

### VESSEL DESIGN DATA

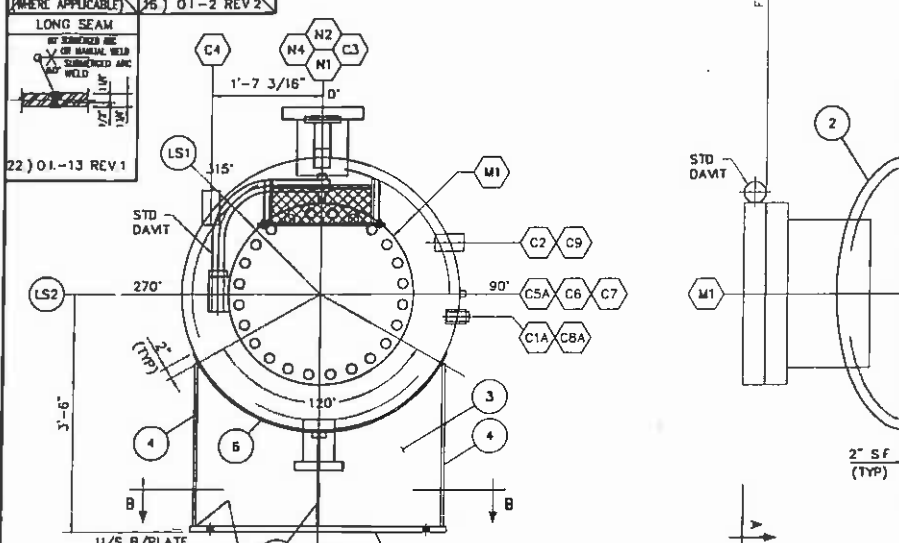
20 0Z ASME CODE SEC. VIII DIV. 1  
 PARA: UG-100  
 HEAD MATERIAL: SA-318-70N 1.75" NOM. WALL (1.89" MIN)  
 SHELL MATERIAL: SA-318-70N 1.75" NOM. WALL  
 MONT: 207 @ 1440 PSIG  
 NOZZLE: SA-105N/SA-105N-8 FLANGES: SA-105N  
 M.A.W.P.: 1440 PSIG (9920 KPA) TEMP.: 100°F (37.8°C)  
 HYDROTEST: 1872 PSIG (12907 KPA) RADIOGRAPHY: RT-1 (FULL MCH. ALL NOZZLE BW)  
 STRESS RELIEF: 105 MINS @ 1150°F  
 CORR. ALLOW.: 0.0625" JOINT EFF.: 100%  
 VOLUME: 268.80 CU. FT. (7.62 CU. M.)  
 EMPTY WT.: 28,000 LBS. (12,704 KG) FULL WT.: 42,800 LBS. (19,414 KG)  
 YEAR BUILT: 2008 SERIAL NO.:  
 CRN No.: 1-0645.21  
 W.P.R. No.: 1732.2  
 SURFACE PREP: SSPC-SP8  
 PRIME: SEE PIPING  
 PAINT: SEE PIPING  
 INSULATION: SEE NOTE 8

MARK NO.	NO. REQ'D	SIZE	SCH.	RATING AND FACING	SERVICE	PROJECTION	FILLET	REPAD	WELD#
						INSIDE (MIN)	OUTSIDE	"F" "J" "W" "R" "S"	
N1	1	6"	---	CL600 RFLWN	INLET	8 13/16"	7 8/8"	3/8"	9
N2	1	6"	---	CL600 RFLWN	GAS OUTLET	1"	8 13/16"	7 8/8"	9
N3	1	3"	---	CL600 RF'HB'	COND. OUTLET	FLUSH	7 1/16"	3/8"	8
N4	1	1 1/2"	---	CL600 RFLWN	PSV	---	7 3/16"	3/8"	8
N5	1	3"	---	CL600 RF'HB'	WATER OUTLET	FLUSH	7 1/16"	3/8"	8
C1A/B	2	1 1/2"	---	CL3000 NPT CPLG	LC BRIDGE	---	3/8"	---	5
C2	1	2"	---	CL3000 NPT CPLG	LSHH	---	3/8"	---	5
C3	1	1"	---	CL6000 NPT	EQUALIZING LINE	---	3/8"	---	7
C4	1	2"	---	CL3000 NPT CPLG	PIPE SUPP'T	---	3/8"	---	8
C5A/B	2	3/4"	---	CL6000 NPT	LG (COND.)	---	3/8"	---	7
C6	1	3/4"	---	CL6000 NPT	TI	---	3/8"	---	7
C7	1	1/2"	---	CL6000 NPT	PI	---	3/8"	---	7
C8A/B	2	3/4"	---	CL6000 NPT CPLG	LG (WATER)	---	3/8"	---	7
C9	1	2"	---	CL3000 NPT CPLG	LC-101 (SLUGGED)	---	3/8"	---	5
M1	1	20" ID	---	CL600 RF'HB'	W/W BLND & DAWT	2"	AS SHOWN	3/8" 3/8"	9

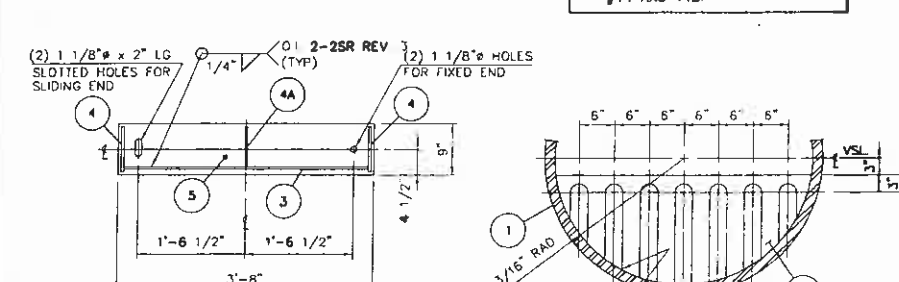
### BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	MAT'L
1	2	SHELL - 48" OD X 10'-0" S/S X 1.75" THK.	SA-318-70N
2	2	HEADS - 48" OD 2:1 S.E. X 1.75" NOM (1.89" MIN) WITH 2" SF	SA-318-70N
3	2 PCS	WEB PL - 3/8" THK X 3'-6 3/16" WD X 2'-4 13/16" H	SA-36
4	4 PCS	SIDE PL - 1/2" THK X 8" WD X 2'-4 13/16" H	SA-36
4A	2 PCS	RIB PL - 3/8" THK X 7 1/8" WD X 1'-4 5/8" H	SA-36
5	2 PCS	BASE PLATE - 1" THK X 9" WD X 3'-8" LG	SA-36
6	2 PCS	WEAR PLATE - 3/8" THK X 10" WD X 4'-7" LG (ROLL TO 48" ID.)	SA-318-70N
7	3 PCS	INLET DEFLECTOR - 1/4" PL X 1'-8" WD X 1'-8" LG (CTS)	SA-36
8	1 PC	BAFFLE - 3/8" PL X 1'-7 1/8" WD X 3'-8 3/8" LG (CTS)	SA-36
9	2	XPM - 3/4 X 35 1/4 LG X 17 1/4 WD	SA-36
10	2 PCS	SUPPORT - 3/8" PL X 18" LG X 10 7/8" WD (CTS)	SA-36
11	2 PCS	SUPPORT - 3/8" PL X 35 1/4 LG X 9" WD (CTS)	SA-36
12	1	MISTEX - 6" THK X 12 7/13 X 35 1/4 LG X 17 1/4 WD C/W TOP AND BOTTOM GRID (REMOVABLE THRU 20" ID MW)	316L SS
13	2 PCS	SUPPORT - 1/4" THK X 2" FB X 13 1/8" LG	SA-36
13A	2 PCS	SUPPORT - 1/4" THK X 2" FB X 35 1/8" LG	SA-36
14	2 PCS	SUPPORT - 1/4" THK X 2" FB X 18" LG	SA-36
14A	2 PCS	SUPPORT - 1/4" THK X 4" FB X 14" LG	SA-36
14B	2 PCS	SUPPORT - 1/4" THK X 2" FB X 40" LG	SA-36
14C	2 PCS	SUPPORT - 1/4" THK X 4" FB X 40" LG	SA-36
14D	2 PCS	SUPPORT - 1/4" THK X 1" FB X 14" LG	SA-36
14E	24	BOLTS - 1/2" X 1 3/4 LG C/W ONE NUT EA.	CADMIUM PLATED
15	2	LIFTING LUG - 1" PL X 8" WD X 7" LG (CST)	SA-318-70N
16	1	NAME PLATE C/W MOUNTING BRACKET	SS/SA-36
N1,N2	2	FLANGE - 6" CL600 RFLWN (1.38" WT) X 12" LG	SA-105N
N3	1	FLANGE - 3" CL600 RF'HB' (1.24" WT) X 9" LG	SA-105N
N4	1	FLANGE - 1 1/2" CL600 RFLWN (0.63" WT) X 8" LG	SA-105N
N5	1	FLANGE - 3" CL600 RF'HB' (1.24" WT) X 9" LG	SA-105N
C1A	1	LONG CPLG - 1 1/2" CL3000 NPT X 4 1/2 LG (POE/TOE)	SA-105N
C1B	1	TOL - 1 1/2" CL3000 NPT (ON 48" RUN)	SA-105N
C2	1	LONG CPLG - 2" CL3000 NPT X 5 1/2 LG (2.25" ID) (POE/TOE)	SA-105N
C3	1	TOL - 1" CL6000 NPT (ON 48" RUN)	SA-105N
C4	1	LONG CPLG - 2" CL3000 NPT X 6 1/4 LG (2.25" ID) (POE/TOE)	SA-105N
C5A/B	2	TOL - 3/4" CL6000 NPT (ON 48" RUN)	SA-105N
C6	1	TOL - 3/4" CL6000 NPT (ON 48" RUN)	SA-105N
C7	1	TOL - 1/2" CL6000 NPT (ON 48" RUN)	SA-105N
C8A	1	LONG CPLG - 3/4" CL6000 NPT X 4" LG (POE/TOE)	SA-105N
C8B	1	TOL - 3/4" CL6000 NPT (ON 48" RUN)	SA-105N
C9	1	LONG CPLG - 2" CL3000 NPT X 5 1/2 LG (2.25" ID) (POE/TOE)	SA-105N
M1	1	FLG - 20" CL600 RF'HB' (2.97" WT) X 18" LG	SA-105N
	1	BLD FLG - 20" CL600 RF	SA-105N
	24	STUDS - 1 5/8" X 11 1/2 LG C/W 2 NUTS EA	87/2H
	1	GASKET - 1/8" THK, GRAPHITE FILLED, 20" CL600 RF	304 SS

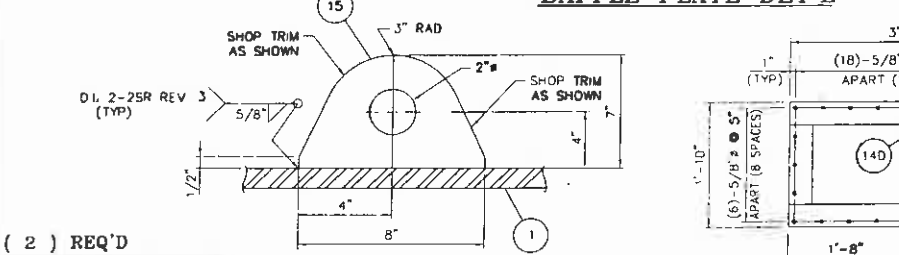
**NOTES:**  
 1. 2 WEEPHOLES REQUIRED & WELD SEAM TO RUN PARALLEL TO CIRC SEAM WHEN REPAID IS SPLIT. X-RAY REPAID SEAM WELD UW-51  
 2. WEEPHOLES 1/8" NPT UNLESS NOTED ON VESSEL DWG  
 3. RADIUS AS PER CODE UG-76(c)  
 4. MANWAY INTERNAL CORNER RADIUS AS PER FIG UW-161 (g)  
 5. WPS 01-2-2SR REV 3 & 01-2 REV 2 ARE ACCEPTABLE FOR ALL TACK WELDS.



