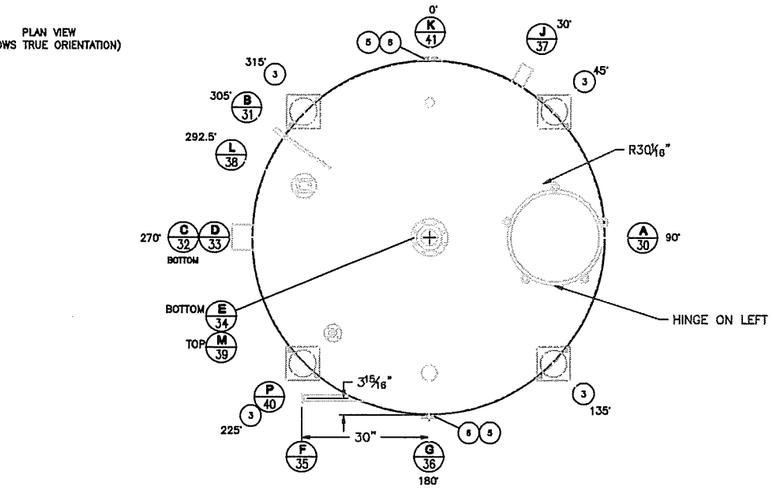
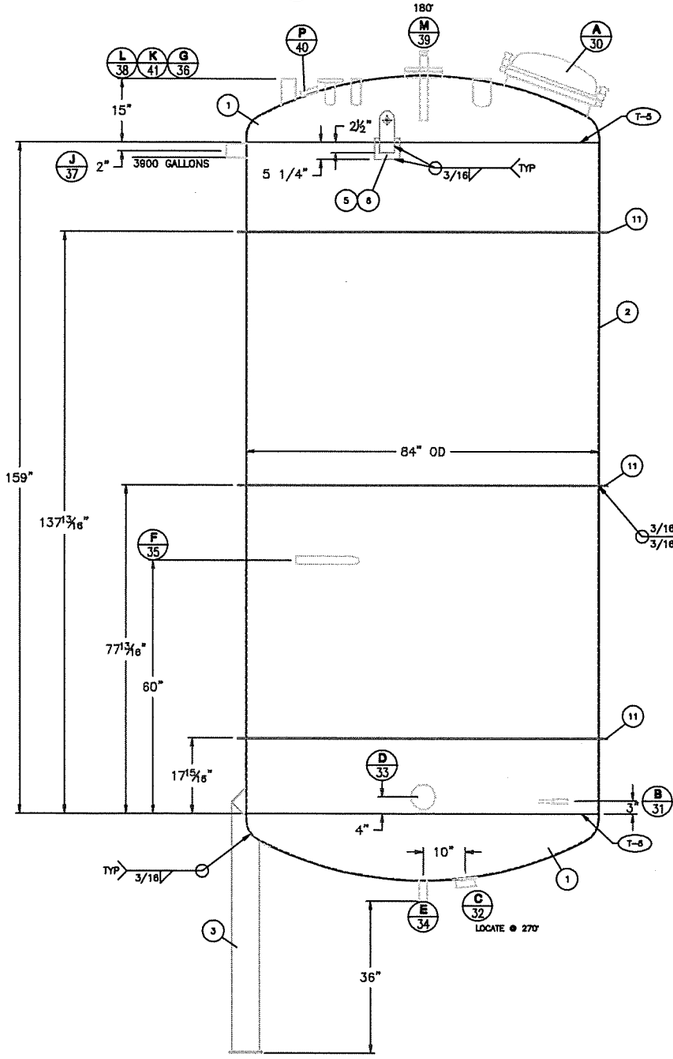
108946

PLAN VIEW
(SHOWS TRUE ORIENTATION)





