

**ELEVATION**

TOLERANCES:  
 CUTS (NOZZLE HOLES IN VESSEL): +/- 1/8"  
 ANGLES (FACE OF FLANGE OR COUPLINGS): +/- 1/2"  
 WELD ASSEMBLIES (CLIPS OR BRACING ATTACHED TO VESSEL): +/- 1/8"

**EnCana Nace Requirements**

HARDNESS TESTING	200 BNH (VHN 210) MAX.
HEAD AND SHELLS	HIC TESTING IN ACCORDANCE WITH NACE TMO177-96 AS PER MR0175/ISO 15156 2003 PART 2 TABLE B.3.
PLATE (Pressure Containing) SA-516-70N	PHOSPHOROUS SHALL BE 0.015% MAX SULFUR SHALL BE 0.005% MAX
FLANGES & FORGINGS (NORMALIZED) SA-350-LF2	CARBON 0.30% MAX MANGANESE 1.30% MAX PHOSPHOROUS 0.020% MAX SULPHUR 0.010% MAX
PIPE & FITTINGS (NORMALIZED) SA-333-GR-6 SA-420-WPL	CARBON 0.30% MAX MANGANESE 1.06% MAX PHOSPHOROUS 0.020% MAX SULPHUR 0.010% MAX
CARBON Equivalent (CE) Pipe, Plate, Flanges and other Forgings and Fittings	0.42 MAX
CE = %C + %Mn/6 + %Cr + %5Mo + %V/ + %Ni + %15Cu/	
Mill Test Reports	All Material
Welding: Procedures Specification No. (101-HT) SURE WAVE ALL WELDS Internals: Seal weld is required (FULL PENETRATION) Nozzles: Full Penetration (No Couplets Allowed) External Attachments: Seal welding is required.	⚠
Stress Relieving (PWHT) (Vessels and Piping)	YES chilled down to 300°F (150°C) NO WELDING ALLOWED AFTER PWHT INCOMPLIANCE WITH ENCANNA PROCEDURE ECA-VES-US REV. 0
X-RAY (Vessel's & Piping)	100% RT-1 (VESSELS)
Hydro testing (Vessels and Piping)	1 HR MIN. (CHARTED)
Ultrasonically Tested (UT) PLATE USED FOR VESSEL SHELLS AND HEAD 1/2" THK AND OVER SHALL BE ULTRASONICALLY CHECKED FOR LAMINATIONS AND DEFECTS IN ACCORDANCE WITH ASME SECTION II, PART A, SPECIFICATION SA-578 LEVEL B ON A 76MM (3" GRID).	
Wet Magnetic Particle Inspection	All Pressure Containing Welds after Hydro Test
Accessories	No yellow metals allowed NACE Certified Pressure Gauges (liquid filled)
Tubing & Tubing Fittings	Stainless Steel

- GENERAL NOTES:**
- FLANGES TO HAVE BOLT HOLES STRADDLING VESSEL TRUE CENTER LINES.
  - ALL CONNECTIONS SHALL TO BE COVERED OR PLUGGED FOR SHIPPING.
  - DRILL AND TAP 1/4" NPT. TELLTALE HOLE IN ALL REINFORCING PADS.
  - INSIDE EDGE OF NOZZLES NECKS SHALL BE ROUNDED. THE RADIUS OF ROUNDNESS 1/8" MIN. OR ONE-HALF THE WALL THICKNESS OF THE NOZZLE WALL IS LESS THEN 1/4".
  - SEE PAINT FORM FOR COATING REQUIREMENTS.
  - SEE TABLE UW-33 FOR ALIGNMENT TOLERANCE.
  - SEE TABLE UW-35 FOR FINISHED LONGITUDINAL AND CIRCUMFERENTIAL JOINT TOLERANCE.
  - SEE ENCANNA SPECS. 8.1.5.3 & 8.1.5.4

**GENERAL SPECIFICATIONS**

VESSEL TO BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE ASME PRESSURE VESSEL CODE: SECTION VIII DIVISION 1. FOR PRESSURE VESSELS AND IS TO BE SO STAMPED. INSPECTED BY NATIONAL BOARD COMMISSIONED INSPECTOR.

