

NOZZLES					
MARK	PROJECTION	ELEV.	ORIE.	NOTES	
	EXT.	INT.			
CTA-E	64mm	1061mm	45°	SAMPLE CONN.	
C2	64mm	1000mm	22°	LUBE CONN.	
C3	76mm	1000mm	248°	RAIDAR TRANS.	
LT	76mm	195°		LEVEL TRANS.	
N1	237mm	894mm		INLET	
N2	309mm	457mm		PUMP SUCTION	
N3	203mm	1141mm	0°	VAPOR OUT	
N4	203mm	127mm	165°	DRAIN	
N5	203mm	25mm	ROOF	VENT	
N6A	203mm	192mm	3048mm	OVERFLOW	
N6B	203mm	192mm	3048mm	OVERFLOW	
N7	237mm	25mm	7137mm	BLANKET GAS	
N8	203mm	25mm	294mm	315°	ANODE
N9	309mm	192mm	594mm		SKIM
N10	425mm	192mm	457mm		TRUCK OUT
N11	203mm	25mm	6334mm	238°	HLSD
N12	203mm	25mm	610mm	238°	LLSD
N13	203mm	25mm	305mm	300°	TIT
HE1	215mm	192mm	305mm		ELEC. HEATER 1
HE2	215mm	192mm	305mm		ELEC. HEATER 2

- DESIGN NOTES**
- TANK TO BE BUILT AND TESTED TO API-12F SPEC. MODIFIED (NON LABELED)
  - TANK TO BE AIR/SOAP LEAK TESTED TO 12 OZ. / SQ. IN.
  - ESTIMATED SHIPPING WEIGHT = 14200 LBS. (6455 KG)
  - ROOF/SHELL JOINTS NOT TO BE BACKWELDED.
  - REFER TO ORIENTATION DRAWING FOR PROPER LOCATION OF ALL NOZZLES, COUPLINGS, ETC.
  - ALL DIMENSIONS ARE IN mm.
  - ALL ELEVATIONS TAKEN FROM TOP OF TANK FLOOR
  - EXTERNAL STUDS / NUTS / GASKETS : **B7M / 2HM / NEO(STD) SOUR (MANWAY) / 316SS FLEX (FLANGES)**
  - INTERNAL STUDS / NUTS / GASKETS : **B8M/BM / 316SS FLEX (FLANGES)**
  - CAGE LADDER / SAMPLE BOX / ROOF PLATFORM TO BE SHIPPED LOOSE.
  - ALUMINUM ANODES TO BE SHIPPED LOOSE.
  - HEAT NUMBERS AND MTR'S TO RECORDED.
  - BOLT HOLES TO STRADDLE PRIMARY CENTERLINES.
  - IMMERSION HEATERS TO BE SHIPPED LOOSE.
  - KENILWORTH SYSTEM SHIPPED LOOSE AND INSTALLED BY OTHERS.

- INTERNAL & EXTERNAL FINISH**
- INTERNAL FINISH**  
BLAST: SSPC-SP5 WHITE METAL BLAST USING SIL 7 SAND  
COATING: 20.0 - 40.0 MILS DFT OF ENVIROLINE EC-376 EPOXY COATING
  - EXTERNAL FINISH**  
BLAST: SSPC-SP6 COMMERCIAL BLAST  
INSULATION: 2" MINERAL WOOL INSULATION & 0.20" SMOOTH CORRUGATED ALUMINUM CLADDING c/w 3/8" STAINLESS STEEL BANDING. **COLOR: STONE GRAY**  
PAINT: ALL PROJECTIONS WITH 1.5-2.0 MILS DFT OF CLOVERDALE MARINE ENAMEL - **COLOR STONE GRAY**
  - BOTTOM FINISH**  
BLAST: SSPC-SP6 COMMERCIAL BLAST  
COATING: 15 - 20 MILS DFT OF COAL TAR EPOXY

