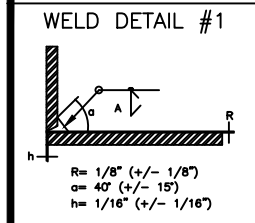
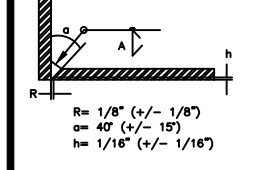


**NOZZLE SCHEDULE & WELD DETAILS**



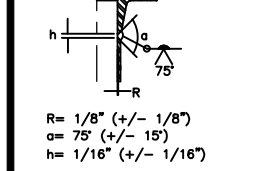
Weld Procedure  
WP#1

**WELD DETAIL #2**



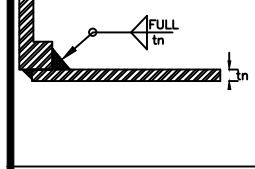
Weld Procedure  
TTI-10

**WELD DETAIL #3**



Weld Procedure  
WP#3

**WELD DETAIL #4**

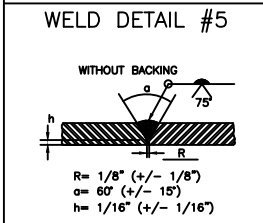


Weld Procedure  
TTI-1

**NOZZLE AND COUPLING SCHEDULE**

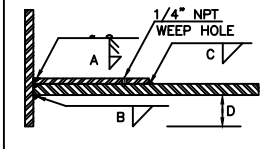
Mark No.	Qty.	Size	ANSI Rating And Facing	Service	O.D. of Nozzle Neck	Projection		Welding Detail Number	Fillet Weld Size				Bill of Mat'l Item No.	Remarks	Elevation	Orientation Angle
						Inside	Outside		A	B	C	D				
N1	1	ø8"[219mm]	SA 105 150# R.F.	INLET CONNECTION	8 5/8"[219]	1"	18.25"	3,7	3/8"				1,25	WELD NECK	5'-7"[1702mm]	END
N2	1	ø8"[219mm]	SA 105 150# R.F.	OUTLET CONNECTION	8 5/8"[219]	1"	18.25"	3,7	3/8"				2,25	WELD NECK	5'-7"[1702mm]	END
N3	1	ø2"[60.3mm]	SA 105 150# R.F.	FLOAT BRIDLE CONNECTION	2 3/8"[60.3]	1/2"	2 1/2"	3,7	3/8"				3,27	WELD NECK	SEE DRAWING	TOP
N4	1	ø2"[60.3mm]	SA 105 150# R.F.	FLOAT BRIDLE CONNECTION	2 3/8"[60.3]	0"	2 1/2"	3,7	3/8"				4,27	WELD NECK	SEE DRAWING	BOTTOM
N5	1	ø2"[60.3mm]	SA 105 150# R.F.	DRAIN OUTLET CONNECTION	2 3/8"[60.3]	0"	6"	3,7	3/8"				5,14	WELD NECK	10"[254mm]	BOTTOM
N6	1	ø4"[114mm]	SA 105 150# R.F.	SPARE CONNECTION	4 1/2"[114]	1/2"	6"	3,7	3/8"				6,29	WELD NECK	SEE DRAWING	TOP
N7	1	ø2"[60.3mm]	SA 105 150# R.F.	VENT CONNECTION	2 3/8"[60.3]	1/2"	6"	3,7	3/8"				7,31	WELD NECK	SEE DRAWING	TOP
N8	1	ø4"[114mm]	SA 105 150# R.F.	PUMPOUT CONNECTION	4 1/2"[114]	0"	9"	3,7	3/8"				8,11	WELD NECK	7"[178mm]	BOTTOM
C1A/B	2	ø1/2"[13mm]	3000# NPT	SIGHT GLASS CONN.	1 1/8"[28mm]	0"		8	1/4"				16	HALF COUPLING	SEE DRAWING	
C2	1	ø1/2"[13mm]	3000# NPT	FLOAT BRIDLE DRAIN	1 1/8"[28mm]	0"		8	1/4"				17	WELDOLET	SEE DRAWING	
C3A-C	3	ø2"[60.3mm]	3000# NPT	LEVEL CHECK CONN.	3"[76.2mm]	0"		8	1/4"				15	HALF COUPLING	SEE DRAWING	