DESIGN	MAXIMUM ALLOWABLE WORKING	EXTERNAL
	1440	-NA-
TEMPERATURE (°F)	175	-NA-
MIN. DESIGN METAL TEMPERATURE (MDMT °F) PER UG-20(f) SEE CALCULATIONS		
CORROSION ALLOWANCE (CA)		
0.126"		
HYDROSTATIC TEST 1.3 X DESIGN PRESSURE (CHARTED)		1872
POST WELD HEAT TREATMENT (PWHT)		YES ⚠ @ 1150°F - 1175°F RANGE
APPROX. SHIPPING WEIGHT:	230	MILL TEST REPORTS: STD

**NDE REQUIREMENTS**

RADIOGRAPHY:	RT-1 100%
CATEGORY A WELDS (LONG SEAMS, HD-SHELL)	FULL LENGTH
CATEGORY B WELDS (GIRTHSEAMS)	FULL LENGTH
NOZZLES > 10" OR > 1.125" THK.	FULL
NOZZLES <= 10" OR <= 1.125" THK.	FULL
JOINT EFFICIENCIES (%)	
LONG SEAMS:	100%
SEAMLESS:	100%
HEAD TO SHELL	100%

ADDITIONAL NDE NOTES:

Pipe O.D.	8.625	CLAMP	PIPE PROGRAM - TTG-100145						OPEN END
Wall Thickness	0.5	END	SEAM	C6	C1	C4A	C5	C4B	SEAM
Cut Name:			7	6	5	4	3	2	1
File Number			7	6	5	4	3	2	1
Cut Type			Straight	Hole ID	Hole ID	Hole ID	Hole ID	Hole ID	Straight
Mate Diameter	8.625	2.375	2.375	1.875	3.125	1.875	8.625		
Mate Thickness	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mate Angle	90	90	90	90	90	90	90	90	90
Mate Offset	0	0	0	0	0	0	0	0	0
Bevel Angle	23	30	30	30	30	30	30	23	
Lead In	On	On	On	On	On	On	On	On	On
Salvage	R								L
Start RA	0	270	180	120	270	120	0		
Start TP	0	6	8	8	18	30	36		
Link to File #	7	7	6	5	4	3	2		

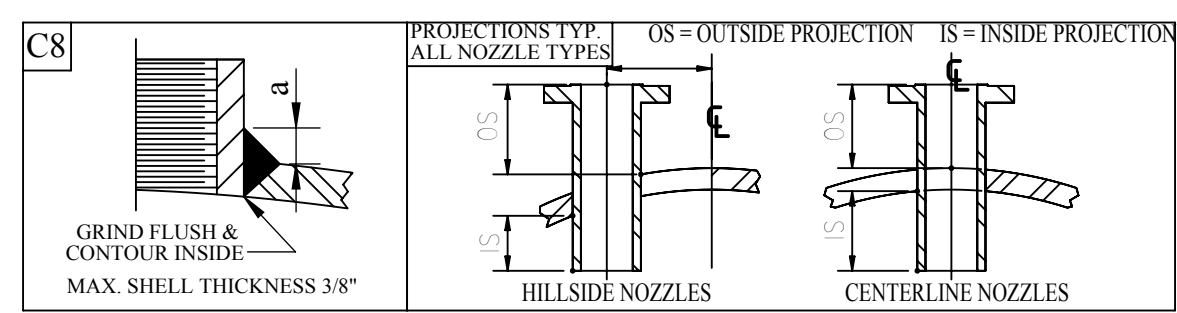
MARK	QTY	SERVICE	CONNECTION TYPE	CONN.	NECK	REPAD	O.S.	LS. (MIN)	WELD DETAIL	MIN. WELD SIZE	REMARKS
C6	1	PI	CPLG / FULL / THRD, 1" 6000# X 2.375" LG	⓪	~	~	YES	FLUSH	C8 ~ 3/8"	~	~
C5	1	LEVEL CONTROL	CPLG / FULL / THRD, 1 1/2" 6000# X 3.125" LG	⓪	~	~	YES	FLUSH	C8 ~ 3/8"	~	~
C4B	1	LEVEL GAUGE	CPLG / FULL / THRD, 3/4" 6000# X 2" LG	⓪	~	~	YES	FLUSH	C8 ~ 3/8"	~	~
C4A	1	LEVEL GAUGE	CPLG / FULL / THRD, 3/4" 6000# X 2" LG	⓪	~	~	YES	FLUSH	C8 ~ 3/8"	~	~
C3	1	DRAIN	CPLG / FULL / THRD, 1" 6000# X 2.375" LG	⓪	~	~	YES	FLUSH	C8 ~ 3/8"	~	~
C2	1	OUTLET	CPLG / FULL / THRD, 1" 6000# X 2.375" LG	⓪	~	~	YES	FLUSH	C8 ~ 3/8"	~	~
C1	1	INLET	CPLG / FULL / THRD, 1" 6000# X 2.375" LG	⓪	~	~	YES	FLUSH	C8 ~ 3/8"	~	~

