

TAG:	QTY:	BRAND:	DESCRIPTION:
AIT/AE-3103A/B	2	Net-Safety	Combustible Gas detector Model MLP-A-SC1100-SEP, c/w remote calibration cup/splash gaurd (CCS-1). Alarm Set @ 10%, Shutdown Set @ 20%
AIT/AE-3104A/B	2	Net-Safety	H2S Detector Model MLP-A-ST1200-SEP c/w remote calibration cup/splash gaurd (CCS-1). Alarm Set @ 5 ppm, Shut down Set @ 10 ppm
AIT-3121	1	Ametek	Moisture Monitor, Model 3050-OLV c/w GO Heated Pressure Regulator 60Micron filter, needle valve and gauge, 110VAC
AE-3121A/B	2	Pro-bloc	Sample Probe 2" 9/1500 ANSI RF c/w 11" Insertion
AT-3102A/B	2	Net-Safety	Flame Detector Model UV/IRS-A c/w Swivel
BDV-3121	1	Fisher	Blowdown Valve, 2" 9/1500 ANSI RF 657-45 D-Body, 3/4" Port Fail Open 6-30 psig signal c/w DVC6010HC Digital Valve Positioner 4-20 mA, Cl.1 Div.1 XP (NACE)
BH-310A/B	2	Ruffneck	Glycol Building Heaters, Model: AH-16A-A5A1-A1-2A, 120V/1PH/60Hz XP , Duty: 19.92 Kw
BR-201	4	Radafab	Bleed Ring 2" 150 ANSI RF, 3/4" NPT SA-516-70N (NACE)
BSLL-3131	1	ACL	Ignition Control System, Model ACL-5100, 24-VDC, CSA approved, Class 1, Div 2 c/w Flamenco pilot & thermocouple
BYV-3121	1	Asco	Solenoid, Model: EF8314G301-24, 24 VDC CSA C11 Div 1 XP, Low Power
CF-315	1	JLF	Charcoal Filter, Model 1120/1122, 450 psig MAWP NACE c/w 2 1100 Series Carbon Elements
E-313A	1	Calhex	Lean/Rich Heat Exchanger, BEM 6x312, Duty: 667,000 btu/hr, 200 psig @ 400 deg.F -20 deg.F 0.125" CA NACE
E-313B	1	Calhex	Lean/Rich Heat Exchanger, BEM 4x324, Duty: 180,500 btu/hr, 200 psig @ 400 deg.F -20 deg.F 0.125" CA NACE
E-314A/B	2	Ruffneck	Air/Glycol Heat Exchangers, Model: AH-20A-A5A1-A1-2A, Duty: 24,300 btu/hr 120V / 1PH / 60Hz XP
ESDV/EYV-3131	1	ACL	1" NPT CSA Certified Safety Shutoff Valve with Proof of closure Limit Switch, Quick Exhaust and Solenoid, CSA CL1 Div1, 24VDC, Model ASSV-1P-24VDC
EYV-3133	1	ACL	1/8" NPT, 3-way valve, STD service, 24 VDC solenoid, 1.8 Watt Low Power, CSA CL1 Div 1 XP, p/n ACL-SV-SSO-1-24
FA-3131	1	Wenco	Flame Arrestor, 1.0 MMBtu/hr, 14" Firetube c/w Eclipse Burners
FE-3121	1	Canalta	Senior Orifice Meter, 10" 900 ANSI RF Sch. 120, AGA 2000 Spectra Compliant (NACE)
FE-3141	1	Roots	Positive Displacement Meter, Model 8C-175-CTR 1-1/2" NPT Local Display
FG-3161	1	Rotor-Tech	One Gallon Flo-Gage c/w 1" 316 SS 3-Way Valve (NACE)
FUT/TE-3121	1	Fisher	Multivariable Transmitter MVS205P Model: RSP2DS 0-250 DP, 0-3600 psig, c/w 3-wire RTD and 2" 9/1500 ANSI RF Thermowell 11" Insertion c/w AGCO 5-Valve Manifold Model: M6TVIS-4-SG (NACE)
FV-3121	1	Fisher	Control Valve, 6" 900 ANSI RF 657-70 HPT, 5-5/8" Mod. EQ# Trim 204, Fail Open 6-30 psig signal c/w DVC6010HC Digital Valve Positioner 4-20 mA, Cl.1 Div.1 XP (NACE)
GF-315	1	JLF	Glycol Filter, Model P2, 250 PSI NACE c/w 10 Micron Bag Type Filter Elements
HS-3101A/B	2	Crouse-Hinds	ESD Botton Model: DSD9185769 c/w NC-CH1-QA Cover (Supplied by Electrical Contractor)
LG/LIT-3110	1	K-Tek	Magnetic Level Gauge housing Model KM26S/SS6/W2FEFEB5(3/4")/WVR215/S1G/H/30" 900# RF x 30" C-C Connection, 30" Measuring Length c/w magnetic float for 1.0 SG WATER, 1900 psig MAWP @ 150 deg.F, AB & BC CRN (NACE)
LG/LIT-3111	1	K-Tek	Magnetic Level Gauge housing Model KM26S/SS6/W2FEFEB5(3/4")/WVR215/S1G/H/18" 900# RF x 18" C-C Connection, 18" Measuring Length c/w magnetic float for 1.0 SG, 1900 psig MAWP @ 150 deg.F, AB & BC CRN (NACE)
LG/LIT-3120	1	K-Tek	Magnetic Level Gauge housing Model KM26S/SS6/W5FEFEB5(3/4")/WVR21/S1G/H/42" 150# RF x 42" C-C Connection, 42" Measuring Length c/w magnetic float for 1.0 SG, 150 psig MAWP @ 200 deg.F, AB & BC CRN (NACE)
LG-3141	1	Penberthy	Transparent Sight Glass, Model 2TM6 c/w 330J Gage Cocks (NACE)
LSH-3110	1	SOR	Level Switch, Model 1510C-G2A-C-W9ES-CS-CV-NC, 2" NPT, ELECTRIC (NACE)
LSLL-3141	1	SOR	Level Switch, Model 1510C-G2A-C-W9ES-CS-CV-NC, 2" NPT, ELECTRIC (NACE)
LV-3110	1	Fisher	Level Control Valve, 1" NPT 667-34 D-Body, 1/4" 3 Flute Trim Fail Closed 6-30 psig signal c/w DVC6010HC Digital Valve Positioner 4-20 mA, Cl.1 Div.1 XP (NACE)
LV-3111	1	Fisher	Level Control Valve, 1" NPT 667-30 D-Body, 1/4" Port Fail Closed 6-30 psig signal c/w DVC6010HC Digital Valve Positioner 4-20 mA, Cl.1 Div.1 XP (NACE)
LV-3120	1	Fisher	Level Control Valve, 1" NPT 667-30 D-Body, 3/8" Port Fail Closed 6-30 psig signal c/w DVC6010HC Digital Valve Positioner 4-20 mA, Cl.1 Div.1 XP (NACE)
P-316A/B	2	Rotor-Tech	Electric Glycol Circulation Pumps, Model: GS1106/06-E20.0 EXPR (1800) AC-3, 1900 psig Max Discharge, Capacity: 230-690 USGPH, Motors: WEG, 20 HP, 480V/3PH/60Hz XP VFD: 3:1 Turndown
PCV-3120	1	Fisher	Back-pressure control valve, 1" NPT, Model 98H-N61, 50 psig set spring, Steel Body, tapped bonnet (NACE)
PDI-3150/3151	2	Orange Research	Differential Pressure Indicator, Model: 1201PG-1C-25L/50D 2 1/2 in Face, 0-50 psig (NACE) c/w Agco Model: M1-VIS-4-SG Manifold
PF-315	1	Filter Solutions	Particle Filter, Model 1Rx2H-316SS, 1" NPT, 300 psig MAWP NACE c/w CUNO 25 Micron Element Model: G78F82N
PI-3110	1	Wika	Pressure Indicator, 1/2" NPT x 4" liquid filled, dual scale (0-3000 psig), SS case c/w Agco Multi-Port Gauge valve, 3/4" x 1/2" NPT SS Body Model M5-VIS-46-SG c/w VAS-4-SG Bleed plug (NACE)
PI-3120	1	Wika	Pressure Indicator, 1/2" NPT x 4" liquid filled, dual scale (0-2000 psig), SS case c/w Agco Multi-Port Gauge valve, 3/4" x 1/2" NPT SS Body Model M5-VIS-46-SG c/w VAS-4-SG Bleed plug (NACE)
PI-3131-3134	4	Wika	Pressure Indicator, 1/4" NPT x 2.5" liquid filled, dual scale (0-30 psig) SS case
PI-3160A/B	2	Wika	Pressure Indicator, 1/2" NPT x 4" liquid filled, dual scale (0-3000 psig), SS case c/w Agco Multi-Port Gauge valve, 3/4" x 1/2" NPT SS Body Model M5-VIS-46-SG c/w VAS-4-SG Bleed plug (NACE)
PIT-3121	1	Rosemount	Gauge Pressure Transmitter Model 3051CG5A82A1AC6M5, calibrated 0-2000 psig, 24VDC, 4-20 mA Output, CSA CL1 Div1 XP c/w Agco 2-Valve SS Manifold, 1/2" NPT x Flanged Model M4TP-VIS-4-SG (NACE)
PRV/PI-3100A-G	7	Fisher	Regulator, 1/4" NPT Model 67CFR, 35 psig set spring, c/w Backmount Pi (0-60#)
PRV/PI-3100H/I	2	Fisher	Regulator, 1/4" NPT Model 67CFR, 0-120 psig set spring, c/w Backmount Pi (0-150#)
PRV-3131	1	Fisher	Regulator, 1" NPT Model 627, CS body, 5-20 psig spring, 3/16" port

TAG:	QTY:	BRAND:	DESCRIPTION:
PRV-3132	1	Fisher	Regulator, 1" NPT Model 627, CS body, 5-20 psig spring, 3/16" port
PRV-3133	1	Fisher	Regulator, 1/4" NPT Model 67CFR, 35 psig set spring, Tapped Bonnet
PSHH-3131	1	CCS Dual-S	Pressure Switch, 24 V DC, XP, set @ 20 psig rising, Model 6900GZE-14 (SPDT) c/w Agco 2-Valve SS Manifold, 1/2" NPT Model M25-VIS-4
PSLL-3131	1	CCS Dual-S	Pressure Switch, 24 V DC, XP, set @ 5 psig falling, Model 6900GZE-12 (SPDT) c/w Agco 2-Valve SS Manifold, 1/2" NPT Model M25-VIS-4
PSV-3110	1	Farris	Flanged Relief Valve, set @ 1900 psig, rated for: 80 MM scf/d @ 120 deg. F, 0.63 SG natural gas, 3" 900 ANSI RF x 4" 300 ANSI RF, Model 38KC14-120, NACE Primary Zone
PSV-3120	1	Farris	Relief Valve, set @ 150 psig, 1.5" x 2" 150 ANSI RF, Model: 26FA10-120, NACE Primary Zone
PSV-3151	1	Farris	Relief Valve, set @ 30 psig, Rated for: 690 USGPH @ 150 deg. F, TEG, 1" x 1" NPT, Model 27CA33-M20, NACE Primary Zone
PSV-3160A/B	2	Farris	Relief Valve, set @ 1900 psig, Rated for: 690 USGPH @ 150 deg. F, TEG, 1" x 1" NPT, Model 27CA33-M20, NACE Primary Zone
PVSV-3131	1	Dalco	2" 150 ANSI RF Cone check Relief valve 5 psig set.
SC-3131	1	SMC	Speed Control Model AS-2000
ST-100X-SW	1	Alta	1" SW Class 1500 Y-Strainer (NACE)
ST-150X	1	Alta	1.5" NPT Class 800 Y-Strainer (NACE)
ST-150X-SW	1	Alta	1.5" SW Class 1500 Y-Strainer (NACE)
TV-3131	1	Fisher	Temperature Control Valve, 1" NPT Model D4, 3/4" port, 0-30# Fail Closed
TI-3110	1	Trend	Temperature Indicator, 1/2" x 5" dual scale (0 to 250 deg F) c/w 3/4" NPT x 12" Lg SS Thermowell (NACE)
TI-3120	1	Trend	Temperature Indicator, 1/2" x 5" dual scale (0 to 250 deg F) c/w 3/4" NPT x 12" Lg SS Thermowell (NACE)
TI-3130	1	Trend	Temperature Indicator, 1/2" x 5" dual scale (0 to 250 deg F) c/w 3/4" NPT x 1.5" Lg SS Thermowell (NACE)
TI-3131	1	Trend	Temperature Indicator, 1/2" x 5" dual scale (0 to 250 deg F) c/w 3/4" NPT x 1.5" Lg SS Thermowell (NACE)
TI-3132	1	Trend	Temperature Indicator, 1/2" x 5" dual scale (50 to 500 deg F) c/w 3/4" NPT x 12" Lg SS Thermowell (NACE)
TI-3133/3134/3135	3	Trend	Temperature Indicator, 1/2" x 5" dual scale (50 to 500 deg F) c/w 3/4" NPT x 1.5" Lg SS Thermowell (NACE)
TIT/TE-3131	1	Rosemount	Temperature Transmitter, Model 3144PD1A1K6M5, LCD Display c/w RTD Model 0068R21C30A105T26E6R05 c/w 3/4" NPT x 10.5" U-Length Thermowell. (NACE)
TIT/TE-3141	1	Rosemount	Temperature Transmitter, Model 3144PD1A1K6M5, LCD Display c/w RTD Model 0068R21C30A015T34E6R05 c/w 3/4" NPT x 1.5" U-Length Thermowell. (NACE)
TSHH-3132	1	CCS	Temperature Switch, Model 6900TE18, Set at 400 deg F rising, CSA CL 1 Div 1 XP
TW-3121B	1	Wika	Thermowell, 2" 9/1500 ANSI RF x 11" U-Length 316SS (NACE)
TY-3131	1	Fisher	Transducer, Model I2P-100, 4-20 mA, CSA Cl.1 Div.1
UAL-3109A	1	Federal Signal	Beacon Model: 27xL, 24 VDC, Red Lens (Supplied by Electrical Contractor)
UAL-3109B	1	Federal Signal	Beacon Model: 27xL, 24 VDC, Amber Lens (Supplied by Electrical Contractor)
UAL-3109CA/CB	2	Federal Signal	Beacon Model: 27xL, 24 VDC, Blue Lens (Supplied by Electrical Contractor)
VB-050X	8	Worcester	Ball Valve, 1/2" NPT Regular Port, 3000 psig WOG, Model 4446YV-SE (NACE)
VB-075X	2	Worcester	Ball Valve, 3/4" NPT Full Port, 3000 psig WOG, Model 4446YV-SE (NACE)
VB-075X	12	Worcester	Ball Valve, 3/4" NPT Reg, Port, 3000 psig WOG, Model 4446YV-SE (NACE)
VB-075X-SE	2	Worcester	Ball Valve, 3/4" SW x NPT Port, 3000 psig WOG, Model 4446YV-SWxSE (NACE)
VB-100	6	Worcester	Ball Valve, 1" NPT Regular Port, 3000 psig WOG, Model 4446YV-SE (NACE)
VB-100X-SW	2	Worcester	Ball Valve, 1" SW Regular Port, 3000 psig WOG, Model 4446YV-SW (NACE)
VB-201X	3	Navco	Ball Valve, 2" 150 ANSI RF RP, Model: B2-R20R01SZ (NACE)
VB-209X	8	WKM	Ball Valve, 2" 900 ANSI RF RP, Model: 2RB136CS242S2 (NACE)
VB-309X	1	WKM	Ball Valve, 3" 900 ANSI RF RP, Model: 3RB136CS242S2 (NACE)
VB-619X	2	Nutron	Ball Valve, 6" 900 ANSI RF FP, Model: TT-F60R09LGZ (NACE)
VCH-100	1	Newco	Piston Check Valve, 1" NPT, Class 800 Model: 48T-FS2
VCH-100X-SW	2	Newco	Piston Check Valve, 1" SW, Class 1500 Model: 415S-LF-24/3 (NACE)
VCH-150X-SW	3	Newco	Piston Check Valve, 1.5" SW, Class 1500 Model: 415S-LF-24/3 (NACE)
VF-310A/B	2	James Electric	Exhaust Fan, 12 ACPH, Model: JE12 1170 1PPX, 1/4 HP 1800 RPM 120V/1PH/60Hz XP
VGA-050X	5	Navco	Gate Valve, 1/2" NPT, Class 800 Model: GA-R05S08F12 (NACE)
VGA-075-SE	4	Newco	Gate Valve, 3/4" SW x NPT, Class 800 Model: 18X-FS2
VGA-075X	2	Newco	Gate Valve, 3/4" NPT, Class 800 Model: 18T-FS4/3 (NACE)
VGA-075X-SE	7	Newco	Gate Valve, 3/4" SW x NPT, Class 1500 Model: 115X-FS4/3 (NACE)
VGA-075X-SW	2	Newco	Gate Valve, 3/4" SW, Class 1500 Model: 115S-FS4/3 (NACE)
VGA-100X	4	Newco	Gate Valve, 1" NPT, Class 800 Model: 18T-FS4/3 (NACE) One Model:18T-LF-24/3 LT
VGA-150-SW	2	Newco	Gate Valve, 1.5" SW, Class 800 Model: 18S-FS2
VGA-150X	19	Newco	Gate Valve, 1.5" NPT, Class 800 Model: 18T-FS4/3 (NACE)
VGA-150X-SW	8	Newco	Gate Valve, 1.5" SW, Class 1500 Model: 115S-LF-24/3 (NACE)
VGA-201X	2	Newco	Gate Valve, 2" 150 ANSI RF Model: 11F-CB4/3 (NACE)
VGL-150-SW	2	Newco	Globe Valve, 1.5" SW Class 800, Model: 28S-FS2
VGL-150X	4	Newco	Globe Valve, 1.5" NPT Class 800, Model: 28T-FS4/3 (NACE)
VGL-150X-SW	3	Newco	Globe Valve, 1.5" SW Class 1500, Model: 215S-FS4/3 (NACE)