**NOZZLE SCHEDULE & WELD DETAILS**



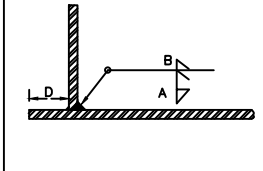
Weld Procedure  
WP#5

**WELD DETAIL #6**



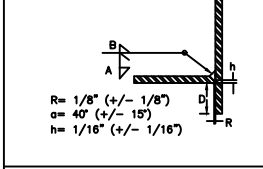
Weld Procedure  
TTI-1

**WELD DETAIL #7**



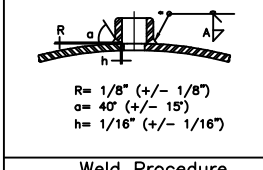
Weld Procedure  
TTI-1

**WELD DETAIL #8**

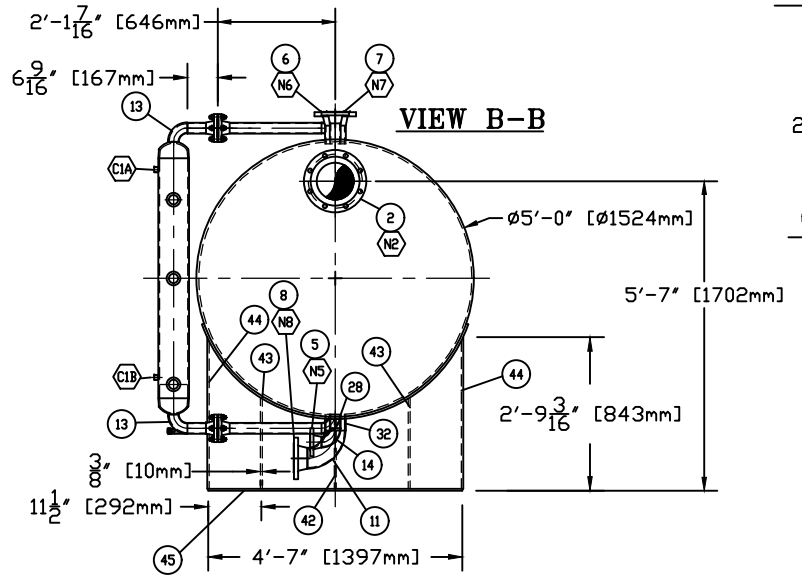
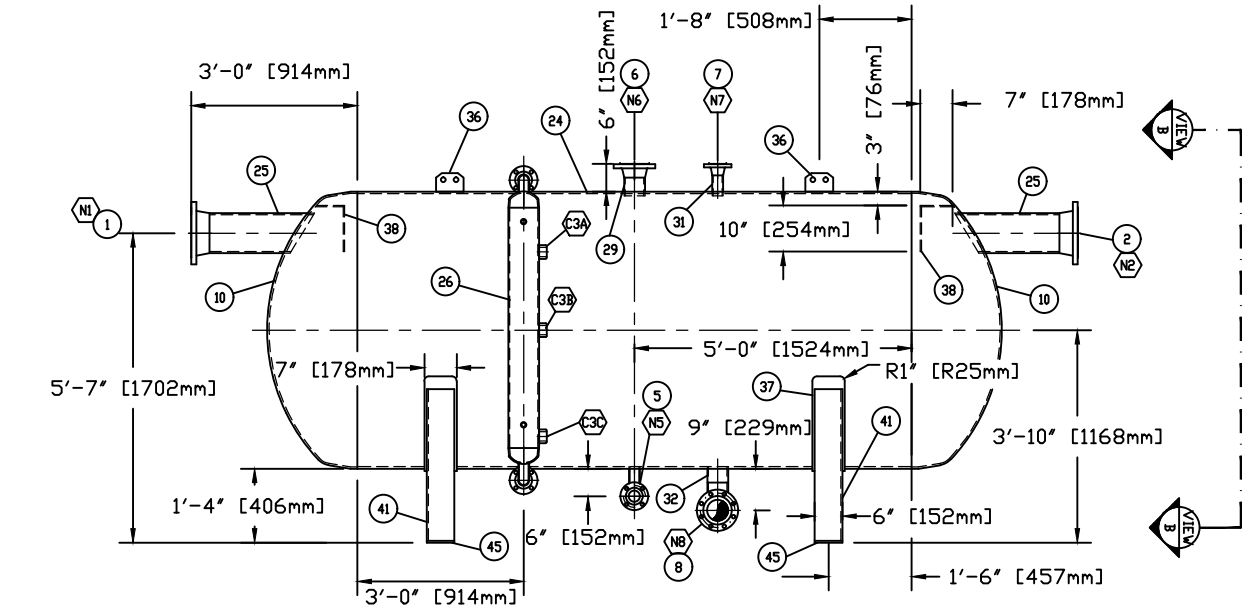
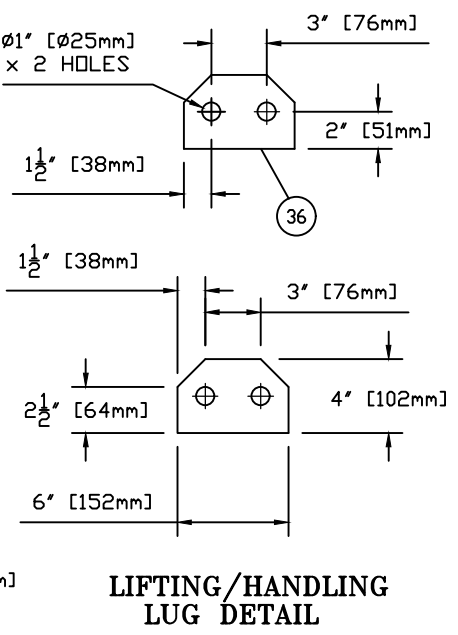
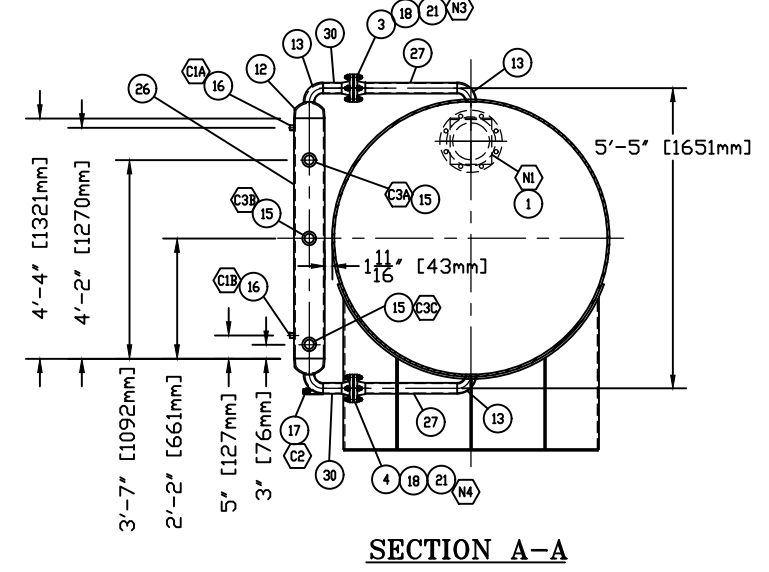
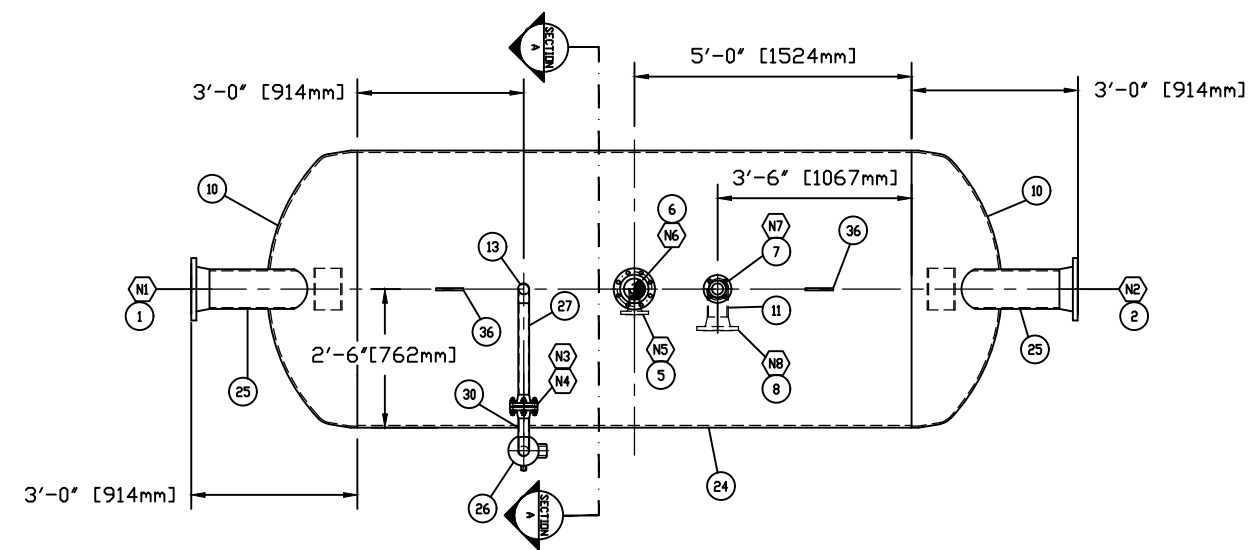


