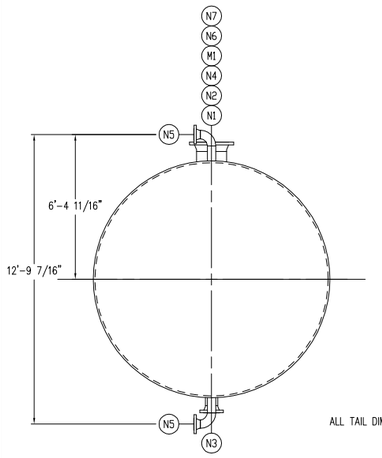
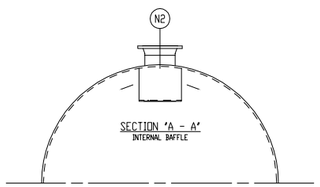
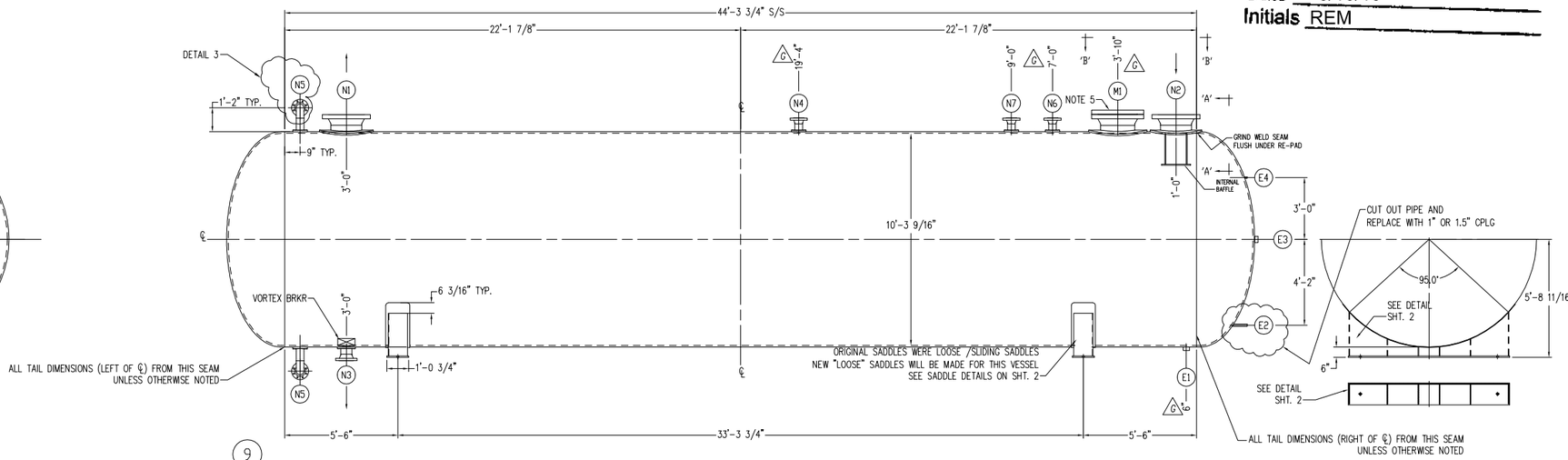
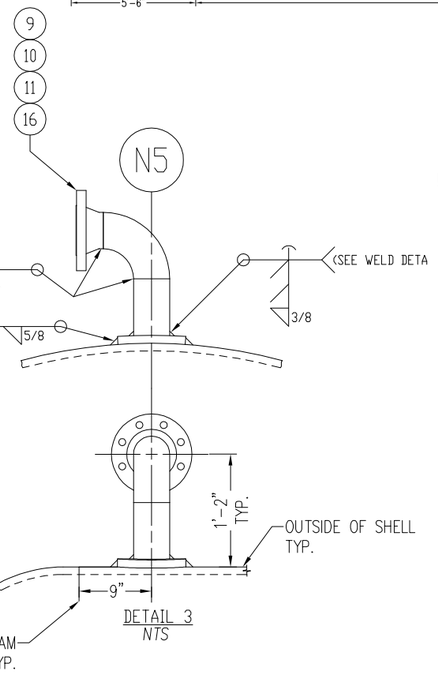
Total Energy Fabrication Corp
ISSUED FOR APPROVAL
Date 6/16/10
Initials REM



