

NOZZLE SCHEDULE												
MARK	SIZE	SCH	CLASS	TYPE	SERVICE	WELD	WELD SIZE			PROJECTION		REPAD THK
							A	B	C	D (I/S)	O/S	
N1	4"	1"	600	RFLWN	INLET	4	3/8"			1 3/4" MIN	5"	
N2	4"	1"	600	RFLWN	GAS OUTLET	4	3/8"			1 3/4" MIN	5"	
N3	3"	13/16"	600	RFLWN	HIGH LEVEL SWITCH	4	5/8"			1 5/8" MIN	SPEC	
N4A	2"	160	600	RFLWN	BRIDLE	3.5	3/8"			MIN	SPEC	
N4B	2"	160	600	RFLWN	BRIDLE	3.5	3/8"			FLUSH	6"	
N5	3"	1.24"	600	RFHB	OIL OUTLET	3	3/8"			FLUSH	7 1/2"	
N6	3"	1.24"	600	RFHB	WATER OUTLET	3	3/8"			FLUSH	7 1/2"	
N7	4"	1"	600	RFLWN	PSV	4	3/8"			1 3/4" MIN	5"	
N8	2"	160	600	RFLWN	DRAIN	3.5	3/8"			FLUSH	6"	
N9	2"	160	600	RFLWN	PRESSURE INDICATOR	3.5	3/8"			MIN	6"	
N10	2"	160	600	RFLWN	PRESSURE SWITCH	3.5	3/8"			MIN	6"	
N11	2"	160	600	RFLWN	TEMPERATURE INDICATOR	3.5	3/8"			MIN	6"	
N12	2"	160	600	RFLWN	CLEANOUT DRAIN	3.5	3/8"			FLUSH	6"	
M1	20"	160	600	RFLWN	MANWAY / INSPECTION	2.5	3/8"		5/16"	1 5/8" MIN	12" MIN	1 1/2"