Weld Procedure  
WP#8

**WELD DETAIL #9**



Weld Procedure  
WP#9



Rev.	Description	By	Y	M	D
0	ISSUED FOR APPROVAL PURPOSES	EW	06	01	30

FABRICATION CON'T	
Moment At Foundation Base:	
Max. Horiz. Load At Base:	
Max. Vertical Load At Base:	
General Notes:	INTERNALLY COATED WITH DEVDE 253 COATING
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FABRICATION	
Design Pressure:	50.0 PSig
Hydro Test Pressure:	75.0 PSig
Operating Pressure:	14.7 PSig
Mag Particle Procedure:	NO
Radiography / Xray:	NO
Impact Testing:	NO
Coolant Tracing:	NO
Aluminum Cladding:	NO
Corrosion Allowance:	.125"
Weld Procedure #:	#1323.2
Q.C. Program #:	AQP-1266

Ignition System	
NOT APPLICABLE	
Weight Approx. Salesperson	
4,200 LBS.	Harvey O.
Paint	
SANDBLAST SSPC-SP6 RUST INHIBITIVE PRIMER GLOSS BLACK FINISH	
Location	
ALBERTA	

Dwg. By: DWG #:	
EW	CNRL-6950a
Date:	
2006	01 30
Y	M D
Design By:	
TORNADO	
JOB# QUOTE#	
6950	CNRL0106A
Sheet 1 of 3	

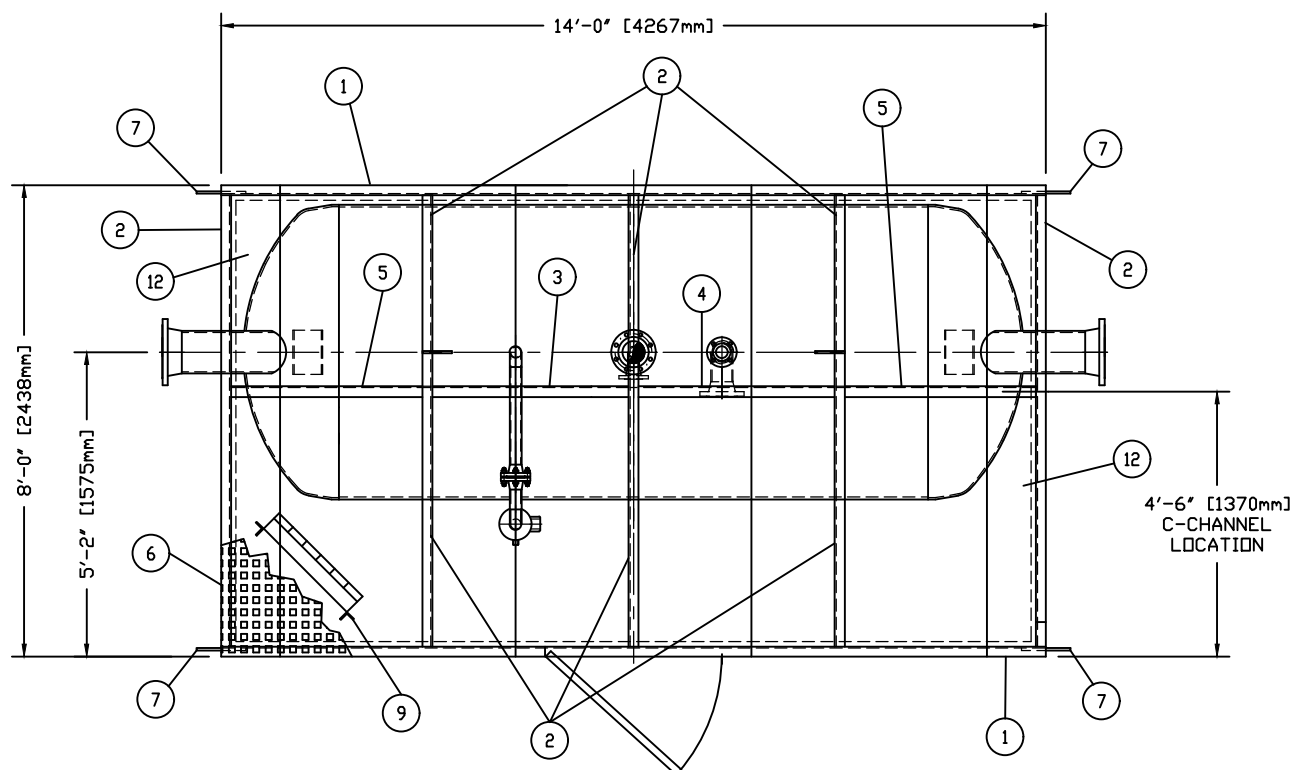
Title:	
ø5'-0" x 10'-0" LG. S/S A.G.K.O. VESSEL (45bb1) c/w ø8" INLET/OUTLET CONNS.	
Customer:	
CANADIAN NATURAL RESOURCES	
P.O.#	
AFE# FC051007	
LSD	
REV.	