TAG:	QTY:	BRAND:	DESCRIPTION:
VGL-209X	2	Newco	Globe Valve, 2" 900 ANSI RF, Model: 215F-LF24/3 (NACE)
VN-025	5	Agco	Needle Valve, 1/4" NPT, Model H7VIS-22Q M X F
VN-050	9	Agco	Needle Valve, 1/2" NPT, Model H7VIS-44Q M X F
VN-050x	4	Agco	Needle Valve, 1/2" NPT, Model H7VIS-44Q-SG, M X F (NACE)
XV-3122	1	PBV/Bettis	ESD Valve, 10" x 8" 900 ANSI RF RP Trunnion Ball Valve Model C5790-71-2200-NVNB c/w Bettis Model:G2012SR4-11 G2 Fail Closed Actuator, 80 psig Supply (NACE)
XYV-3122	1	Asco	Solenoid, Model: EF8314G301-24, 24 VDC CSA C11 Div 1 XP, Low Power

GENERAL NOTES:

- No of Units req'd: ONE (1)
- Materials shown for one Unit only
- Welded piping to be: See Line Specs. on P&ID
- All Threaded Piping to be: See Table below
- All Welded Fittings to be: See Line Specs. on P&ID
- All Forged Steel fittings to be: See Table below
- Unit to be designed / pressure tested as follows:

PIPING AS PER B31.3, CODE YEAR: 2006

* SPEC. TAG #	SERVICE	DESIGN	NPT PIPING	F.S. FITTINGS	STRESS RELIEF	PRESSURE TEST @ ROOM TEMP.	C.A.
AS	SOUR	273 PSIG @ 150° F	SEE LINE SPEC.	SA-105N, 3000#	SEE LINE SPEC.	410 PSIG (HYDROTEST)	0.125"
AS1	SOUR	125 PSIG @ 200° F	SEE LINE SPEC.	SA-105N, 3000#	SEE LINE SPEC.	140 PSIG (AIRTEST)	0.125"
AS2	SOUR	ATMOSPHERIC	SEE LINE SPEC.	SA-105N, 3000#	SEE LINE SPEC.	STATIC	0.125"
AS3	SOUR	150 PSIG @ 400° F	SEE LINE SPEC.	SA-105N, 3000#	SEE LINE SPEC.	225 PSIG (HYDROTEST)	0.125"
A1	SWEET	125 PSIG @ 150° F	SEE LINE SPEC.	SA-105N, 3000#	SEE LINE SPEC.	140 PSIG (AIRTEST)	0.0625"
A2	SWEET	245 PSIG @ 250° F	SEE LINE SPEC.	SA-105N, 3000#	SEE LINE SPEC.	368 PSIG (HYDROTEST)	0.0625"
DS	SOUR	1900 PSIG @ 150° F	SEE LINE SPEC.	SA-105N, 6000#	SEE LINE SPEC.	2850 PSIG (HYDROTEST)	0.125"

* Use SA-350-LF2 for Low Temp F.S. Fittings & SA-333 for Low Temp. NPT Piping

VESSEL AS PER ASME VIII DIV. 1, CODE YEAR: 2007

TAG #	MAWP	HYDROTEST @ ROOM TEMP.	STRESS RELIEF	C.A.
V-311	1900 PSIG @ 150° F	2850 PSIG	YES	0.125"
V-312	150 PSIG @ 200° F	225 PSIG	YES	0.125"

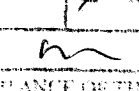
- All bleeding type of instruments with bleed ports (excluding diaphragms & regulator bonnets) to be vented to skid-deg. Natural Gas vents to be vented to vent header.
- Tubing Details:

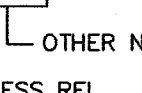
SERVICE	SIZE	TUBE	WT	FITTINGS	FERRULES
ALL TUBING	3/8"	316SS	0.035"	316SS	316SS
	1/2"		0.049"		

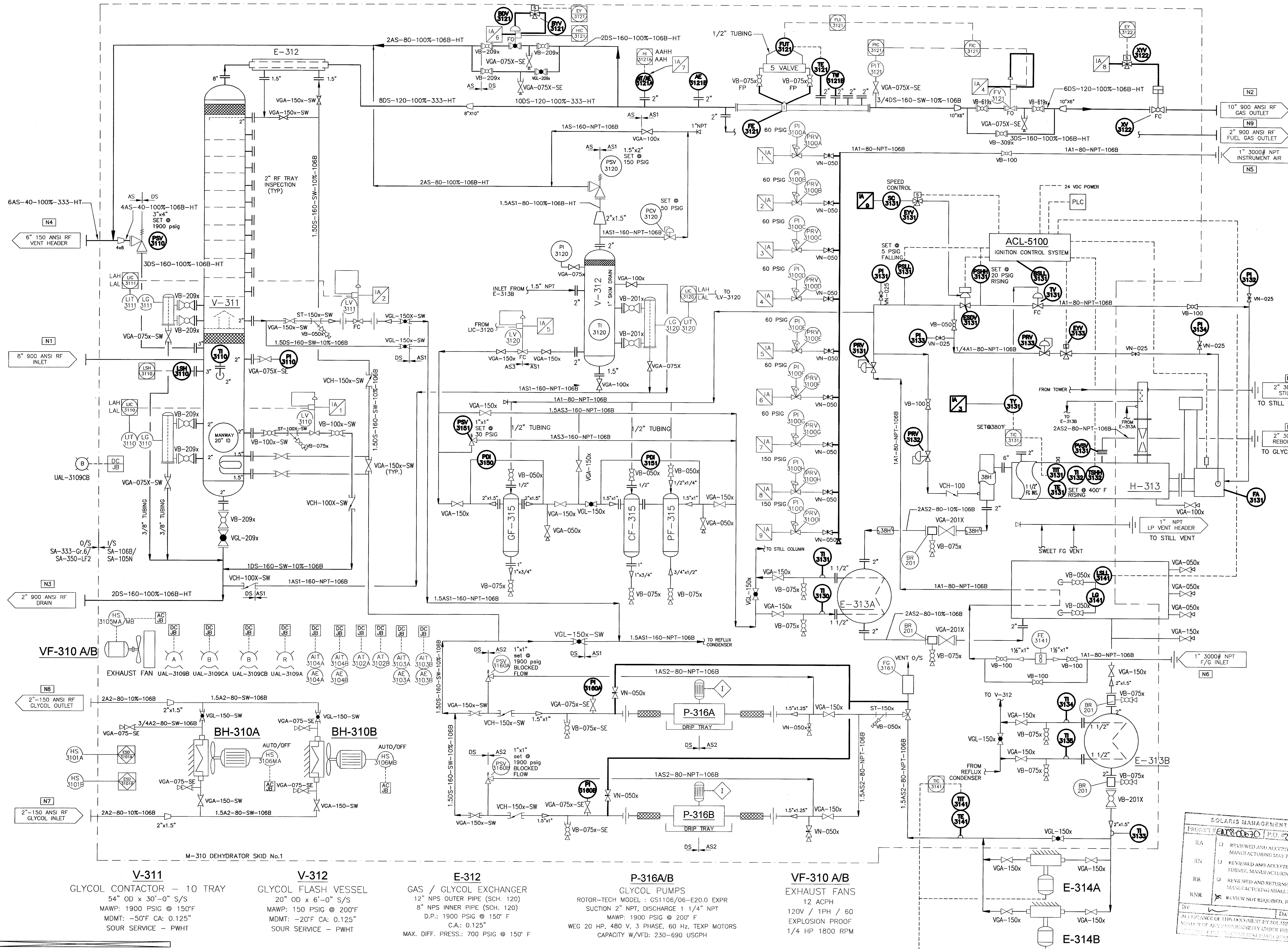
- Total piping volume is > 0.5 cu.m.

- Studs/Nuts Detail

SERVICE	STUDS	NUTS	GASKETS
SWEET SERVICE/ LOW TEMP./REG. TEMP.	SA-193-B7M	SA-194-2HM	316SS FLEXITALLIC

SOLARIS MANAGEMENT CONSULTANTS INC.	
PROJECT # 2086	P.O. # 2086
RA ☐ REVIEWED AND ACCEPTED AS FINAL AND CERTIFIED. MANUFACTURING MAY PROCEED.	REV 5
RN ☐ REVIEWED AND ACCEPTED AS NOTED. REVISE AND RE-SUBMIT. MANUFACTURING MAY PROCEED.	
RR ☐ REVIEWED AND RETURNED. CORRECT AND RE-SUBMIT. MANUFACTURING SHALL NOT PROCEED.	
RNK ☒ REVIEW NOT REQUIRED. FOR INFORMATION ONLY.	
BY 	DATE FEB-06-2008
ACCEPTANCE OF THIS DOCUMENT BY SOLARIS DOES NOT IMPLY SOLARIS ASSUMES RESPONSIBILITY UNDER THE TERMS AND CONDITIONS OF THE CONTRACT. ALL MANUFACTURING SHALL BE TO THE ORDER OF THE CLIENT.	

OPSCO STANDARD WELDED PIPELINE DESIGNATION SYSTEM				OPTIONAL: LEAVE OUT UNLESS NEEDED				THIS DRAWING IS THE PROPERTY OF OPSCO INDUSTRIES LTD. AND LOANED TO THE RECIPIENT FOR HIS CONFIDENTIAL USE ONLY. IN CONSIDERATION OF THE LOAN OF THIS DRAWING, THE RECIPIENT PROMISES AND AGREES THAT IT SHALL NOT BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF OPSCO INDUSTRIES LTD., THAT IT SHALL BE RETURNED UPON REQUEST, AND THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF DIRECTLY OR INDIRECTLY, NOR USED FOR ANY PURPOSE OTHER THAN THAT INTENDED WITHOUT THE WRITTEN PERMISSION OF OPSCO INDUSTRIES LTD.												No. DATE REVISIONS BY APP No. DATE REVISIONS BY APP				ENGINEERS RECORD DATE				CLIENT ENCANA CORPORATION C/O SOLARIS MANAGEMENT CONSULTANTS INC.			
EXAMPLE: 6B - 40 - 10% - 106B - HT - 				OTHER NDT																DRAWN BY DAN COTE Aug. 28, 2008				PROJECT 54" O.D. x 30'-0" S/S SOUR DEHYDRATION PACKAGE (M-310) HORN RIVER GAS PLANT c-67-K / 94-0-8							
LINE SIZE (NPS) ANSI CLASS A=150 B=300 C=600				X-RAY MATERIAL SPEC.																CHECKED BY				TITLE BILL OF MATERIALS AND NOTES							
PIPE SCHEDULE D=900 E=1500 F=2500				STRESS REL.																ENG. REVIEW				PO# 2086							
																				ENG. APPD.				Scale NTS JOB No. MFG01-0250-01 DWG. No. F-01-0250-01-002 REV. 5							
																				Q.C. APPD.											



BH-310A/B
RUFFNECK BUILDING HEATERS
Model: AH-16A-ASA1-A1-2A
120V / 1PH / 60HZ XP
DUTY: 19.92 Kw

E-314A/B
AIR/GLYCOL EXCHANGERS
RUFFNECK MODEL: AH-20A-ASA1-A1-2A
120V / 1PH / 60HZ XP
DUTY: 24.300 Btu/hr

H-313
GLYCOL REBOILER/ACCUMULATOR
SIZE: 36" O.D. x 18'-0" REB, 1,000,000 Btu/hr
ACCUMULATOR: SIZE: 36" O.D. x 15'-0"
14" O.D. STACK AND FIRE TUBE
STILL COLUMN: 16" O.D. x 9'-6" LONG
REFLUX CONDENSER: 16" O.D. x 2'-0" LONG

E-313A
LEAN/RICH HEAT EXCHANGER
CALHEX MODEL: BEM 6x312
DUTY: 667,000 Btu/hr
D.P.: 200 PSIG @ 400°F
MDMT: -20°F, C.A. = 0.125"
SOUR SERVICE-PWHT

E-313B
LEAN/RICH HEAT EXCHANGER
CALHEX MODEL: BEM 4x324
DUTY: 180,500 Btu/hr
D.P.: 200 PSIG @ 400°F
MDMT: -20°F, C.A. = 0.125"
SOUR SERVICE-PWHT

CF-315
GLYCOL CHARCOAL FILTER
JLF MODEL: 1120 C/W 2-1122-C, CARBON CANNISTERS
4 USGPM MAX FLOW
D.P.: 450 PSIG @ 250°F
MDMT: -20°F, C.A. = 0.125"

GF-315
GLYCOL BAG FILTER
JLF MODEL: P-2 c/w 10 Micron Bag
80 USGPM MAX FLOW
D.P.: 250 PSIG @ 200°F
MDMT: -20°F, C.A. = 0.125"

PF-315
GLYCOL PARTICLE FILTER
JLF MODEL: P-2 c/w 25 Micron Cuno Element
4 USGPM MAX FLOW
D.P.: 300 PSIG @ 300°F
MDMT: -20°F, C.A. = 0.125"

SOLARIS MANAGEMENT CONSULTANTS INC.			
PROJECT # 2086			
RA	REVIEWED AND ACCEPTED FOR CONSTRUCTION	DATE	FEB 06 2008
RN	REVIEWED AND ACCEPTED FOR CONSTRUCTION	DATE	FEB 06 2008
RR	REVIEWED AND ACCEPTED FOR CONSTRUCTION	DATE	FEB 06 2008
RNR	REVIEW NOT REQUIRED, FOR INFORMATION ONLY	DATE	FEB 06 2008