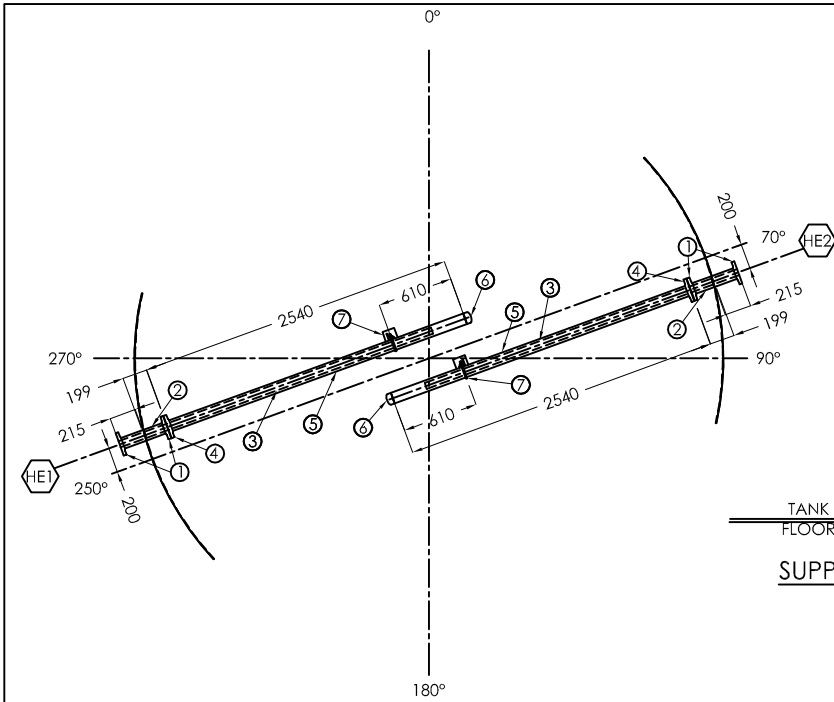
REVISIONS			
NO.	DESCRIPTION	BY	DATE
3	ISSUED FOR FABRICATION	RR	07.25.05
2	ISSUED FOR PARTS AND ORDERING ONLY	RR	07.12.05
1	ISSUED FOR APPROVAL	RR	06.10.05
0	ISSUED FOR REVIEW/MARKUP	RR	06.06.05

