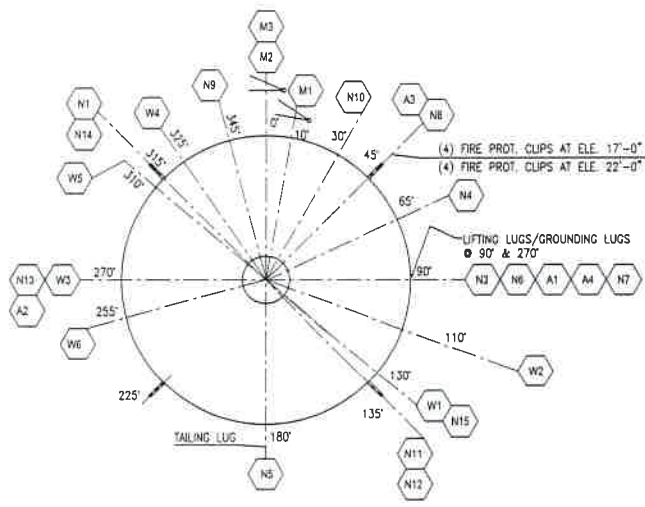


ELEVATION

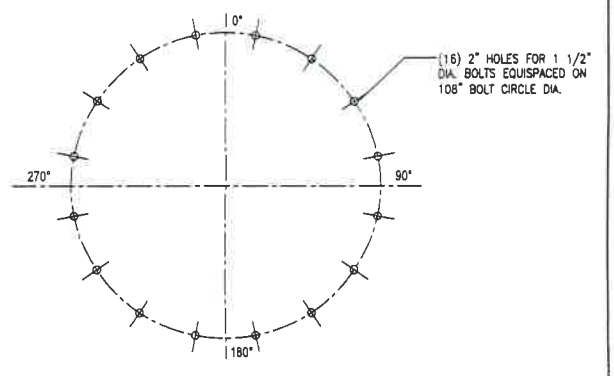
DESIGN DATA			
CODE: ASME VIII DIV 1 2006A			
TOP	BOTTOM		
SPECIFIC GRAVITY/CONTENTS: 0.746	1.09		
OPERATING PRESS.: 10.17 (psia)	12.26 (psia)		
OPERATING TEMP.: 176.7 (°F)	203 (°F)		
DESIGN PRESS.: 25/FV (psia)	DESIGN TEMP.: 250 (°F)		
MDMT: -20°F			
CORROSION ALLOWANCE: NONE			
No. & TYPE OF TRAYS: 25 TRAYS, SULZER MWG			
STRESS RELIEF: NO			
X-RAYS: NONE	H. TEST PRESSURE: 34 PSIG		
WIND: BASIC WIND SPEED: 90 MPH WIND IMPORTANCE FACTOR: 1.15 WIND EXPOSURE: C	SEISMIC: $A_s = 0.10$ $A_w = 0.05$ SEISMIC IMPORTANCE FACTOR: 1.5		
WEIGHT EMPTY: 48,000 (lbs)	WEIGHT FLOODED: 292,000 (lbs)		
VOLUME: 29220 (gpi)			
WEIGHT INSULATION:			
NOZZLE LOADS			
MK	P (lbs)	W_c (ft/lbs)	M_c (ft/lbs)
N1, N5	5800	13366	64808
N2	8700	15325	15325
N3	3900	8292	8292
N4	3900	6301	14271
MATERIALS OF CONSTRUCTION			
ITEM	MATERIAL	COMMENTS	
SHELL	SA 240 304/304L		
HEADS	SA 240 304/304L	2:1 ELLIPTICAL	
FLANGES	SA 105, SA 182 F 304/304L		
NOZZLE NECK	SA 312/SA 240 TP 304/304L		
STUB ENDS	SA 403 304/304L, MSS TYPE 'A'		
RE PADS	SA 240 TP 304/304L		
INTERNAL SUPPORTS	SA 240 304/304L SS	TRAY SUPPORTS/DOWNCOMERS	
VAC. RINGS	SA/CSA G40.21-44W		
SKIRT, BASE PLATE	SA/CSA G40.21-44W		
EXT. CLIPS	SA/CSA G40.21-44W		
GASKETS	FD3500 & GARLOCK 3545 (FDR SIGHT GLASS)		
BOLTING	SA-193-B7/S14-194-2H	ZINC PLATED	
INSULATION:	2" FG-TOP HEAD Co Si	BY TKE	