OPSCO STANDARD WELDED PIPELINE DESIGNATION SYSTEM

EXAMPLE: 8B - 40 - 10% - 106B - HT

LINE SIZE (NPS)	ANSI CLASS	PIPE SCHEDULE
A=150	D=900	
B=300	E=1500	
C=600	F=2500	

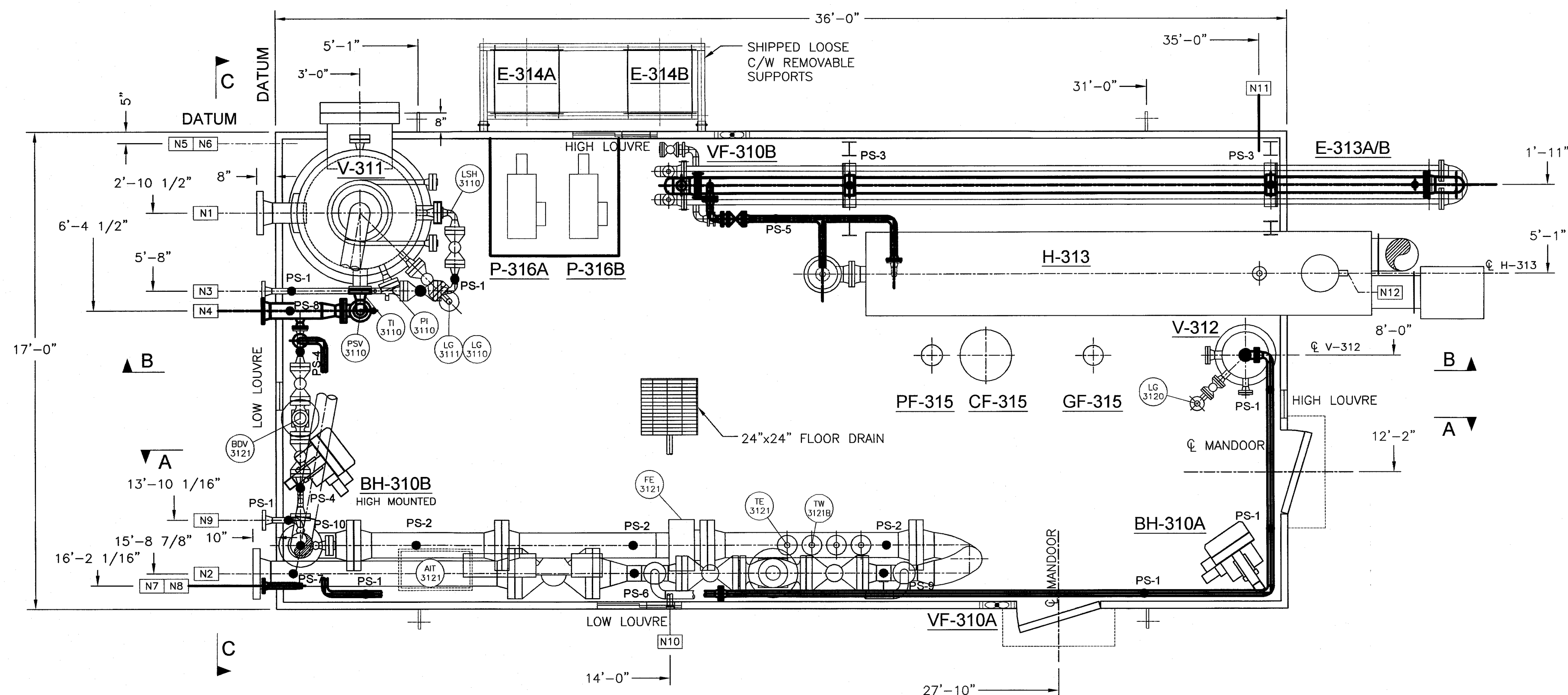
OTHER NDT: X-RAY, MATERIAL SPEC., STRESS REL.

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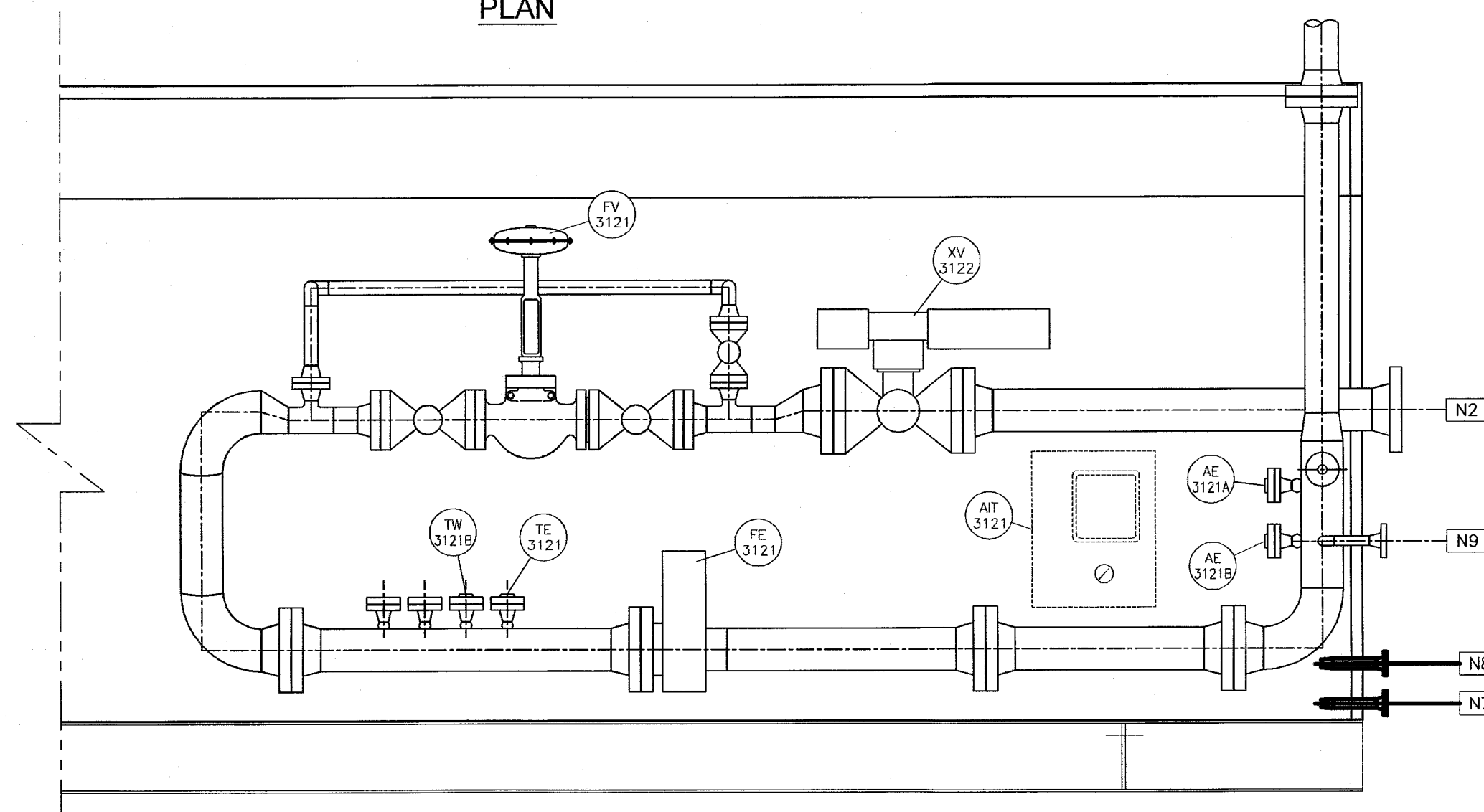
No.	DATE	REVISIONS	BY	APP	No.	DATE	REVISIONS	BY	APP
0	SEP 17 2007	ISSUED FOR APPROVAL	D.C.						
1	OCT 02 2007	RE-ISSUED FOR APPROVAL	D.C.						
2	NOV 04 2007	ISSUED FOR CONSTRUCTION	D.C.						
3	NOV 19 2007	RE-ISSUED FOR CONSTRUCTION	M.T.						
4	DEC 09 2007	RE-ISSUED FOR CONSTRUCTION	J.C.						
5	FEB 05 2008	AS BUILT	C.P.						

ENGINEERS RECORD				DATE
DRAWN BY	DAN COTE			Aug. 28, 2008
CHECKED BY				
APPD. BY				
ISSUED TO	SHOP			

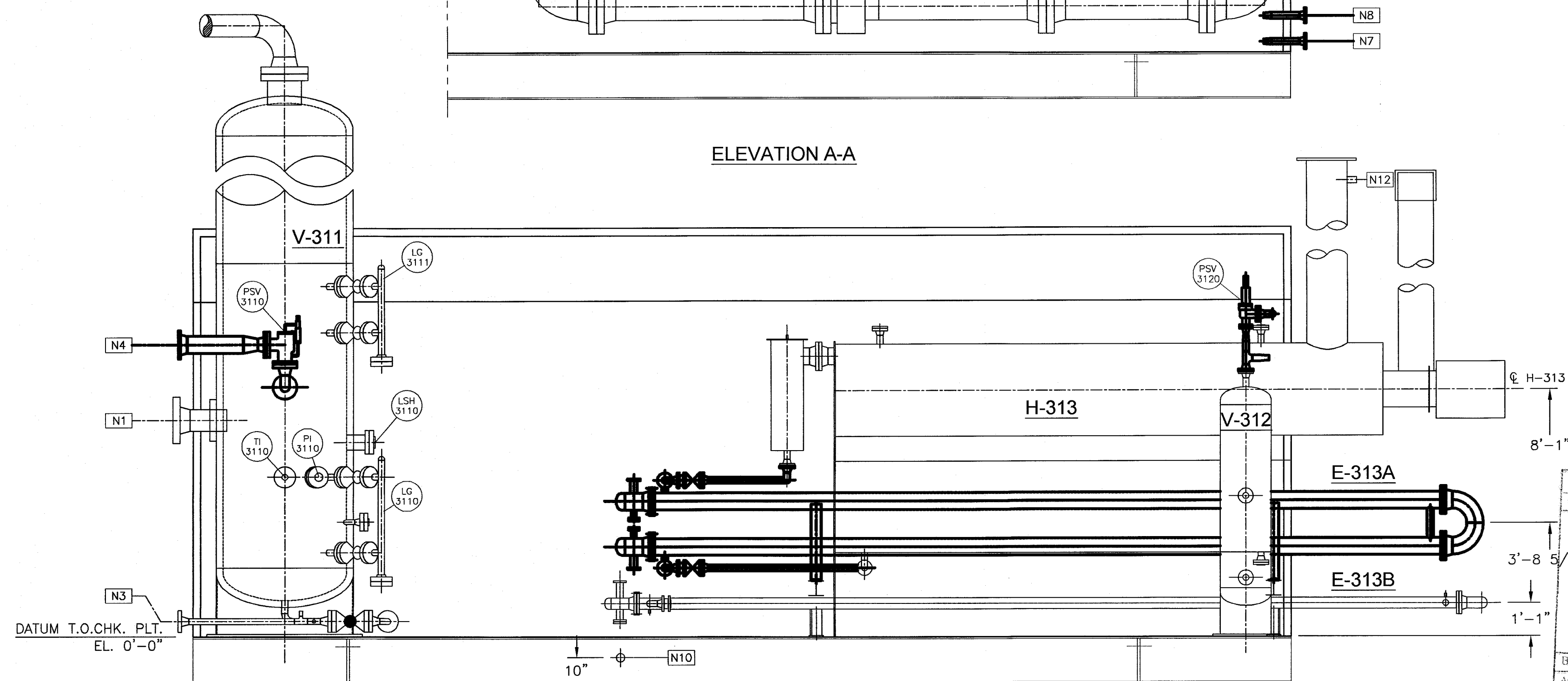
ENSIGN Opsco Manufacturing		CLIENT ENCANA CORPORATION C/O SOLARIS MANAGEMENT CONSULTANTS INC.	
PROJECT 54" O.D. x 30'-0" S/S SOUR DEHYDRATION PACKAGE (M-310) HORN RIVER GAS PLANT c-67-K / 94-0-8		TITLE FLOW DIAGRAM	
PO# 2086	Scale NTS	JOB No. MFG01-0250-01	DWG. No. F-01-0250-01-001
		REV. 5	



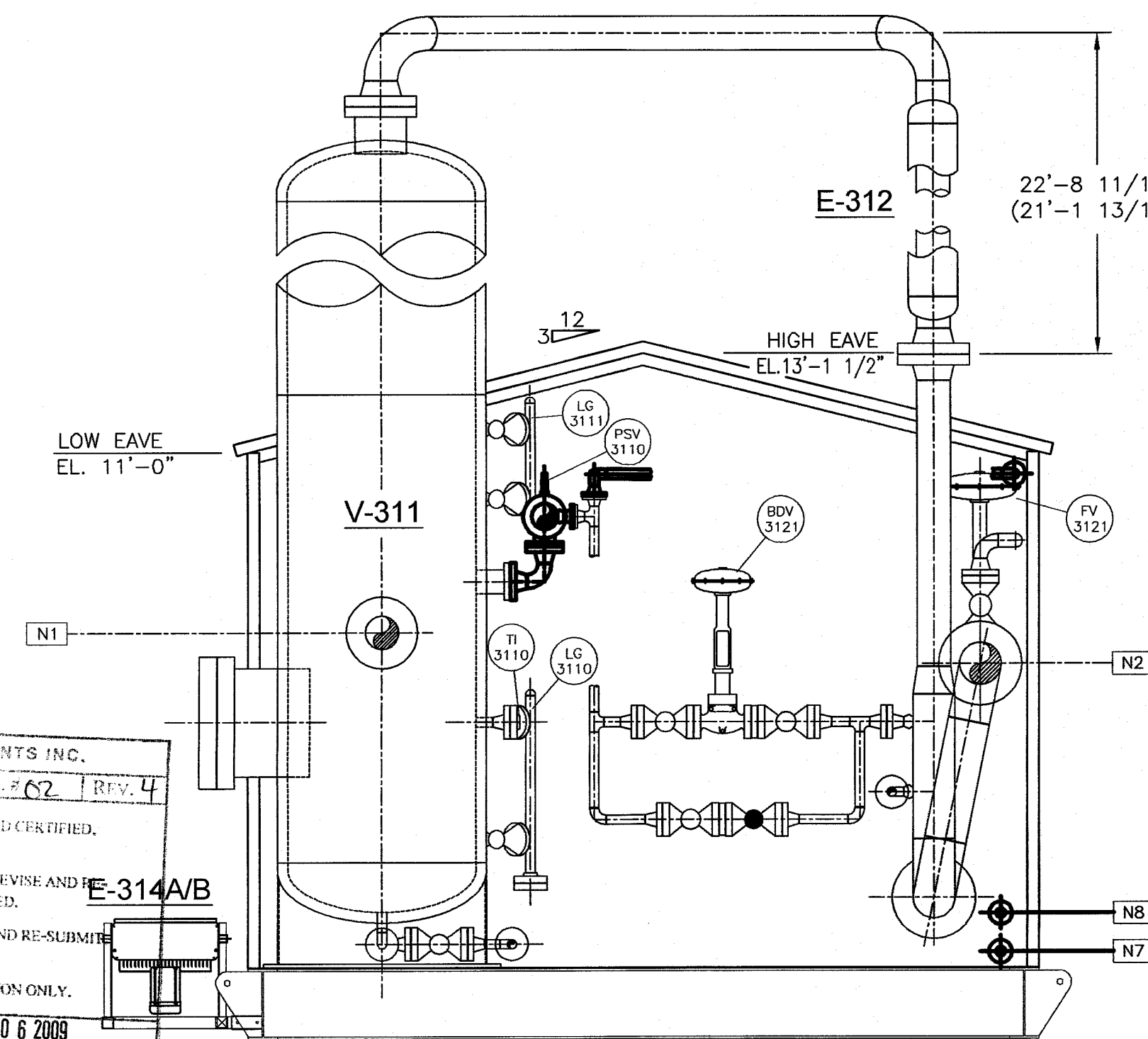
PLAN



ELEVATION A-A



ELEVATION B-B



VIEW C-C

GENERAL NOTES:

1. No of Units req'd: One (1)
2. Unit to be commercially sandblasted to SSPC-SP-6 and shop-primed with: One (1) coat Zinc Chromate
3. Finish Paint: One(1) coat Industrial Enamel (Taupe)
4. Underskid Insulation: 2" Thk. std. industrial grade urethane foam on underside of floor within building limits.
5. Radiography on Piping welding to be: See Line Specs on P&ID
6. OPSCO standard pipe supports, as required.
7. Unless specified otherwise, all projections beyond building wall to be: 6"
8. Dimensions may change to reflect customer requests, layout changes, accessibility and non-conformity of OEM supplied components.
9. Stress Relieving Details: See Line Specs on P&ID
10. XP electrical hook-up of GLYCOL Heaters: BY TARPON
11. Other Electrical Work: BY TARPON

SKID NOTES REFER TO DWG. S-01-0250-01-001

BUILDING NOTES REFER TO DWG. B-01-0250-01-001

CONNECTION SCHEDULE

MARK	SIZE	RATING	TYPE	DESCRIPTION	CL ELEVATION
N1	8"	900#	RFWN	INLET	7'-2"
N2	10"	900#	RFWN	GAS OUTLET	6'-6"
N3	2"	900#	RFWN	DRAIN	0'-6"
N4	6"	150#	RFWN	VENT HEADER	9'-7 1/2"
N5	1"	3000#	NPT	INSTRUMENT AIR	1'-2 1/4"
N6	1"	3000#	NPT	F/G INLET	1'-6 1/4"
N7	2"	150#	RFWN	GLYCOL INLET	0'-4"
N8	2"	150#	RFWN	GLYCOL OUTLET	1'-2"
N9	2"	900#	RFWN	FUEL GAS OUTLET	3'-9"
N10	2"	NPT		FLOOR DRAIN	AS SHOWN
N11	2"	3000#	NPT	TO GLYCOL DRAIN TANK	10'-5 1/4"
N12	2"	3000#	NPT	TO STILL COLUMN VENT TANK	18'-9 3/4"

SHIP DIMENSION

LENGTH	43'-11"
WIDTH	19'-10"
HEIGHT	14'-11"
WEIGHT	120,100 LBS

OPSCO STANDARD WELDED PIPELINE DESIGNATION SYSTEM

OPTIONAL: LEAVE OUT UNLESS NEEDED

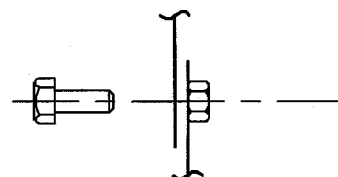
EXAMPLE: 6B - 40 - 10% - 106B - HT - OTHER NDT
LINE SIZE (NPS) ANSI CLASS D=900 E=1500 F=2500
A=150 B=300 C=600
PIPE SCHEDULE X-RAY MATERIAL SPEC. STRESS REL.