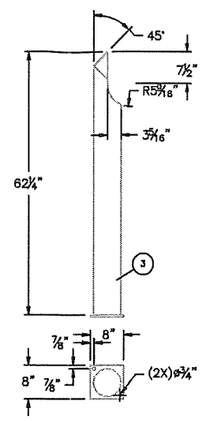
NOZZLE SCHEDULE

MARK	SIZE	CONNECTION TYPE	SERVICE	PROJECT ±1/4 IN	PROJECT ±1/4 OUT	DETAIL NO.	WELD SIZE T1	T2	T3	T4	T5	T6	T7
A	20"	BW	MANWAY	–	MIN.	N-3	3/16	3/8	–	–	–	–	–
B	3/4"	FNPT	THERMOWELL	13 1/2	3	N-4	1/8	1/8	–	–	–	–	–
C	4"	TANK SPUD	LEVEL TRANSMITTER	–	–	N-1	1/8	1/8	–	–	–	–	–
D	8"	BW 0.109	OUTLET	–	5"	N-1	1/8	1/8	–	–	–	–	–
E	2"	BW 0.065	OUTLET	–	5"	N-1	1/8	1/8	–	–	–	–	–
F	1 1/2"	TC FERRULE	RECIRCULATION	–	SEE DWG	N-1	1/8	1/8	–	–	–	–	–
G	4"	BW 0.109	CIP RETURN	–	SEE DWG	N-1	1/8	1/8	–	–	–	–	–
J	3"	BW 0.065	OVERFLOW/VENT	–	5"	N-1	1/8	1/8	–	–	–	–	–
K	2"	BW SCH 10	PROCESS WATER INLET	–	SEE DWG	N-1	1/8	1/8	–	–	–	–	–
L	2"	150# FLANGED	SPARE	–	SEE DWG	N-1 / P-7	1/8	1/8	–	–	–	–	–
M	4"	150# PAD FLG	CIP	–	–	N-1	1/8	1/8	–	–	–	–	–
P	1"	150# PAD FLG	TOP LEVEL	–	–	N-4	1/8	1/8	–	–	–	–	–

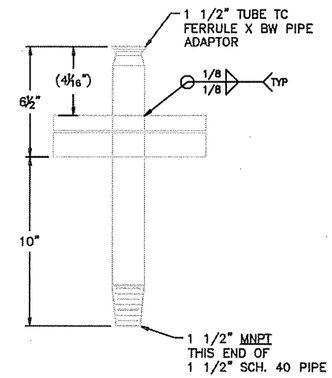
STANDARD– NOZZLE PROJECTIONS GIVEN IN SCHEDULE ARE FOR SHORT SIDE LENGTHS MEASURED FROM ID OF VESSEL.
NOZZLE PROJECTION MEASUREMENTS ARE TAKEN FROM THE INSIDE
NOZZLE LENGTHS ON DISHED HEADS OR SIDEWALLS NOT TO EXCEED 1 ½ PIPE DIAMETERS FROM LONG SIDE UNLESS NOTED OTHERWISE IN NOZZLE SCHEDULE