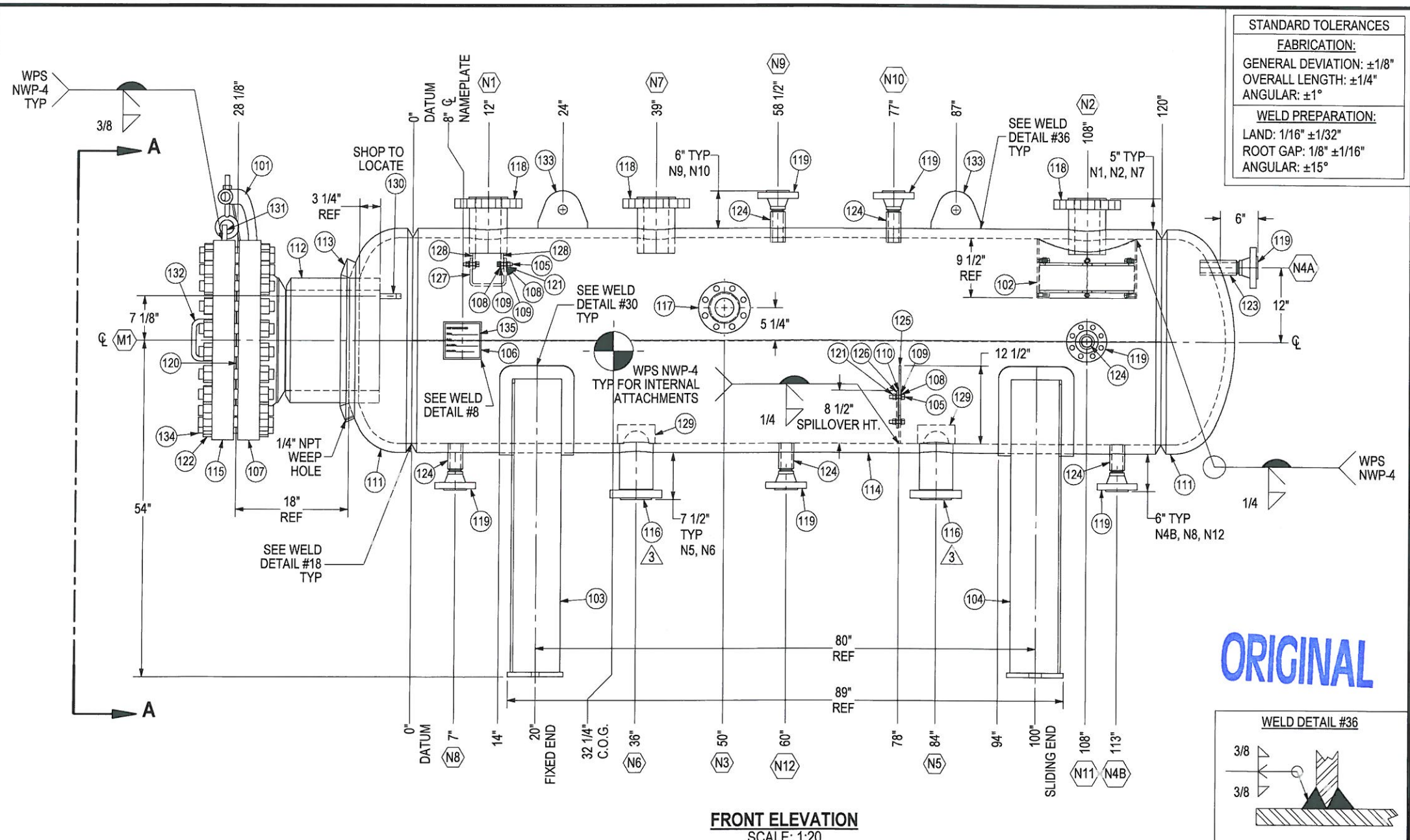
- GENERAL NOTES**
1. QUALITY CONTROL PROGRAM NUMBER: AQP-1253
 2. WELDING PROCEDURE REGISTRATION NUMBER: WP-1604.2
 3. ALL DIMENSIONS ARE REFERENCED FROM DATUM UNLESS NOTED OTHERWISE.
 4. HEAT NUMBER MUST BE STAMPED ON ALL WELD PIPE/FITTINGS AND PLATE.
 5. EXPOSED INSIDE EDGES OF NOZZLES OR OPENINGS SHALL BE ROUNDED PER UG-76c.
 6. VESSEL TO BE CLEANED WITH ALL OPENINGS PLUGGED BEFORE SHIPMENT.
 7. WEAR PADS TO HAVE A 1/4" NPT WEEP HOLE AT LOWEST POINT.
 8. ALL BOLT HOLES TO STRADDLE COMMON CENTERLINE.
 9. USE WELDING PROCEDURE NWP-12 REV 1, NWP-4 REV 5, NWP-3 REV 5, NWP-11 REV 1 FOR ALL TACK WELDS.
 10. IMPACT TESTING EXEMPT PER UG-20f 1-5, UCS-66a, UCS-66b (FIG UCS-66.1), UCS-66g AND FLANGES PER UCS 66c.
 11. DRAIN CONNECTIONS SHALL BE GROUND FLUSH WITH VESSEL INSIDE DIAMETER.
 12. NOZZLE NECK TO FLANGE WELD TO BE INCLUDED IN XRAY REQUIREMENTS. NO ELONGATED INDICATIONS ACCEPTABLE.
 13. INTERNAL PRESSURE RETAINING WELDS REQUIRE WET MAG PARTICLE TESTING AFTER HYDROTEST.
 14. FABRICATE, INSPECT AND TEST VESSEL TO ECA-VESL-S-01 AND ALL APPLICABLE ENCANNA SPECIFICATIONS INCLUDING BUT NOT LIMITED BY THE NOTES BELOW.
 15. INTERNAL WELD ATTACHMENT TO PRESSURE ENVELOPE SHALL BE FULL PENETRATION WELDS.
 16. SURFACE PREPARATION: SSPC-SP6 PRIOR TO PAINT.
 17. INTERNAL COATING: SSPC SP5 WHITE METAL BLAST CLEANING, DEVOE 253 INTERNAL LINING AS PER MANUFACTURER'S SPECS. LIGHT COAT APPLIED TO GASKET SURFACES. HOLIDAY AND MIL TEST.
 18. ENCANNA VESSEL SERVICE CLASSIFICATION "CLASS 2" (ECA-GEN-S-10) FOR NDE REQUIREMENTS.