**SHOP NOTE:**  
 1. MISTEX TO BE REMOVABLE ITEMS #10 AND 11 TO BE WELDED TO SHELL.  
 2. ITEMS #14 AND 14B TO BE WELDED TO ITEMS #10 AND 11 ALL THE WAY AROUND.  
 3. ITEMS #14A, 14C AND 14D TO BE BOLTED TO ITEMS #14 AND 14B.  
 4. BACKWELD NUTS ONTO ITEMS #14 AND 14B.

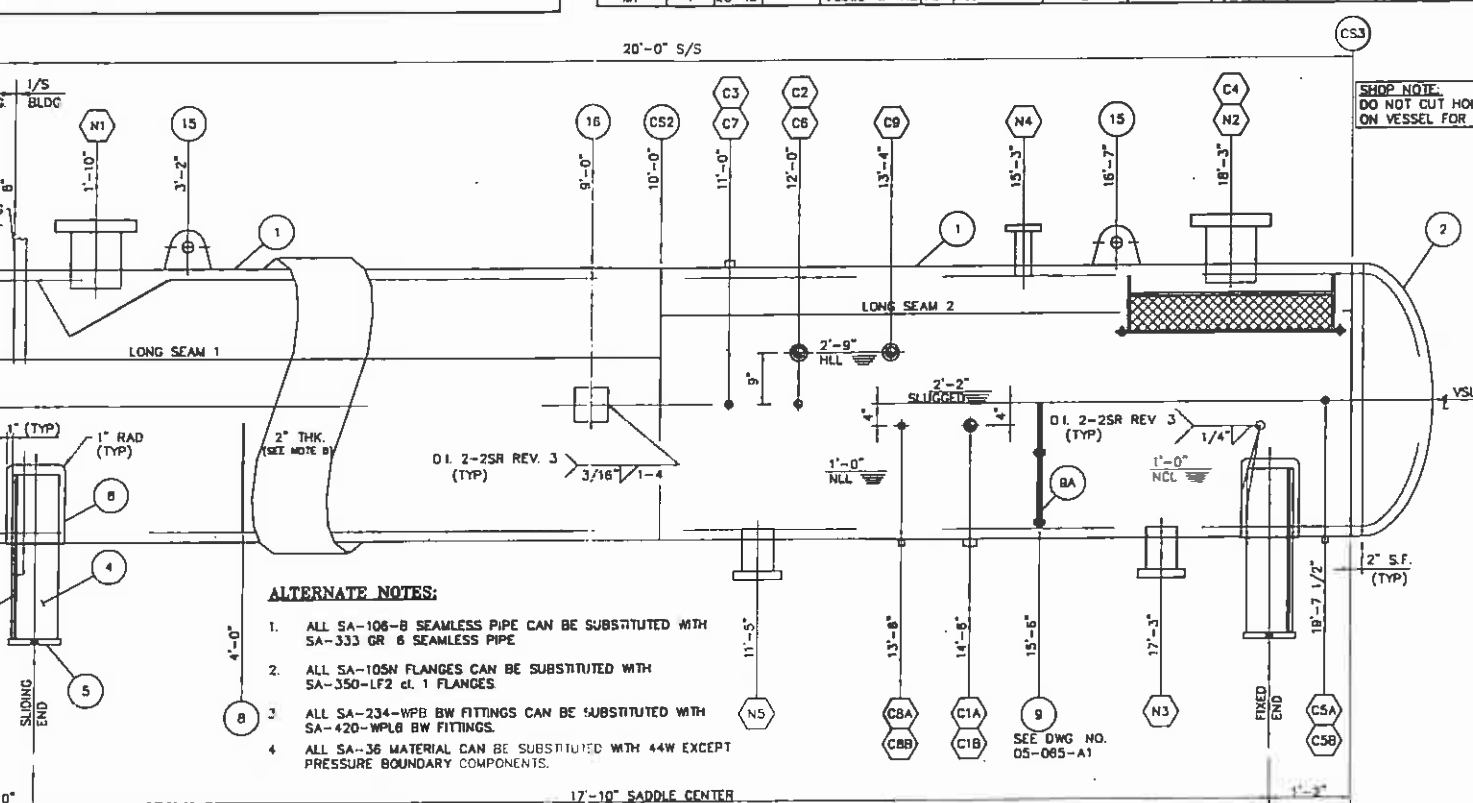


**VIEW 'A-A'**  
 (2) 1 1/8" x 2" LG SLOTTED HOLES FOR SLIDING END  
 (2) 1 1/8" HOLES FOR FIXED END  
 1'-6 1/2" 1'-6 1/2" 3'-8" 4 1/2" 5" 22 3/16" RAD 3" (TYP) 1/4" 1/4" 01-2-2SR REV (TYP)

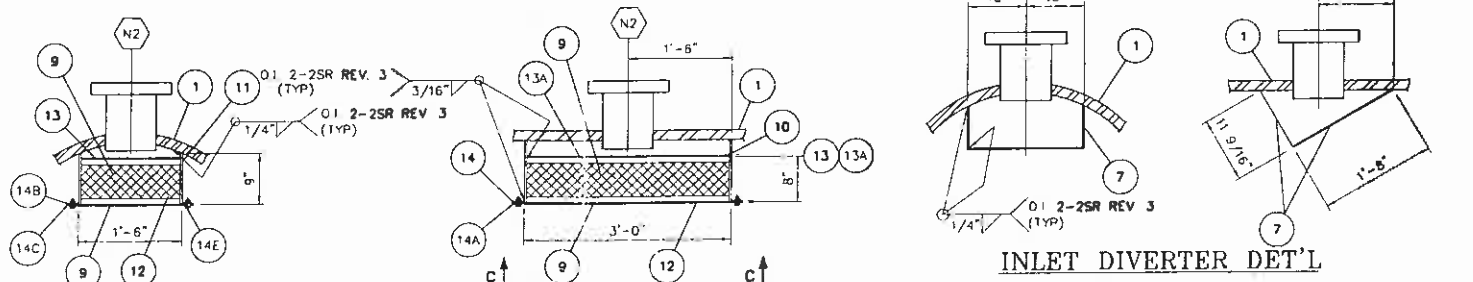


**VIEW 'B-B'**  
 N.T.S.  
 01-2-2SR REV (TYP) 1/4" 1/4" 3" (TYP) 5" 1'-10" (6)-5/8" X 5" (APART 8 SPACES) 1'-8" 14C (TYP) 14A (TYP) 14B (TYP) 14

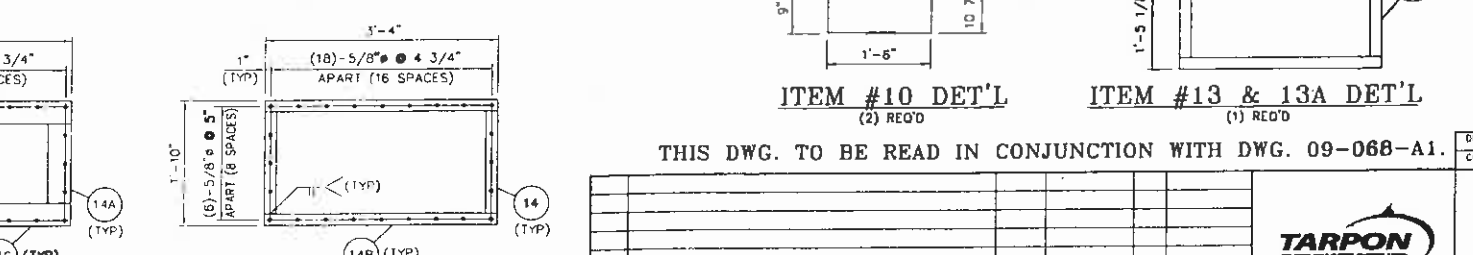
**VIEW 'C-C'**  
 (2) REQ'D  
 TIME CARD  
 09-068-001/002-HS  
 LIFT LUG DET'L  
 (2) REQ'D - N.T.S.



**ALTERNATE NOTES:**  
 1. ALL SA-105N-8 SEAMLESS PIPE CAN BE SUBSTITUTED WITH SA-333 GR 6 SEAMLESS PIPE  
 2. ALL SA-105N FLANGES CAN BE SUBSTITUTED WITH SA-350-LF2 CL 1 FLANGES  
 3. ALL SA-234-WPB BW FITTINGS CAN BE SUBSTITUTED WITH SA-420-WPL8 BW FITTINGS  
 4. ALL SA-36 MATERIAL CAN BE SUBSTITUTED WITH 44W EXCEPT PRESSURE BOUNDARY COMPONENTS.