BILL OF MATERIALS				
MARK	QTY	MAT'L	DESCRIPTION	SERVICE
1	1	A36	6.4 PL. x 4826 Ø (FLAT BOTTOM)	
2	4	A36	4.8 PL. x 1829 x 14826 LG. (SHELLS)	
3	1	A36	6.4 PL. x 4830 Ø (ROOF 2: 12 SLOPE)	
4	1	A36	MANWAY AND BRACKET	
5	1	A36	CAGED LADDER C/W 1405 EXTENSION (SEE SHT. B-7371 CL FOR DETAILS)	
6	4	A36	LARGE LIFT LUGS	
7	1	A36	TAIL LUG c/w REPAD	
8	4	A36	HAULING PADS	
9	1	A36	ROOF PLATFORM (SEE SHT. B-7371 RP FOR DETAILS)	
10	1	A36	SAMPLE BOX - RIGHT HAND (SEE SHT. B-7371 SB FOR DETAILS)	
M1	1	A36	610x914 (24"x36") RECT. MANWAY	
		A36	742x1066 RECTANGULAR SPLIT MANWAY COVER w/ HANDLES	
AH	1	A36	1" MOUNTED FLUSH WITH COVER	
		A36	219 DIA. 18" ENARDO 1000 SERIES LOCK DOWN HATCH	
EPRV	1	A105	610 DIA. (24" x 9.5 THK. API ROOF FLANGE	EPRV
		A106	610 DIA. (24" STD. SMLS PIPE x 27.5 LG.	
LT	1	316SS	60 DIA. (24" 3000# NPT FULL COUPLING	LEVEL TRANS.
		316SS	42 DIA. (1 1/4" 3000# NPT FULL COUPLING	
<b>RETAIL MODEL GAUGE BOARD/ FLOAT SYSTEM</b>				
			c/w GAUGE BOARD BRACKET	
			(PARTS TO INSTALL BRACKETS AND ANCHORS ONLY, GAUGE	
			SYSTEM SUPPLIED AND INSTALLED BY OTHERS)	
CTA-E	5	316SS	33 DIA. (1") 3000# NPT FULL COUPLING x 89 LG.	SAMPLE POINTS
C2	1	316SS	21 DIA. (1 1/2") 3000# NPT FULL COUPLING	LUBE CONNECTION
<b>(SEE SHT. B-7371 D1 FOR PIPING DETAILS)</b>				
C3	1	316SS	48 DIA. (1 1/2") 3000# NPT FULL COUPLING x 102 LG.	RAIDAR TRANS.
N1	2	A105	148 DIA. (6") 150# RFSO FLG.	INLET
		A106	148 DIA. (6") 150# RFSO FLG.	
		316SS	27 DIA. (3/4") 3000# FULL CPLG w/ PLUG ON U/S OF NOZZLE	
		A36	6.4 THK. PL. COMMON REPAD (SEE SHT. B-7371 D2 FOR DETAILS)	
		A36	6.4 THK. PL. COMMON REPAD (SEE SHT. B-7371 D2 FOR DETAILS)	
		A36	6.4 THK. PL. COMMON REPAD (SEE SHT. B-7371 D2 FOR DETAILS)	
N2	2	A105	114 DIA. (4") 150# RFSO FLG.	PUMP SUCTION
		A106	114 DIA. (4") STD. SMLS PIPE x 509 LG.	
		316SS	27 DIA. (3/4") 3000# FULL CPLG w/ PLUG ON U/S OF NOZZLE	
		A36	6.4 THK. PL. COMMON REPAD (SEE SHT. B-7371 D2 FOR DETAILS)	
N3	2	316SS	148 DIA. (6") 150# RFSO FLG.	VAPOR OUT
		316SS	148 DIA. (6") 150# RFSO FLG.	
		316SS	27 DIA. (3/4") 3000# FULL CPLG w/ PLUG ON U/S OF NOZZLE	
		A36	6.4 THK. PL. COMMON REPAD (SEE SHT. B-7371 D2 FOR DETAILS)	