- MATERIAL NOTES (PER ECA-GEN-S-10 REV 2.2 CLASS 2)**
1. ALL MATERIALS FOR SOUR SERVICE TO BE NACE MR 0175/ISO 15156.
 2. ALL PRESSURE RETAINING COMPONENTS SHALL BE FULLY KILLED CARBON STEEL. [3.2.1]
 3. CARBON EQUIVALENT (CE) = 0.45 WHERE CE = %C + %Mn/6 + %Cr + %Mo + %V/5 + %Ni + %Cu/15 [3.2.2] PLATE RESTRICTED CHEMISTRY (wt%): S <= 0.005; P <= 0.018; Cr+Mo+Cu+Ni <= 0.70; Nb+V+Ti <= 0.035 [8.1]
 4. MATERIALS HARDNESS IN (1 & 2) NOT TO EXCEED 225 HBW. [3.2.7]
 5. PLATES TO BE UT CHECKED FOR LAMINATIONS AND DEFECTS PRIOR TO PWHT PER SA-578 LEVEL B. [7.3.3]

- INSPECTION AND TESTING NOTES (PER ECA-VESL-S-01 REV 1.2)**
1. ALL BUTT WELDS (CAT A, B & C) TO BE FULLY RADIOGRAPHED 100% PER RT-1 TO UW-11(a) INCLUDING PIPE NOZZLE NECK TO FLANGE, ALL SIZES. [8.1.4]
 2. ALL CAT D WELDS TO BE UT EXAMINED TO SA-435 OR SA-578 PER ASME SECTION 8 DIV 1 APP 12. NOZZLE TO SHELL BEFORE REPAD INSTALLATION AND REPAD TO NOZZLE AFTER PWHT. [8.1.8]
 3. PLATE EDGE PREPARATIONS TO BE FULLY MT, PT OR UT FOR CRACKS AND DEFECTS. [ECA-GEN-S-10 REV 2.2 CLASS 2 TABLE 4]
 4. FULL MT EXAMINE LIFTING ATTACHMENTS. [ECA-GEN-S-10 REV 2.2 CLASS 2 TABLE 4]

- FABRICATION NOTES**
1. PRODUCTION HARDNESS TEST OF WELDS AFTER PWHT WHERE BM, WM AND HAZ NOT EXCEEDING 225 HBW. REFERENCE ECA-GEN-S-10 REV 2.2 PARA 3.2.7 / 7.3.2 / TABLE 4, CLASS 2. ECA-VESL-S-01 REV 1.2 PARA 7.1.1 / 7.1.2
 2. BASE MATERIAL (BM) AND WELD MATERIAL (WM) NOT TO CONTAIN MORE THAN 1.0 wt% OF NI [5.2.2]
 3. STENCIL "PWHT DO NOT WELD" ON THE VESSEL.

VESSEL DESIGN DATA	
DESIGN AND FABRICATE TO:	ASME SECTION VIII, DIVISION 1, 2013 EDITION
MAX. ALLOWABLE WORKING PRESSURE (MAWP):	1440 PSIG
DESIGN TEMPERATURE:	130 °F
MIN. DESIGN METAL TEMPERATURE (MDMT):	-20 °F @ 1440 PSIG
IMPACT TEST:	EXEMPT PER UG-20f 1-5, UCS-66a, UCS-66b (FIG UCS 66.1), UCS 66g AND FLANGES PER UCS 66c
RADIOGRAPHY:	FULL PER UW-11a
OTHER NDE:	SEE NOTE 15, 20
POST WELD HEAT TREATMENT:	YES, 1125 °F ± 25 °F FOR 120 MINUTES MIN
HYDROSTATIC TEST PRESSURE:	2160 PSIG
CORROSION ALLOWANCE:	1/8"
PRE-HEAT:	200 °F
HEAD THICKNESS:	1.5" NOM (1.4375" MIN)
WEIGHT EMPTY:	12,000 LBS.
WEIGHT FULL:	16,200 LBS.
CAPACITY:	66.82 CU.FT.
QUALITY CONTROL PROGRAM:	AQP-1253
WELDING PROCEDURE REGISTRATION NO.:	WP-1604.2
WELD PROCEDURE:	NWP-4 REV 5, NWP-12 REV 1, NWP-3 REV 5, NWP-11 REV 1
SERVICE:	SOUR HYDROCARBONS
CRN NO.:	U8943.213
DESIGN REGISTRATION DRAWINGS:	2778 SHEET 1 & 2 REV 3
REFERENCE CALCULATIONS:	36-2-1440-2778-R1, 4672-2778-20MANWAY-R1

