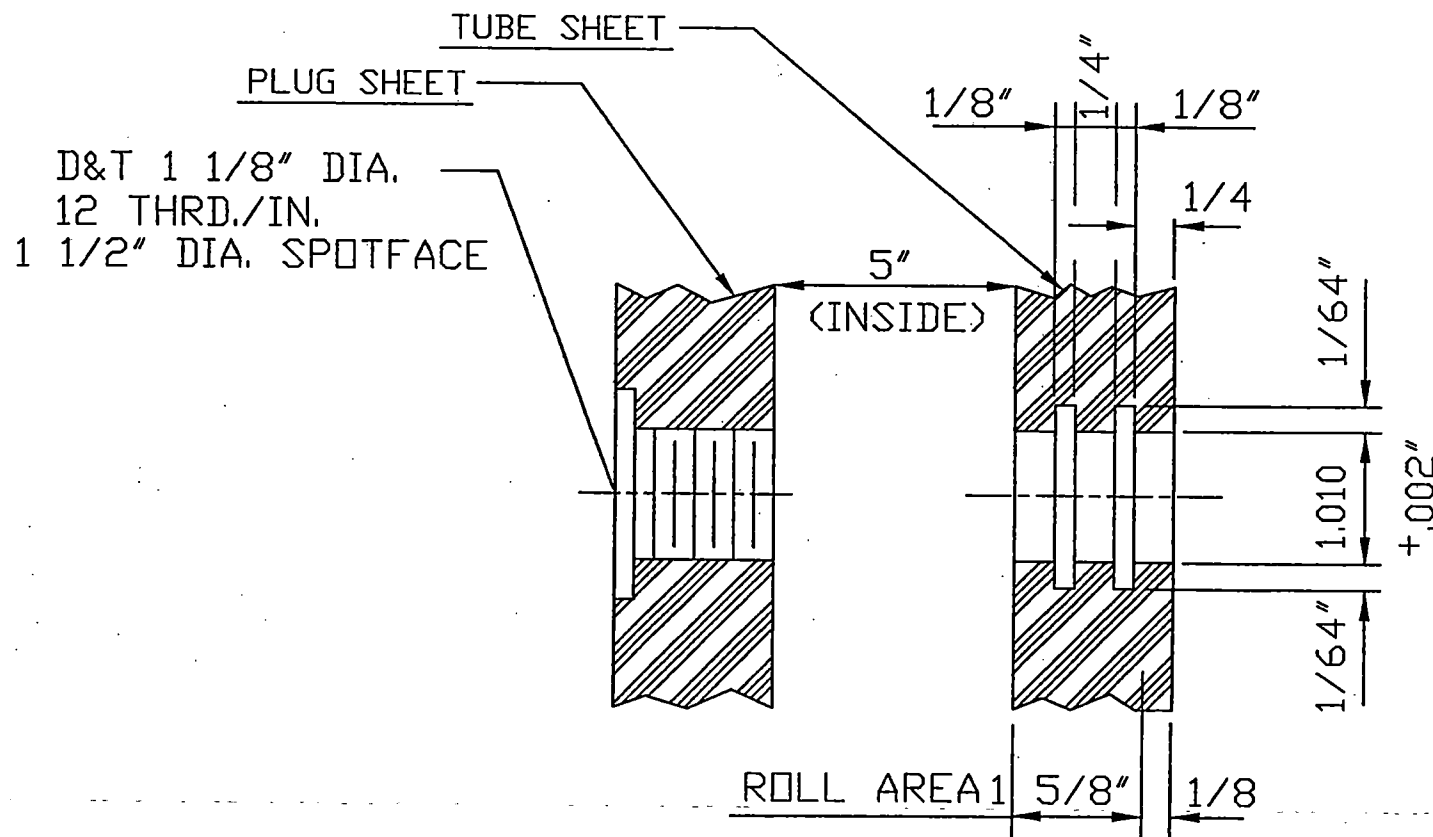
CERTIFIED FOR CONSTRUCTION
BY _____
DATE _____

REV.	DATE	DESCRIPTION	BY
1	3/13/07	REVISED UNIT SIZE	MOB

DWG. NO.

1843-1-07

REV.
1



1" DIA TUBES

CERTIFIED FOR CONSTRUCTION

BY _____

DATE _____

DRAWN BY BH		TITLE TUBE & PLUG HOLE FINISHING DETAIL		TEK-FINS INCORPORATED TULSA, OKLAHOMA	
DATE 11-29-2006		CHECKED BY		BY	
REV. 1		DATE 3/13/07		DESCRIPTION	
				REVISED UNIT SIZE	
				BY	
				NOB	
				DWG. NO.	
				1843-1-08	
				REV.	
				1	

- 1) ASME STAMP: YES WITH NATIONAL BOARD STAMP
- 2) RADIOGRAPH: ALL PRESSURE CONTAINING WELDS ARE TO BE EITHER 100% RADIOGRAPHED
OR ULTRASONIC EXAMINED PER THE ASME CODE.
- 3) SURFACE PROTECTION: ZINC METALIZE ON HEADERS
HOT DIP GALVANIZE ALL COLD METAL
- 4) FLANGE BOLT HOLES TO STRADDLE CENTER LINES.
- 5) HEAT TREAT: YES - HEAT FROM 800 TO 1150 DEG. AT 228 DEG. / HOUR
HOLD AT 1150 DEG. FOR 1.2 HOUR. COOL FROM 1150 TO 800 DEG. AT 285 DEG.
/ HOUR. FINISH COOLING IN STILL AIR.

CERTIFIED FOR CONSTRUCTION
BY _____
DATE _____

CUST: KINDER MORGAN		DRAWN BY BN	TITLE HEADER NOTES
P.O. NO: 616594-0-STAT		DATE 11-29-2006	
LOCATION: NEW CANEY, TEXAS		CHECKED BY	
ITEM NO: STATION 302 HAL 2310		TEK-FINS INC. TULSA, OKLAHOMA	
SERIAL NO:			
REV.	DATE	DESCRIPTION	BY
1	3/13/07	REVISED UNIT SIZE	MOB

DWG. NO. 1843-1-09	REV. 1
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