**VIEW 'A-A'**  
 (2) 1 1/8" x 2" LG SLOTTED HOLES FOR SLIDING END  
 (2) 1 1/8" HOLES FOR FIXED END  
 1'-6 1/2" 1'-6 1/2" 3'-8" 4 1/2" 5" 22 3/16" RAD 3" (TYP) 1/4" 1/4" 01-2-2SR REV (TYP)



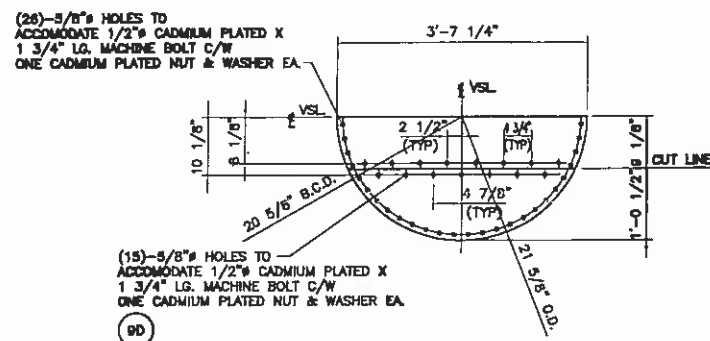
**VIEW 'B-B'**  
 N.T.S.  
 01-2-2SR REV (TYP) 1/4" 1/4" 3" (TYP) 5" 1'-10" (6)-5/8" X 5" (APART 8 SPACES) 1'-8" 14C (TYP) 14A (TYP) 14B (TYP) 14

**VIEW 'C-C'**  
 (2) REQ'D  
 TIME CARD  
 09-068-001/002-HS  
 LIFT LUG DET'L  
 (2) REQ'D - N.T.S.

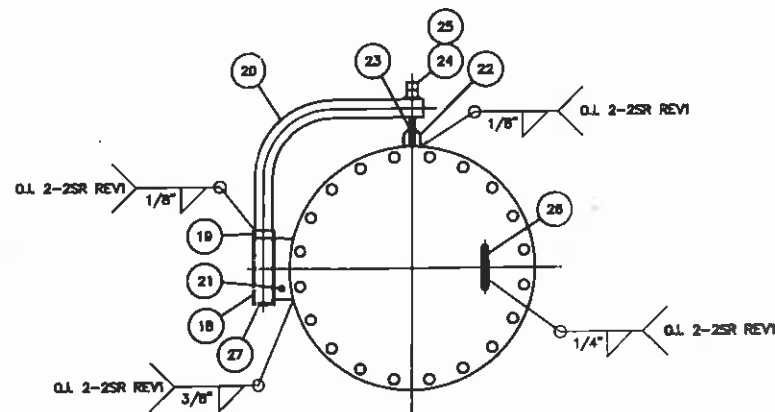
**GENERAL NOTES:**  
 1. SHELL, HEADS & PRODUCTION WELDS ARE IMPACT TESTED PER UG-84(1)(1), 15/12 FT-LB. ALL OTHER COMPONENTS ARE EXEMPT PER UG-20(f) 1-5, UCS-66(b)(1)(c), UCS 66(e), UCS-66(b)(1)(c) & Fig UCS-66 GENERAL NOTES (a)  
 2. MTR TO BE PROVIDED FOR ALL PRESSURE RETAINING MATERIAL  
 3. EXTERNAL LOADINGS ARE NOT APPLICABLE (REF UG-22)  
 4. DIMENSIONAL TOLERANCES AS PER ORBAN ENGR. SPEC. 01-004 REV 0  
 5. ALL BOLT HOLES TO STRADDLE CENTERLINES  
 6. SUBSTITUTION OF MATERIAL IS NOT ACCEPTABLE UNLESS ENGINEERING DEPARTMENT APPROVAL OBTAINED  
 7. WELDING JOINT PREPARATION AND FIT-UP AS PER ORBAN ENGR SPEC 01-003 REV 0  
 8. VESSEL O/S BUILDING TO BE INSULATED WITH 2" AF530 FIBREGLASS INSULATION C/W ALUMINUM JACKET.  
 9. WPS 01-1, 01-001 AND 01-8 ARE REV 1  
 10. ALL RFLWN & RF'HB' MATERIALS TO BE ORDERED TO FINE GRAIN PRACTICE AND NORMALIZED  
 11. VESSEL TO BE RESIGERED IN B.C. & ALBERTA  
 12. ADJUST OUTSIDE PROJECTION TO MAINTAIN INSIDE PROJECTION

**FABRICATION NOTE:**  
 1. PRODUCTION WELDS TO BE IMPACT TESTED TO 15/12 FT-LB @ -20°F AS PER UG-84(1)(1)

REFER TO DWG. NO 99-181-A REV. 2 FOR CRN NO.  
 DRAWN BY: LL  
 CHECKED BY: ET  
 DATE: 08-07-08  
 SCALE: 3/4"=1'-0"  
 48" OD X 20'-0" S/S X 1440 PSIG X 100°F X 1/16" CA  
 HORIZONTAL INLET SEPARATOR - V-100  
 (SWEET SERVICE)  
 CONOCOPHILLIPS CANADA CORPORATION 09-068-A



ITEM #9 DET'L  
(SHIPPED LOOSE)

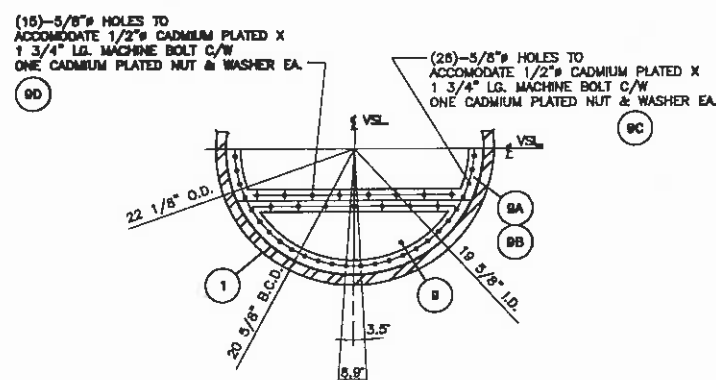


DAVIT DETAIL

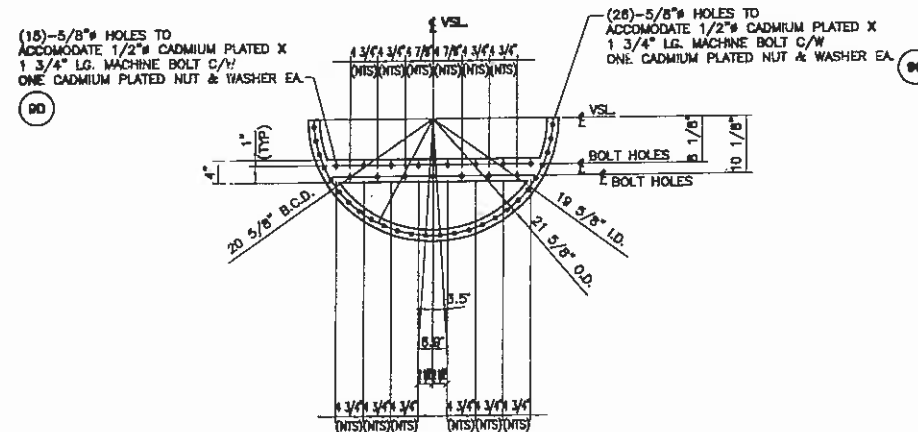
BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	MAT'L
9	1 PCS	WEIR PL - 3/8" PL X 22 1/8" W X 44 1/4" LG. (CTS)	SA-38
9A	1	SUPPLY RING - 3/8" PL X 22" W X 44 1/4" LG. (CUT PER DWG DET'L)	SA-38
9B	1	GASKET - 1/8" THK X 22 1/8" W X 44 1/4" LG. (CTS)	DURABLE BLACK
9C	26	BOLTS - 1/2" X 1 3/4" LG C/W ONE NUT & WASHER	CADMIUM PLATED
9D	15	BOLTS - 1/2" X 1 3/4" LG C/W ONE NUT & WASHER	CADMIUM PLATED
18	1	DAVIT SLEEVE - 2 1/2" SCH. STD. SMLS PIPE X 10" LG.	SA-108-B
19	1	RING - 2 1/2" SCH. STD. SMLS PIPE X 1" LG.	SA-108-B
20	1	DAVIT ARM - 2" SCH. 40X SMLS PIPE X 5'-0" LG.	SA-108-B
21	1	PLATE - 3/4" THK X 2" WD X 8" LG.	SA-38
22	1	U BAR - 3/4" ROUND BAR X 8" LG.	SA-38
23	1	EYE BOLT - 3/4" ROUND BAR X 12" LG.	SA-38
24	1	WASHER - 3/4"	S.S.
25	2	NUTS - 3/4"	2H
26	1	HANDLE - 3/4" ROUND BAR X 12" LG.	SA-38
27	1	BLIND END - 1/4" PL X 2 7/8" OD	SA-38

THIS DWG. TO BE READ IN CONJUNCTION WITH DWG. 06-111-A.

NOTES:  
ITEM #9 AND #9B TO BE SHIPPED LOOSE.



WEIR PLATE SUPP'T RING DET'L



ITEM #9B DET'L

REFER TO DWG. NO 99-181-A REV. 2 FOR CRN NO.

( 2 ) REQ'D

TIME CARD  
09-068-001/002-HS

THIS DWG. TO BE READ IN CONJUNCTION WITH DWG. 09-088-A.

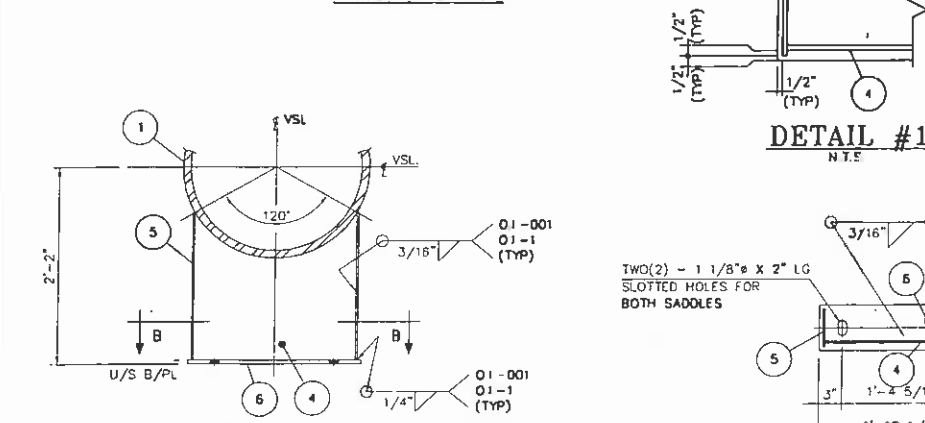
ISSUED FOR CONSTRUCTION	DATE	BY	DATE
REV.	DESCRIPTION	APP'D	DATE
PROJECT CO-ORDINATOR CHECKED:	DATE	BY:	



DRAWN BY: LL	DATE: 08-07-08
CHECKED BY: ET	SCALE: 3/4"=1'-0"
48" OD X 20'-0" S/S X 1440 PSIG X 100°F X 1/16" CA HORIZONTAL INLET SEPARATOR - V-100 (SWEET SERVICE)	
CONOCOPHILLIPS CANADA CORPORATION	09-068-A1 REV. A

NOTES:

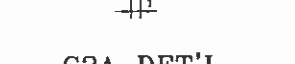
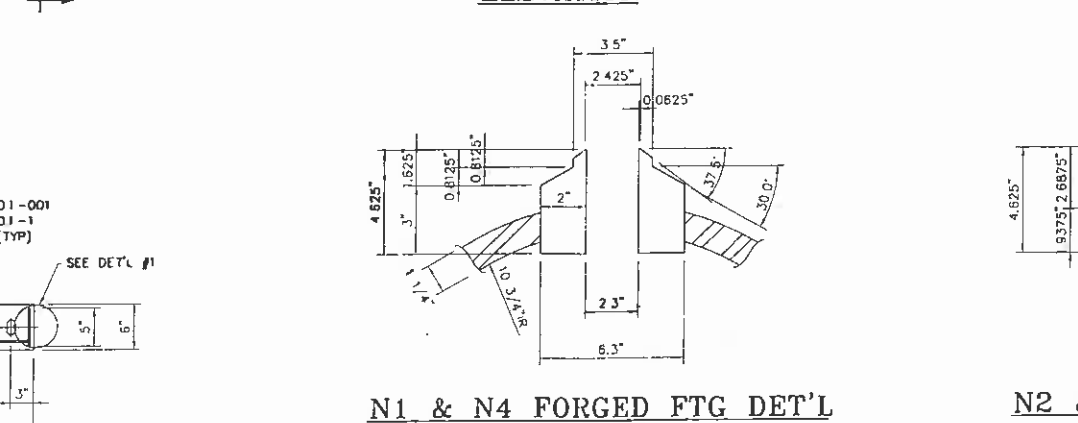
- ① 2 WEEPHOLES REQUIRED & WELD SEAM TO RUN PARALLEL TO CIRC SEAM WHEN REPAID IS SPLIT. X-RAY REPAID SEAM WELD UW-51
- ② WEEPHOLES 1/8" NPT UNLESS NOTED ON VESSEL DWG
- ③ RADIUS AS PER CODE UG-76(c)
- ④ ---
- ⑤ WPS D1, 2-2SR REV 3 & D1-2 REV 2 ARE ACCEPTABLE FOR ALL TACK WELDS.