**SCHEDULE OF OPENINGS**

FIND NO.	PART NUMBER	QTY.	THK	WIDTH	LENGTH	DESCRIPTION	MATERIAL	UOM
12	12201000	1	~	~	~	WIRE MESH, #9 DENSITY 6" THK (FOLD IN HALF AND ROL TO 7 5/8" OD, 3" THK)	304SS	EA
11	01600143	1	0.25	6 1/2"	6 1/2"	PLATE, 0.25" / NAMEPLATE TBRACKET / FACE	SA-516-70N	SF
10	01600143	1	0.25	13 5/8"	13 5/8"	PLATE, 0.25" / SKIRT BASE PLATE 13 5/8" OD X 7 1/2" ID	SA-516-70N	SF
9	01600143	1	0.25	2 1/2"	6 1/2"	PLATE, 0.25" / NAMEPLATE TBRACK / BACK	SA-516-70N	SF
8	01600143	2	0.25	7 1/2"	7 1/2"	PLATE, 0.25" / MESH PAD SUPPORT	SA-516-70N	SF
7	01700127	1	~	~	9 13/16"	PIPE / SMLS, 8" Sch 20 (0.250" NOM WALL)	SA-106-B	FT
6	05000001	1	~	~	~	NAME PLATE ASME CODE TITAN Gainesville	SA240-304	EA
5	01913512	2	~	~	~	CPLG / FULL / THRD, 3/4" 6000# X 2" LG	SA-350-LF2	EA
4	01913511	1	~	~	~	CPLG / FULL / THRD, 1-12" 6000# X 3.125" LG	SA-350-LF2	EA
3	01913504	4	~	~	~	CPLG / FULL / THRD, 1" 6000# X 2.375" LG (NORMALIZED)	SA-350-LF2	EA
2	04000180	2	~	~	~	HEAD / ASME 2:1 ELLIP, 8 5/8" OD (0.4375" MIN THK) 0.500" NOM THK W/2" SF (HIC TESTED)	SA-516-70N	EA
1	01700481	1	0.500	~	36	PIPE / SMLS, 8" XH (0.500" NOM WALL) BBE	SA-106-C	FT

**SPECIAL NACE NOTES FOR VESSELS**

- ALL PRESSURE CONTAINING PARTS OF THE FINISHED PRESSURE VESSEL SHALL NOT EXCEED A HARDNESS OF 200 BHN.
- THE FINISHED PRESSURE VESSEL (AFTER POST WELD HEAT TREATMENT, IF APPLICABLE) SHALL BE HARDNESS TESTED AS FOLLOWS:  
 A. LONG SEAM WELDS - (1) SET 10" PER SHELL COURSE PER WELDER  
 B. GIRTH SEAM WELDS - (1) SET PER SEAM PER WELDER  
 C. NOZZLE BUTT WELDS - (1) SET PER WELD. THESE HARDNESS CHECKS SHALL BE MADE IN THE CENTER OF THE WELD REINFORCEMENT
- ALL HARDNESS CHECKS SHALL BE DOCUMENTED ON THE VESSEL INSPECTION DRAWING, AND SHALL BE RETAINED IN THE INSPECTION FILES.
- WELDING AFTER PWHT IS NOT ALLOWED.
- FINAL HARDNESS AFTER PWHT (IF APPLICABLE)