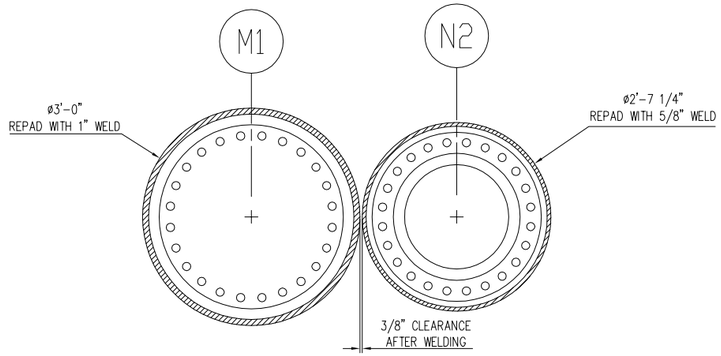




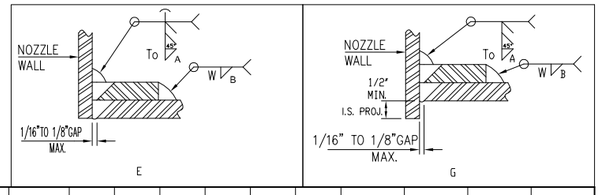
DETAIL 2
NTS



DETAIL 3
NTS



SECTION 'B - B'



GENERAL NOTES:

1. DELETED
2. DELETED
3. SHIP LOOSE ITEMS TO BE PALETTIZED AND SHRINK WRAPPED WITH ITEM TAG #'S
4. AVOID DIRECT CONTACT WITH ANY TYPE OF LIQUID/CHEMICAL TO GASKET SURFACES.
5. EXISTING MANWAY BLIND TO BE REPLACED WITH NEW

FABRICATION NOTES:

1. ALL FLANGE BOLT HOLES TO STRADDLE TRUE VESSEL CENTER LINES
2. CLEAN VESSEL THOROUGHLY AND PROTECT ALL OPENINGS FOR SHIPMENT
3. LENGTHS SHOWN IN B.O.M. FOR REFERENCE ONLY. DRAWING DIMENSIONS TAKE PRECEDENCE
4. MINIMUM FILLET WELD SIZES SHALL BE 1/4" UON
5. *ELEVATION DETAILS ARE FOR ELEVATION CLARITY ONLY. SEE ORIENTATION VIEW FOR TRUE ORIENTATION.
6. LENGTHS SHOWN IN B.O.M. FOR REFERENCE ONLY. DRAWING DIMENSIONS TAKE PRECEDENCE

SCHEDULE OF OPENINGS / BILL OF MATERIAL

MARK	QTY	SIZE	RATE	TYPE	SCH.	SERVICE	OS PROJ.	IS PROJ.	ATT TYPE	THK. / WIDTH REPAD	A - B - C SIZE			WELD	FLG	NECK	PAD	COVER	BOLTS	GASKET	OTHER
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
M1	1	20	-	WN	-	EXISTING MANWAY	-	-	-	1.00	7.00	.875	1.00	-	-	-	-	17	-	-	-
N7	1	4	300	WN	STD	NEW SERVICE	8	-	E	1.00	2	.375	.625	-	9	10	11	-	-	-	-
N6	1	4	300	WN	STD	NEW SERVICE	8	-	E	1.00	2	.375	.625	-	9	10	11	-	-	-	-
N5	2	4	300	WN	STD	LEVEL BRIDLE	14	-	E	1.00	2	.375	.625	-	9	10	11	-	-	-	16
N4	1	4	300	WN	STD	RELIEF VENT	8	-	E	1.00	2	.375	.625	-	9	10	11	-	-	-	15
N3	1	6	300	WN	STD	NEW SERVICE DRAIN	8	-	E	1.00	2	.375	.625	-	6	7	8	-	-	-	-
N2	1	18	300	WN	STD	NEW SERVICE INLET	10	.500	G	1.00	6.00	.375	.625	.500	3	4	5	-	-	-	-
N1	1	18	300	WN	STD	NEW SERVICE OUTLET	10	.500	G	1.00	6.75	.375	.625	.375	3	4	5	-	-	-	-
E4	1	.375	NPT	CPLG	-	EXISTING SERVICE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E3	1	2.5	NPT	CPLG	-	EXISTING SERVICE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E2	1	.75	NPT	PIPE	-	EXISTING SERVICE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E1	1	2	NPT	CPLG	-	EXISTING SERVICE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ORIGINAL BILL OF MATERIALS (MAJOR COMPONENTS) PER ORIGINAL DATA REPORT