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CYCLIC DESIGN PARAMETER:
SEE DIMENSION CHART

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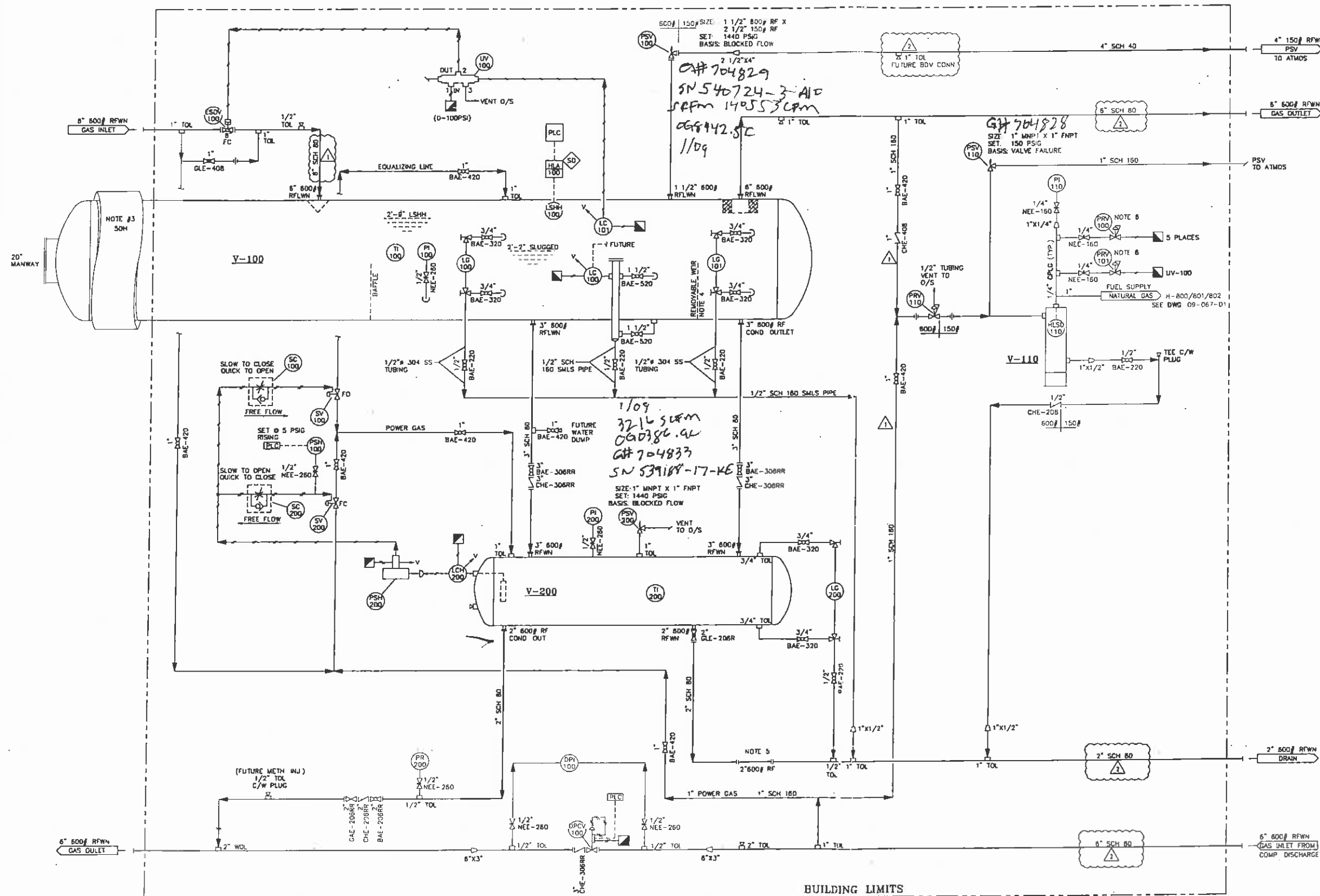
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REFER TO DWG. NO 04-028-B REV. 0 FOR CRN NO.										DRAWN BY: LL		DATE: 08-07-08		
										CHECKED BY: ET		SCALE: 1"=1'-0"		
										---				
										24" OD X 8'-0" S/S X 1440 PSIG X 130°F X 1/16" CA				
										HORIZONTAL BLOWCASE - V-200 (SWEET SERVICE)				
										CONOCOPHILLIPS CANADA CORPORATION		09-068-B		REV. 

**Y-100  
INLET SEPARATOR**  
SIZE: 48" O.D. X 20'-0" S/S  
DESIGN: 1440 PSIG @ -20/100T, 1/16" CA  
RADIOGRAPHY: RT-1  
PWHT: 105 MINS. @ 1150F

**Y-200  
BLOWCASE**  
SIZE: 24" O.D. X 8'-0" S/S  
DESIGN: 1440 PSIG @ -20/100T, 1/16" CA  
RADIOGRAPHY: RT-2  
PWHT: N/R  
LIFETIME: 4 CYCLES/HR FOR 20 YEARS

**Y-110  
FUEL GAS SCRUBBER**  
SIZE: 8 5/8" O.D. X 30' S/S  
DESIGN: 150 PSIG @ -20/100T, 1/8" CA  
RADIOGRAPHY: RT-3  
PWHT: N/R



BILL OF MATERIAL		
TAG#	QTY	DESCRIPTION
DPI-100	1	1/4" NPT MIDWEST 120 AA-00-00 DIFFERENTIAL PRESSURE INDICATOR, 0-50 PSIG RANGE, SWEET.
OPCV-100	1	3" 600# RF CYS "ET" DIFFERENTIAL PRESSURE CONTROL VALVE, C/W DVC 6010 DIGITAL VALVE POSITIONER, HART COMMUNICATIONS, 4-20mA INPUT, 8-30V OUTPUT
HLSD-110	1	2" NPT E.O.B. FGS0VST512PVC-02 HIGH LIQUID LEVEL SHUT OFF VALVE.
LC-100	1	2" NPT NOR. 1001A-2560-SLD LEVEL CONTROLLER C/W 1 7/8" X 18" LG PVC VERTICAL DISPLACER, LEFT HAND MOUNT, SNAP DIRECT ACTING, INTERFACE, C/W EXT. CAGED, (SWEET GAS INSTR.)
LC-101	1	2" NPT NOR. 1001A-2560-SLD LEVEL CONTROLLER, 3-15 PSIG RANGE 1 7/8" X 12" LG VERTICAL DISPLACER, THROTTLING REVERSE ACTING, LEFT HAND MOUNT, (SWEET GAS INSTR.) (SLUGGED)
LCH-200	1	2" NPT NOR. 1001A-2560-SLD LEVEL CONTROLLER, 3-15 PSIG RANGE 1 7/8" X 12" LG VERTICAL DISPLACER, THROTTLING DIRECT ACTING, LEFT HAND MOUNT, (SWEET GAS INSTR.)
LG-100	1	DANIEL 61TW TRANSPARENT GLASS LEVEL GAUGE C/W IS GAUGE COCKS, 8 1/8" VISIBLE LENGTH, SWEET
LG-101	1	DANIEL 61RL REFLEX GLASS LEVEL GAUGE C/W IS GAUGE COCKS, 8 1/8" VISIBLE LENGTH, SWEET
LG-200	1	DANIEL 62RL REFLEX GLASS LEVEL GAUGE C/W IS GAUGE COCKS, 18 3/4" VISIBLE LENGTH, SWEET
LSHH-100	1	2" NPT SCR 1510B-GA2-C-WB-ES-CS ELECTRIC LEVEL SWITCH, EXP. PROOF, 24 VDC.
ESDV-100	1	8" 600# RF FULL PORT BALL VALVE, TRIMON MOUNTED, DBB, LOW TEMP. NACE, GROVE BS, C/W LEDZEN MODEL D5820-SRS PNEUMATIC ACTUATOR & MOUNTING KIT, FC, (80F MIN HTS SUPPLY)
PI-100	2	4" DIAL FACE, WKA 233.54 PRESSURE INDICATOR, DUAL UNIT, LIQUID FILLED, 1/2" NPT BOTTOM CONNECTION, 0-1500 PSIG RANGE.
PI-110	1	2 1/2" DIAL FACE, WKA 11110 PRESSURE INDICATOR, DUAL UNIT, DRY 1/4" NPT BOTTOM CONNECTION, 0-200 PSIG RANGE
PR-200	1	ITT BARTON 242E SINGLE PEN STATIC PRESSURE RECORDER, 0-1500 PSIG STATIC PRESSURE, 24 HR/7 DAYS ROTATION, C/W INK & PEN (RECONDITIONED)
PRV-100	5	1/4" NPT FISHER 87 CFR REGULATORS, 5-35 PSIG SPRING RANGE, SWEET
PRV-101	1	1/4" NPT FISHER 87 CFR REGULATORS, 0-100 PSIG SPRING RANGE, SWEET
PRV-110	1	1" NPT FISHER 830 REGULATOR, C1 BOOT C/W 1/8" TRIM, 45-85# SPRING RANGE, SWEET SERVICE
PSH-200	1	HYVALCO CDM-3801-B1 PRESSURE SWITCH, TYPE 38 F1, 1/8" ORIFICE, SS TRIM, ALUMINUM DIAPHRAGM, ALUMINUM BODY, BUNA-N INSERTS AND SEALS 10-27# RANGE.
PSH-100	1	1/2" NPT CCS DUAL SNAP 8900GZ12, SET @ 5 PSIG RISING, (3-20 PSIG RANGE), EXPL. PROOF, 24 VDC.
PSV-100	1	1 1/2" 600# RF X 2 1/2" 150# RF FARRIS MODEL 28GA13-120 PRESSURE SAFETY RELIEF VALVE, SET @ 1440 PSIG, SWEET SERVICE (GAS)
PSV-110	1	1" WNPT X 1" FNPT WERGER B1000 PRESSURE SAFETY RELIEF VALVE, SET @ 150 PSIG, SWEET SERVICE (GAS)
PSV-200	1	1" WNPT X 1" FNPT FARRIS 270A33-W20 PRESSURE SAFETY RELIEF VALVE, SET @ 1440 PSIG, SWEET SERVICE (GAS)
SC-100	2	1/4" NPT STERLING HAS4000 RESTRICTION ORIFICE/CHECK VALVE
SV-100	1	1" NPT NORRISEAL 1-2220-S-36-TTV-9 EQUALIZING VALVE, 3/4" TRIM, FAILED OPEN
SV-200	1	1" NPT NORRISEAL 1-2220-S-36-TTV-9 PRESSURIZING VALVE, 3/4" TRIM, FAILED CLOSE
TI-100	2	TREND TEMPERATURE INDICATOR, 3" DIAL FACE X 4" LG STEM -20 to 120°C, 5/2" X 3/4" X 4" LG TW, 304SS
UV-100	1	1/4" AMOT 4057002SH2 CP 3-WAY SWITCHING VALVES, C/W MANUAL RESET
BAE-308RR	2	3" 600# RF REG. PORT BALL VALVE, NUTRON T3-R30R06B, SWEET
BAE-208RR	1	2" 600# RF REG. PORT BALL VALVE, NUTRON T3-R20R06B, SWEET
GLE-208R	1	2" 600# RF GLOBE VALVE, NEWCO, SWEET
BAE-520	2	1 1/2" NPT BALL VALVE, NUTRON T3-F15520B, SWEET
BAE-420	8	1" NPT BALL VALVE, NUTRON T3-R10520B, SWEET
BAE-320	8	3/4" NPT BALL VALVE, NUTRON T3-R07520B, SWEET
BAE-220	5	1/2" NPT BALL VALVE, NUTRON T3-F05520B, SWEET
CHE-308RR	3	3" 600# RF SWING CHECK VALVE, WHEATLEY WHE-600F30S, SWEET
CHE-208RR	1	2" 600# RF SWING CHECK VALVE, WHEATLEY WHE-600F20S, SWEET
CHE-408	1	1" NPT PISTON CHECK VALVE, NAVCO, SWEET
CHE-208	1	1/2" NPT PISTON CHECK VALVE, NAVCO, SWEET
GAE-208RR	1	2" 600# RF GATE VALVE, NEWCO, SWEET
NEE-260	5	1/2" WNPT X 1/2" FNPT NEEDLE VALVE, CENTURY CM2-3-M44T-BV, SWEET
NEE-160	10	1/4" WNPT X 1/4" FNPT NEEDLE VALVE, CENTURY CM2-3-M22T-BV, SWEET
GLE-408	1	1" NPT GLOBE VALVE, NAVCO, CLASS 800, SWEET