NOZZLE SCHEDULE									
MK	SIZE	RATING	TYPE	WALL THK	RE PAD	PROJ	SERVICE	REMARKS	
N1	20"	-	BUTT WELD	SCH 10S	1/4" x 4" WIDE	6"	VAPOR IN (REBOILER)	FR TP-4104	
N2	30"	-	BUTT WELD	5/16"	3/8" x 3" WIDE	6"	VAPOR OUT	TO ET-4201	
N3	10"	150 LB	LJ FLG	SCH. 10S	3/8" x 1.5" WIDE	5"	STILLAGE OUT	TO PC-4101	
N4	10"	150 LB	LJ FLG	SCH. 10S	1/4" x 2.5" WIDE	6"	BEER FEED	FR PC-4105	
N5	20"	-	BUTT WELD	SCH 10S	1/4" x 4" WIDE	6"	VAPOR INLET	FR TP-4103	
N6	1"	150 LB	LJ FLG	SCH. 40S	-	6"	HIGH LEVEL ALARM	LS-004	
N7	3"	150 LB	WELD PAD	-	-	-	COL. LEVEL CONTROL	LT-001	
N8	3"	150 LB	WELD PAD	-	-	-	COL. LEVEL CONTROL	LT-001	
N9	3"	150 LB	LJ FLG	SCH 40S	-	6"	TOP COL. PRESS	PT-010	
N10	10"	150 LB	LJ FLG	SCH. 10S	1/4" x 2 1/8" WIDE	6"	PRESS. REL. VALVE	PSY-009	
N11	3"	150 LB	LJ FLG	SCH. 40S	-	6"	BOTTOM COL. PRESS	PT-005	
N12	2"	150 LB	LJ FLG	SCH. 40S	-	6"	R/C FROM CIRC PUMP	FR PC-4101	
N13	1.5"	150 LB	LJ FLG	SCH. 40S	-	6"	TRAY 19 TEMP	TE-006	
N14	1.5"	150 LB	LJ FLG	SCH. 40S	-	6"	TRAY 9 TEMP	TE-007	
N15	1.5"	150 LB	LJ FLG	SCH. 40S	-	6"	TRAY 2 TEMP	TE-008	
M1	24"	150 LB	RFSO	1/4"	1/4" x 4.5" WIDE	8"	MANWAY W/HINGE	CSA FLG W/IN S. STL. FACING	
M2	24"	150 LB	RFSO	1/4"	1/4" x 4.5" WIDE	8"	MANWAY W/HINGE	CSA FLG W/IN S. STL. FACING	
M3	24"	150 LB	RFSO	1/4"	1/4" x 4.5" WIDE	8"	MANWAY W/HINGE	CSA FLG W/IN S. STL. FACING	
A1	24"	ATMO.	PLAIN	5/8"	-	3"	SKIRT PENETRATION FOR N3		
A2	24"	ATMO.	PLAIN	5/8"	-	3"	SKIRT ACCESS		
A3	3"	ATMO.	PLAIN	SCH 40S	-	3"	FIRE PROTECTION		
A4	4"	ATMO.	PLAIN	SCH 40S	-	3"	SKIRT VENT (QTY: 4)		
W1	4"	150# AT 500°F	WELD PAD	-	-	-	SIGHT GLASS	PAPALLIAS NW80/EQUAL	
W2	4"	150# AT 500°F	WELD PAD	-	-	-	SIGHT GLASS	PAPALLIAS NW80/EQUAL	
W3	4"	150# AT 500°F	WELD PAD	-	-	-	SIGHT GLASS	PAPALLIAS NW80/EQUAL	
W4	4"	150# AT 500°F	WELD PAD	-	-	-	SIGHT GLASS	PAPALLIAS NW80/EQUAL	
W5	4"	150# AT 500°F	WELD PAD	-	-	-	SIGHT GLASS	PAPALLIAS NW80/EQUAL	
W6	4"	150# AT 500°F	WELD PAD	-	-	-	SIGHT GLASS	PAPALLIAS NW80/EQUAL	