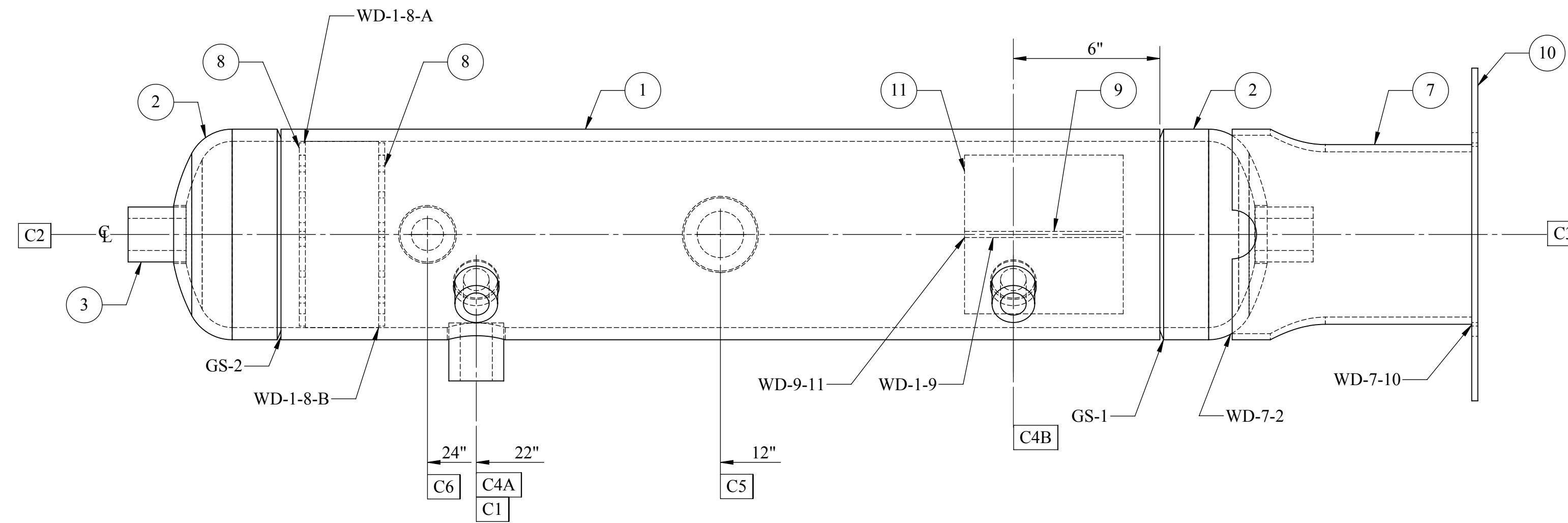


REV.	DESCRIPTION	DATE	DESIGNER	CHECK BY
A	ISSUED FOR CUSTOMER APPROVAL	3/7/2011	ALD	RCD
I	ISSUED FOR FABRICATION	3/28/2011	MJM	RCD
1	REVISED PWHT RANGE, WELD PROCEDURE, WELD MAP	6/01/2011	ALD	RCD



**TITLE:**  
**INSTRUMENT GAS SCRUBBER**  
**8-5/8" OD X 3'-0" S/S 1440 # DP NACE**  
**ASME CODE / VESSEL LAYOUT**

CUSTOMER: ENCANNA LOCATION: North Louisiana / East Texas  
 DRAWN BY: ALLEN DETHLOFF DWG. NO.: TTG-110008 REV. 1  
 CHECK BY: RANDY DOVERSPIKE SHEET 1 OF 2 SCALE: 1:4



WELD MAP



TITLE: INSTRUMENT GAS SCRUBBER 8-5/8" OD X 3'-0" S/S 1440 # DP NACE ASME CODE / VESSEL LAYOUT		
CUSTOMER: ENCANA	LOCATION: North Louisiana	REV. 1
DRAWN BY: RANDY DOVERSPIKE	DWG. NO. TTG-110008	
CHECK BY: RANDY DOVERSPIKE	SHEET 2 OF 2	SCALE: 1:8