		A36	6.4 THK. PL. COMMON REPAD (SEE SHT. B-7371 D2 FOR DETAILS)	
N4	1	A105	114 DIA. (4") 150# RFSO FLG.	DRAIN
		A106	114 DIA. (4") STD. SMLS PIPE x 219 LG.	
N5	1	A105	273 DIA. (10 7/8") 150# RFSO FLG.	VENT
		A106	273 DIA. (10 7/8") STD. SMLS PIPE x 242 LG.	
		A106	273 DIA. (10 7/8") 150# RF BLIND FLG.	BLIND
N6A	2	A105	148 DIA. (6") 150# RFSO FLG.	OVERFLOW
		A106	148 DIA. (6") STD. SMLS PIPE x 360 LG.	
N6B	2	A105	148 DIA. (6") 150# RFSO FLG.	OVERFLOW
		A106	148 DIA. (6") STD. SMLS PIPE x 360 LG.	
N7	1	A105	60 DIA. (2") 150# RFSO FLG.	BLANKET GAS
		A106	60 DIA. (2") STD. SMLS PIPE x 248 LG.	
N8	1	A105	114 DIA. (4") 150# RFSO FLG.	ANODE
		A106	114 DIA. (4") STD. SMLS PIPE x 220 LG.	
		A106	89 DIA. (3 1/2") 150# RFSO FLG.	
N9	2	A105	89 DIA. (3 1/2") 150# RFSO FLG.	SKIM
		A106	89 DIA. (3") STD. SMLS PIPE x 502 LG.	
		316SS	27 DIA. (3/4") 3000# FULL CPLG w/ PLUG ON U/S OF NOZZLE	
		A36	6.4 THK. PL. COMMON REPAD (SEE SHT. B-7371 D2 FOR DETAILS)	
N10	2	A105	89 DIA. (3 1/2") 150# RFSO FLG.	TRUCK OUT
		A106	89 DIA. (3") STD. SMLS PIPE x 445 LG.	
		A36	6.4 THK. PL. COMMON REPAD (SEE SHT. B-7371 D2 FOR DETAILS)	
N11	1	A105	114 DIA. (4") 150# RFSO FLG.	HLSD
		A106	114 DIA. (4") STD. SMLS PIPE x 219 LG.	
N12	1	A105	114 DIA. (4") 150# RFSO FLG.	LLSD
		A106	114 DIA. (4") STD. SMLS PIPE x 219 LG.	
N13	1	A105	60 DIA. (2") 150# RFSO FLG.	TIT
		A106	60 DIA. (2") STD. SMLS PIPE x 218 LG.	
HE1	2	316SS	89 DIA. (3 1/2") 150# RFSO FLG.	ELECTRIC HEATER 1
		316SS	89 DIA. (3 1/2") 150# RFSO FLG.	
HE2	2	316SS	89 DIA. (3 1/2") 150# RFSO FLG.	ELECTRIC HEATER 2
		316SS	89 DIA. (3 1/2") 150# RFSO FLG.	
		A36	6.4 THK. PL. COMMON REPAD (SEE SHT. B-7371 D2 FOR PIPING DETAILS)	
<b>CUSTOMER: FORT ENERGY CORPORATION c/o BDR ENGINEERING LTD.</b>				
<b>R.P.O.# 43874-28 REV. 0</b>				
<b>LOCATION: LSD 11-17-63-06-W5M (CLEAR WATER GAS PLANT)</b>				
<b>TITLE: ONE(1) 120 CU. M. (750 BBL) 4724 DIA. x 7315 HIGH SINGLE WALL STORAGE TANK</b>				
<b>APPROVED BY:</b>		<b>CHECKED BY:</b>	<b>DRAWN BY:</b>	RR
<b>DATE:</b> 05/27/05		<b>TAG #:</b> T-701	<b>DRAWING #:</b> B-7371	<b>REV.</b>
<b>SHEET:</b> 1 OF 6		<b>SCALE:</b> NTS	<b>SERIAL #:</b> 7371	<b>3</b>