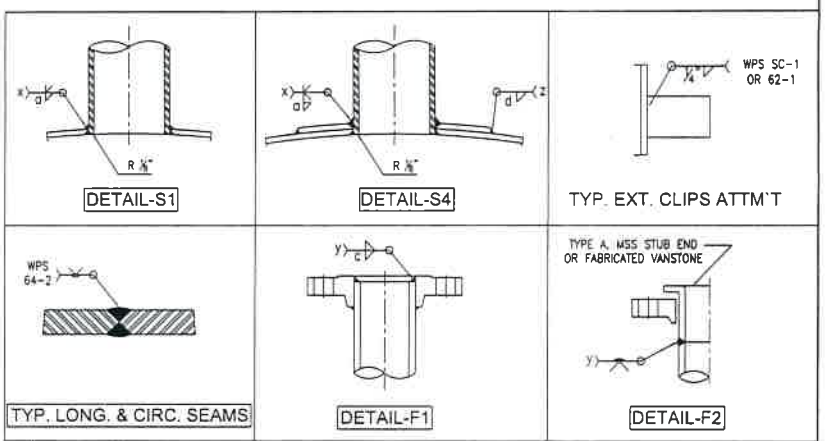
- NOTES:
- 1) WIND AND SEISMIC LOAD PER ASCE 7-95. SNOW LOAD: $P_s = 20$ PSF
 - 2) ALL NON CONTACT SURFACES TO BE CARBON STEEL, EXCEPT AS NOTED.
 - 3) VESSEL TO BE CLEANED INSIDE AND OUTSIDE, FREE OF DIRT, GREASE, MILL SCALE AND WELD SPLATTER.
 - 4) FABRICATION TOLERANCES: PER TKS GENERAL FABRICATION STANDARD GF-1 Rev. 3 (CL 8.4) & SKETCH # GF1-SK-0001
 - 5) VESSEL INTERNALS SUPPLIED BY OTHERS FOR INSTALLATION BY THE SITE CONTRACTOR.
 - 6) BOLT HOLES IN FLANGES TO STRADDLE VESSEL CENTER LINES.
 - 7) REFERENCE DRAWINGS: 6018-MQ-4114 Rev. 0 (SHT 1 & 2) 6018-MQ-4001 Rev. 0
 - 8) PAINT: SKIRTS & CARBON STEEL PARTS: CARBON STEEL PARTS ONLY: BLASTED AND ONE COAT OF RED-OXIDE PRIMER PER TKS SPEC. GF-1
 - 9) SURFACE FINISH: ALL STAINLESS PARTS HAVE MILL FINISH. NO HEAT STAIN REMOVAL. INTERNAL WELDS TO BE SMOOTH ONLY.
 - 10) TRAY SUPPORT DETAILS SHALL BE PROVIDED BY THE TRAY SUPPLIER. (FOR INTERNAL SUPPTS & DETAILS SEE SULZER DRG# CA60947-01 PG. 1 TO 7 FOR SUPPTS & WELD. DETAILS & CA60947-01 PG. 8 TO 16 FOR ASSY REF. ONLY)