**Tornado Technologies Inc.**

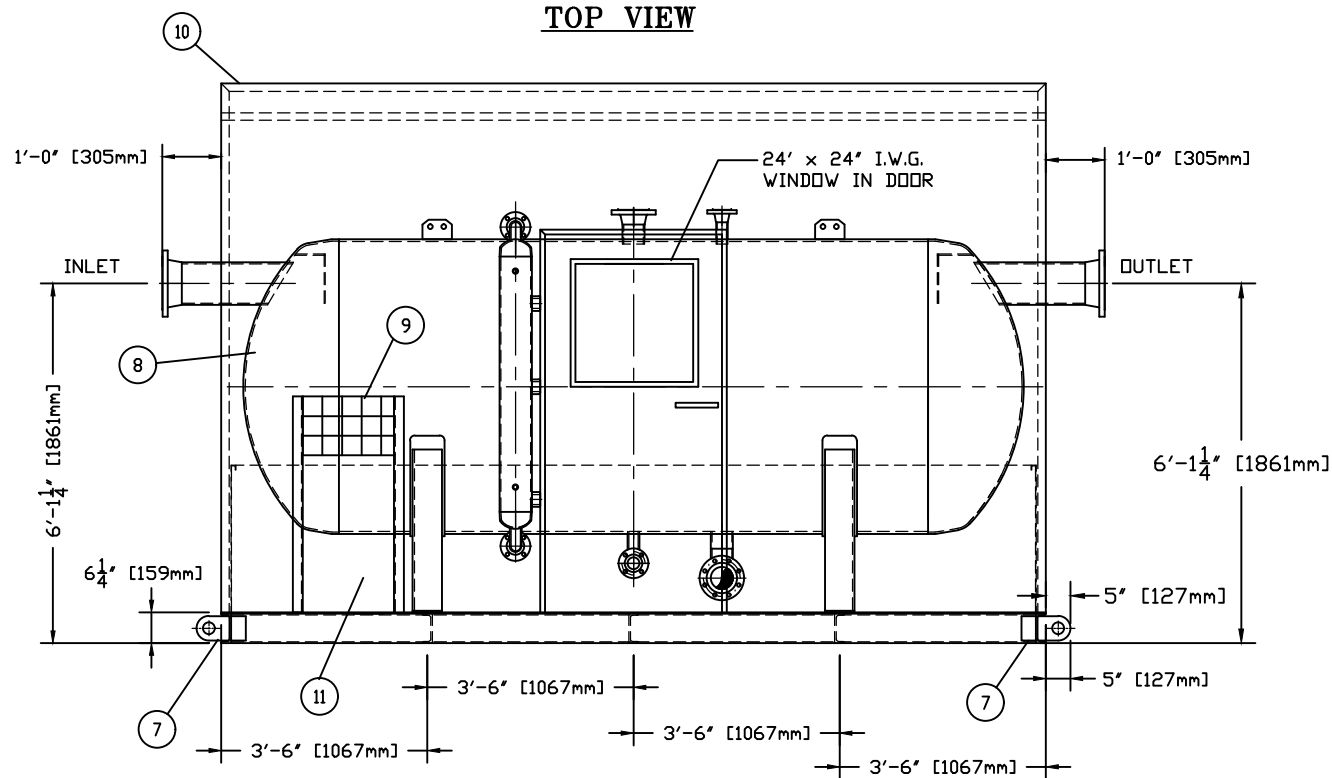
PH (403)883-2400  
 FAX (403)883-2550  
 TOLL FREE  
 1-800-661-4128