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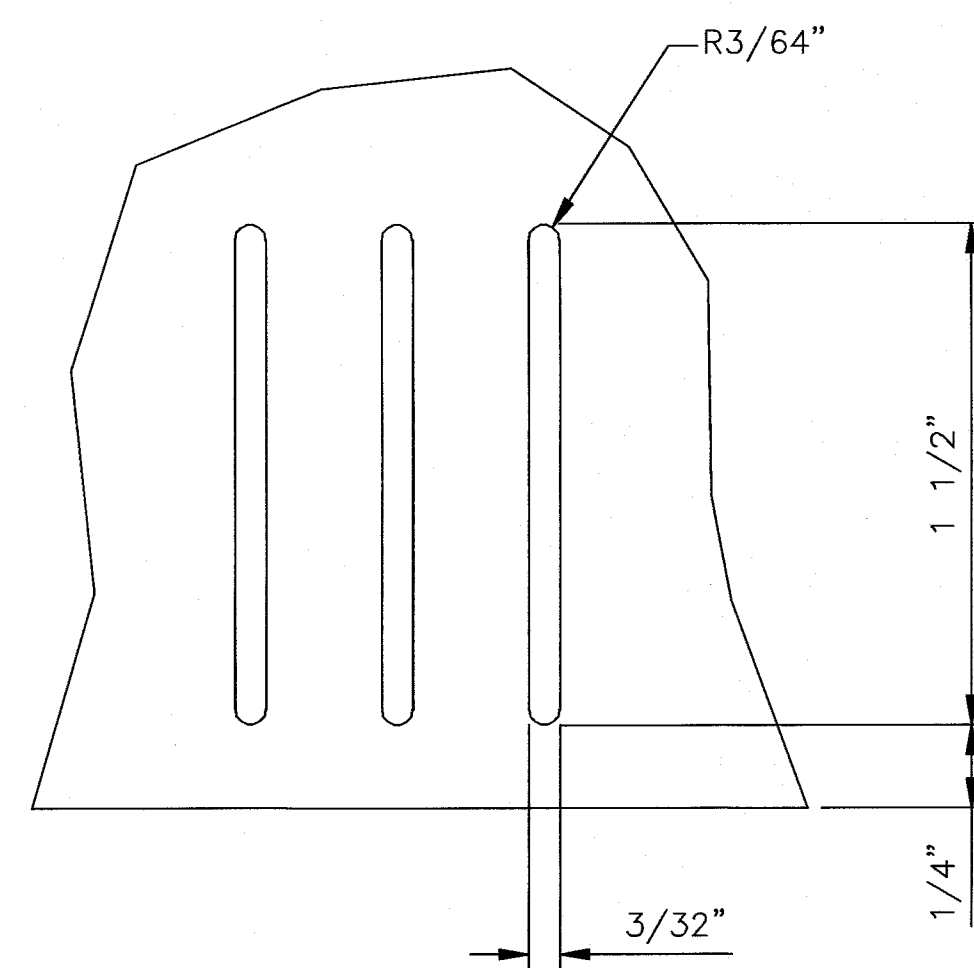
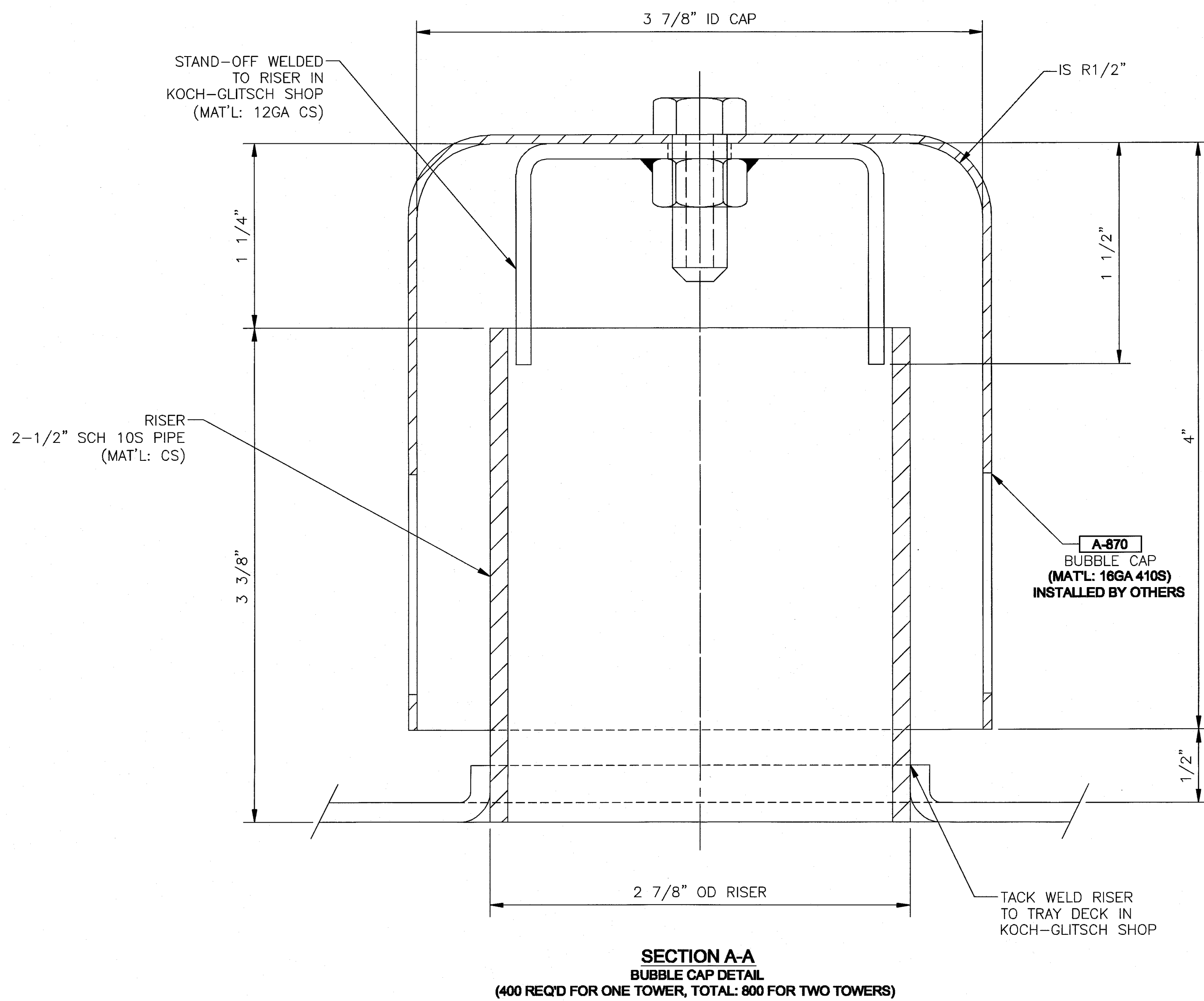
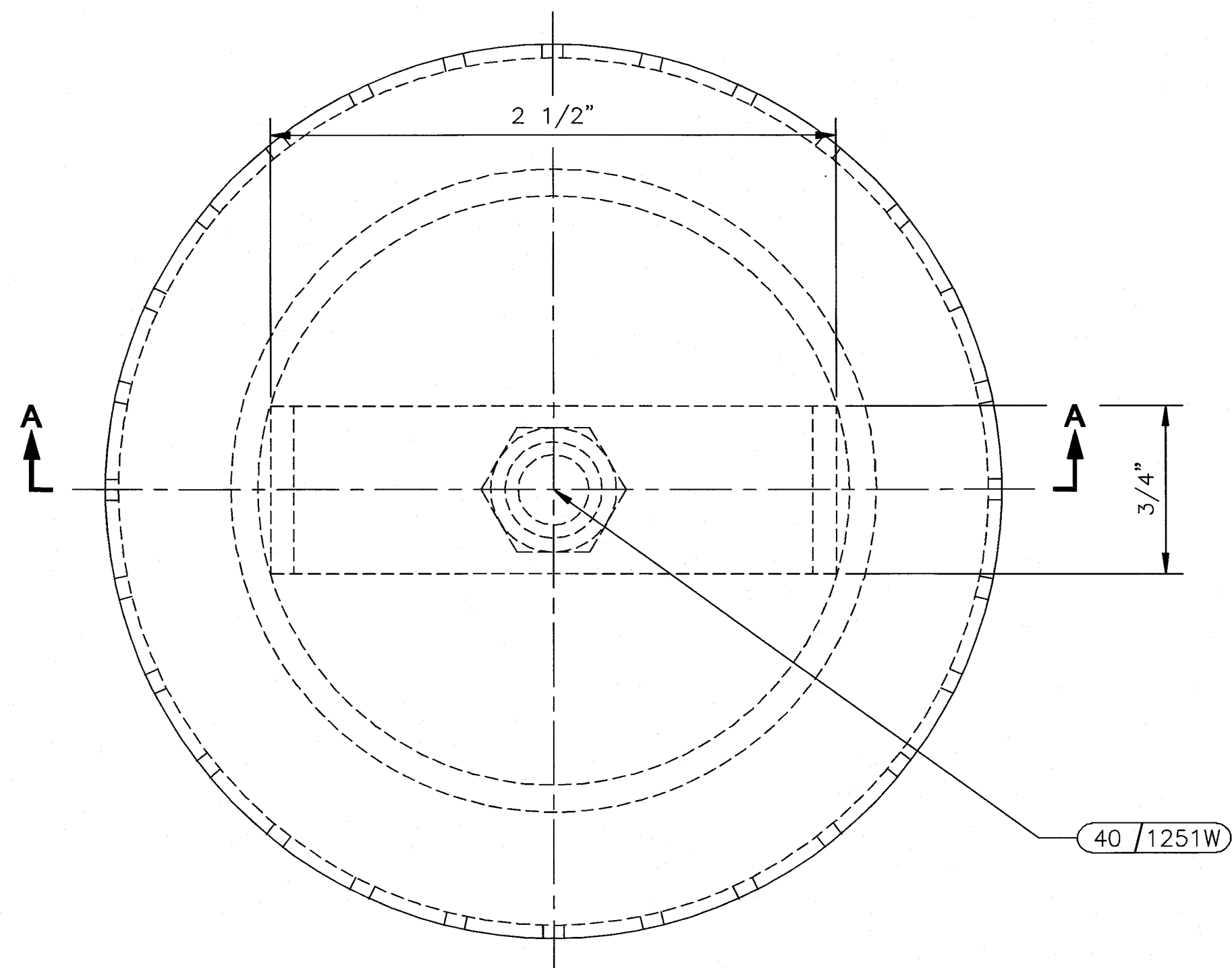
No.	DATE	REVISIONS	BY	APP	No.	DATE	REVISIONS	BY	APP	ENGINEERS RECORD		DATE
0	Sep. 17, 2008	ISSUED FOR APPROVAL	J.C.							DRAWN BY	J.C.	Sep. 02, 2008
1	Nov. 04, 2008	ISSUED FOR CONSTRUCTION	J.C.							CHECKED BY		
2	Dec. 09, 2008	REVISED AS MARKED	J.C.							APPD. BY		
3	Feb. 05, 2009	AS BUILT	C.P.							ISSUED TO		
										SHOP		

ENSIGN
OpSCO Manufacturing

CLIENT	ENCANA CORPORATION
PROJECT	C/O SOLARIS MANAGEMENT CONSULTANTS INC.
TITLE	54" O.D. x 30'-0" S/S SOUR DEHYDRATION PACKAGE (M-310) HORN RIVER GAS PLANT c-67-K / 94-0-8
Scale	1"=36'
JOB No.	MFG01-0250-01
DWG. No.	L-01-0250-01-001
REV.	3



ASSEMBLY 1251W
1 3/8 WELDED NUT 891-100H01
1 3/8 X 1" BOLT 896-100J1104



SLOT DETAIL
28 SLOTS EVENLY SPCD
AROUND BUBBLE CAP

SOLARIS MANAGEMENT CONSULTANTS INC.			
PROJECT	DATE	P.O. #	DWG. #
ENCANA OIL & GAS	2006	2006	03
RA	☐	REVIEWED AND ACCEPTED AS FINAL AND CERTIFIED. MANUFACTURING MAY PROCEED.	Rev. 2
RN	☐	REVIEWED AND ACCEPTED AS NOTED. REVISE AND RE-SUBMIT. MANUFACTURING MAY PROCEED.	
RR	☐	REVIEWED AND RETURNED. CORRECT AND RE-SUBMIT. MANUFACTURING SHALL NOT PROCEED.	
RNR	☒	REVIEW NOT REQUIRED. FOR INFORMATION ONLY.	
BY	DATE: Oct 31, 2008		
ACCEPTANCE OF THIS DOCUMENT BY SOLARIS DOES NOT RELIEVE THE VENDOR OF ANY RESPONSIBILITY UNDER THE TERMS AND CONDITIONS OF THE APPLICABLE CONTRACT OR PURCHASE ORDER.			

NO.	DESCRIPTION OF REVISION	CHG. BY/DATE	APP'D
1	BUBBLE CAP RE-DESIGNED PER COS 15218-2	BB 7 OCT 08	BB
2	CERT FOR FAB PER EMAIL REC'D 9 OCT 08	WM 24 OCT 08	WM
3	CERTIFIED FINAL AS FABRICATED.		