PLAN

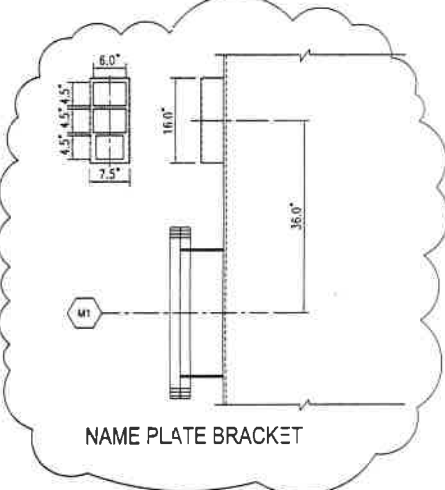


BASE RING DRILLING



NOZZLE WELDING DETAILS													
MK	DETAIL		PROJECT	WELD SIZE				WPS			RE-PAD		
	FLANGE	SHELL		EXT.	INT.	a	b	c	d	x		y	z
N1,N5	-	S4	6"	-	1/4"	-	-	1/4"	SS-1A, 49-1	-	-	49-1	1/4" x 4"
N2	-	S4	6"	-	3/8"	-	-	1/4"	SS-1A, 49-1	-	-	49-1	3/8" x 3"
N3	F2	S4	6"	5"	3/16"	-	-	1/4"	SS-1A, 49-1	SS-1A, 49-1	18-2	49-1	3/8" x 1.5"
N4	F2	S4	6"	-	3/16"	-	-	3/16"	SS-1A, 49-1	SS-1A, 49-1	18-2	49-1	1/4" x 2.5"
N6	F2	S1	6"	-	3/16"	-	-	-	SS-1A	18-2	-	-	-
N12	F2	S1	6"	-	3/16"	-	-	-	SS-1A	18-2, SS-1A	-	-	-
M1-3	F1	S4	8"	-	1/4"	-	1/4"	1/4"	SS-1A, 49-1	49-1	49-1	49-1	1/4" x 4.5"
N7,8	-	S1	DWG.	-	3/8"	-	-	-	SS-1A, 49-1	-	-	-	-
N13-15	F2	S1	DWG.	-	3/16"	-	-	-	SS-1A	18-2	-	-	-
W1-6	-	S1	DWG.	-	3/8"	-	-	-	SS-1A, 49-1	-	-	-	-
N10	F2	S4	6"	-	1/4"	-	-	3/16"	SS-1A, 49-1	SS-1A, 49-1	49-1	49-1	1/4" x 2 1/8"
N9, N11	F2	S1	6"	-	1/4"	-	-	-	SS-1A, 49-1	18-2	-	-	-

'AS BUILT'



NAME PLATE BRACKET

06018
CIE: ETHANOL
Cannon, Illinois
10.04.07
17.17M4109
0180002102

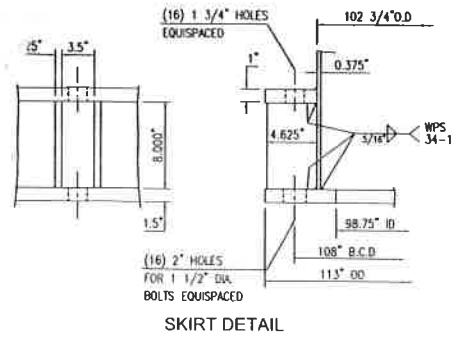
ALPS WELDING LIMITED
TORONTO - CANADA
CRN: 2089
EQIP NO: TW-4101
MAWP: INT. 25 PSI AT 250°F
MAWP: EXT. 15 PSI AT 250°F
MDMT: -20°F AT 75 PSI
YR BUILT: 2006 HTG BURF: 180 FT

NAME PLATE STAMPING

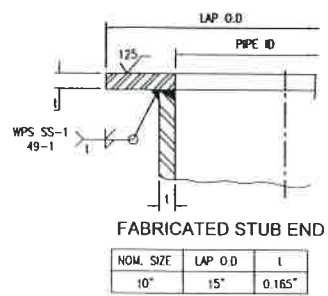
REV	DATE	DESCRIPTION	DWG BY	APPR BY
H	2007/02/28	NOZ. N5 REVISED & NAME PLATE BRK. ADDED. DRG. MARKED 'AS BUILT'	AP	RR
G	2007/01/29	NOZ. N9 & N11 SIZE CHANGED. HINGE ORIENTATION ADDED.	AP	RR
F	2007/01/11	PLATFORM ELE. REVISED. FIRE PROTECTION CLIPS ADDED.	AP	RR
E	2006/12/04	CUSTOMER COMMENTS DATED DEC. 1, 06 ADDED.	AJ	RR
D	2006/11/20	CUSTOMER COMMENTS ADDED.	AJ	RR
C	2006/11/08	CUSTOMER COMMENTS ADDED.	AJ	RR
B	2006/10/19	CUSTOMER COMMENTS ADDED.	AP	RR
A	2006/09/22	RELEASE FOR APPROVAL	AP	RR

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EQPT. NO:	TW-4101	PROJECT NAME:	CENTRAL ILLINOIS
PO. NO:	73338-01	SHOP ORDER NO:	8478
FOR:	THERMAL KINETICS SYSTEMS, LLC, BUFFALO, NY	DRAWING NO:	C08-2104
TITLE:	102" I.D BEER COLUMN - GENERAL ASSEMBLY	SHEET:	1 of 2
DATE:	APR 2006/09/22	SCALE:	NTS