**Bill of Materials**

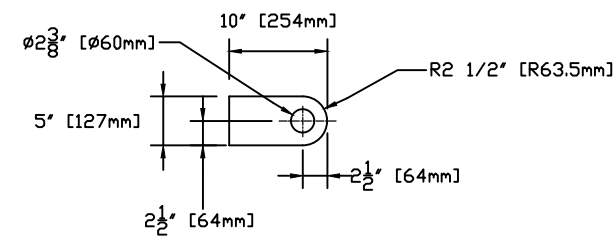
No	Qty	DESCRIPTION
1	2	14'-0" LG. C6 x 8.2 C-CHANNEL (SKID ASSEMBLY)
2	5	7'-8" LG. C6 x 8.2 C-CHANNEL (SKID ASSEMBLY)
3	1	3'-3 15/16" LG. C6 x 8.2 C-CHANNEL (SKID ASSEMBLY)
4	1	3'-5 11/16" LG. C6 x 8.2 C-CHANNEL (SKID ASSEMBLY)
5	2	3'-4 11/16" LG. C6 x 8.2 C-CHANNEL (SKID ASSEMBLY)
6	3	3/16" THK. x 8' x 4' CHECKER PLATE.
7	4	1/2" THK X 5' WIDE X 10' LG. LIFTING LUGS
8	1	TTI Ø5'-0" x 10'-0" LG. SEAM TO SEAM A.G.K.O.
9	1	12,000 BTU/HR. SCOTTCAN MODEL CATADYNE FLAMELESS HEATER (24" x 12")
10	1	5/8" THK. PDLY PANEL INSULATED BUILDING
11	1	30" HIGH X 13'-7" LG. X 7'-7" W X 1/8" THK. CONTAINMENT PAN
12	2	3/16" THK. x 8' x 1' CHECKER PLATE.



**TOP VIEW**

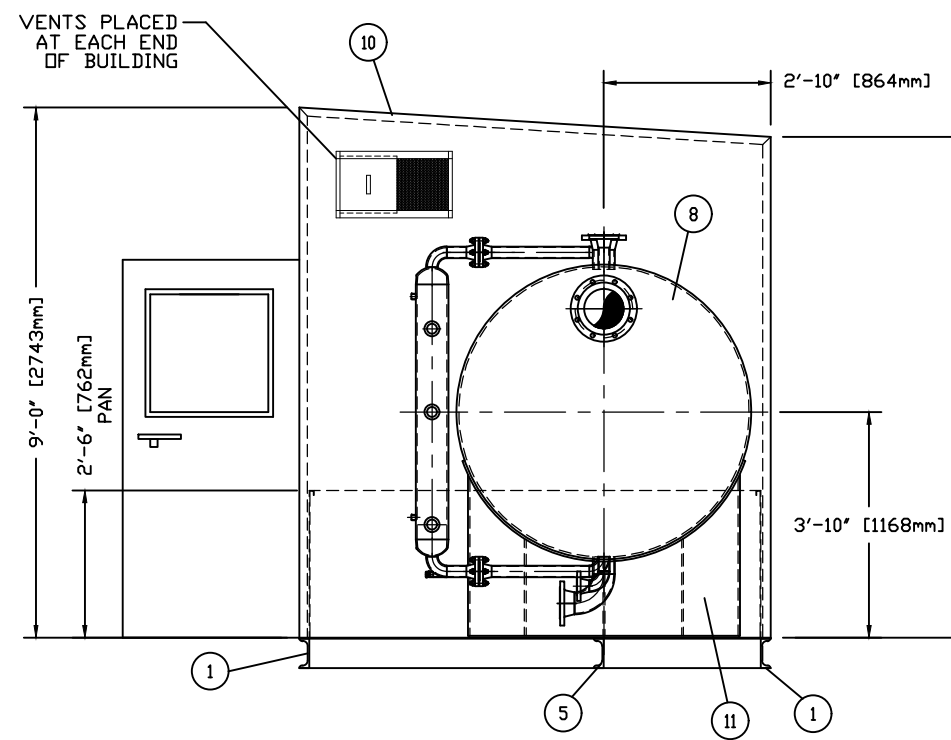


**SIDE VIEW**



**SKID LIFTING LUGS (7)**

NOTE:  
3/16" THK. CHECKER PLATE  
SEAL WELDED ON TOP  
STITCH WELDED BELOW



**END VIEW**

Rev.	Description	By	Y	M	D
0	ISSUED FOR APPROVAL PURPOSES	EW	06	01	30

FABRICATION CON'T	
Moment At Foundation Base:	
Max. Horiz. Load At Base:	
Max. Vertical Load At Base:	
General Notes:	

FABRICATION	
Design Pressure:	50.0 PSig
Hydro Test Pressure:	75.0 PSig
Operating Pressure:	14.7 PSig
Mag Particle Procedure:	NO
Radiography / Xray:	NO
Impact Testing:	NO
Coolant Tracing:	NO
Aluminum Cladding:	NO
Corrosion Allowance:	.125"
Weld Procedure #:	#1323.2
Q.C. Program #:	AQP-1266