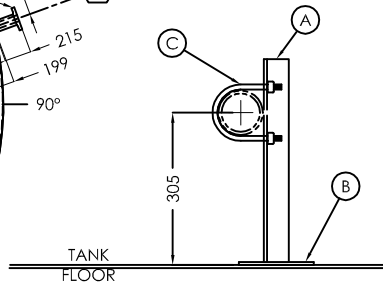


FORT ENERGY C/O BDR ENGINEERING  
CUSTOMER  
750BBL SINGLE WALL STORAGE TANK  
TITLE: IQ05-234E.R1

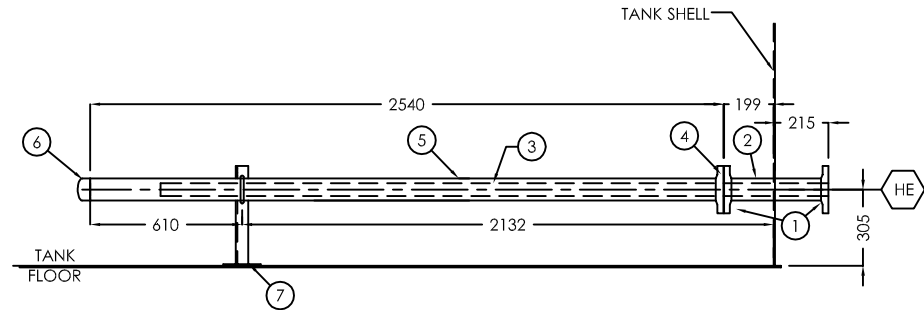




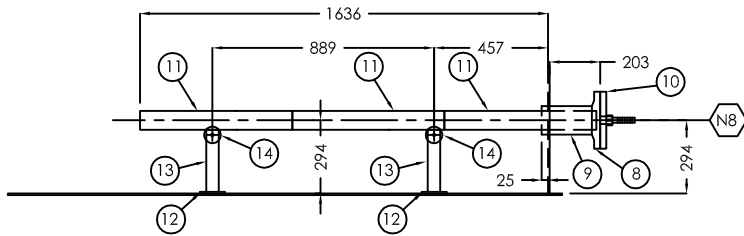
IMMERSION HEATER WELL ORIENTATION



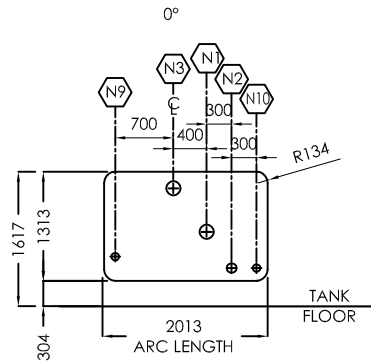
SUPPORT BRACKET DETAIL



IMMERSION HEATER WELL ELEVATION



N8 - ANODE



COMMON REPAD  
ROLL TO TANK O.D. - INCLUDE WEEP HOLES

BILL OF MATERIALS				
MARK	QTY	MAT'L	DESCRIPTION	SERVICE
<b>HE - IMMERSION HEATER WELL</b>				
1	4	316SS	89 DIA. (3") 150# RF50 FLANGE	
2	2	316SS	89 DIA. (3") STD. SM1S x 355 LG.	
3	2		2667 T.G. 1105# PIPE-INSERT (SEE DESIGN NOTE #2 & 3)	
4	2	316SS	89 DIA. (3") 150# RF50 FLANGE	
5	2	316SS	89 DIA. (3") STD. SM1S x 2525 LG.	
6	2	316SS	89 DIA. (3") STD. SCH. 40 WELD CAP	
7	2		SUPPORT BRACKET (SEE DETAIL THIS SHT.)	
<b>HEATER WELL SUPPORT BRACKET</b>				
A	2	316SS	6.4 x 51 x 51 ANGLE x SHOP TO DETERMINE LENGTH	
B	2	316SS	6.4 x 100 x 100 BASEPLATE	
C	2	316SS	89 DIA. (3") II-BOLT c/w NUTS	
<b>N8 - ANODE</b>				
8	1	A105	114 DIA. (4") 150# RF50 FLANGE	
9	1	A106	114 DIA. (4") STD. SM1S x 220 LG.	
10	1	A105	114 DIA. (4") 150# BLIND FLANGE	
11	3		76 x 610 ALUM. ANODE MOUNTED ON 114 DIA. (4") BLIND FLG. c/w 114 DIA. FLG. INSULATION KIT	
12	2	A36	6.4 PL x 100 x 178 BASE PLATE	BASE PL SIDE
13	4	316SS	6.4 PL x 50 x 245 LG.	
14	2		76 DIA. (3") WOODEN ANODE WHEEL	

NOZZLES				
MARK	PROJECTIONS	ELEV.	ORIE.	NOTES
	EXT.	INT.		
HE1	215mm	152mm	305mm	250° ELEC. HEATER 1
HE2	215mm	152mm	305mm	70° ELEC. HEATER 2
N8	203mm	75mm	294mm	315° ANODE

DESIGN NOTES

- ALL DIMENSIONS ARE IN mm.
- PIPE INSERT IMMERSION HEATER 1:  
-MODEL # MX1305F3105X 480V 3 Φ 5KW  
-3" 150 # FLANGE  
-105" INSERT LENGTH  
-EXPLOSION PROOF TERMINAL BOX  
-3" HEATER WELL (316SS SCH. 40) c/w FLOOR SUPPORTS
- PIPE INSERT IMMERSION HEATER 2:  
-MODEL # MX1305F3105TX 480V 3 Φ 5KW  
-3" 150 # FLANGE  
-105" INSERT LENGTH  
-EXPLOSION PROOF TERMINAL BOX  
-300°F TO 700°F PILOT DUTY CYCLING HIGH LIMIT  
-3" HEATER WELL (316SS SCH. 40) c/w FLOOR SUPPORTS

INTERNAL & EXTERNAL FINISH			
3		RR	07.25.05
2		RR	07.12.05
1		RR	06.10.05
0		RR	06.06.05

NO.	DESCRIPTION	BY	DATE
3	ISSUED FOR FABRICATION	RR	07.25.05
2	ISSUED FOR PARTS AND ORDERING ONLY	RR	07.12.05
1	ISSUED FOR APPROVAL	RR	06.10.05
0	ISSUED FOR REVIEW / APPROVAL	RR	06.06.05

**CUSTOMER:** FORT ENERGY CORPORATION c/o BDR ENGINEERING LTD.  
R.P.O# 43874-28 REV. 0  
LOCATION: LSD 11-17-63-06-W5M (CLEARWATER GAS PLANT)

**TITLE:** ELECTRIC HEATERS, ANODE AND COMMON REPAD DETAIL

<b>APPROVED BY:</b>	<b>CHECKED BY:</b>	<b>DRAWN BY:</b> RR
<b>DATE:</b> 05/31/05	<b>TAG #:</b> F-701	<b>DRAWING#:</b> B-7371_D2
<b>SHEET:</b> 3 OF 6	<b>SCALE:</b> NTS	<b>SERIAL#:</b> 7371