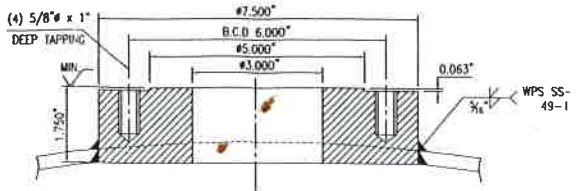


SKIRT DETAIL

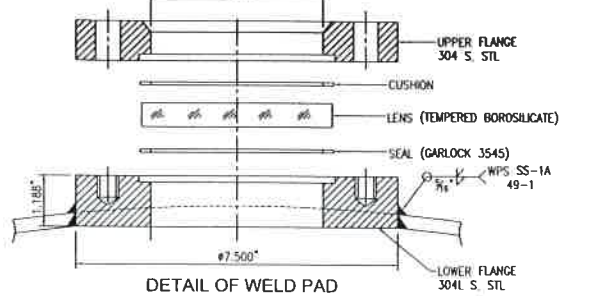


FABRICATED STUB END

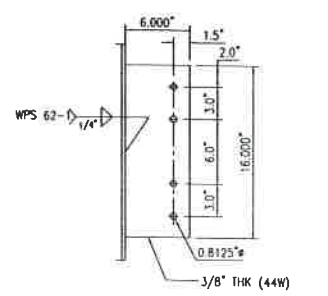
NOM. SIZE	LAP O.D.	L
10"	15"	0.165"



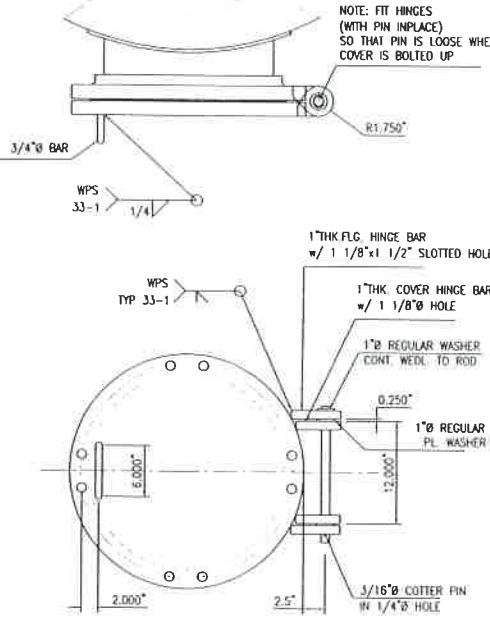
DETAIL OF WELD PAD SIZE 3" Ø"



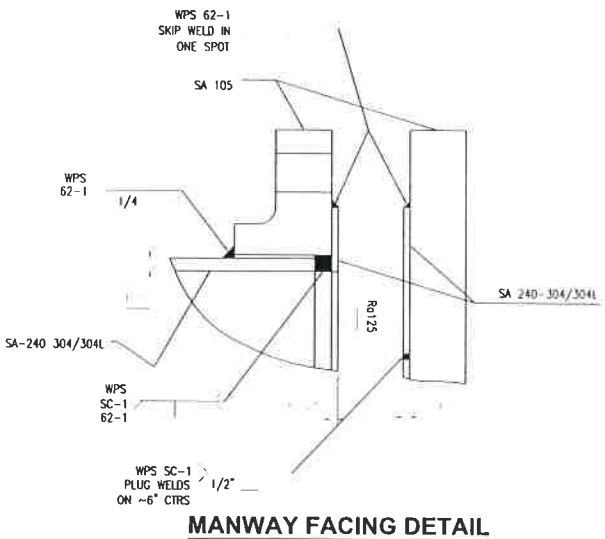
DETAIL OF WELD PAD FOR SIGHT GLASS (PAPALIAS, SIZE NW80)