CUSTOMER'S IDENTIFICATION	
PURCHASED BY: OPSCO MANUFACTURING	
P.O. NO.: P00006682 & P00006683	
USER: ENCANA OIL & GAS	PLANT SITE: FORT NELSON, BC
SPEC. NO: K-G STD.	REFERENCE:
TOWER SERVICE: TEG DEHYDRATOR	PLANT SECTION:

K. KOCH-GLITSCH		KOCH-GLITSCH CANADA LP	
MASS TRANSFER TECHNOLOGY		UXBRIDGE, ON, CANADA	
© 2008 KOCH-GLITSCH, LP. ALL RIGHTS RESERVED		MODEL: BUB-19000	
DRAWN BY: WM		SALES ORDER NO.: 15218	
CHECK BY: WM		PART NO.:	
PROCESS: CJM		WORK ORDER NO.: 51686	
DRAWING ISSUE		TOWER I.D.	TOWER NO.
APPROVED FOR FABRICATION:		48-1/2"	V-311
BY: MS		DWG. NO.: C08-15218-D394	
DATE: 9 OCT 08		SHT. 2 OF 5	REV. 2

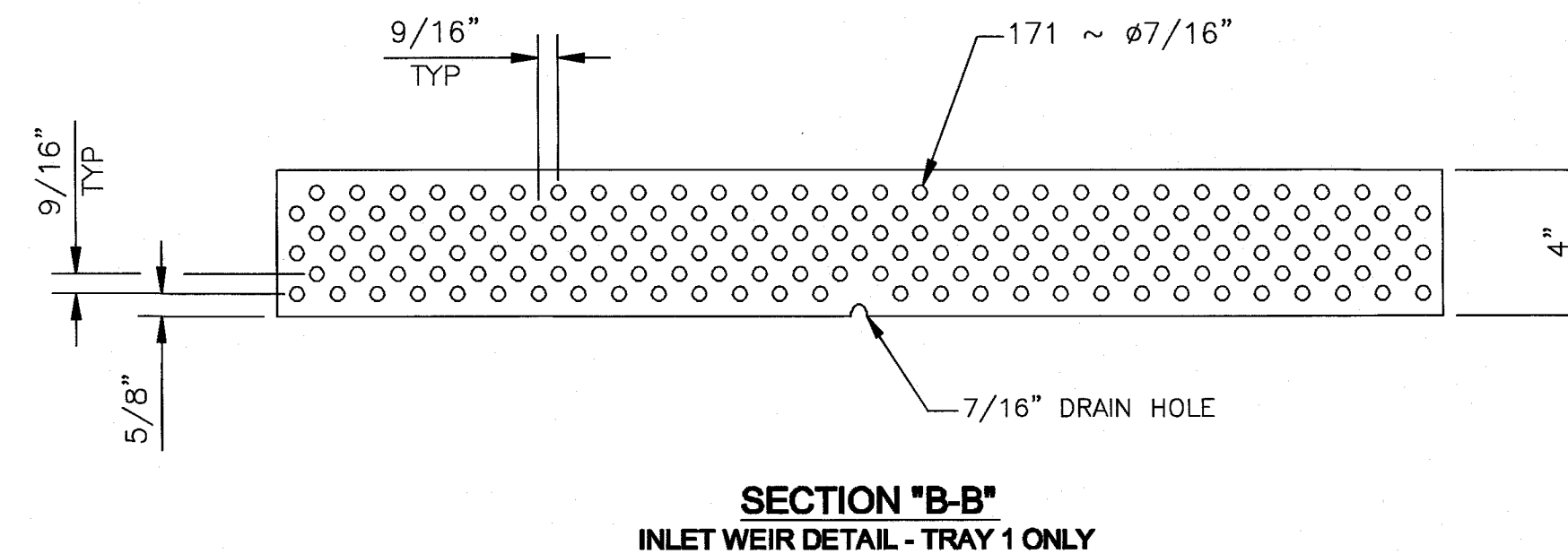
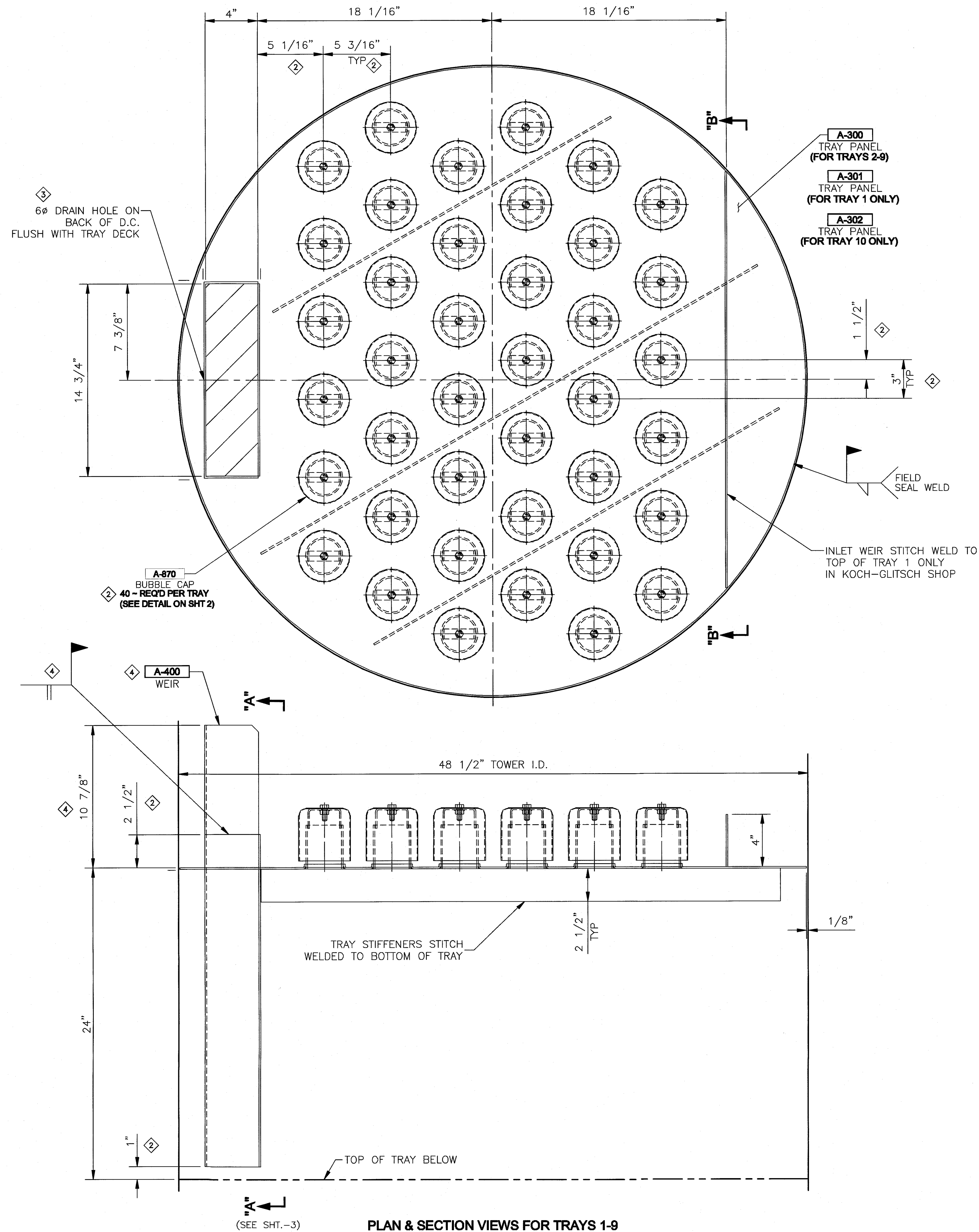
INSTALLATION DRAWING

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51686

OPSCO MFG.

C08-15218-D394



NOTES

- TOWER MANHOLE I.D. ACTUAL: 48 - 1/2"
- PARTS SUPPLIED BY KOCH-GLITSCH ARE IDENTIFIED BY MARK # (E.G. A-301) ENCLOSED AS SHOWN [A-301].
- BOLTING ASSEMBLIES ARE ENCLOSED THUS:
QUANTITY PER TRAY ASSEMBLY NUMBER
(101 / 1010R)
- DIMENSIONS ARE GIVEN IN INCHES
- ANY MODIFICATIONS BY CUSTOMER OR ANY THIRD PARTY TO THE EQUIPMENT SHOWN ON THIS DRAWING WITHOUT THE PRIOR WRITTEN APPROVAL OF KOCH-GLITSCH WILL VOID ALL EXPRESSED AND IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PURPOSE.
- TRAYS ARE NUMBERED FROM TOP TO BOTTOM.

REFERENCE DRAWINGS

DRAWING C08-15218-D395 FOR VESSEL ARRANGEMENT.

LIST OF MATERIAL

DESCRIPTION	TYPE & THICKNESS
ACTIVE AREA	PANEL CS - 10GA BUBBLE CAP 410S - 16GA RISER (2.5"ø PIPE) CS - SCH10S STAND-OFF CS - 12GA
DOWNCOMER	CS - 10GA
OUTLET WEIR	CS - 10GA
SEAL PAN	CS - 10GA
BOLT	CS - 3/8"
NUT	CS - 3/8"
MISC. HARDWARE	CS
TOWER ATTACHMENTS	C08-15218-D395

TRAY DESIGN DATA

UNIFORM LOAD	CONC. LOAD STRESS	CORR ALLOW: 0.06" (TOTAL)
ACTIVE 21	DET. 300 lbs	ALLOW. DEFL: 1/8"
#/Feet ²	DESIGN TEMP. 150°F	

EQUIPMENT DESCRIPTION

QUAN	ITEM	DESCRIPTION	REMARKS
10	-	TRAYS 1-10	AS SHOWN & NOTED
1	-	SEAL PAN BELOW TRAY #1	SEE SHT. 3
NO.	DESCRIPTION OF REVISION	CHG.BY/DATE	APPV
1	COMPLETE REDRAW AS PER COS #15218-1	DL 1 OCT 08	MS
2	RE-DESIGNED BUBBLE CAP LAYOUT & REV'D DOWNCOMER DIM'S PER COS #15218-2. CERT FOR FAB PER EMAIL REC'D 9 OCT 08	BB 8 OCT 08	BB
3	ADDED DRAIN HOLE FLUSH WITH TRAY DECK	JMB 15 OCT 08	MS
4	ADDED WEIR A-400 PER SHOP INSPECTION	BB 22 OCT 08	BB
5	CERTIFIED FINAL AS FABRICATED.	WM 24 OCT 08	WM

CUSTOMER'S IDENTIFICATION

PURCHASED BY: OPSCO MANUFACTURING	
P.O. NO.: P00006682 & P00006683	
USER: ENCANO OIL & GAS	PLANT SITE: FORT NELSON, BC
SPEC. NO: K-G STD.	REFERENCE:
TOWER SERVICE: TEG DEHYDRATOR	PLANT SECTION:

KOCH-GLITSCH MASS TRANSFER TECHNOLOGY © 2008 KOCH-GLITSCH, LP. ALL RIGHTS RESERVED	KOCH-GLITSCH CANADA LP UXBRIDGE, ON, CANADA MODEL: BUB-19000 BUBBLE CAP TRAYS 1-10
---	---

DRAWN BY: WM	DATE: 19 SEP 08	SALES ORDER NO.: 15218
CHECK BY: DL	DATE: 01 OCT 08	PART NO.:
PROCESS: CJM	DATE: 01 OCT 08	WORK ORDER NO.: 51686

DRAWING ISSUE	TOWER I.D. 48-1/2"	TOWER NO. V-311
APPROVED FOR FABRICATION:	CERTIFIED FINAL AS FABRICATED:	DWG. NO.: C08-15218-D394
BY: MS	BY: WM	SHT. 1 OF 5
DATE: 9 OCT 08	DATE: 24 OCT 08	REV. 0

SOLARIS MANAGEMENT CONSULTANTS INC.

PROJECT: ENCO-06670 P.O. # 60864 DWG # 03 REV 3 SMT

RA ☒ REVIEWED AND ACCEPTED AS FINAL AND CERTIFIED. MANUFACTURING MAY PROCEED.

RN ☒ REVIEWED AND ACCEPTED AS NOTED. REVISE AND RE-REVIEW. MANUFACTURING MAY PROCEED.

RR ☒ REVIEWED AND RETURNED. CORRECT AND RE-SUBMIT. MANUFACTURING SHALL NOT PROCEED.

RNR ☒ REVIEW NOT REQUIRED. FOR INFORMATION ONLY.

BY: *[Signature]* DATE: Oct 31, 2008

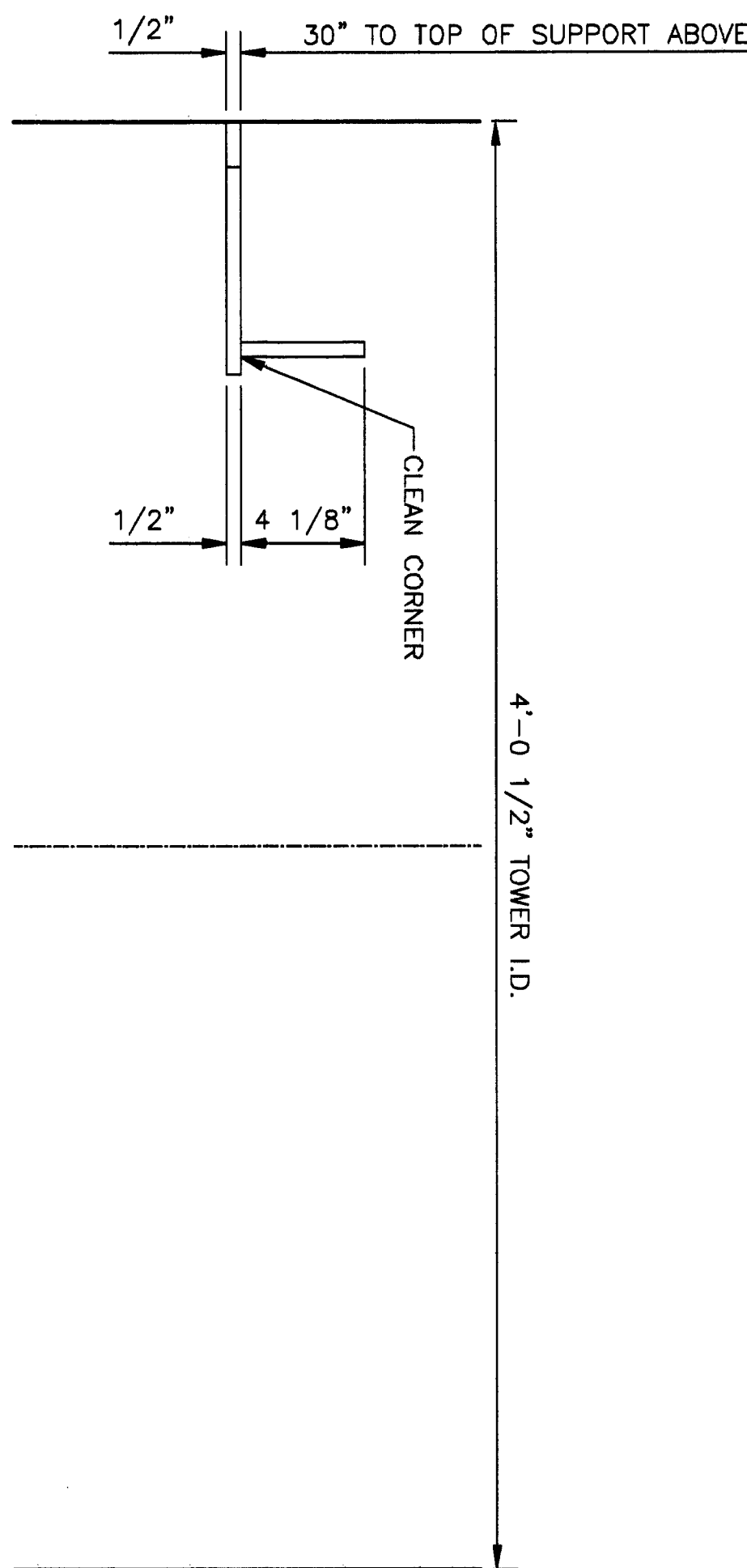
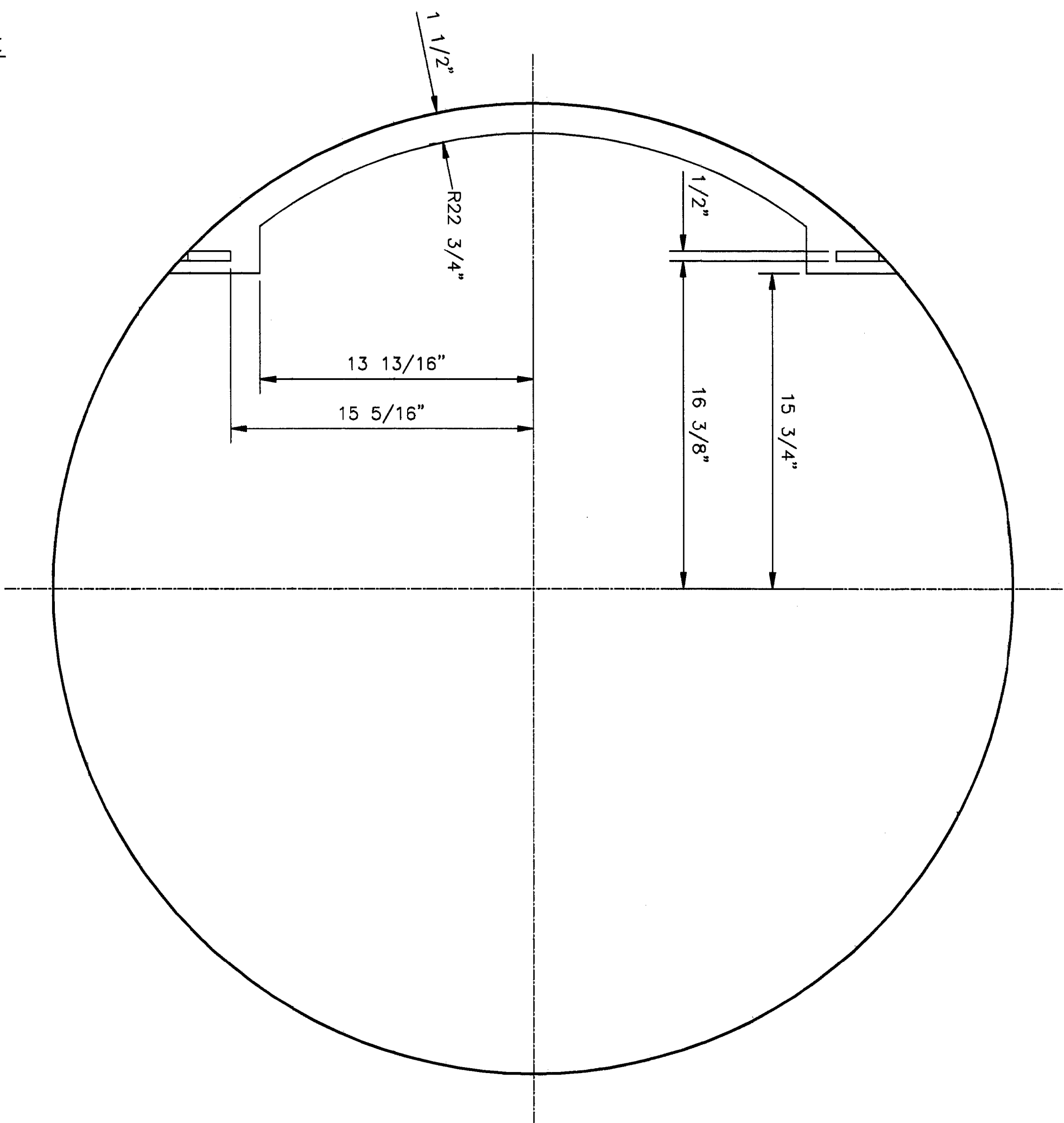
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INSTALLATION DRAWING