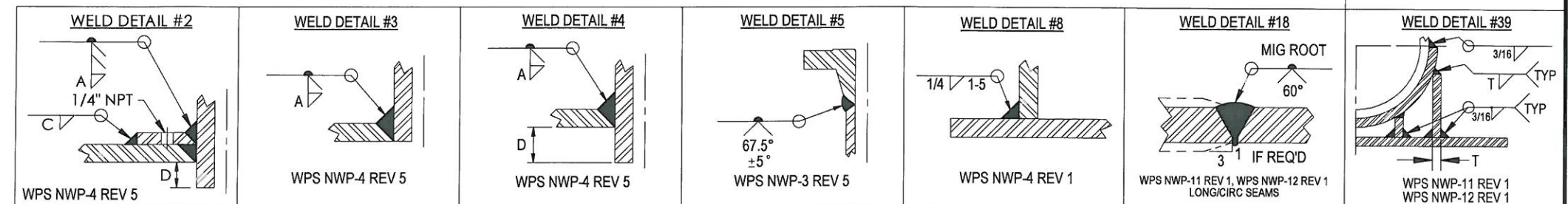


STANDARD TOLERANCES

FABRICATION:
GENERAL DEVIATION: ±1/8"
OVERALL LENGTH: ±1/4"
ANGULAR: ±1°

WELD PREPARATION:
LAND: 1/16" ±1/32"
ROOT GAP: 1/8" ±1/16"
ANGULAR: ±15°

INTERNALLY COATED



REV.	DATE	BY:	CHK:	APP:	DESCRIPTION
3	JAN 30/15	PA			CHANGED NOZZLE MATERIAL GRADE
2	DEC 19/14	PA	DF	GH	ADDED CLIENT NOTES
1	DEC 09/14	PA	DF	GH	ADDED DIMENSION, UPDATED DRAWING INFO, CHANGED N5 & N6 TO RFHB
0	NOV 05/14	PA	DF	GH	ISSUED FOR CONSTRUCTION