Ignition System	
NOT APPLICABLE	
Weight Approx.	6,700 LBS.
Salesperson	Harvey O.
Paint	
SANDBLAST SSPC-SP6 RUST INHIBITIVE PRIMER GLOSS BLACK FINISH	
Location	
ALBERTA	

Dwg. By:	DWG #:
EW	CNRL-6950c
Date:	2006 01 30
	Y M D
Design By:	TORNADO
JOB#	6950
QUOTE#	CNRL0106A
Sheet	3 of 3

Title:
Ø5'-0" x 10'-0" LG. S/S A.G.K.O. VESSEL (45bbbl) c/w Ø8" INLET/OUTLET CONNS.
Customer:
CANADIAN NATURAL RESOURCES
P.O.#
AFE# FC051007
LSD
REV.
△

**Tornado Technologies Inc.**

PH (403)883-2400  
FAX (403)883-2550  
TOLL FREE  
1-800-661-4128

## Bill of Materials

FLANGES		No	Qty	Size	Sch.	Rating	Face	Type	Material Specification	Remarks	Heat#
		1	1	ø8"[219]	STD.	150#	R.F.	W.N.	ANSI SA 105	N1 - INLET CONNECTION	
		2	1	ø8"[219]	STD.	150#	R.F.	W.N.	ANSI SA 105	N2 - OUTLET CONNECTION	
		3	2	ø2"[60.3]	80	150#	R.F.	W.N.	ANSI SA 105	N3 - FLOAT BRIDLE CONNECTION	
		4	2	ø2"[60.3]	80	150#	R.F.	W.N.	ANSI SA 105	N4 - FLOAT BRIDLE CONNECTION	
		5	1	ø2"[60.3]	80	150#	R.F.	W.N.	ANSI SA 105	N5 - DRAIN OUTLET CONNECTION	
		6	1	ø4"[114]	STD.	150#	R.F.	W.N.	ANSI SA 105	N6 - SPARE CONNECTION	
		7	1	ø2"[60.3]	80	150#	R.F.	W.N.	ANSI SA 105	N7 - VENT CONNECTION	
		8	1	ø4"[114]	STD.	150#	R.F.	W.N.	ANSI SA 105	N8 - PUMPOUT CONNECTION	
		9									
WELD FITTINGS		No	Qty	Size	Sch.	Description	Material Specification	Remarks	Heat#		
		10	2	60"[1524]	3/8"	2:1 S.E. HEADS	SA 516 GR70	VESSEL HEADS			
		11	1	ø4"[114]	STD.	90° WELD ELL	SA 234 WPB	N8 - PUMPOUT CONNECTION			
		12	2	ø6"[168]	STD.	END CAPS	SA 234 WPB	FLOAT BRIDLE CONTAINER			
		13	4	ø2"[60.3]	80	90° WELD ELLS	SA 234 WPB	FLOAT BRIDLE INLETS			
		14	1	ø2"[60.3]	80	90° WELD ELL	SA 234 WPB	N5 - DRAIN OUTLET CONNECTION			
COUPLINGS		No	Qty	Size	Description	Rating	Ends	Material Specification	Remarks	Heat#	
		15	3	ø2"[60.3]	HALF COUPLING	3000#	NPT	SA 105	C3A/B/C - LEVEL CHECK CONN.		
		16	2	ø1/2"[13]	HALF COUPLING	3000#	NPT	SA 105	C1A/B - SIGHT GLASS CONN.		
		17	1	ø1/2"[13]	WELDOLET	3000#	NPT	SA 105	C2 - FLOAT BRIDLE DRAIN CONN.		
GASKETS		No	Qty	Size	Thickness	Rating	Description	Specification/Material	Remarks	Heat#	
		18	2	ø2"[60.3]	1/8"	150#	FLEXITALIC	NON-ASBESTOS	FLOAT BRIDLE CONNECTIONS		
		19									
		20									
STUD BOLTS C/W 2 HEX NUTS/EA.		No	Qty	NO/SET	Sets	Diameter	Length	Bolt Spec.	Nut Spec.	Match Item	Remarks
		21	8	4	2	5/8"[16]	4"[102]	SA193 B7M	SA194 2HM	3,4,18	FLOAT BRIDLE CONNECTIONS
		22									
		23									
PIPE		No	Qty	Size	Type	Sch.	Material Specification	Remarks	Heat#		
		24	1	ø5'-0"[1524]	ROLLED	3/8"	SA 516 GR70 x 10'-0"[3048] LG.	KNOCKOUT SHELL			
		25	2	ø8"[219]	SMLS	STD.	SA 106B x 1'-10 3/4"[578mm] LG.	N1/N2 - INLET/OUTLET CONNS.			
		26	1	ø6"[168]	SMLS	STD.	SA 106B x 4'-4"[1321mm] LG.	FLOAT BRIDLE CONTAINER			
		27	2	ø2"[60.3]	SMLS	80	SA 106B x 1'-7 7/8"[505mm] LG.	FLOAT BRIDLE INLET/OUTLET			
		28	1	ø2"[60.3]	SMLS	80	SA 106B x 3"[76.2mm] LG.	N5 - DRAIN OUTLET EXT.			
		29	1	ø4"[114]	SMLS	STD.	SA 106B x 4"[102mm] LG.	N6 - SPARE NOZZLE EXT.			
		30	2	ø2"[60.3]	SMLS	80	SA 106B x 4"[102mm] LG.	FLOAT BRIDLE INLET/OUTLET			
		31	1	ø2"[60.3]	SMLS	STD.	SA 106B x 4 1/2"[114mm] LG.	N7 - VENT NOZZLE EXTENSION			
		32	1	ø4"[114]	SMLS	STD.	SA 106B x 3 1/2"[88.9mm] LG.	N8 - PUMPOUT NOZZLE EXTENSION			
		33									
		34									
PLATE		No	Qty	Size	Material Specification	Remarks	Heat#				
		35									
		36	2	8" x 4" [152 x 102]	1/2" THK. SA 36 CS PLATE	LIFTING/HANDLING LUG					
		37	2	7" WIDE x 6'-3 1/2" LG.	3/8" THK. SA 36 CS PLATE	VESSEL SUPPORT REPAD					
		38	2	10" x 7" [254 x 178]	3/8" THK. SA 36 CS PLATE	INLET/OUTLET DEFLECTORS					
		39									
		40									
		41	2	55" x 32 7/8" (SHAPE TO VESSEL)	3/8" THK. SA 36 CS PLATE	VESSEL STAND SIDE COVERS					
		42	2	15 1/8" LG. x 6"W [384 x 152]	3/8" THK. SA 36 CS PLATE	VESSEL STAND STIFFENER					
		43	4	19 13/16" LG. x 6"W [503 x 152]	3/8" THK. SA 36 CS PLATE	VESSEL STAND STIFFENER					
		44	4	32 7/8" LG. x 6"W [835 x 152]	3/8" THK. SA 36 CS PLATE	VESSEL STAND END PLATES					
		45	2	55" LG. x 6"W [1397 x 152]	3/8" THK. SA 36 CS PLATE	VESSEL STAND BASES					
		46									
		47									
		48									
		49									
		50									
IGNITION SYSTEM / MISC. PARTS		No	Qty	Description	Remarks	Heat#					
		51									
		52									
		53									
		54									
		55									
		56									
		57									
		58									
		59									
		60									
		61									
		62									
		63									