MK	QTY	MATERIAL	SERVICE	DESCRIPTION
1	1	SA-212 GR B	SHELL	15/16" THK x 533 1/2" WD x 391 1/8" LG (ROLL 123 9/16" ID)
2	2	SA-212 GR B	HEAD	ELLIP x 123 9/16" ID x 15/16" MIN.
BILL OF MATERIALS FOR ALTERATIONS				
3	2	SA-105	FLANGE	18" CL 300# RFWN X SCH STD. BORE
4	2	SA-106-B	PIPE NECK	18" X SCH STD X 7" LONG BOE
5	2	SA-516-70	RE-PAD	₹ 1" THK. X 31.5" OD X 18" ID ROLLED TO A 62.718" RADIUS
6	1	SA-105	FLANGE	6" CL 300# RFWN X SCH STD. BORE
7	1	SA-106-B	PIPE NECK	6" X SCH STD X 6" LONG BOE
8	1	SA-516-70	RE-PAD	₹ 1" THK. X 10.625" OD X 6.625" ID ROLLED TO A 62.718" RADIUS
9	4	SA-105	FLANGE	4" CL 300# RFWN X SCH STD. BORE
10	4	SA-106-B	PIPE NECK	4" X SCH STD X 6" LONG BOE
11	4	SA-516-70	RE-PAD	₹ 1" THK. X 8.5" OD X 4.5" ID ROLLED TO A 62.718" RADIUS
12/13/14	DELETED			
15	4	SA-36	GUSSET	₹ .375" X 2" X 6 1/8"" LONG (DETAIL 2)
16	2	SA-234-WPB	ELBOW	4" X SCH STD LR 90° ELL.
17	1	SA-105	BLIND	20" CL 300# RF BLIND

VESSEL INFORMATION:
(FROM ORIGINAL DATA REPORT / PLATE / STAMPING)

MANUFACTURER ACF INDUSTRIES, INC.
YEAR BUILT 1956
CONSTRUCTION CODE ASME
ADDENDA 1952
SERIAL No.: 14-875-6
VESSEL TAG No.: -
NATIONAL BOARD No.: 4537
RADIOGRAPH % / JOINT EFFICIENCY:
(GIRTH SEAMS) 100% 95
(LONG SEAMS) 100% 95
HEAT TREATMENT:
(GIRTH SEAMS) YES
(LONG SEAMS) YES
THICKNESSES:
(HEADS) 15/16" ELLIP. OR HEMI.
(SHELL) 15/16"
CORROSION ALLOWANCE: -
PRESSURES / TEMPERATURES
MAWP 250 PSI @ 650 °F
MDMT - °F @ - PSI
VACCUM PRESSURE - PSI
HYDRO TEST PRESSURE 400 PSI
CONSTRUCTION SAFETY FACTOR - RATIO
MATERIALS:
SHELLS: SA-212 GR B
HEADS: SA-212 GR B
RE-PADS: -
FLANGES: -
PIPE NOZZLES: -
CAPACITY / WEIGHT & SERVICE
U.S. GALLONS/WEIGHT 30K 70,000
ORIGINAL SERVICE PROPANE STORAGE
NOTES / REMARKS

1. DESIGN / ALTERATION NOTES: * SIGNIFIES ITEM/S RE-RATED

DESIGN, FABRICATION, AND INSPECTION TO BE IN ACCORDANCE WITH THE ASME SECTION VIII, DIV.1 & NBIC 2007 CODE WITH LATEST ADD. "R" STAMP REQUIRED