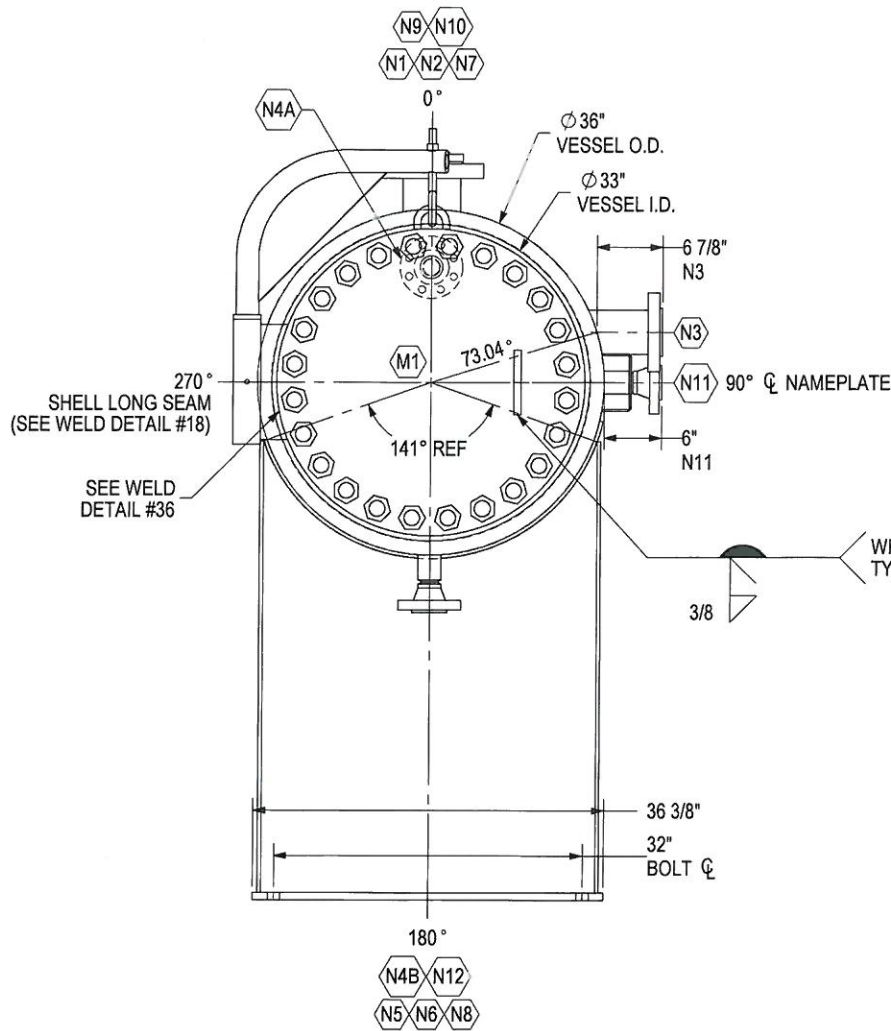
ISSUED FOR CONSTRUCTION

SIGNED: _____
DATE: _____
W.O.: _____
S/N: _____

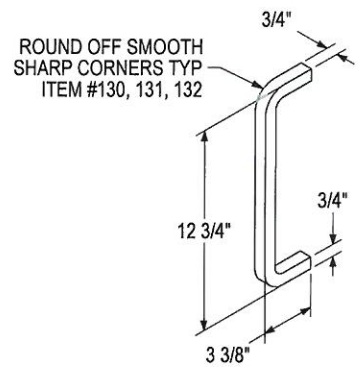
NWP INDUSTRIES LP

P.O. BOX 6280, INNISFAIL, AB T4G 1S9
PH: (403) 227-4100 FAX: (403) 227-4102

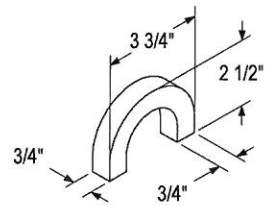
ENCANA CORPORATION HORIZONTAL VESSEL 36" O.D. x 120" S/S x 1440 PSIG 1/8" C.A., 130 °F-20 °F			
DWN:	PA	CHK:	APP:
DATE:	NOV 05/14	DATE:	FEB 03 2015
DATE:	JAN 30 2015	DATE:	
SHEET:	1 OF 2	DWG:	09207-001-A-100
REV:		REV:	3