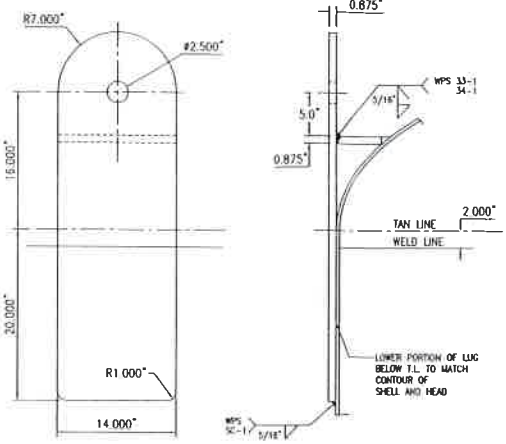
DETAIL OF PLATFORM CLIPS



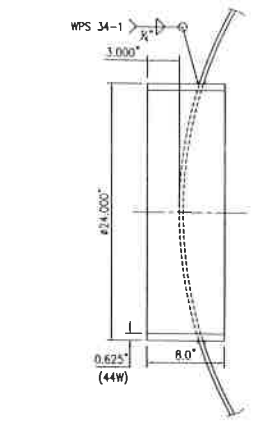
HINGED MANWAY DETAIL



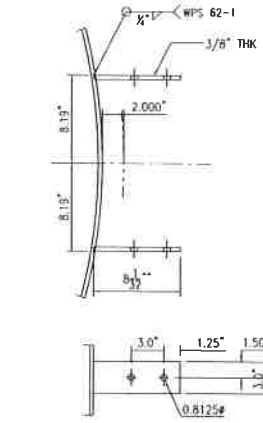
MANWAY FACING DETAIL



LIFTING LUG DETAIL



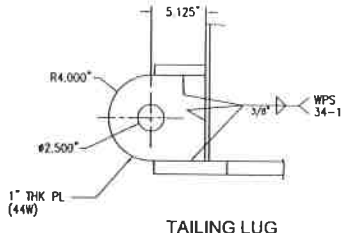
DETAIL OF SKIRT OPENINGS - A1, A2



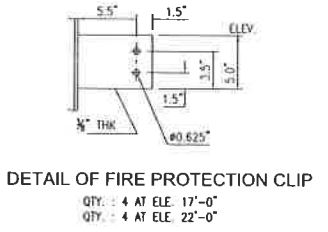
DETAIL OF LADDER CLIPS

TABLE

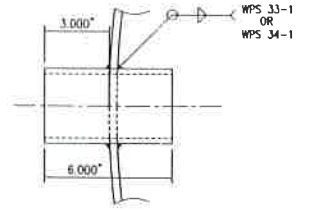
LADDER No.	ORIENTATION	ELEVATION
1	155°	-6°-10°
2	346°	3°-10°
3	225°	19°-02°
4	290°	33°-02°
	290°	47°-08°
	290°	60°-02°



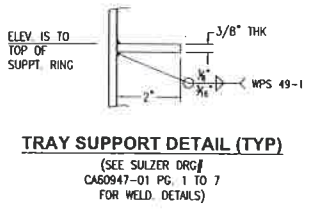
TAILING LUG



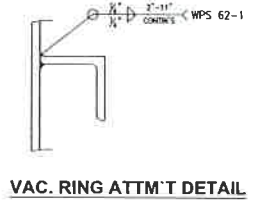
DETAIL OF FIRE PROTECTION CLIP
QTY: 4 AT ELE. 17'-0"
QTY: 4 AT ELE. 22'-0"



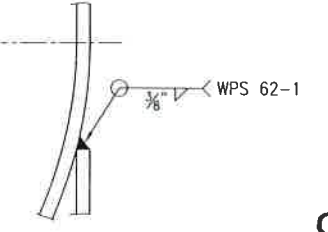
SKIRT OPENINGS A3, A4



TRAY SUPPORT DETAIL (TYP)
(SEE SULZER DRG/ CA50847-01 PG. 1 TO 7 FOR WELD DETAILS)



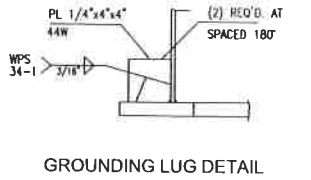
VAC. RING ATT'M'T DETAIL



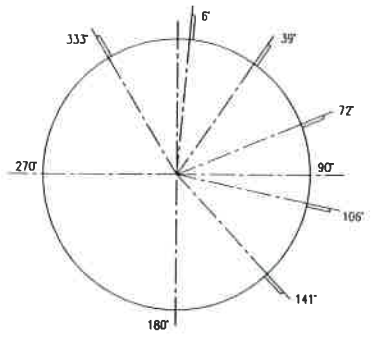
SKIRT TO HEAD ATT'M'T DETAIL

06018
CIE: ETHANOL
Canton, Illinois
10.04.07
File: 17.1TW 4101
018 0002103

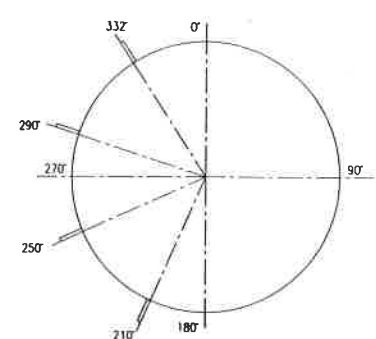
'AS BUILT'