#### NOTES:

- INSTR. TUBING:  
3/8" 304SS C/W PARKER CADMIUM PLATED FITTING & 316SS FERRULES  
PROCESS TUBING:  
3/8" 304SS C/W PARKER CADMIUM PLATED FITTING & 316SS FERRULES  
DRAIN TUBING:  
1/2" 304SS C/W PARKER CADMIUM PLATED FITTING & 316SS FERRULES
- ALL VENTING INSTRUMENTS TO BE VENTED TO OUTSIDE INDIVIDUALLY
- 2" TH. AF-530 INSULATION O/S BUILDING ONLY.
- REMOVABLE WEIR IS TO BE SHIPPED LOOSE
- SPOOL PIECE FOR FUTURE CONTROL VALVE (CYS "D" BODY)
- ALL VENTS TO BE INDIVIDUALLY TIED TO A SAFE AREA OUTSIDE BUILDING

JOB#	LSO
09-068-001	10-36-85-B WSM
09-068-002	10-23-72-10 WSM

CHECKED BY	LL	DATE	08-06-23
ET		SCALE	N.T.S.
MECHANICAL FLOW DIAGRAM FOR INLET SEPARATOR/ BLOWCASE SKID PACKAGE (SWEET SERVICE)			
CONOCOPHILLIPS CANADA CORPORATION			09-068-D

(2) REQ'D

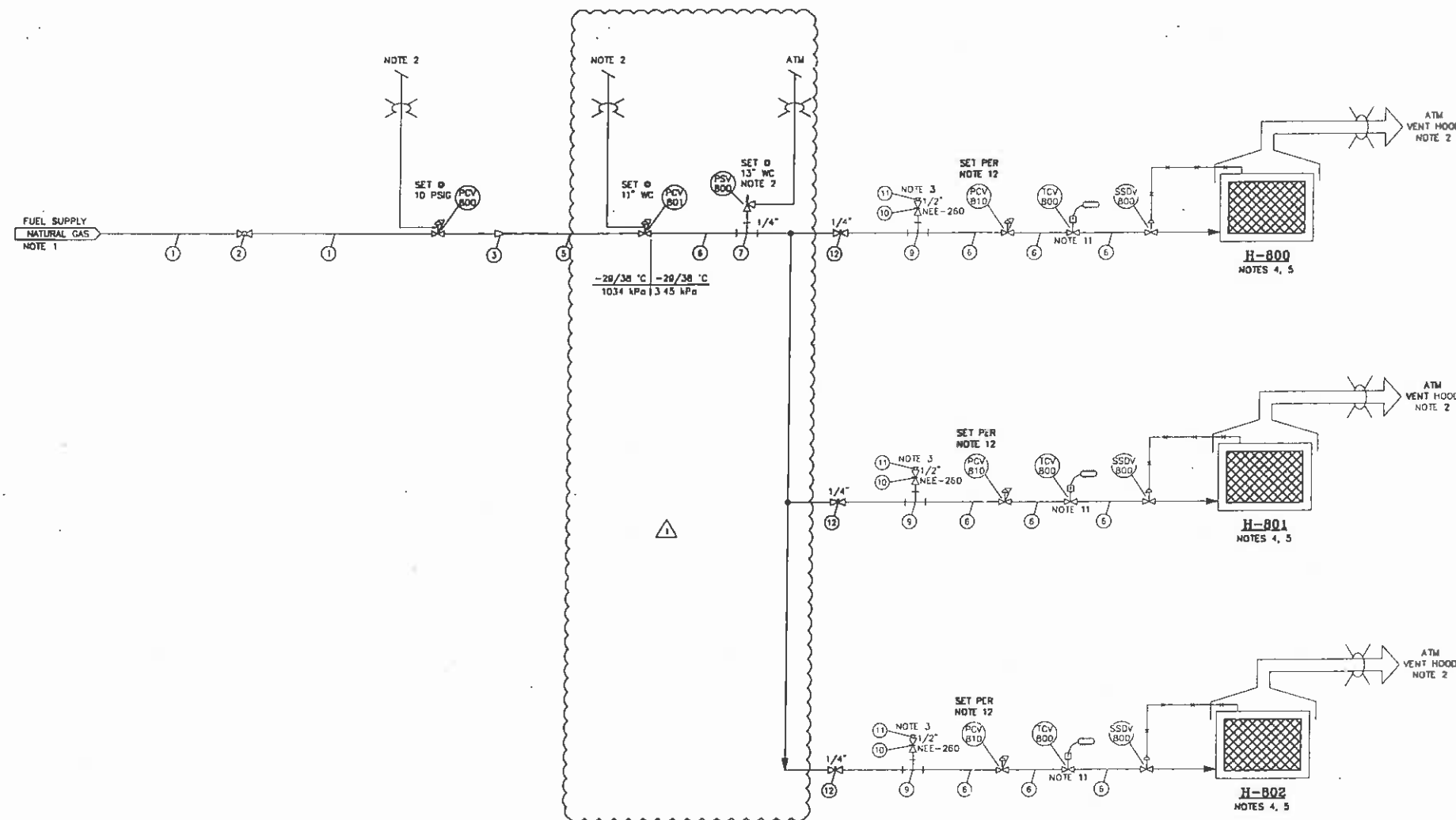
TIME CARD

09-068-001/002-PPS

△	REVISED AS PER CUSTOMER'S REQUEST						LL	08-11-25	
△	REVISED AS NOTED	ET	08-11-18				LL	08-11-18	
△	ISSUED FOR APPROVAL	ET	08-10-24				LL	08-10-24	
REV		APP'D	DATE				BY	DATE	
	PROJECT CO-ORDINATOR CHECKED		DATE				BY		



H-800/801/802  
BUILDING HEATER  
MAKE BRUEST CATADYNE  
MODEL B24-24CG  
DUTY 24,000 BTU/HR  
ACCESSORIES: GRILL GUARD, SAFETY SHUT-OFF,  
REGULATOR, THERMOSTAT,  
30' STARTER CABLE, VENT HOOD,  
CLASS 1, DIV. 1 (NATURAL GAS)  
STARTER 12 VDC



\* DISCONNECT ALL COMPONENTS NOT  
RATED FOR TEST PRESSURE PRIOR  
TO TEST  
\* FOLLOWING THE ASSEMBLY, LEAK  
TEST ALL CONNECTIONS WITH A  
LEAK DETECTION SOLUTION OR DEVICE

# BILL OF MATERIAL

TAG#	QTY	DESCRIPTION
PCV-800	1	1" NPT FISHER 827 PRESSURE REGULATOR, WCB STEEL BODY, 3/32" ORIFICE, SET @ 10 PSIG OUTLET PRESSURE.
PCV-801	1	1/4" FNPT INLET X 3/8" FNPT OUTLET SECONDARY PRESSURE REGULATOR, FISHER MODEL B12N-1/5, SET @ 11" WC OUTLET PRESSURE, (9.25-13" W.C. RANGE)
PSV-800	1	1/4" FNPT PRESSURE RELIEF VALVE, FISHER MODEL 289U SET @ 13" WC RELIEF PRESSURE (5-25" W.C. RANGE)
PCV-810	SUPPLIED	APPLIANCE REGULATOR - HEATER MANUFACTURER STANDARD, 3/8" FNPT, OUTLET PRESSURE SET NOTE 12
TCV-800	SUPPLIED	THERMOSTATIC TEMPERATURE CONTROLLER C/W CAPILLARY TUBE AND SENSING BULB, HEATER MANUFACTURER STANDARD, 3/8" FNPT
SSDV-800	SUPPLIED	TAMPER RESISTANT SAFETY SHUT-OFF VALVE/THERMOCOUPLE ASSEMBLY, HEATER MANUFACTURER STANDARD
1	A/R	1" NPS SEAMLESS PIPE, SCH 80 SA-106-B NPT OR A-269-316 SS TUBING PER GS-800 SPECIFICATION 'DIP'
2	1	1" NPT BALL VALVE, NUTRON T3-R10520B, SWEET
3	A/R	SWAGE, CLASS 3000, 1" X 1/4" NPT SA-105
4	---	---
5	A/R	1/4" NPS SEAMLESS PIPE, SCH 80 SA-106-B NPT OR 1/4" OD X 0.035" WT SEAMLESS TUBING A-269-316 SS
6	A/R	3/8" OD X 0.035" WT SEAMLESS TUBING A-269-316 SS C/W SS FITTINGS AS REQUIRED
7	A/R	TEE, MALE BRANCH, 3/8" TUBE X 3/8" TUBE X 1/4" MNPT (316 SS)
8	---	---
9	A/R	TEE, FEMALE BRANCH, 3/8" TUBE X 3/8" TUBE X 1/4" FNPT (316 SS)
10	3	1/2" MNPT X 1/2" FNPT NEEDLE VALVE, 6000#, CENTURY CM2-3-M44T-BV
11	3	SOLID HEX HEAD PLUG, 1/2" NPT, SA-105
12	3	1/4" FNPT X 1/4" FNPT NEEDLE VALVE, 6000#, CENTURY CM2-3-M22T-BV