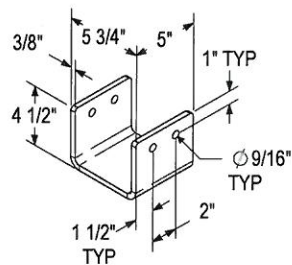
SECTION A-A
SCALE: 1:20



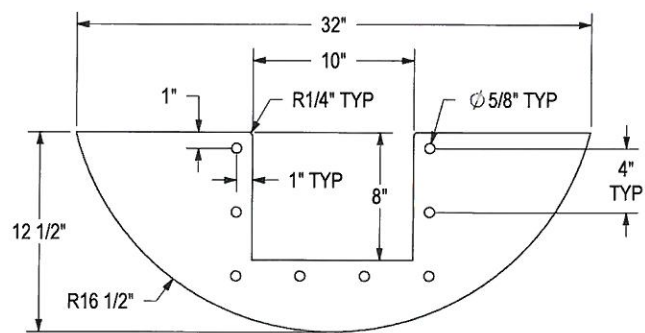
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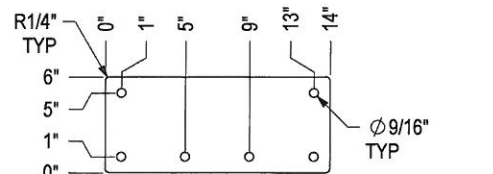
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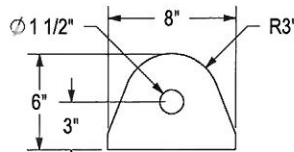
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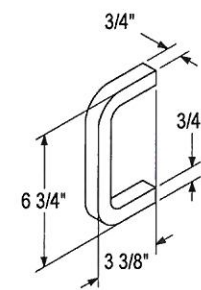
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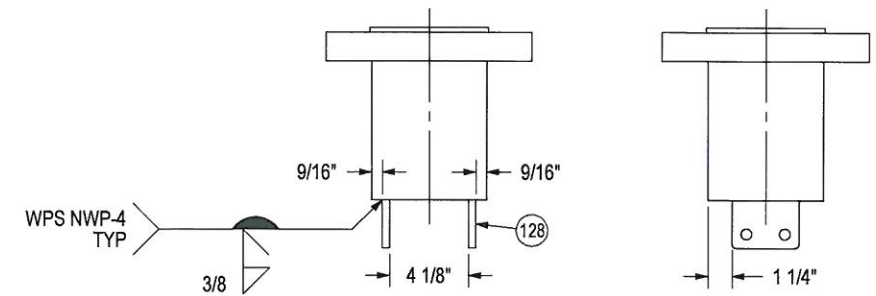
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SCALE: 1:12