**REV.** 3

FORT ENERGY c/o BDR ENGINEERING

CUSTOMER

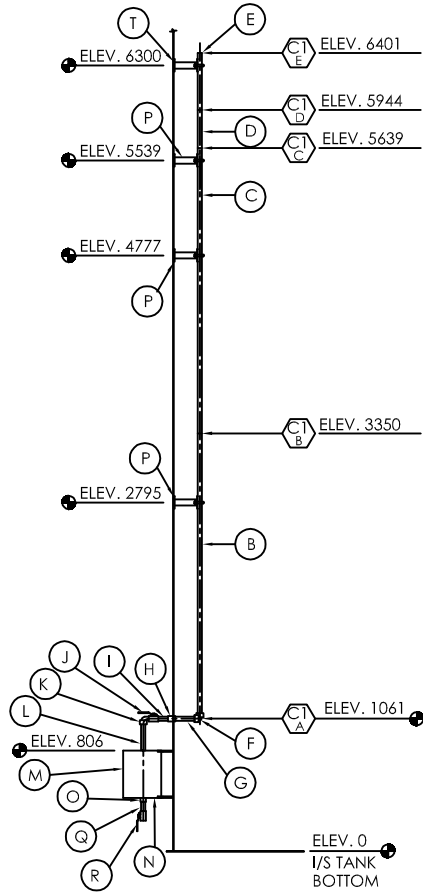
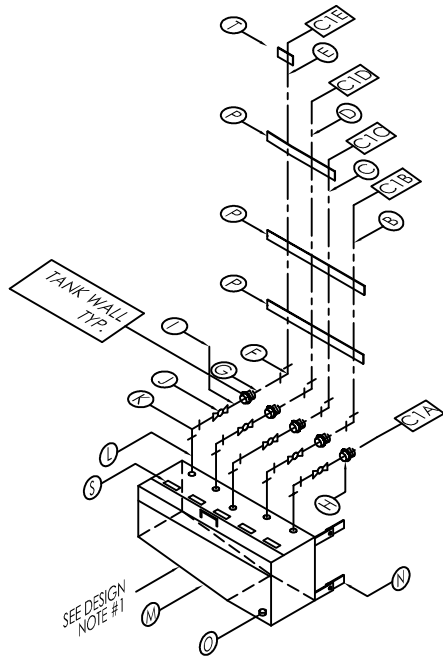
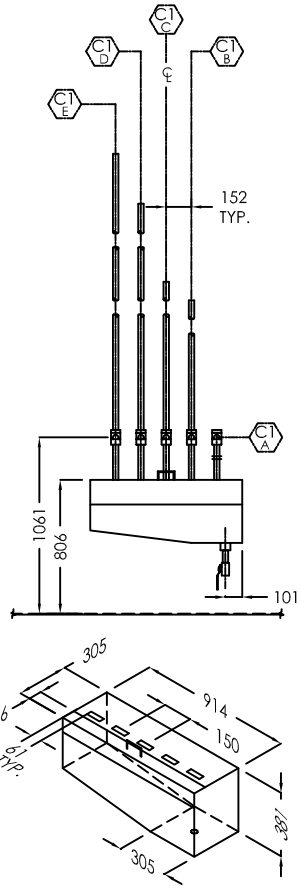
NOZZLE DETAILS