2. DESIGN DATA: (PER ORIGINAL MANUFACTURERS DATA REPORT)

DESIGN PRESSURE (INT.) - PSIG @ - °F
DESIGN PRESSURE (EXT.) - PSIG @ - °F
M.A.W.P. 250 PSIG LIMITED BY: -
M.D.M.T - °F @ - PSIG
CHARPY IMPACT REQUIRMENTS: -
-
DESIGN LIQUID LEVEL: -
CORROSION ALLOWANCE: HEADS 0 SHELL 0 NOZZLES 0
RADIOGRAPHY: RT-1 FOR A JOINT EFF. OF: 100
SHELL CAT. A: (LONG SEAMS) FULL
SHELL CAT. B: (CIRC. SEAMS) FULL
HEAD TO SHELL SEAMS: FULL
HEAD CAT. A: FULL
SHOP HYDRO TEST @ 400 PSIG NEW AND COLD (HORIZONTAL POS.)
P.W.H.T. REQUIRED
WIND SPEED - EXPOSURE - IMP. -
SEISMIC -

3. ESTIMATED WEIGHTS & CAPACITY:

FAB. WEIGHT EMPTY 70,000 LBS FULL H20 - LBS
ESTIMATED SHIPPING WEIGHT 35 TONS
CAPACITY 30K US GALLONS

4. MATERIALS OF CONSTRUCTION: (NEW MATERIALS)

SHELLS: -
HEADS: -
RE-PADS: SA-516-70
FLANGES: SA-105
PIPE NOZZLES: SA-106-B
WELD FITTINGS: SA-234-WPB
STUDS: SA-193-B7
NUTS: SA-194-2H

5. PREPARATION & PAINT: N/A (INTERNAL)

SURFACE PREP | PRIME COAT | INTERMEDIATE COAT | TOP COAT (ALUMINUM)

PREPARATION & PAINT: (EXTERNAL) TEF STD.

SURFACE PREP | PRIME COAT | INTERMEDIATE COAT | TOP COAT (ALUMINUM)

6. WELDING PROCEDURES:

HEAD / SHELL: -
SHELL / SHELL: -
FLANGE TO PIPE: SMAW/FCAW/GMAW S-1-1-HT,M-1-1-HT,TF-1-1-HT
NOZZLE NECK TO VESSEL: SMAW/FCAW/GMAW S-1-1-HT,M-1-1-HT,TF-1-1-HT
COUPLINGS: -
SUPPORTS: SMAW/FCAW/GMAW S-1-1-HT,M-1-1-HT,TF-1-1-HT
MISC: GMAW M-1-1-HT

REVISIONS	DATE	BY	REFERENCES
G REVISED PER ADDITIONAL COMMENTS	6/16/10	REM	
F REVISED AND ISSUED FOR FABRICATION APPROVAL	6/11/10	REM	Q10-154 SHT 2
E REVISED N4 TO 4" NPS	6/10/10	REM	-
D REVISED PER ADDITIONAL COMMENTS AND RESUBMITTED	5/27/10	REM	-
C REVISED PER ADDITIONAL COMMENTS AND RESUBMITTED	5/27/10	REM	-
B REVISED PER CUSTOMER COMMENTS AND RESUBMITTED	5/18/10	REM	-
A ISSUED FOR BID	4/20/10	REM	-

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PROJECT: / LOCATION	JOB NO.:	ITEM NO.:
-	-	-

TOTAL ENERGY FABRICATION, CORP.
BLACKWELL, OK

DESCRIPTION: 10'-3 9/16" ID X 44'-3 3/4" S/S HORIZ. VESSEL
ELEVATION & GENERAL ARRANGMENT

CUSTOMER: ONEOK
P.O. NO.: -
DRAWN BY: REM
SCALE: NONE
DATE: 4/20/10
CHECKED BY: SRL
APPROVED BY: GAH
DRAWING NO.: Q10-154 SHT. 1 OF 2
REV.: G