C08-15218-D394

51686

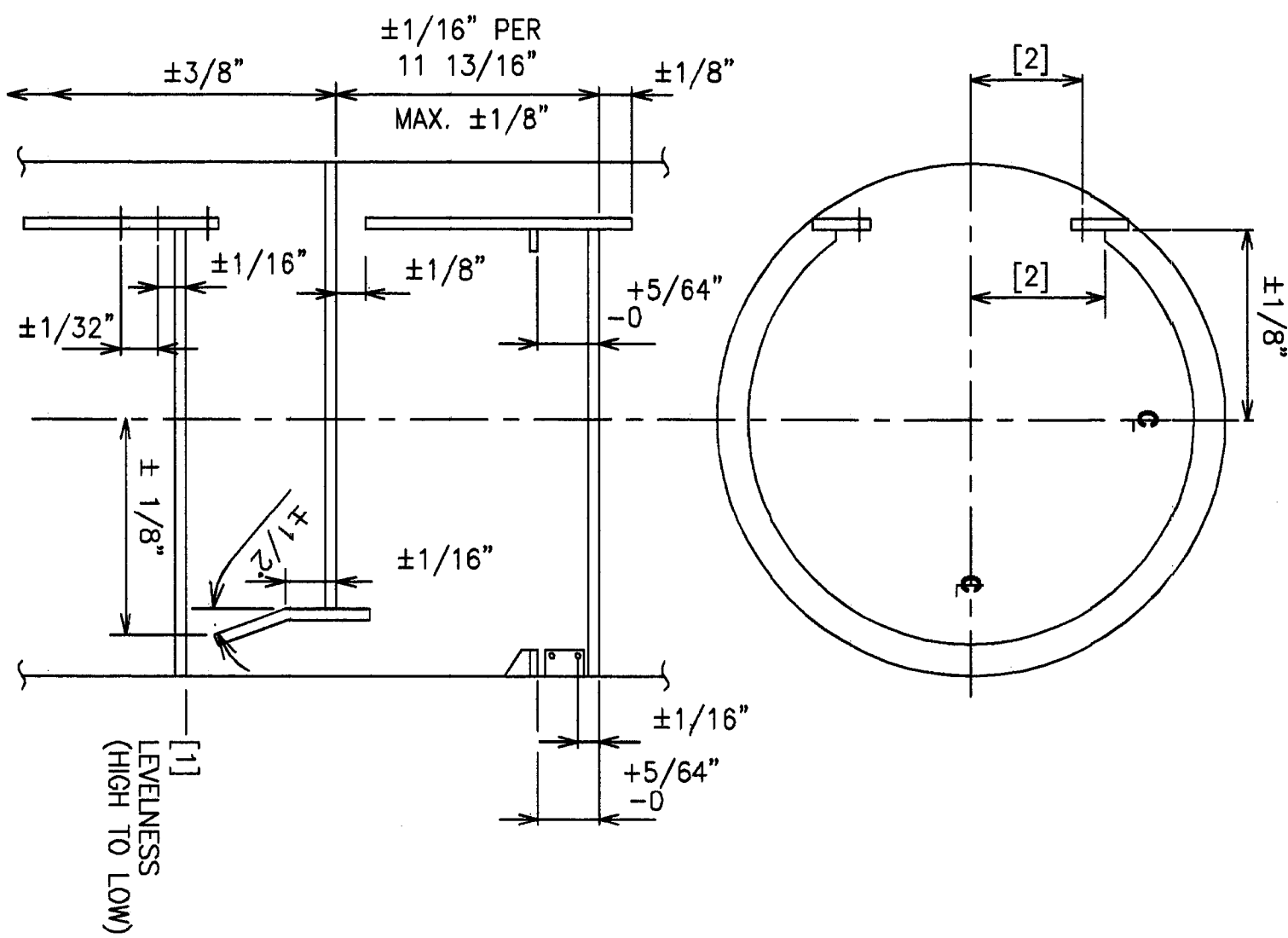
OPSCO MFG.



PROJECT # <u>2006-0060</u>		PO. # <u>2564</u>	DATE # <u>04</u>	REV. <u>2</u>
SOLARIS MANAGEMENT CONSULTANTS INC.				
RA	☒ REVIEWED AND ACCEPTED AS FINAL AND CERTIFIED	BY <u>SM</u>		
RN	☐ REJECTED AND RETURNED TO PROJECT.			
RN	☐ REVIEWED AND ACCEPTED AS NOTED, REVISED, AND RESUBMITTED.			
RR	☐ REVIEWED AND RETURNED, CORRECTED AND RESUBMITTED.			
RNR	☐ REVIEWED AND RETURNED, NO INFORMATION ONLY.			
RNR	☐ REVIEWED AND RETURNED, NO INFORMATION ONLY.			
BY	DATE			
<u>SM</u>	<u>04/25/06</u>			
ACCEPTANCE OF THIS DOCUMENT BY SOLARIS DENIES AND RELINQUISHES ALL LIABILITY AND ANY RESPONSIBILITY TO DESIGN THE FRAMES AND CONDITIONS OF THE VENDOR OF ANY CONTRACTS TO BE PROVIDED THERE.				

LIST OF MATERIAL	
DESCRIPTION	TYPE & THICKNESS
SUPPORT RING	C.S. / 1/2"
BOLT / CLAMPING BAR	C.S. / 1/2"
—	—
—	—
—	—

TOWER INSIDE DIAMETER			
NO.	0 TO 96"	96" TO 216"	OVER 216" TO 336"
[1]	5/64"	5/32"	1/4"
[2]	±1/4"	±1/2"	±3/4"
			±1"



OTHER TOLERANCES:	* UNLESS OTHERWISE SPECIFIED
• TILT OF TRAY SUPPT RING OVER ITS WIDTH SHALL NOT EXCEED	±1°
• RING FLATNESS DEFECTS OVER ANY 12" CHORD	1/16"
• ORIENTATION MAXIMUM OFFSET FROM TRUE SHELL CENTERLINE	1/4"
• OUT OF ROUNDNESS AS PER ASME CODE	

1. TOWER MANHOLE I.D. ATTACHMENT: _____ 20.
2. TOWER ATTACHMENTS ARE EXISTING OR SUPPLIED BY OTHERS UNLESS IDENTIFIED BY MARK # (E.G. A-301) ENCLOSED AS SHOWN [A-301] WHICH ARE SUPPLIED BY KOCH-GUTSCH.
3. DIMENSIONS ARE GIVEN IN INCHES.
4. ANY MODIFICATIONS BY CUSTOMER OR ANY THIRD PARTY TO THE EQUIPMENT SHOWN ON THIS DRAWING WITHOUT THE PROWR WRITTEN APPROVAL OF KOCH-GUTSCH WILL VOID ALL EXPRESSED AND IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OF FITNESS FOR PURPOSE.
5. WELDED CORROSION ALLOWANCE: 3/8" TO BE APPLIED TO THE THROAT DIMENSION.
6. THE TOWER ATTACHMENTS HAVE TO BE SECURELY WELDED TO THE VESSEL STRUCTURE AND THE CUSTOMER IS RESPONSIBLE FOR THE SELECTION OF THE METHOD OF THE ATTACHMENT, THE WPS, AND THE EVALUATION OF ALL SHELL APPLICABLE STRESSES.
7. TRANS ARE NUMBERED FROM TOP TO BOTTOM.

NO.	DESCRIPTION OF REVISION	CHKY/DATE	APPRO
1	<u>PRELIMINARY ISSUE</u> <u>FOR APPROVAL</u> <u>DO NOT USE FOR</u> <u>FABRICATION</u>	—	—

KOCH-GLITSCH
MASS TRANSFER TECHNOLOGY

KOCH-GLITSCH CANADA LP
 UXBRIDGE, ON, CANADA

MODEL: -

DRAWN BY: WM CHECK BY: PROCESS: CJM		DATE: 18 SEP 08 DATE: DATE:	
APPROVED FOR FABRICATION: BY:		CERTIFIED FINAL AS FABRICATED: BY:	
DATE:		DATE:	
TOWER ATTACHMENTS TOWER ORDER NO.: 15218 ORDER NO. WORK ORDER NO.: 51692			
TOWER ID: 4" - 1/2"		TOWER NO. V-311	
DWG. NO.: C08-15218-D395			
SHT. 2	OF 2	REV.	Ⓢ

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VENDOR OF ANY RESPONSIBILITY UNDER THE TERMS AND CONDITIONS OF THE
APPLICABLE CONTRACT OR PURCHASE ORDER.

NOZZLE DESCRIPTIONS

GENERAL NOTES

NO.	DESCRIPTION OF REVISION	CHG-BY/DATE	APPR
1	COMPLETE REDRAW AS PER COS # 15218-1, TA'S ON SHT 2 DELETED	DL 01 OCT 08	MS
2	ADDED ELEVATION, ORIENTATIONS & DESIGNATIONS AS PER CUST. DWG	BB 9 OCT 08	BB
3	CERT FOR FAB PER EMAIL REC'D 9 OCT 08	WM 24 OCT 08	WM
4	CERTIFIED FINAL		

CUSTOMER'S IDENTIFICATION			
PURCHASED BY: OPSKO MANUFACTURING			
P.O. NO.: P00006682 & P00006683			
USER: ENCANAL OIL & GAS		PLANT SITE: FORT NELSON, BC	
SPEC. NO: K-G STD.		REFERENCE: ENSIGN V-01-0250-01-00	
TOWER SERVICE: TEG DEHYDRATOR		PLANT SECTION:	
 KOCH-GLITSCH MASS TRANSFER TECHNOLOGY © 2008 KOCH-GLITSCH, LP. ALL RIGHTS RESERVED		KOCH-GLITSCH CANADA LTD. UXBRIDGE, ON, CANADA	
		MODEL: ELV. VESSEL ARRANGEMENT	
		SALES ORDER NO.: 15218 PART NO.: WORK ORDER NO.: 51687	
DRAWING ISSUE		TOWER I.D. 48-1/2"	TOWER NO. V-311
APPROVED FOR FABRICATION:	CERTIFIED FINAL AS FABRICATED:	DWG. NO.: C08-15218-D395	
BY: MS DATE: 9 OCT 08	BY: WM DATE: 24 OCT 08	SHT. 1 OF 1	REV. ③

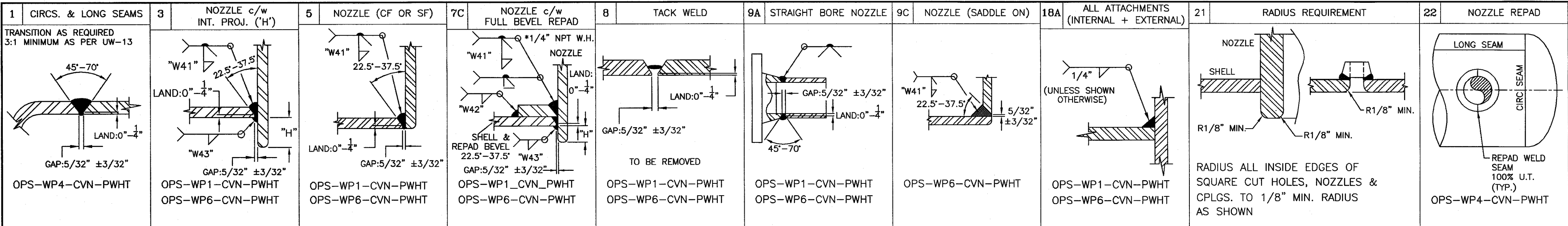
INSTALLATION DRAWING

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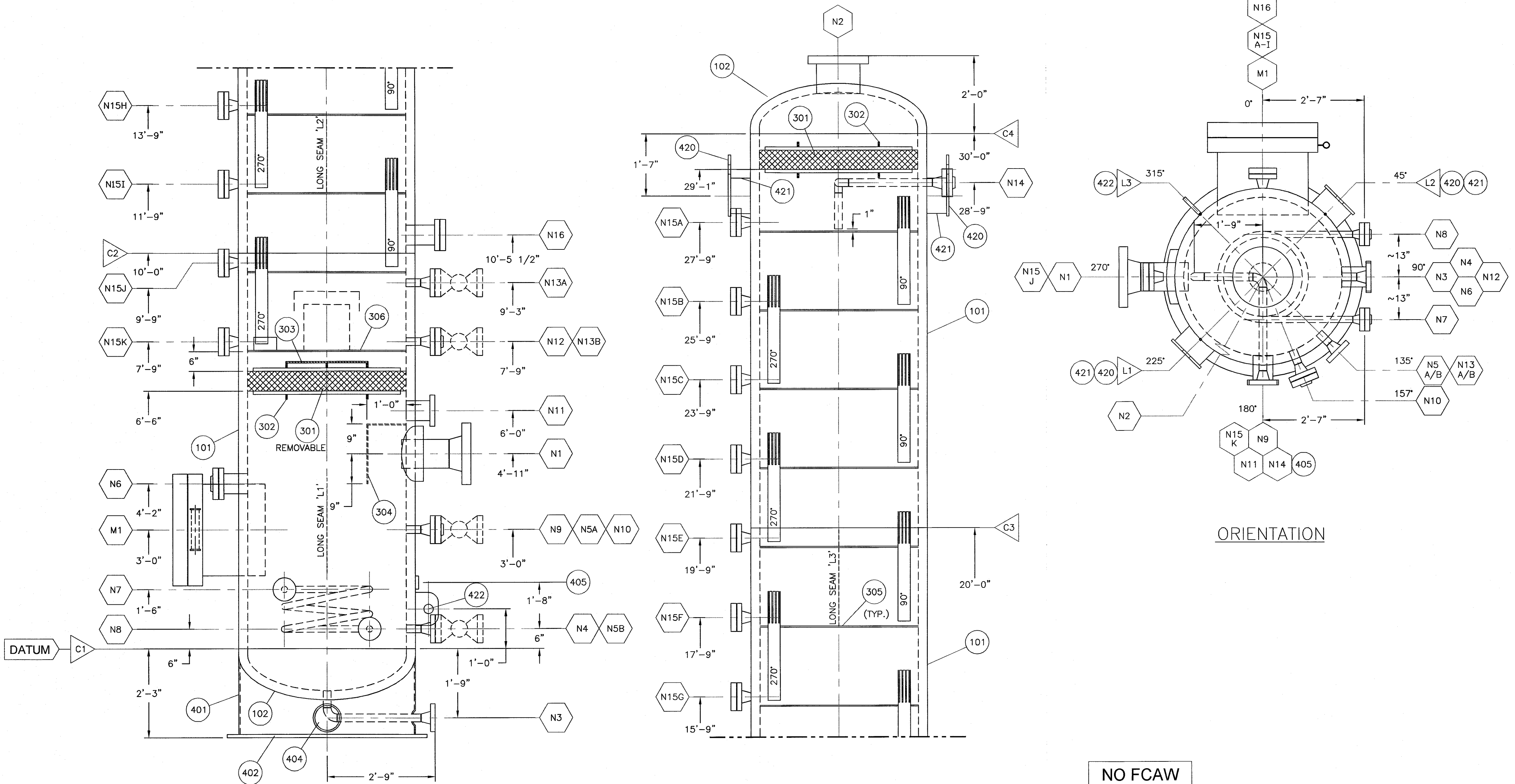
DO NOT GLITCH IN THE EVENT THAT THIS DOCUMENT OR ANY INFORMATION CONTAINED HEREIN ARE INAD-
C08-15218-D395

51687

DISCO MFG.