TITLE

QUOTE # : TQ05-234E\_R1







BILL OF MATERIALS

MARK	QTY	MATL	DESCRIPTION	SERVICE
A			NOT REQUIRED	
B	1	316SS	33 DIA. (1") THRD PIPE x 2258 LONG	
C	1	316SS	33 DIA. (1") THRD PIPE x 4547 LONG	
D	1	316SS	33 DIA. (1") THRD PIPE x 4852 LONG	
E	1	316SS	33 DIA. (1") THRD PIPE x 5309 LONG	
F	4	316SS	33 DIA. (1") 150# 90° THRD ELBOW	
G	4	316SS	33 DIA. (1") THRD PIPE x 185 LONG	
H	5	316SS	33 DIA. (1") 3000# FULL CPLG. x 89 LG.	
I	6	316SS	33 DIA. (1") SCH. 80S THRD NIPPLE x 76 LONG	
J	6		33 DIA. (1") NAVCO-NUTRON ECONOMY BAR STOCK	
K	5	A105	2000# THRD BALL VALVE, NACE SPEC. c/w 316SS TRIM	
L	5	A106	33 DIA. (1") 3000# 90° STREET ELBOW	
M	1	A36	SAMPLE BOX (RIGHT HAND) - SEE DETAILS THIS SHEET	
N	3	A36	SAMPLE BOX CLIP c/w BOLT	
O	1	A105	60 DIA. 12" COUPLING	
P	6	A36	6.4 THK. x 100 x 100 LONG FLAT BAR	TAB BASEPLATE
Q	6	316SS	6.4 THK. x 50 FLAT BAR (LENGTH TO BE SHOP DETERMINED)	TABS
R	3	316SS	6.4 THK. x 50 FLAT BAR (LENGTH TO BE SHOP DETERMINED)	PIPE SUPPORTS
S	11	304SS	U-BOLTS c/w NUTS	
T	1	A106	60 DIA. 12" THRD NIPPLE x 76 LONG	
U	1		60 DIA. 12" NAVCO-NUTRON ECONOMY BAR STOCK	
V	1		2000# THRD BALL VALVE NACE SPEC. c/w 316SS TRIM	
W	5	316SS	4.8 THK. x 25 x 76 LG. ELEVATION TAGS (MAX. ELEVATION OF INTERNAL PIPING TO BE STAMPED ON TAGS)	
X	1	A36	6.4 THK. x 100 x 100 LONG FLAT BAR	
Y	1	316SS	6.4 THK. x 50 x 50 ANGLE (LENGTH TO BE SHOP DETERMINED)	
Z	1	304SS	U-BOLT c/w NUT	

MARK	PROJ.	ELEV.	NOTES
C1A	N/A	1061mm	
C1B	N/A	1061mm	
C1C	N/A	1061mm	
C1D	N/A	1061mm	
C1E	N/A	1061mm	

**DESIGN NOTES**

- ALL DIMENSIONS ARE IN mm.
- ALL ELEVATIONS TAKEN FROM TOP OF TANK FLOOR.
- SAMPLE BOX TO BE REMOVABLE.

**INTERNAL & EXTERNAL FINISH**

SAMPLE BOX FINISH:  
 BLAST: SSPC-SP6 COMMERCIAL BLAST USING SIL 7 SAND  
 PRIME: 1.5 - 2.0 mils DFT CLOVERDALE TOWER OR RUSTEX #71029  
 PAINT: 1.5 - 2.0 mils DFT CLOVERDALE MARINE ENAMEL. COLOR-STONE GRAY