BILL OF MATERIAL

ID	ITEM	QTY	DESCRIPTION	MAT'L SPEC	DWG/REF	NOTES
	1	2	HEADS-3/16" THK. 84" OD ASME F&D HEAD 84" OR 5.25" KR 1.5" SF	SA-240-304L	–	
	2	1	SHELL – 3/16" THK X 84" OD 156" TAL	SA-240-304L	–	
	3	4	LEGS – 8" SCH 40s POL/OD W/ 1/2" THK X 8" SQ. FOOT PAD	SA-312-304L	–	PLASMA
	4	4	LEG REPADS – 1/4 THK X 10" X 15"	SA-240-304L	–	PLASMA
	5	2	TANK LIFTING LUGS – 1/2" THK 3 1/2" X 10"	SA-240-304L	–	PLASMA
	6	2	LIFTING LUG REPAD – 1/4" X 7 1/4" X 6"	SA-240-304L	–	
	7	1	A&B ASME ID TAG	SA-240-316L	–	
	8	1	A&B LOGO – MEDIUM	VINYL	–	
	9	1	DECAL – DANGER CONFINED SPACE (PLACE ON MANWAY)	VINYL	–	
	10	1	DECAL – CAUTION CHEMICAL HAZARD (PLACE ON MANWAY)	VINYL	–	
	11	3	SUPPORT RING – 1/4" THK X 2" WIDE (88" OD)	SA-240-304L	–	PLASMA
	12	1	ADDITIONAL ID TAG	SA-240-316L	–	
A	30	1	MANWAY– 20" ID TC3 SANITARY MANWAY W/ VITON GASKET	SA-240-304L	TC3-01	
B	31	1	THERMOWELL ROSEMOUNT MODEL # D135 W3B T010 D R07	SA-479-316L		
C	32	1	8" WELDING SPUD X 2.18" LONG ROSEMOUNT SPUD	SA-479-316L		
D	33	1	8" TUBE X 0.109	SA-249-304L	–	
E	34	1	2" TUBE X 0.065	SA-249-304L	–	
F	35	1	1 1/2" TC FERRULE	SA-479-316L	–	
		1	1 1/2" TUBE X 0.065	SA-249-304L	–	
G	36	1	4" TUBE X 0.083	SA-249-304L	–	
J	37	1	3" TUBE X .065	SA-249-304L	–	
L	38	1	FLANGE – 2" 150# RF WLD NECK FLANGE	SA-182-304L		
		1	PIPE – 2" SCH 10 WLD PIPE	SA-312-304L		
M	39	1	FLANGE – 4" 150# RF PAD FLANGE	SA-182F-304L	–	
		1	4" EPDM 150# RING GASKET AND HARDWARE	EPDM	–	
		1	FLANGE – 4" 150# RF BLIND FLANGE	SA-182F-304L	–	
		1	1 1/2" TC FERRULE ADAPTOR TO A 1 1/2" SCH. 40 PIPE	SA-479-304L	–	
		1	PIPE – 1 1/2" SCH 40 WLD PIPE – MNPT ONE END	SA-312-304L	–	
		1	SPRAY DEVICE SUPPLIED BY CUSTOMER	–	–	
P	40	1	FLANGE – 1" 150# RF PAD FLANGE	SA-182-304L	–	
K	41	1	PIPE STUB – 2" SCH 10 WLD PIPE	SA-312-304L	–	

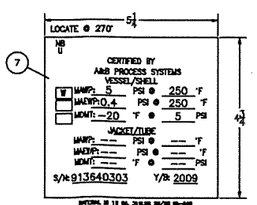


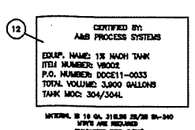
LEG DETAIL
SCALE: 1/16"=1"
(4) REQ'D



NOZZLE "M" DETAIL
(1) REQ'D

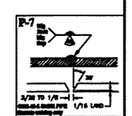
[illegible]	
	SHELL
DESIGN PRESSURE, PSIG	5/-4.4
DESIGN TEMPERATURE °F	350
HYDROTEST PRESSURE, PSIG	–
M.A.W.P. PSIG	–
M.D.M.T. °F	-20
CORROSION ALLOWANCE, IN	–
INCIDENTAL CHAMPION	NONE
JOINT EFFICIENCY E	.70
WIND PRESSURE, LBS/SQ. FT	–
SEISMIC COEFFICIENT	–
SAMPLE PULLOUT WEIGHT	–
INSULATION MEDIA	X
EMPTY (DRYPING) WEIGHT, LBS	X LBS
WEIGHT, FULL OF WATER, LBS	X LBS
DISH. NOT SHOWN ARE NOT FACTOR IN DESIGN	

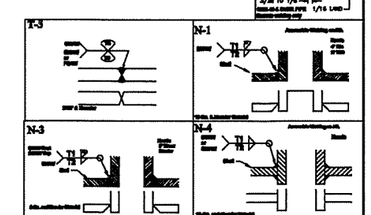




NOTES:

1.) UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES.
2.) DIMENSIONS ENCLOSED WITHIN PARENTHESES INDICATE REFERENCE.
3.) EQUIVALENT ALTERNATIVE MATERIAL MAY BE USED AFTER A.I.S APPROVAL.
4.) ALL WELDS TO BE CONTINUOUS WELDED PER MANUFACTURES STD UNLESS OTHERWISE NOTED.
5.) WELDS SHALL BE NEAT IN APPEARANCE, FREE OF SLAG, UNDERCUTS AND OTHER DEFECTS.
6.) VESSEL TO BE THOROUGHLY CLEANED AND DRIED WHERE ACCESSIBLE BEFORE SHIPPING.
7.) PROTECT ALL MACHINED SURFACES, AND ALL CONNECTIONS WITH WOOD OR PLASTIC PROTECTORS BEFORE SHIPMENT.
8.) LEFT BLANK
9.)LEFT BLANK
10.) REINFORCING PADS AND PAD SECTIONS SHALL HAVE 1/8" WEEP HOLE LOCATED AS LOW AS POSSIBLE IN THE PAD WHEN THE VESSEL IS IN OPERATING POSITION.
11.) LEFT BLANK
12.) LEFT BLANK
13.) FLANGE BOLT HOLES SHALL STRADDLE MAJOR VESSEL CENTERLINES UNLESS NOTED.
14.) IF USED IN CONTACT WITH MATERIALS CONTAINING SALT, CHLORIDES OR OTHER CORROSIVE MATERIALS, THE CORROSION RESISTANCE OF THIS EQUIPMENT IS NOT THE RESPONSIBILITY OF A&B PROCESS SYSTEMS CORP.
15.) PASSIVATION REQ'D. -NO
16.) RIBOFLAVIN TESTING REQ'D. -NO
17.) ORBITAL WELDING REQ'D. -NO
18.) PIPE WELD MAPPING REQ'D. -NO
19.) (1) TANK(S) REQUIRED AS SHOWN.
20.) QUALIFIED WELDERS
21.) MTR'S REQUIRED (USE CODE MATERIAL)
22.) HYDROTEST @ 7 PSI





OD	T-6 CLEANED ONLY	A. MECHANICALLY REMOVE HEAT TINT. B. NO STRIP TAPING. C. USE BLACK WHEEL, OR SS WIRE BRUSH.
ID	T-5 20-30 EA / 180 GRIT	A. REMOVE WELD BEAD FLUSH. B. PATCH MAJOR WELD DEFECTS. (PITS OVER 1/8" IN DIA) C. STRIP TAPE WELD AREA. D. FORMAX BUFF.

MACHINING TOLERANCES (UNLESS NOTED OTHERWISE)	FABRICATION TOLERANCES (UNLESS NOTED OTHERWISE)
.XXX= ± .005 .XX= ± .010 .X= ± .020 X OR FRACT.= ± .030	X OR FRACT. = ±1/4 HOLE DIAMETERS = ±1/8 HOLD DIM'S ±1/8" X DEGREE = ± 1 DEGREE TOLERANCES DO NOT APPLY TO LISTED REF. DIM'S

PLANT: DUPONT DANISCO CELLULOSIC ETHANOL, LLC
PROJECT: MARATHON
DDCE ORDER NO.: DDCE11-0033
EQUIPMENT NUMBER: 6001-V02 (V8002)

NO.	DATE	REVISION DESCRIPTION	DWN BY	CHK BY
B	14SEP09	AS BUILT	TJG	TMM
A	17JUL09	RELEASED FOR FAB	TJG	TMM
2	09JUL09	RESUBMITTED FOR APPROVAL	TJG	TMM
1	27JUN09	RESUBMITTED FOR APPROVAL	TMP	TJG
0	15MAY09	SUBMITTED FOR APPROVAL	TJG	TMM

MATERIAL FINISH: 64 LAYER GRIT 20-30 EA

A & B PROCESS SYSTEMS CORP.
201 S. WISCONSIN AVE.
STRATFORD, WI. 54484
(715) 687-4332
www.abprocess.com

CLIENT NAME: GENERA ENERGY, LLC — DRAWN BY: TJG
CLIENT LOCATION: VONORE, TN 37885 — JOB NUMBER: 091364

TITLE: 1% NAOH TANK, VERTICAL SINGLE SHELL TANK
V8002 (1) TANK REQ'D

SCALE 1/16"=1" — DRAWING NO. 0913640303 — SHEET 1 of 1 — REV B

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