BILL OF MATERIAL							
ITEM	QTY.	SIZE	TYPE	RATING	SCH. W.T.	MAT'L SPEC	DESCRIPTION
100. VESSEL							
101	3	54" O.D.	ROLLED PLATE		2.75"	SA-516-70N	54" O.D. x 10' LG x 2.75" NOM. THK. CAN
102	2	54" O.D.	FORMED PLATE		2.75"	SA-516-70N	54" O.D. x 2.75" NOM THK. 2:1 S.E. HEAD (2.6875" FORMED MIN.)
200. CONNECTIONS							
201	1	20"	V1	CL900	3.875"	SA-350-LF2 CL.1	ANSI FLANGE, 24" LONG
202	1	8"	RFWN	CL900	160	SA-350-LF2 CL.1	ANSI FLANGE
203	AS REQ'D	8"	PIPE		160	SA-333-GR. 6	SMLS PIPE
204	1	16.625" O.D.	ROLLED PLATE		2.5"	SA-516-70N	16.625" O.D. x 2.5" NOM. THK. REPA ON SHELL. C/W 1/4" NPT WEEP HOLE
205	1	8"	HB	CL900	2.845	SA-350-LF2 CL.1	ANSI FLANGE, 12" LONG
206	3	3"	HB	CL900	1.58	SA-350-LF2 CL.1	ANSI FLANGE, 9" LONG
207	21	2"	RFWN	CL900	160	SA-350-LF2 CL.1	ANSI FLANGE
208	AS REQ'D	2"	PIPE		160	SA-333-GR. 6	SMLS PIPE
209	3	2"	ELBOW		160	SA-333-GR. 6	2" ELBOW
210	2	1 1/2"	RFWN	CL900	XXH	SA-350-LF2 CL.1	ANSI FLANGE
211	AS REQ'D	1 1/2"	PIPE		XXH	SA-333-GR. 6	SMLS PIPE



FABRICATION NOTES:

1. FULL PENETRATION WELDS TO BE GOUGED BEFORE FILLING.
2. SURFACE PREP: SSPC-SP-6
3. PRIMER: ZINC PHOSPHATE
4. PAINT: 1 COAT INDUSTRIAL ENAMEL (TAUPE)
5. GMAW WIRE **ER70-S2**
6. PREHEAT TO 250°F PRIOR TO WELDING

INSPECTION NOTES:

1. RT-1 (100%) FULL X-RAY ON LONG & CIRC SEAMS & ALL BUTT WELDED NOZZLES AS PER UW-51 & UW11(a)
2. UT ON CATEGORY D WELDS BEFORE AND AFTER PWHT
3. HARDNESS TEST PER ECA-V-1 (7.0)
4. CHART RECORDER FOR HYDROTEST REQUIRED
5. ALL PRESSURE RETAINING WELDS TESTED WITH WFMP1 AFTER HYDROTEST

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
2. ALL BOLT HOLES TO STRADDLE NATURAL VESSEL CENTER LINES UNLESS OTHERWISE NOTED.
3. CORNER RADIUS 1/8" MINIMUM FOR NOZZLES AND 1/8" MINIMUM FOR MANWAYS.
4. STENCIL VESSEL WITH 'POST WELD HEAT TREATED - DO NOT WELD'.

DWG. RELEASE

FABRICATION COPY NO: ____ OF ____

DATE: _____

SIGNED: _____

NO FCAW

SPECIAL MATERIAL
CONSULT QC/SPECS
COLOUR CODE: WHITE

HEAT EXCHANGE COIL DESIGN DATA			
Coil designed and constructed in accordance with ASME Boiler and Pressure Vessel Code Section VIII Div. 1 Code Year: 2007			
MDMT	-50°F	-45°C	
MAWP	1900 PSIG	13100 Kpa	
DESIGN TEMPERATURE	150°F	65°C	
HYDROTEST PRESS.	2850 PSIG	19650 Kpa	
CORR. ALLOWANCE	0.125 inch	3.2 mm	

No.	DATE	REVISIONS	BY	DATE
0	Oct. 07, 2008	ISSUED FOR APPROVAL	J.C.	
1	Oct. 09, 2008	ISSUED FOR CONSTRUCTION	D.B.	
2	Jan. 26, 2009	AS BUILT	C.P.	
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ENGINEERS' RECORD				DATE
DRAWN BY J.C.				Sep. 15, 2008
CHECKED BY				
ENG. REVIEW				
ENG. APPD.				
Q.C. APPD.				

NOZZLE SCHEDULE									
MARK	SIZE	RATING	TYPE	SERVICE	W.D.	W41	W42	W43	ITEM
N1	8"	CL900	RFWN	INLET	7C.9A.21	1"	1"	1/2"	202,203,204
N2	8"	CL900	HB	OUTLET	5.21	3/8"	-	-	205
N3	2"	CL900	RFWN	DRAIN	5.9A.21	3/8"	-	-	207,208,209
N4	2"	CL900	RFWN	LIQUID OUTLET	5.9A.21	3/8"	-	-	207,208,410, 415,416
N5A/B	2"	CL900	RFWN	LIQUID LEVEL GAUGE	5.9A.21	3/8"	-	-	207,208,415, 416
N6	3"	CL900	HB	LSHH	5.21	3/8"	-	-	206,411,423, 424
N7	1 1/2"	CL900	RFWN	HEAT COIL IN	3.9A.21	3/8"	-	-	210,211,407, 408,409
N8	1 1/2"	CL900	RFWN	HEAT COIL OUT	3.9A.21	3/8"	-	-	210,211,407, 408,409
N9	2"	CL900	RFWN	TEMPERATURE INDICATOR	5.9A.21	3/8"	-	-	207,208,415, 416
N10	2"	CL900	RFWN	PRESSURE INDICATOR	5.9A.21	3/8"	-	-	207,208,412, 415,416
N11	3"	CL900	HB	PSV	5.21	3/8"	-	-	206
N12	2"	CL900	RFWN	RICH GLYCOL OUT	5.9A.21	3/8"	-	-	207,208,413, 415,416
N13A/B	2"	CL900	RFWN	GLYCOL LEVEL GAUGE	5.9A.21	3/8"	-	-	207,208,415, 416
N14	2"	CL900	RFWN	INLET LEAN GLYCOL	5.9A.21	3/8"	-	-	207,208,209, 413,415,416
N15A-K	2"	CL900	RFWN	TRAY INSPECTION	9C.21	3/8"	-	-	207,414,415, 416
N16	3"	CL900	HB	INSPECTION	5.21	3/8"	-	-	206,423,424, 425
M1	20"	CL900	V1	MAYWAY	3.21	3/8"	-	1 1/2"	201,417,418, 419
BW = BACKWELD SF = SQUARE-CUT FLUSH CF = CONTOUR-CUT FLUSH									
WD = WELD DESIGN AS = AS SHOWN ARD = AS REQ'D W/O CUTTING									
DESIGN DATA									
Vessel to be designed and constructed in accordance with ASME Boiler and Pressure Vessel Code Section VIII Div. 1 Code Year: 2007									
MDMT -50°F (-45°C). PRODUCTION IMPACT TESTING REQUIRED AS PER UCS-67(a)(2). ALL OTHER MATERIALS EXEMPT FROM IMPACT TESTING PER UCS-66(3)(g).									
MAWP	1900 PSIG	13100 Kpa	SERIAL No.	01-0250-01					
DESIGN TEMPERATURE	150°F	65°C	CRN	07853.2					
HYDROTEST PRESS.	2850 PSIG	19650 Kpa	TAG No.	V-311					
CORR. ALLOWANCE	0.125 inch	3.2 mm	YEAR BUILT	2008					
VOLUME	406.5 Cu.Ft.	11.5 Cu.M.	INSPECTION BY	A.B.S.A.					
RADIOGRAPHY *	RT-1 SEE INSPECTION NOTE #1		APPROX. SHIPPING WT.	57215 Lbs					
CRN DRAWING No.	V-01-0250-01-001 R1		FINAL JOINT EFF.	100%					
STRESS RELIEVE	YES @ 1150°F for 120 mins.		MAWP @ Deg.F	N/A					

Note: For fabrication tolerances refer to "Standard Fabrication Tolerances for Unfired Pressure Vessels. (Rev. 0)"

CLIENT: ENCANA CORPORATION
C/O SOLARIS MANAGEMENT CONSULTANTS INC.

PROJECT: 54" O.D. x 30'-0" S/S SOUR DEHYDRATION PACKAGE (M-310)
HORN RIVER GAS PLANT
c-67-K / 94-0-8

THE ARIS MANAGER: P.O. # 2086
ENCANA CORPORATION
P.O. # 2086

DWG. NO. V-01-0250-01-001
REV. 2

REVIEWED AND ACCEPTED AS NOTED, REVISIONS MAY PROCEED.

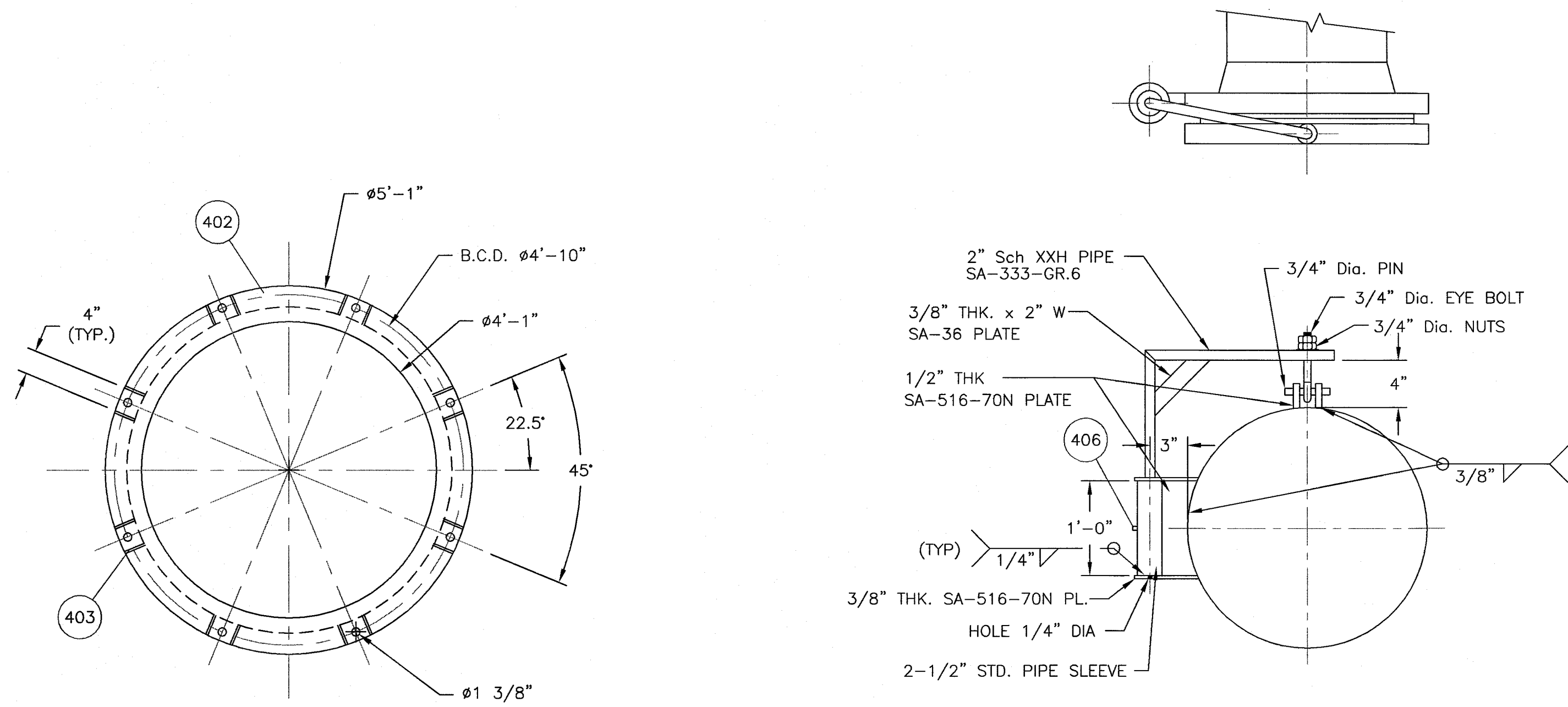
REVIEWED AND ACCEPTED AS NOTED, REVISIONS MAY PROCEED.

REVIEWED AND RETURNED, CORRECT AND RE-SUBMIT. MANUFACTURING SHALL NOT PROCEED.

REVIEW NOT REQUIRED, FOR INFORMATION ONLY.

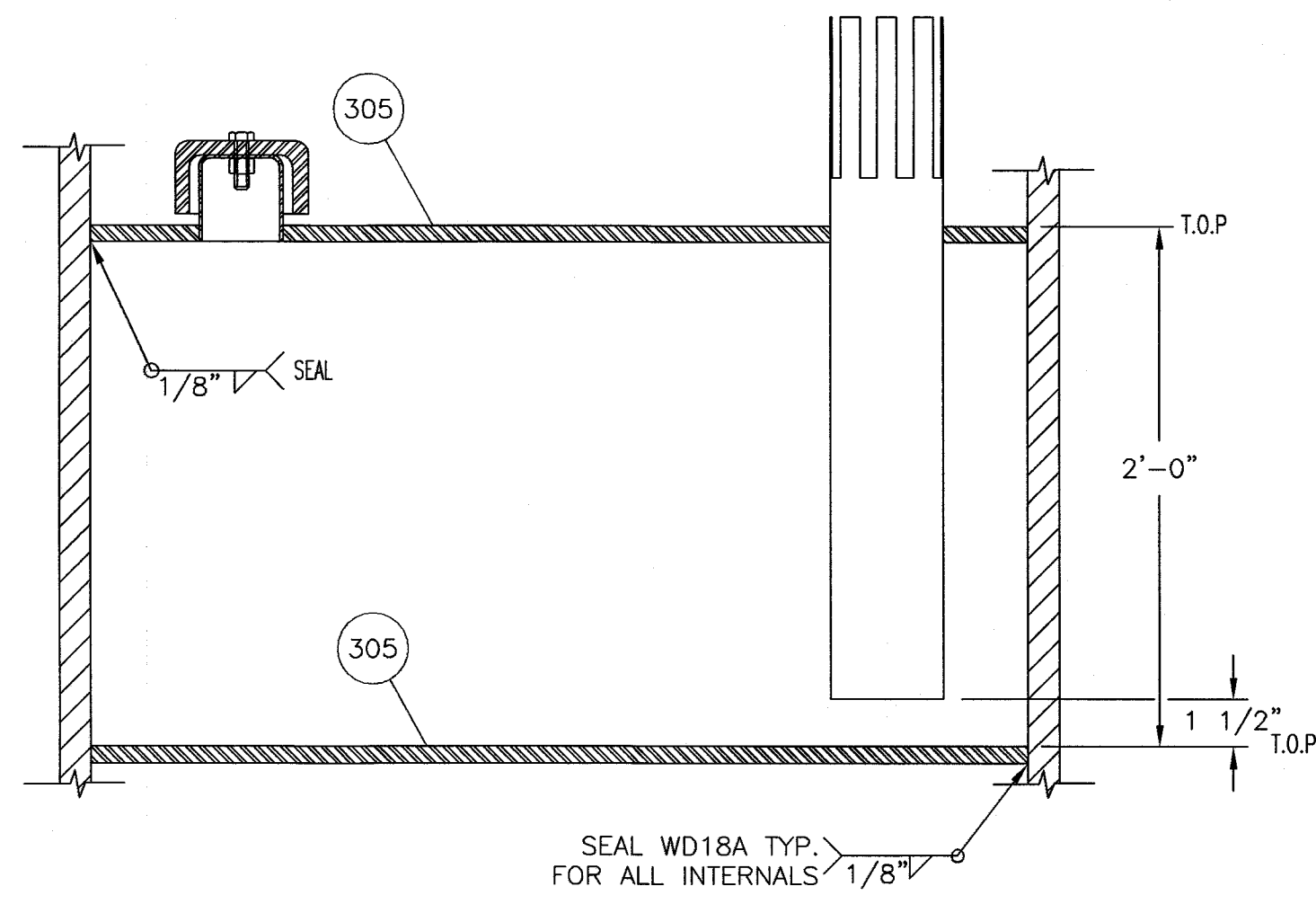
BY: _____ DATE: FEB 06 2009

ACCEPTANCE OF THIS DOCUMENT BY SOLARIS DOES NOT REDUCE THE VENDOR OF ANY RESPONSIBILITY UNDER THE TERMS AND CONDITIONS OF THE APPLICABLE CONTRACT OR PURCHASE ORDER.