DETAIL ITEM # 133
SCALE: 1:12

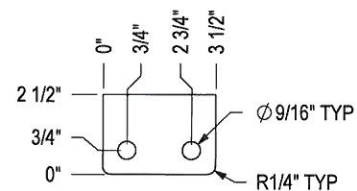


DETAIL ITEM # 132
SCALE: 1:8



N1 TAB WELDMENT
FRONT VIEW
SCALE: 1:10

N1 TAB WELDMENT
RIGHT VIEW
SCALE: 1:10



DETAIL ITEM # 128
SCALE: 1:6

ITEM	PART #	DRAWING #	DESCRIPTION	MATERIAL	SIZE	QTY	MTR #
101		NWPL-00073	MANWAY DAVIT ARM ASSEMBLY 20"-600			1	
102		NWPL-00118	VESSEL MISTEX ASSEMBLY 16" O.D. BOLTED			1	
103		NWPL-00112	SADDLE FOR 36" O.D. VESSEL (FIXED END)			1	
104		NWPL-00112	SADDLE FOR 36" O.D. VESSEL (SLIDING END)			1	
105	BOL.52LAY		BOLT 1/2" x 2" LG HEX HEAD	316SS		10	
106	BRACKET-NAME-1B	NWPL-00004	TANK/VESSEL NAME PLATE BRACKET 6" x 6" x 3" DEEP 1/4" THICK	SA-516-70N		1	
107	BUY		FLANGE 20" 600 ANSI SCH 160 RFWN	SA-350LF2-CL1		1	
108	BUY		FLAT WASHER 1/2"	316SS		20	
109	BUY		FLAT WASHER 1/2"	NYLON		20	
110	BUY		FLEXITALLIC FLOUROSEAL PTFE 1/2" WIDE	TEFLON		1	
111	BUY		HEAD: 36" O.D. x 1.5" THK NOM (1.4375" MIN) 2:1 SE c/w 2" SF	SA-516-70N		2	
112	BUY		PIPE: 20" NOM SCH 160 BE x PE (T=1.969")	SA-333-GR6 SMLS	15"	1	
113	BUY		REPAD PLATE 1 1/2" THK x 25" O.D. x 20 1/8" I.D. FORM TO FIT HEAD	SA-516-70N		1	
114	BUY		SHELL PLATE: 1 1/2" THK ROLL TO 36" O.D.	SA-516-70N	120"	1	
115	FRFBL20CAL		BLIND 20" 600 ANSI RF	SA-350LF2-CL1		1	
116	BUY		FLANGE RFHB NR/NS 3" 600 ANSI x 9" LG (T=1.24")	SA-105N		2	
117	FRFLW3(12)CAL		FLANGE 3" x 12" LG 600 ANSI (0.8125" WT) RFLWN	SA350LF2-CL1		1	
118	FRFLW4(9)CAL		FLANGE 4" x 9" LG 600 ANSI (1" WT) RFLWN	SA350LF2-CL1		3	
119	FRFWN2C160AL		Flange 2" 600 ANSI S/160 RFWN	SA-350LF2-CL1		7	
120	GRFSPW20CFUS		GASKET: 20" CL600 RF CG SP WND FLEXICARB	316LSS		1	
121	NUT.5YLAA		NUT 1/2" HEX	316SS		10	
122	NUT1.625M		NUT (HEX): 1 5/8" DIA.	SA-194-2HM		48	
123	PIP2160CL		PIPE: 2" NOM SCH 160 BE x PE	SA-333-GR6 SMLS	6"	1	
124	PIP2160CL		PIPE: 2" NOM SCH 160 BE x PE	SA-333-GR6 SMLS	5"	6	
125	PLA.25R		PLATE: 1/4" THK	SA-516-70N	32" x 12 1/2"	1	
126	PLA.25R		PLATE: 1/4" THK	SA-516-70N	14" x 6"	1	
127	PLA.375R		PLATE: 3/8" THK	SA-516-70N	13 1/4" x 5"	1	
128	PLA.375R		PLATE: 3/8" THK	SA-516-70N	2 1/2" x 3 1/2"	2	
129	PLA.375R	NWPL-00058	PLATE: 3/8" THK x 3" - FOR 3" NPS NOZZLE	SA-516-70N	6"	2	
130	PLA.75R		PLATE: 3/4" THK	SA-516-70N	12 3/4" x 3 3/8"	1	
131	PLA.75R		PLATE: 3/4" THK	SA-516-70N	3 3/4" x 2 1/2"	1	
132	PLA.75R		PLATE: 3/4" THK	SA-516-70N	6 3/4" x 3 3/8"	1	
133	PLA.75R		PLATE: 3/4" THK	SA-516-70N	8" x 6"	2	
134	STU1.625(12)K		STUD: 1 5/8" DIA.	SA-193-B7M	12"	24	
135	VES-NAMEPLATE-1		VESSEL NAME PLATE: BLACK/SILVER	ALUMINUM		1	

ORIGINAL

REV.	DATE	BY:	CHK:	APP:	DESCRIPTION
3	JAN 30/15	PA	DF	GH	CHANGED NOZZLE SPECIFICATION
2	DEC 19/14	PA	DF	GH	ADDED CLIENT NOTES
1	DEC 09/14	PA	DF	GH	ADDED DIMENSION, UPDATED DRAWING INFO, CHANGED N5 & N6 TO RFHB
0	NOV 05/14	PA	DF	GH	ISSUED FOR CONSTRUCTION

DRAWING REVISIONS

ISSUED FOR CONSTRUCTION

SIGNED: _____

DATE: _____

W.O.: _____

S/N: _____

ALL DIMENSIONS IN INCHES

NWP INDUSTRIES LP

P.O. BOX 6280, INNISFAIL, AB T4G 1S9
PH: (403) 227-4100 FAX: (403) 227-4102

PROJECTION:

SCALE: AS NOTED

WEIGHT: (APPROX LBS)

ENCANA CORPORATION
HORIZONTAL VESSEL
36" O.D. x 120" S/S x 1440 PSIG
1/8" C.A., 130 °F/-20 °F

DWN: PA CHK:

DATE: NOV 05/14 DATE: FEB 03 2015 DATE: JAN 30 2015

SHEET: 2 OF 2 DWG: 09207-001-A-100 REV: 3