## NOTES:

- FUEL SUPPLY MAXIMUM INLET PRESSURE = 150 PSIG (1034 kPa)
- ALL VENTS TO BE PIPED TO A SAFE AREA OUTSIDE BUILDING OR ENCLOSURE
- CONNECTION FOR TESTING, TROUBLE SHOOTING, OR PORTABLE, HEATER TIE IN, FUEL SUPPLY PRESSURE NOT TO EXCEED 0.5 PSIG (13.8" WC)
- BUILDING OR ENCLOSURE TO BE EQUIPPED WITH ADEQUATE INLET AIR VENT, MOUNTED LOW, FOR COMBUSTION AIR
- HEATERS EQUIPPED WITH 12 VOLT STARTER ELEMENTS, SHALL BE EQUIPPED WITH START UP CABLES OF ADEQUATE LENGTH (8m MINIMUM) ELECTRICAL INSTALLATION TO CONFORM TO CANADIAN ELECTRICAL CODE REQUIREMENTS FOR CLASS 1, ZONE 1 AND CPC ELECTRICAL OMP.
- INSTALLATION, TESTING AND COMMISSIONING TO BE IN ACCORDANCE WITH CSA B149: THE ALBERTA GAS CODE REGULATION (LATEST EDITION), AND CPC TECHNICAL BULLETIN 2005-002 ALL PIPING MUST BE ADEQUATELY SECURED
- START UP AND OPERATION TO CONFORM TO MANUFACTURER'S PROCEDURES
- THIS DRAWING HAS BEEN PREPARED FOR USE BY CONOCO PHILLIPS CANADA RESOURCES CORP. AND ITS AUTHORIZED AGENTS
- CHANGES TO THE EQUIPMENT OR MATERIAL SPECIFICATIONS CONTAINED HEREIN REQUIRES CPC ENGINEERING REVIEW (NOTE AMENDING NPS OF THE SAME SPECIFICATION IS ACCEPTABLE)
- 
- TCV-800 IS OPTIONAL, TO BE DETERMINED BY FIELD IF INSTALLED, A COMBINATION TEMPERATURE CONTROL AND SHUT OFF VALVE (E.G. MERTIK - MAXITROL OR EQUAL) MAY BE USED
- PCV-810 OUTLET PRESSURE TO BE SET AT 7" WC (CATADYNE)

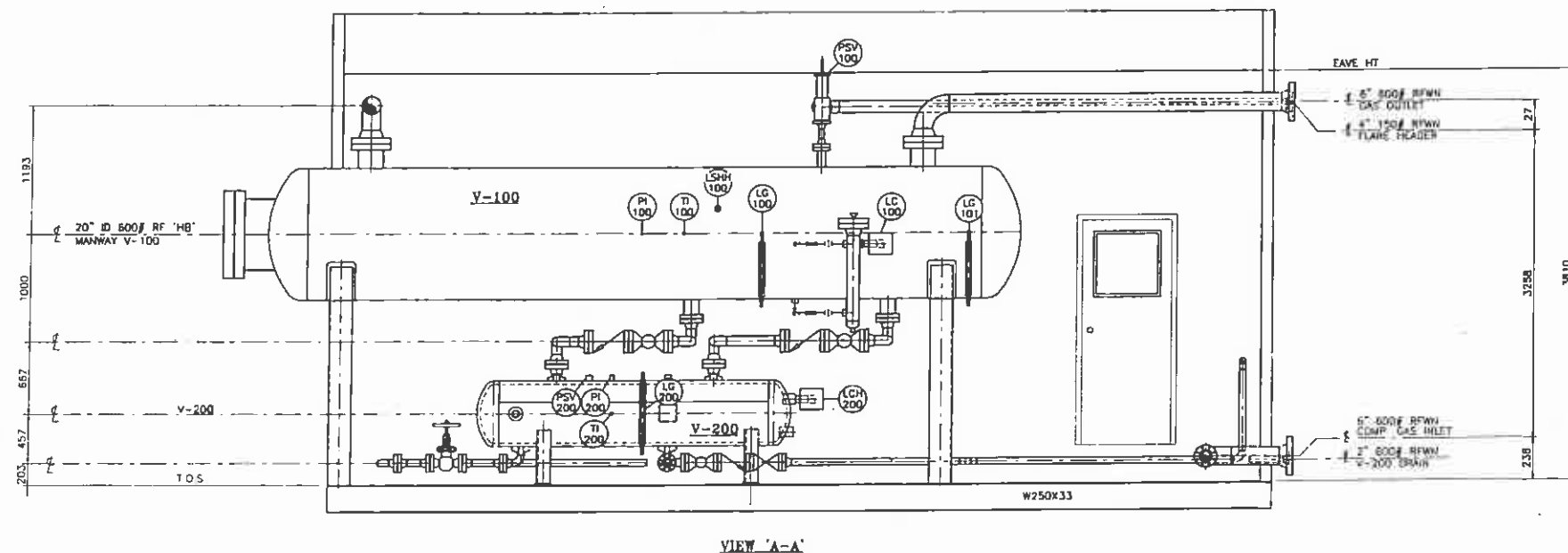
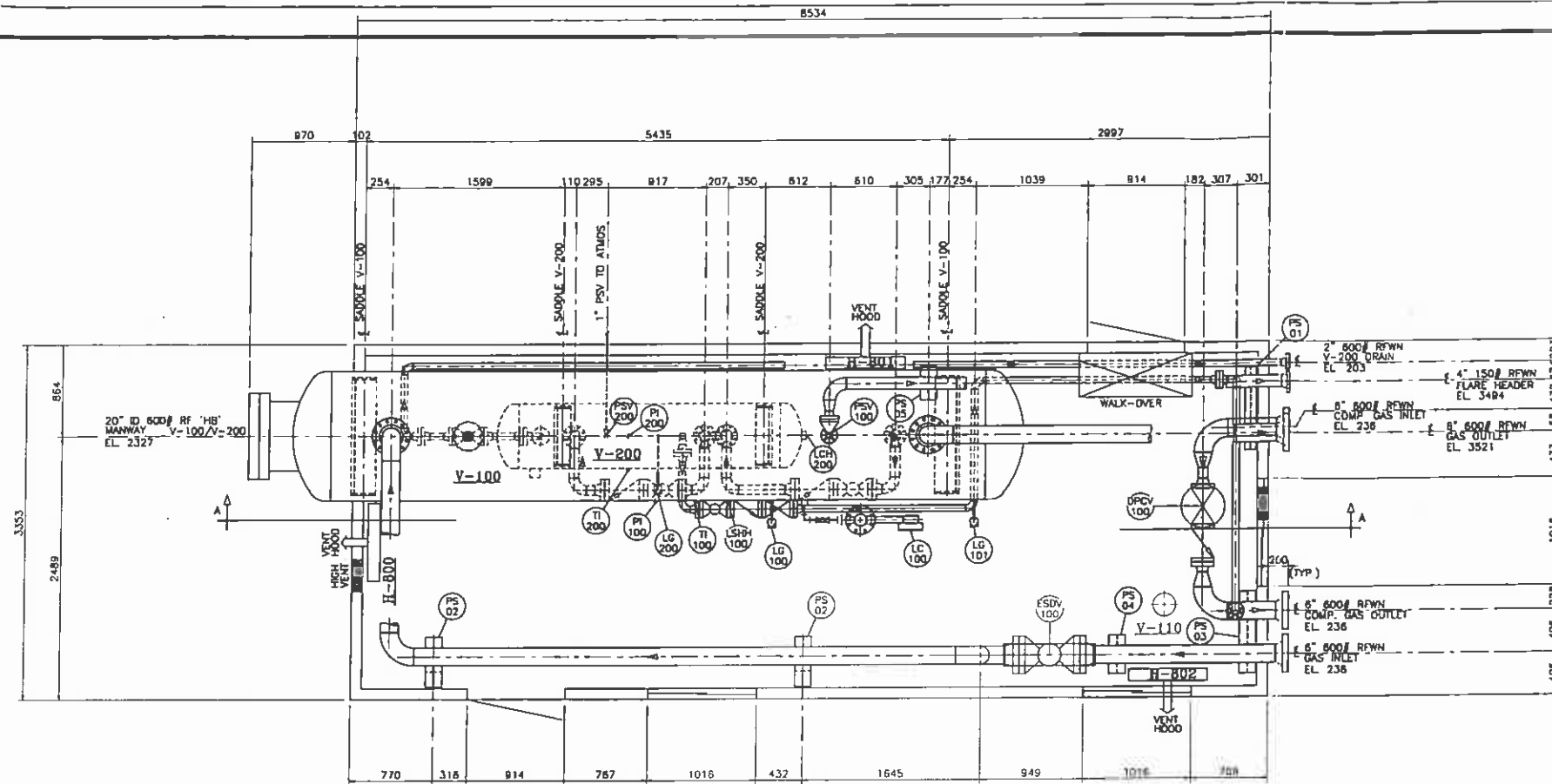
\* DENOTES SUPPLIED WITH BUILDING HEATER

REVISED AS PER CUSTOMER'S REQUEST	ET	08-11-07	GG	08-11-07	LL	08-11-24
ISSUED FOR APPROVAL	APP'D	DATE	BY	DATE		
PROJECT CO-ORDINATOR CHECKED	DATE		BY			