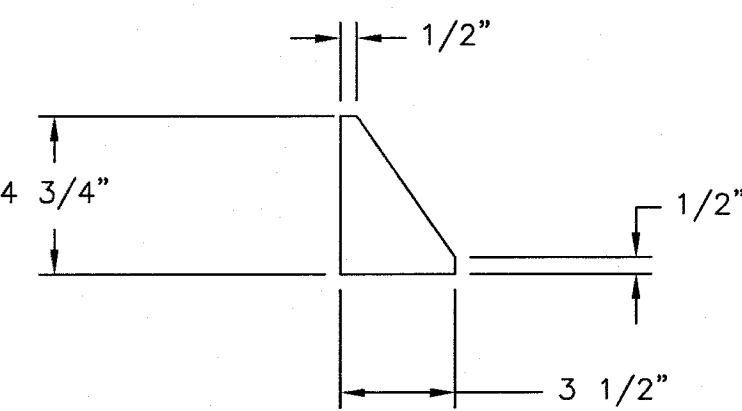


402 BASE PLATE DETAIL

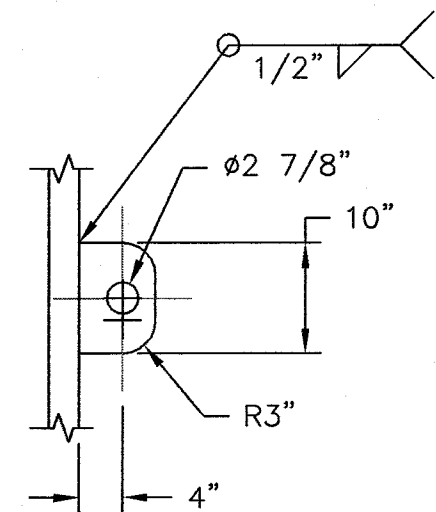
DAVIT DETAIL
NTS



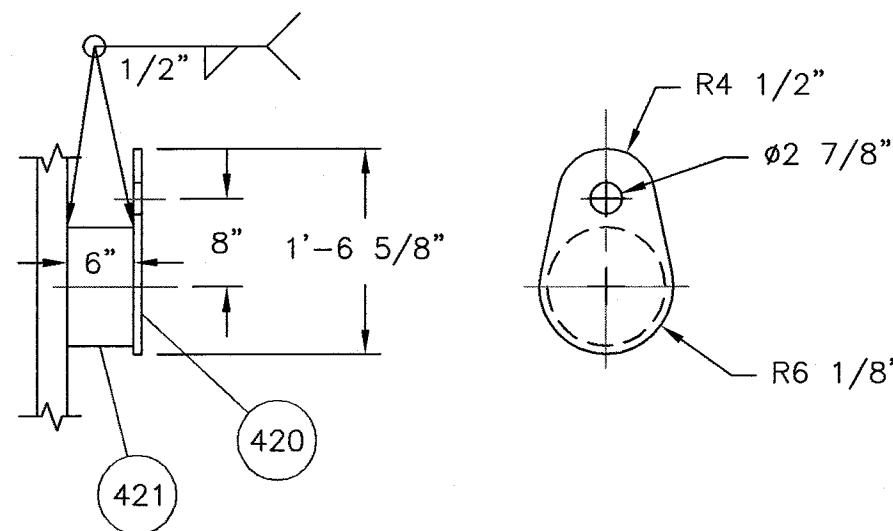
305 BUBBLE CAP DETAIL
NTS



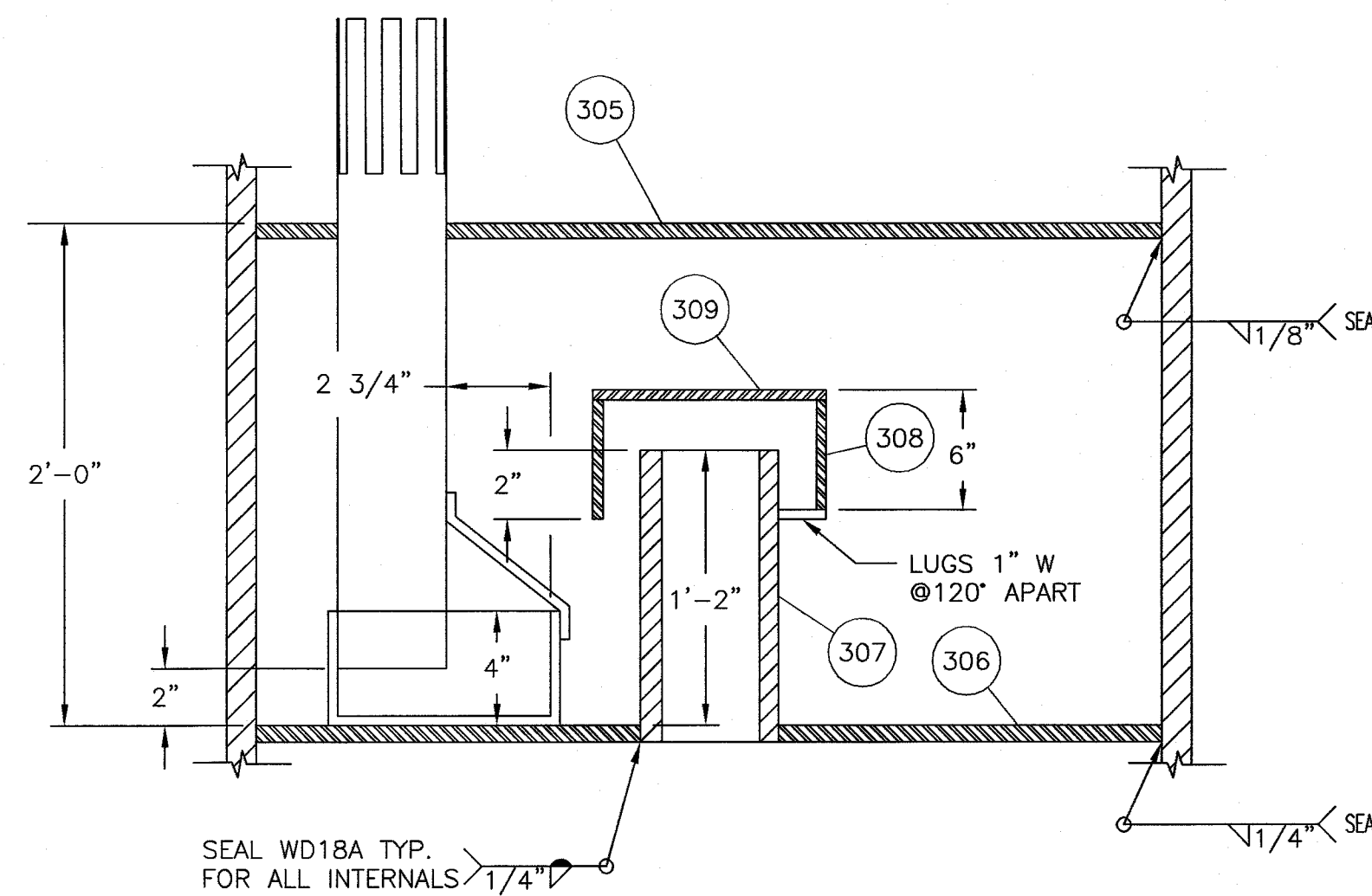
403 GUSSET DETAIL
1":6"



422 TAIL LUG DETAIL



TRUNNION DETAIL
QTY: 2



306 CHIMNEY TRAY DETAIL
NTS

BILL OF MATERIAL									
ITEM	QTY.	SIZE	TYPE	RATING	SCH./ W.T.	MAT'L SPEC	DESCRIPTION		
300. INTERNAL ASSEMBLIES									
301	2	48.5" O.D.				316L SS	DEMISTER 6" THK. 9#/Cu.Ft. 316L SS MESH SS GRID		
302	AS REQ'D	3/8" THK.	PLATE			SA-36	STIFFENERS		
303	1	14" O.D. 3/8" THK.	PLATE			SA-36	DEFLECTOR PLATE		
304	1	3/8" THK.	PLATE			SA-516-70N	INLET DIVERTER		
305	10	48 1/2" O.D.				CS	BUBBLE CAP TRAY ASSEMBLY (KOCH-GUTSCH)		
306	1	48-11/2"ø x 1/2" THK.	PLATE			SA-516-70N	CHIMNEY TRAY PLATE		
307	AS REQ'D	14"	PIPE		STD	SA-333-Gr.6	SMLS PIPE		
308	AS REQ'D	20"	PIPE		STD	SA-333-Gr.6	SMLS PIPE (CHIMNEY CAP)		
309	1	1/4" THK.	PLATE			SA-36	CHIMNEY TOP PLATE		
400. EXTERNAL ASSEMBLIES									
401	1	54" O.D.	ROLLED PLATE		0.375"	SA-516-70N	SKIRT 3/8" THK.		
402	1	61" O.D. 1" THK.	PLATE			SA-36	BASEPLATE (SEE DETAIL)		
403	16	3/8" THK.	PLATE			SA-36	BASEPLATE GUSSET (SEE DETAIL)		
404	2	8"	PIPE		80	SA-333-GR.6	8" NPS x 4" LG. SKIRT REINFORCING SLEEVE		
405	1	6" x 4"				SA-516-70N	NAMEPLATE BRACKET		
406	1	1/8" NPS					DOCAP GREASE NIPPLE		
407	2	1 1/2"	RF	CL900	160	SA-105N	1 1/2" SW FLANGE		
408	2	1 1/2"		CL900		316 SS	RF GASKET		
409	2 SETS	1" x 5 1/4" LG. STUDS				SA-193-B7M SA-194-2HM	STUDS (4 Nos.) & NUTS (8 Nos.)		
410	1	2"	RF	CL900	160	SA-105N	2"x1" SW REDUCING HUB FLANGE		
411	1	3"	RF	CL900		SA-105N	REDUCING HUB FLANGE C/W 2" NPT D&T		
412	1	2"	RF	CL900	XXH	SA-105N	BLIND FLANGE C/W 3/4" SW CONNECTION		
413	2	2"	RF	CL900	160	SA-350-LF2 CL.1	2"x1 1/2" SW REDUCING HUB FLANGE		
414	11	2"	RF	CL900		SA-350-LF2 CL.1	BLIND FLANGE		
415	20	2"		CL900		316 SS	RF GASKET		
416	20 SETS	7/8" x 5 1/2" LG. STUDS				SA-193-B7M SA-194-2HM	STUDS (8 Nos.) & NUTS (16 Nos.)		
417	1	20"	RF	CL900		SA-350-LF2 CL.1	BLIND FLANGE		
418	1	20"		CL900		316 SS	RF GASKET		
419	1 SET	2" x 13 1/2" LG. STUDS				SA-193-B7M SA-194-2HM	STUDS (20 Nos.) & NUTS (40 Nos.)		
420	2	3/4" THK.	PLATE			SA-36	TRUNNION FIXED PLATE		
421	2	10"	PIPE		40	SA-333-GR.6	SMLS PIPE 6" LONG		
422	1	1" THK.	PLATE			SA-516-70N	TAIL LUG 10" LONG, 7" WIDE		
423	2	3"		CL900		316SS	RF GASKET		
424	2 SETS	7/8" x 5 1/2" LG. STUDS				SA-193-B7M SA-194-2HM	STUDS (8 Nos.) & NUTS (16 Nos.)		
425	1	3"	RF	CL900		SA-350-LF2 CL.1	BLIND FLANGE		

NO FCAW

SPECIAL MATERIAL
CONSULT QC/SPECS
COLOUR CODE: WHITE

DWG. RELEASE
FABRICATION COPY NO: __ OF __
DATE: _____
SIGNED: _____

No.	DATE	REVISIONS	BY	THIS DRAWING IS THE PROPERTY OF OPSCO ENERGY INDUSTRIES LTD. AND LOANED TO THE RECIPIENT FOR HIS CONFIDENTIAL USE ONLY. IN CONSIDERATION OF THE LOAN OF THIS DRAWING, THE RECIPIENT PROMISES AND AGREES THAT IT SHALL NOT BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF OPSCO ENERGY INDUSTRIES LTD., THAT IT SHALL BE RETURNED UPON REQUEST, AND THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF DIRECTLY OR INDIRECTLY, NOR USED FOR ANY PURPOSE OTHER THAN THAT INTENDED WITHOUT THE WRITTEN PERMISSION OF OPSCO ENERGY INDUSTRIES LTD.	
0	Oct. 02, 2008	ISSUED FOR APPROVAL	J.C.		
1	Oct. 09, 2008	ISSUED FOR CONSTRUCTION	D.B.		
2	Jan. 28, 2009	AS BUILT	C.P.		
				ENGINEERS RECORD	DATE
				DRAWN BY J.C.	Sep. 15, 2008
				CHECKED BY	
				ENG. REVIEW	
				ENG. APPD.	
				Q.C. APPD.	

SOLARIS MANAGEMENT CONSULTANTS INC.			
PROJECT #	P.O. #	DATE	REV
2086	2086	FEB 06 2009	3
RA	☒	REVIEWED AND ACCEPTED AS FINAL AND CERTIFIED. MANUFACTURING MAY PROCEED.	
RN	☒	REVIEWED AND ACCEPTED AS NOTED. REVISE AND RE-SUBMIT. MANUFACTURING MAY PROCEED.	
RR	☒	REVIEWED AND RETURNED. CORRECT AND RE-SUBMIT. MANUFACTURING SHALL NOT PROCEED.	
RNR	☒	REVIEW NOT REQUIRED. FOR INFORMATION ONLY.	
BY	DATE FEB 06 2009		
ACCEPTANCE OF THIS DOCUMENT BY SOLARIS DOES NOT RELIEVE THE VENDOR OF ANY RESPONSIBILITY UNDER THE TERMS AND CONDITIONS OF THE APPLICABLE CONTRACT OR PURCHASE ORDER.			

ENSIGN
Opsco Manufacturing

CLIENT ENCANA CORPORATION
C/O SOLARIS MANAGEMENT CONSULTANTS INC.
PROJECT 54" O.D. x 30'-0" S/S SOUR DEHYDRATION PACKAGE (M-310)
HORN RIVER GAS PLANT
c-67-K / 94-0-8
TITLE ABSORBER ASSEMBLY DETAILS

P.O. # 2086
Scale 1":18"
JOB No. MFG01-0250-01
DWG. No. V-01-0250-01-002
REV. 2