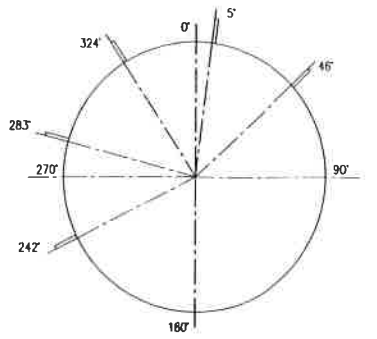
GROUNDING LUG DETAIL



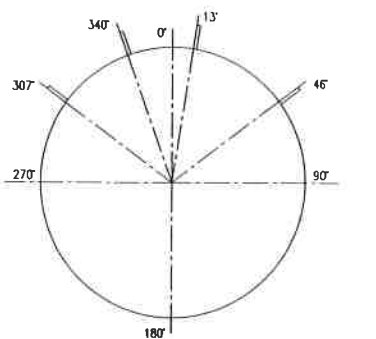
PLATFORM # 1
(6) CLIPS REQ'D



PLATFORM # 2
(4) CLIPS REQ'D



PLATFORM # 3
(5) CLIPS REQ'D



PLATFORM # 4
(4) CLIPS REQ'D

REV	DATE	DESCRIPTION	DWG BY	APPR BY
F	2007/02/28	NO CHANGE. DRG. MARKED 'AS BUILT'	AP	RR
E	2007/01/17	FIRE PROTECTION CLIPS REVISED. PLATFORM CLIPS & LADDER CLIP PLAN ADDED.	AP	RR
D	2006/11/20	REMOVED 1 5\"/>		
C	2006/11/08	CUSTOMER COMMENTS ADDED.	AJ	RR
B	2006/10/18	CUSTOMER COMMENTS ADDED.	AP	RR
A	2006/09/22	RELEASE FOR APPROVAL	AP	RR

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JOB NO. TW-4101	ALPS WELDING LIMITED TORONTO, CANADA
PO NO. 73338-01	
FOR THERMAL KINETICS SYSTEMS, LLC, BUFFALO, NY	PROJECT NAME CENTRAL ILLINOIS
TITLE 102" I.D BEER COLUMN - DETAILS	SHOP ORDER NO. 8476
DRAWN AP 2006/09/19	SCALE NTS
SHEET 2 of 2	DRAWING NO. C06-2104
	REV F

ALPS WELDING LIMITED

266 NORTH RIVERMEDE RD., CONCORD, ON., L4K 3N6 TEL: (905)669-2780 OR (416)969-8190 FAX: (416)969-8290

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2

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JB 474

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ALPS WELDING LIMITED

TORONTO, CANADA

CRN
DIN

[]
[]

SER. NO.

2039

EQUIP. NO.

3-1104



MAWP

INT: 25

PSI AT

250

°F

MAWP

EXT: 15

PSI AT

250

°F

MDMT

-20

°F AT

25

PSI

W

RT4

YR. BUILT

2007

HTG. SURF.

[]

SQ. FT.

2000.3



Thermal Kinetics Systems, LLC

Evaporation, Distillation, Chemical Reaction, Process Design & Energy Conservation

667 Tiffitt Street

(716) 826-3836

Buffalo, New York 14220

Fax (716) 826-3853

Project No.

Vessel ID.

2008-3-5

A			
CERTIFIED BY: A W L			
	SHELL	TUBES	JACKET
MA W.P.	25		
MP OF	250		
WE W.P.	15		
MIN. DESIGN SHELL METAL TEMP	-20	°F @	PSI
MIN. DESIGN TUBES METAL TEMP		°F @	PSI
MIN. DESIGN JACKET METAL TEMP		°F @	PSI
MFG. SERIAL NO.	2089	YEAR BUILT	2007
MODEL NO.	TW 4101		
Thermal Kinetics Systems, LLC BUFFALO, NEW YORK			