**Title:** ø5'-0" x 10'-0" LG. S/S A.G.K.O. VESSEL (45bbi) c/w ø8" INLET/OUTLET CONNS.

**Dwg. By:** EV CNRL-69506

**Date:** 2006 01 30

**Design By:** Y M D

**Customer:** CANADIAN NATURAL RESOURCES

**P.O.#:** AFE# FC051007

**Job#:** 6950 CNRL0106A

**Sheet:** 2 of 3

**Ignition System:** NOT APPLICABLE

**Weight Approx. Salesperson:** Harvey O.

**Paint:** 4,200 LBS. SANDBLAST SSPC-SP6 RUST INHIBITIVE PRIMER GLOSS BLACK FINISH

**Location:** ALBERTA

**FABRICATION:** 50.0 PSIG

**Design Pressure:** 75.0 PSIG

**Hydro Test Pressure:** 14.7 PSIG

**Operating Pressure:** NO

**Mag Particle Procedure:** NO

**Radiography / Xray:** NO

**Impact Testing:** NO

**Coolant Tracing:** NO

**Aluminum Cladding:** NO

**Corrosion Allowance:** .125"

**Weld Procedure #:** #1323.2

**Q.C. Program #:** AQP-1266

**FABRICATION CONT:**

**Moment At Foundation Base:**

**Max. Horiz. Load At Base:**

**Max. Vertical Load At Base:**

**General Notes:**

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ISSUED FOR APPROVAL PURPOSES

**Rev.** 0