**REVISIONS**

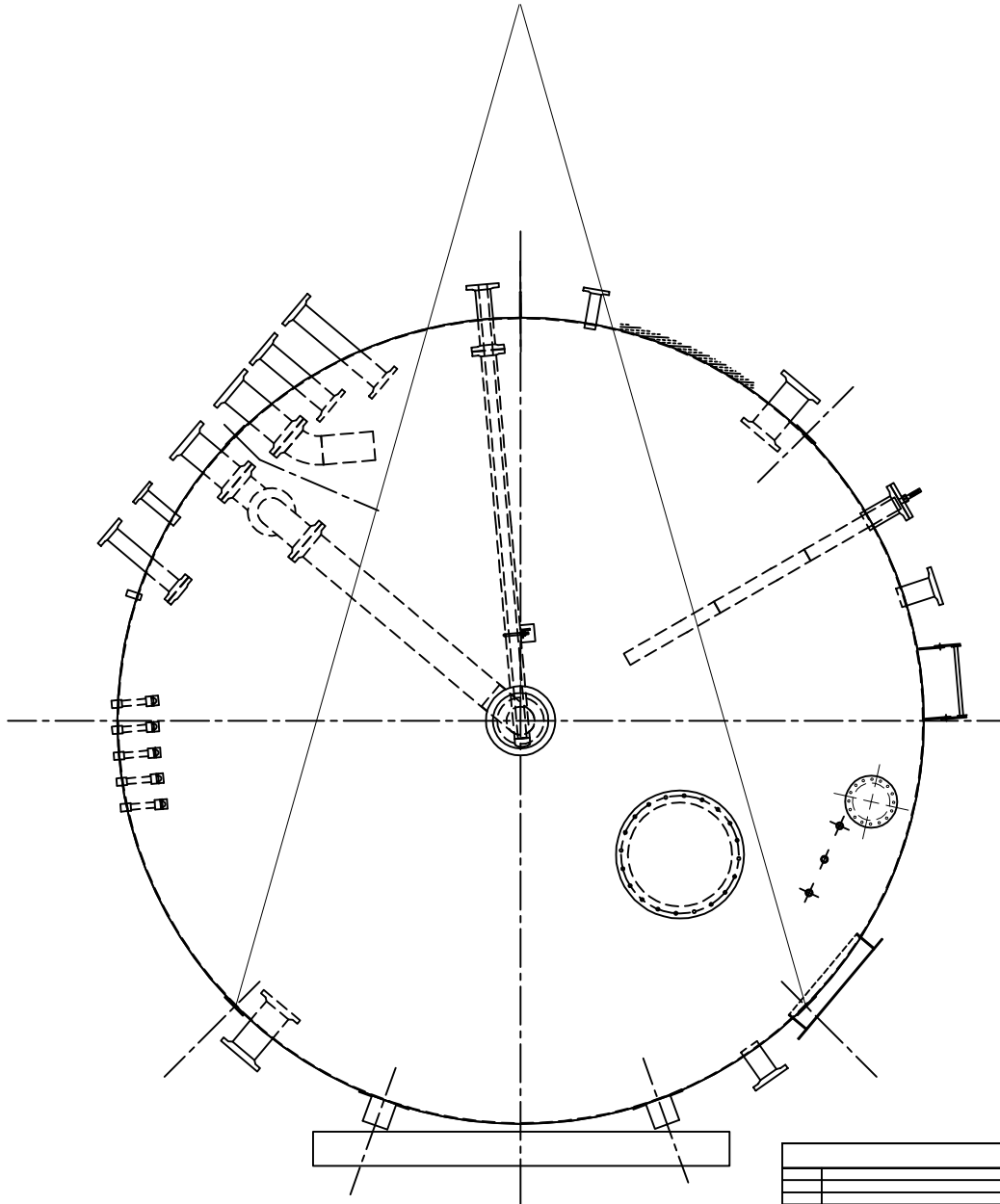
NO.	DESCRIPTION	BY	DATE
2	ISSUED FOR FABRICATION	RR	07.25.05
1	ISSUED FOR PARTS AND ORDERING ONLY	RR	07.12.05
0	ISSUED FOR REVIEW/MARKUP	RR	06.06.05

**CUSTOMER:** FORT ENERGY CORPORATION c/o BDR ENGINEERING LTD.  
 R.P.O.# 43874-28 REV. 0  
 LOCATION: LSD 11-17-63-06-W5M (CLEAR WATER GAS PLANT)



**TITLE:** - SAMPLE BOX AND PIPING DETAILS - (RIGHT HAND)

	<b>APPROVED BY:</b>	<b>CHECKED BY:</b>	<b>DRAWN BY:</b> RR
	<b>DATE:</b> 05/27/05	<b>TAG #:</b> T-701	<b>DRAWING #:</b> B-7371_SB
<b>SHEET:</b> 6 OF 6	<b>SCALE:</b> NTS	<b>SERIAL #:</b> 7371	<b>REV.</b>

FORT ENERGY c/o BDR ENGINEERING  
 CUSTOMER:  
 - SAMPLE BOX AND PIPING DETAILS (RIGHT HAND) -  
 TITLE:  
 QUOTE #: TQ05-234E-R1



REVISIONS			
NO.	DESCRIPTION	BY	DATE

TITLE: LIFT LUG LAYOUT				
	APPROVED BY:	CHECKED BY:	DRAWN BY:	RR
	DATE:	05/27/05	TAG #:	-
	SHEET:	OF	SCALE:	NTS
	DRAWING #:	8-7370	SERIAL #:	7370
				

CUSTOMER: FORT ENERGY c/o BDR ENGINEERING

TITLE: LIFT LUG LAYOUT

QUOTE #:

TQ05-234E\_R1