## MECHANICAL FLOW DIAGRAM FOR TYPICAL HEATER - NATURAL GAS

CONOCOPHILLIPS CANADA CORPORATION 09-068-D1



# GENERAL NOTES:

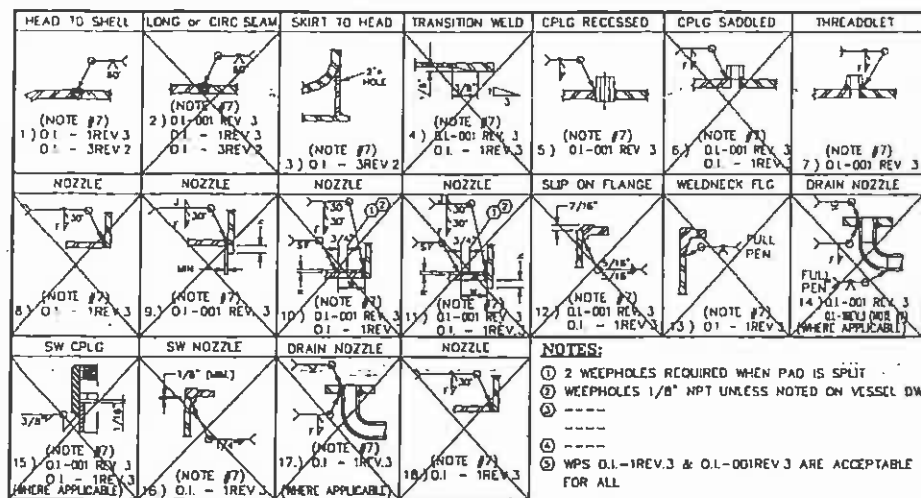
- THIS DRAWING TO BE READ IN CONJUNCTION WITH THE MECHANICAL FLOW DIAGRAM
- ALL ELEVATIONS ARE REF FROM TOP OF CHECKERED PLATE
- ALL PIPING TO BE HELD @ DIMENSIONS & ELEVATIONS SHOWN FOR CUSTOMER TIE-INS
- MAIN PIPING TO BE BUILT IN ACCORDANCE WITH THE LATEST EDITION OF B31.3
- ALL BUTTWELDED 00825 C.A. PIPING TO BE 600 ANSI: 3" & 2" - SCH 80  
MATERIALS: PIPING - SA-106B SMLS  
FLANGES - SA-105N  
FITTINGS - SA-234-WPB  
BOLTS - SA-193-B7  
NUTS - SA-194-2H  
GASKETS - 304SS FLEXITALLIC
- ALL THREAD PIPING TO BE SCH 160 SA-106B SMLS PIPE FOR 600 ANSI AND SCH 60 SA-106B SMLS FOR 150 ANSI C/A 3000# SA-105N SCREWED FITTINGS. (EXCEPT AS NOTED IN ITEM #7)
- FIRST PIPE/NIPPLE/SWAGE OFF VESSEL MPT CONNECTIONS TO BE SCH 160 FOR 600 ANSI AND 600 ANSI RATINGS, SCH 80 FOR 300 ANSI AND 150 ANSI RATINGS
- BUILDING:  
DIM: 11'-0" W X 26'-0" LG X 12'-8" H EAVE, GABLE STYLE WITH 4:12 SLOPE  
22 GAUGE GALVANIZED EXTERIOR WALLS AND ROOF  
R-12 BATT INSULATION IN WALLS IN ROOF  
4 mil VAPOR BARRIER  
24 GAUGE FLUTED ALUMINUM INTERIOR LINER  
(2) 3'-0" X 7'-0" STEEL MANDOR WITH LOCKING PANIC HARDWARE, 1WG WINDOW, WEATHER STRIPPING AND ALUMINUM THRESHOLD.  
(3) 40" X 40" DOUBLE GLAZED SLIDING WINDOW WITH SCREEN  
(2) 12" X 12" STAMPED LOUVERS WITH SLIDE GATES  
6" X 10" ACQUA-BLOCK VENT WITH CHAIN OPERABLE DAMPERS  
WHIRLY BIRD ON ROOF  
UNIT TO BE COMMERCIALY SANDBLASTED TO SSPC-SP6 PRIOR TO:  
ONE(1) COAT OF ZINC CHROMATE PRIMER  
TWO(2) COATS OF FINISH ENAMEL PAINT  
VESSEL: WARM GREY  
PIPING: WARM GREY  
SKID FLOOR: WARM GREY  
PIPE SUPPORTS: WARM GREY
- ALL WELDED BUTTWELDED PIPING SHALL BE RADIOGRAPHICALLY INSPECTED 10X FOR 600 ANSI RATING.
- ALL PIPING SHALL BE HYDROTESTED TO 1.5 TIMES THE DESIGN PRESSURE.
- ALL VENTING CONTROLS & INSTRUMENTS SHALL BE VENTED TO O/S INDIVIDUALLY
- ALL PIPE SUPPORT LOCATIONS TO BE DETERMINED BY SHOP
- ALL UNION LOCATIONS TO BE DETERMINED BY SHOP
- UNIT IS REGISTERED FOR ALBERTA & B.C. SERVICES
- SHIPPING DIMENSION: 32'-0" LG X 12'-7" W X 16'-0" H
- SHIPPING WEIGHT: 59,000 LBS.

( 2 ) REQ'D

TIME CARD  
09-068-001/002-PPW

REV	DESCRIPTION	APP'D	DATE	BY	DATE
1	REVISED AS NOTED	ET	08-07-08	LL	08-11-25
2	ISSUED FOR APPROVAL	ET	08-07-08	LL	08-07-08
3	PROJECT CO-ORDINATOR CHECKED	DATE		BY	

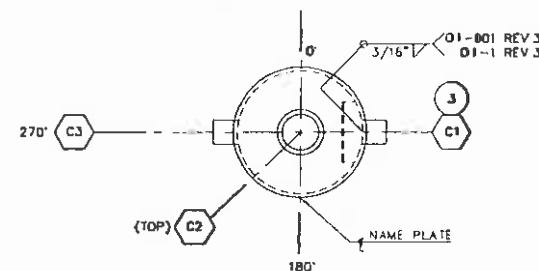
DRAWN BY	LL	DATE	08-03-19
CHECKED BY	ET	SCALE	1.30
b-28-1/93-116			
PIPING PLAN AND ELEVATION FOR INLET SEPARATOR/ BLOWCASE SKID PACKAGE (SWEET SERVICE)			
CONOCOPHILLIPS CANADA CORPORATION		09-068-E	RLV



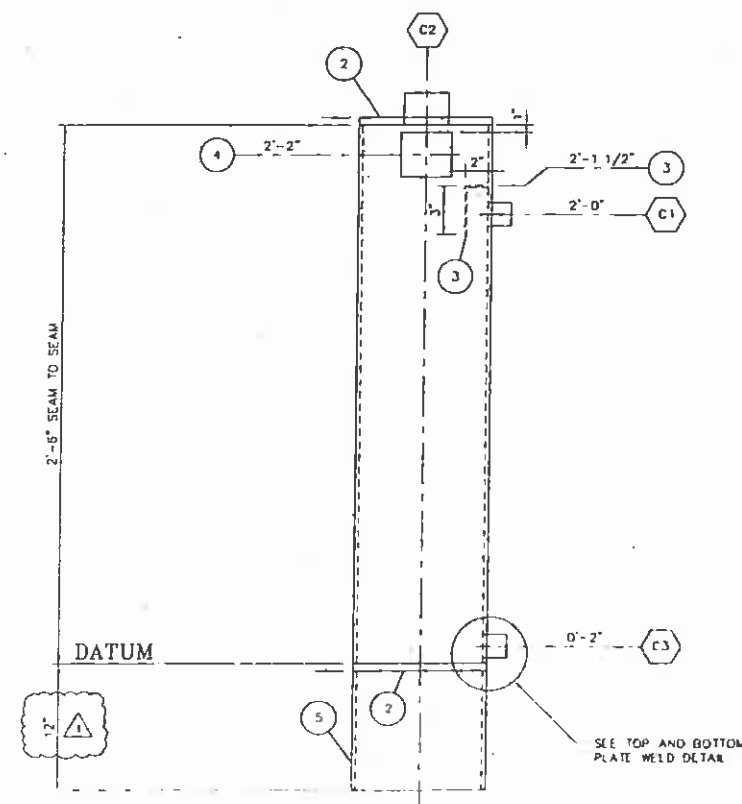
DESIGN DATA	
20.02 ASME CODE SEC. VIII DIV. 1	
PARA: UW-12(c)	
HEAD MATERIAL: SA-516-70N 0.625" THK	
SHELL MATERIAL: SA-106-B SMLS SCH STD (0.322" NOM)	
MDMT: -20°F @ 150 PSIG	
NOZZLE: SA-105N	FLANGES: N/A
M.A.W.P. 150 PSIG (1034 kPa)	TEMP.: 100°F (38°C)
HYDROTEST: 195 PSIG (1345 kPa)	RADIOGRAPHY: NONE (UW-13.2)
STRESS RELIEVE: N/A	
CORR ALLOW.: 0.125"	JOINT EFF.: 100%
VOLUME: 0.870 CU FT (0.025 CU M)	
EMPTY WT: 110 LBS (50 Kg)	FULL WT: 165 LBS (75 Kg)
YEAR BUILT: 2008	SERIAL No.
CRN No.: LB912-2131	
W.P.R. No.: 1752.2	
SURFACE PREP.: SSPC-SP3	
PRIME: 1 S/C PRIMER	
PAINT: ONE(1) COAT OF WARM GREY	
INSULATION: N/A	
TAG No.: V-110	
LOCATION: --	

MARK NO	NO	REG'D	SIZE	SCH	RATING AND FACING	SERVICE	PROJECTION	FILLET	REPAD	WELD#
C1	1		1"		CL3000 TOL	INLET/INSP		3/8"		7
C2	1		2"		CL3000 CPLG	OUTLET/INSP		3/8"		5
C3	1		1"		CL3000 TOL	WATER OUT		3/8"		7

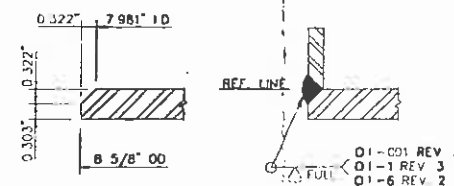
BILL OF MATERIAL		
ITEM	QTY	DESCRIPTION
1	1	SHELL - 8" SCH STD (0.322" WT) SMLS PIPE X 2'-6" LG
2	2	HEAD - 5/8" PL X 8 5/8" OD
3	1	BAFFLE - 3" X 2" X 1/4" ANGLE IRON X 3" LG
4	1	NAME PLATE C/W MOUNTING BRACKET
5	1	SKIRT - 8" SCH STD (0.322" WT) SMLS PIPE X 11 1/2" LG
C1	1	10L - 1" CL3000 NPT (10-6)
C2	1	HALF CPLG - 2" CL3000 NPT
C3	1	10L - 1" CL3000 NPT (10-6)



ORIENTATION



ELEVATION



TOP AND BOTTOM  
PLATE DETAIL

QUALITY  
CONTROL

FABRICATION NOTE:

- MPI TOP AND BOTTOM PLATE (PER UG-93) BEFORE AND AFTER WELDING

GENERAL NOTES:

- IMPACT TESTING OF ALL COMPONENTS IS EXEMPT PER UG-20(f) 1 TO 5. MINIMUM DESIGN METAL TEMPERATURE IS -20°F @ 150 PSIG (1034 kPa)
- MTR TO BE PROVIDED FOR ALL PRESSURE RETAINING MATERIAL
- EXTERNAL LOADINGS ARE NOT APPLICABLE (REF UG-22)
- DIMENSIONAL TOLERANCES AS PER TARPON ENGR. SPEC. 01-004 REV 0
- ALL BOLT HOLES TO STRADDLE CENTERLINES
- SUBSTITUTION OF MATERIAL IS NOT ACCEPTABLE UNLESS ENGINEERING DEPARTMENT APPROVAL OBTAINED
- WELDING JOINT PREPARATION AND FIT-UP AS PER TARPON ENGR SPEC 01-003 REV 0
- WPS 01-1REV3, 01-001REV3

ALTERNATE NOTES:

- ALL SA-106-B SEAMLESS PIPE CAN BE SUBSTITUTED WITH SA-333 GR. 6 SEAMLESS PIPE
- ALL SA-105N FLANGES CAN BE SUBSTITUTED WITH SA-350-LF2 CL1 FLANGES
- ALL SA-234-WPB BW FITTINGS CAN BE SUBSTITUTED WITH SA-420-WPL6 BW FITTINGS
- ALL SA-36 MATERIAL CAN BE SUBSTITUTED WITH 44W EXCEPT PRESSURE BOUNDARY COMPONENTS

(2) REQ'D

TIME CARD  
09-068-001/002-FGS

REFER TO DWG. NO S-101-FGS REV. 1 FOR CRN NO.

REV	DESCRIPTION	APP'D	DATE	BY
1	REVISED SKIRT		09-01-14	
2	ISSUED FOR CONSTRUCTION	ET	08-12-01	
3			08-12-01	



DRAWN BY	VJ	DATE	08-02-01
CHECKED BY	ET	SCALE	N.T.S.
B 5/8" OD X 2'-6" S/S X 150 PSIG X 100°F X 0.125" CA FUEL GAS SCRUBBER (SWEET SERVICE)			
CONOCOPHILLIPS CANADA CORPORATION			09-068-G

FITTING TO PIPE	WOL/SOL/TOL
1.) O.I. - 001 REV.3 O.I. - 1 REV.3 O.I. - B	2.) O.I. - 001 REV.3 O.I. - 1 REV.3

- GENERAL NOTES:**
- ALL FILLET AND ATTACHMENT WELDS TO BE O.I.-1.
  - ALL SA-106B SMLS PIPES CAN BE SUBSTITUTED TO SA-333-8 SMLS.
  - ALL SA-234-WPB FITTINGS CAN BE SUBSTITUTED TO SA-420-WPLA.
  - ALL SA-105H FLANGES CAN BE SUBSTITUTED TO SA-350-LF2 O.I.

MARK NO.	NO. REQ'D	SIZE	SCH.	RATING AND FINISH	SERVICE	PROJECTION		FILLET		REPAD		WELD
						INSIDE(min)	OUTSIDE	"F"	"J"	"W"	"R"	
C1A/B	2	1 1/2"	-	3000# TOL	CAGE CONN.	-	-	3/8"	-	-	-	2
C2	1	2"	-	WOL/PIPE/DPLG	LC	-	AS SHOWN	3/8"	-	-	-	2
C3	1	1/2"	-	8000# TOL	DRAIN	-	-	3/8"	-	-	-	2

BILL OF MATERIAL						
ITEM	QTY	DESCRIPTION	MAT'L			
1	1	WELD CAP - 4" SCH. 80	SA-234-WPB			
2	1	SHELL - 4" SCH. 80 SMLS PIPE X 2'-8 5/8" LG	SA-106-B			
3	1	FLANGE - 4" 800# RFWN SCH. 80 BORE	SA-105H			
	1	GASKET - 4" 800# RF, 1/8" THK, FLEX	304 SS			
	8	STUDS - 7/8" X 5 3/4" LG C/W 2 HEX NUTS EA.	B7/2H			
4	1	BLIND FLANGE - 4" 800# RF C/W 1/2" NPT D/T	SA-105H			
	1	HEX PLUG - 1/2" 8000# NPT	SA-105H			
C1A/B	2	TOL - 1 1/2" 3000# NPT ( ON 4" RUN )	SA-105H			
C2	1	WOL - 2" SCH. 80 ( ON 4" RUN )	SA-105H			
	1	FULL CPLG - 2" 3000# NPT SW X NPT	SA-105H			
	1	PIPE - 2" SCH. 80 SMLS PIPE X 4 1/8" LG (BOE/POE)	SA-106-B			
C3	1	TOL - 1/2" 8000# NPT ( ON 4" RUN )	SA-105H			

## GENERAL SPECIFICATIONS:

### MATERIALS:

PIPE:	SA-106-B SMLS
FLANGES:	SA-105H
WOL/SOLS:	SA-105H
WELD CAP:	SA-234-WPB
GASKETS:	304 SS
BOLTING:	SA-193-B7/SA-194-2H

### DESIGN DATA:

DESIGN PRESSURE:	1440 PSIG
DESIGN TEMPERATURE:	-20/100°F
JOINT EFFICIENCY:	100%
STRESS RELIEVED:	N/R
RADIOGRAPHY (NORMAL SERVICE):	100% PER B31.3 TOTAL WELDS
CORROSION ALLOWANCE:	0.0625"
HYDROTEST PRESSURE:	2160 PSIG

DESIGN AND CONSTRUCTED IN ACCORDANCE WITH THE 2008 EDITION OF THE ASME CODE FOR PROCESS PIPING SECTION ASME B31.3 PARA 304.1.2  
 TARPON WELDING PROCEDURE: 1752.2  
 IMPACT TESTING NOT REQ'D PER B31.3 PARA 323.2.2  
 VOLUME: 0.23 CU. FT  
 EMPTY WT OF CAGE: 200 LBS (EXCL. LC)  
 CRN # : 0H4830.21

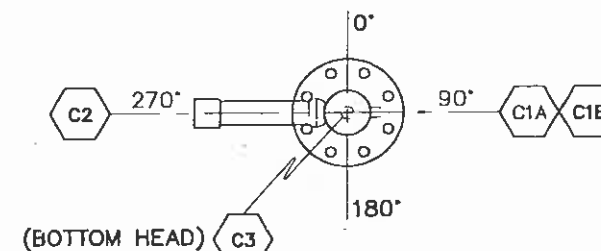
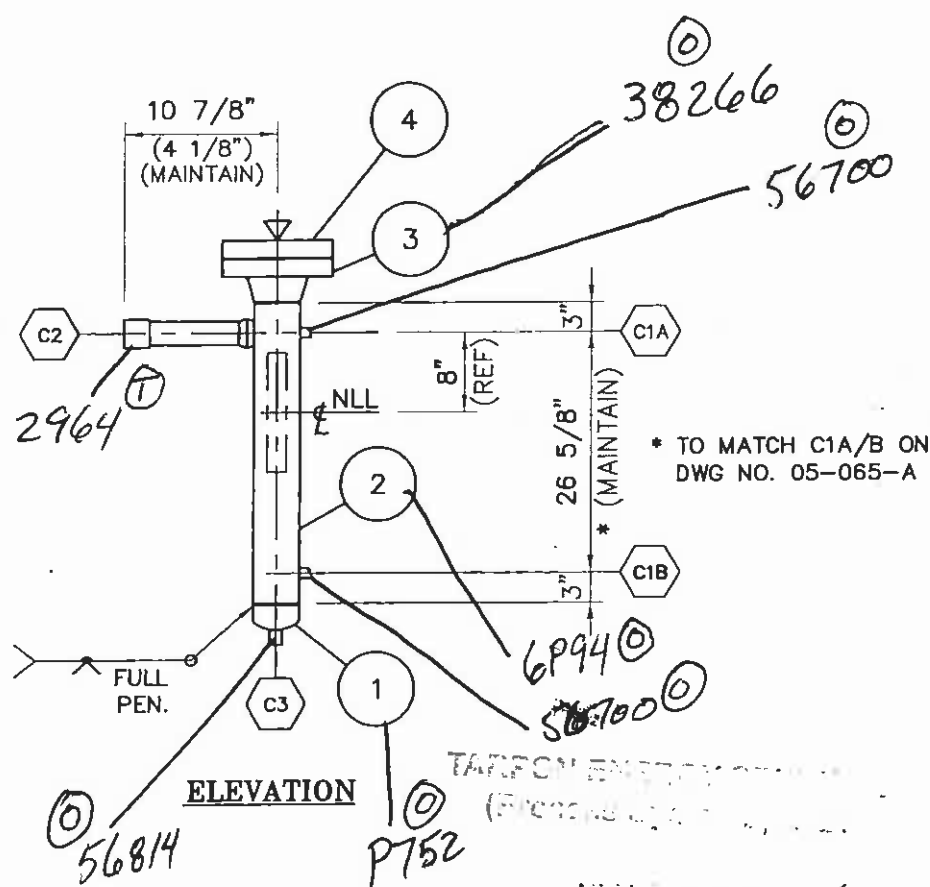
UNIT TO BE COMMERCIALY BLASTED TO SSPC-SP6 PRIOR TO:  
 ONE(1) COAT OF ZINC CHROMATE PRIMER  
 TWO(2) COATS OF FINISH ENAMEL PAINT  
 CAGE: WARM GREY

### FABRICATION NOTES:

- WPS O.I.-1, O.I.-001 & O.I.-8 ARE REV. 1
- WPS O.I.-1 & O.I.-001 ARE ACCEPTABLE FOR TACK WELDS.
- JOINT PREP. AND FIT-UP AS PER ORBAN ENGR. SPEC. O.I.-003.

### GENERAL NOTES:

- CHARPY IMPACT TEST NOT REQ'D PER UC-20(f) 1-5.
- VESSEL TO BE THOROUGHLY DRAINED AND CLEANED WITH ALL OPENINGS PLUGGED BEFORE SHIPMENT.
- ALL BOLT HOLES TO STRADDLE NATURAL CENTRELINES UNLESS OTHERWISE NOTED.



**ORIENTATION**  
(TOP VIEW)



SEE DRAWING 01-308-LC REV. 0 FOR CRN

DRAWN BY: LL	DATE: 08-03-18
CHECKED BY: ET	SCALE: 1:30
4" LEVEL CONTROLLER CAGE LC-100 (SWEET SERVICE)	
CONOCOPHILLIPS CANADA CORPORATION	09-068-LC

( 2 ) REQ'D

TIME CARD  
09-068-001/002-LC

ISSUED FOR CONSTRUCTION	DATE: 08-11-28
REV. DESCRIPTION	APP'D DATE BY DATE
PROJECT CO-ORDINATOR CHECKED: DATE:	BY: