CAMERON

An ISO 9001:2000 Company

12' x 70' DUAL POLARITY TREATER

1. MAJOR EQUIPMENT

DUAL POLARITY TREATER

- One (1) 12' (3658 mm) OD x 70'-0" (21336 mm) S/S Dual Polarity Treater
- Code ASME SECTION VIII, Div 1 2007 Edition 09 Addenda
- Design Factor 3.5
- Design Pressure: 517.1 kPag (75 PSIG)
- Design Temperature: 175ºC (347F)
- MDMT -29C (-20F)
- Corrosion Allowance 3.2mm (0.125")
- Inlet deflector
- Two (2) firetubes, 8.6 MMBTU/hr total duty (approximately 10000 BTU/hr/ft² heat flux)
- Water outlet vortex breakers
- Front End degassing section
- Back end vertical flow coalescing section Dual Polarity Power Unit and Steel Grids c/w One (1) 100 kVa Dual Polarity Power Unit compete with ladder & access platform
- Manual desludge system
- Internal distribution system including inlet distributor, spreaders and collector toughs.

2. INSTRUMENTATION AND VALVES

See Attachment "A" Instruments
See Attachment "B" Valves

3. SKID

The Treater skid will be approximately 4270 mm (14') Wide x 12200 mm (40') long c/w 3" insulation and fire retardant coating.

4. BUILDING

Each modular package will be provided with a self framing shed roof style building to house the equipment. It shall be partially disassembled for shipping.

Building Size:	3,812 mm wide x 19,825 mm long Approx
Building Type:	Self Framing, Shed Style
Eave:	As required
Insulation:	Walls R-12, Roof R-20, 6Mil vapour barrier
Exterior:	22 gauge steel painted
Interior:	24 gauge aluminum liner
Ridge Vent:	Not included
Doors:	Qty. 1- double door and 1 Single Door C/w locking panic hardware, auto closure, aluminum thresholds, check chains, and weather stripping.
Windows:	Qty. 3- 1016 mm x 1016 mm double-glazed windows with screen
Ice Rakes:	Included
Eaves troughs & Downspouts:	Included
Removable Panels:	Not Included
Wall Louvers:	Qty. 3 - 457 x 457 (18"x18") manually adjustable wall louvers c/w screen.
Exhaust Fans:	Qty. 2 – 1/4 HP Exhaust fan
Building Heaters	Qty. 2- 35 Kw Ruffneck heaters c/w thermostat, 480/3/60, and pipe mount kit

Notes:
- All sizes are approximate and to be confirmed upon detailed design.

5. ELECTRICAL

Cameron has not included the package electrical wiring of the equipment, but can provide this service as an option. Cameron is willing to provide free access to the completed equipment in our yard for the client appointed electrical sub-contractor for package electrical.

6. INSULATION

Vessel shell and heads outside of building is covered with 50 mm (2") mineral wool insulation c/w embossed aluminum cladding. Piping insulation is not included.

7. PAINTING AND SURFACE PREPARATION

All carbon steel surface equipment, vessels, structural, piping will be sandblasted and painted in accordance with the supplied specifications.

SURFACE PREPARATION

Vessel / Piping:	SSPC-SP6
Structural Steel:	SSPC-SP6

PAINT

ALL

-Prime: One (1) coat of Industrial Primer

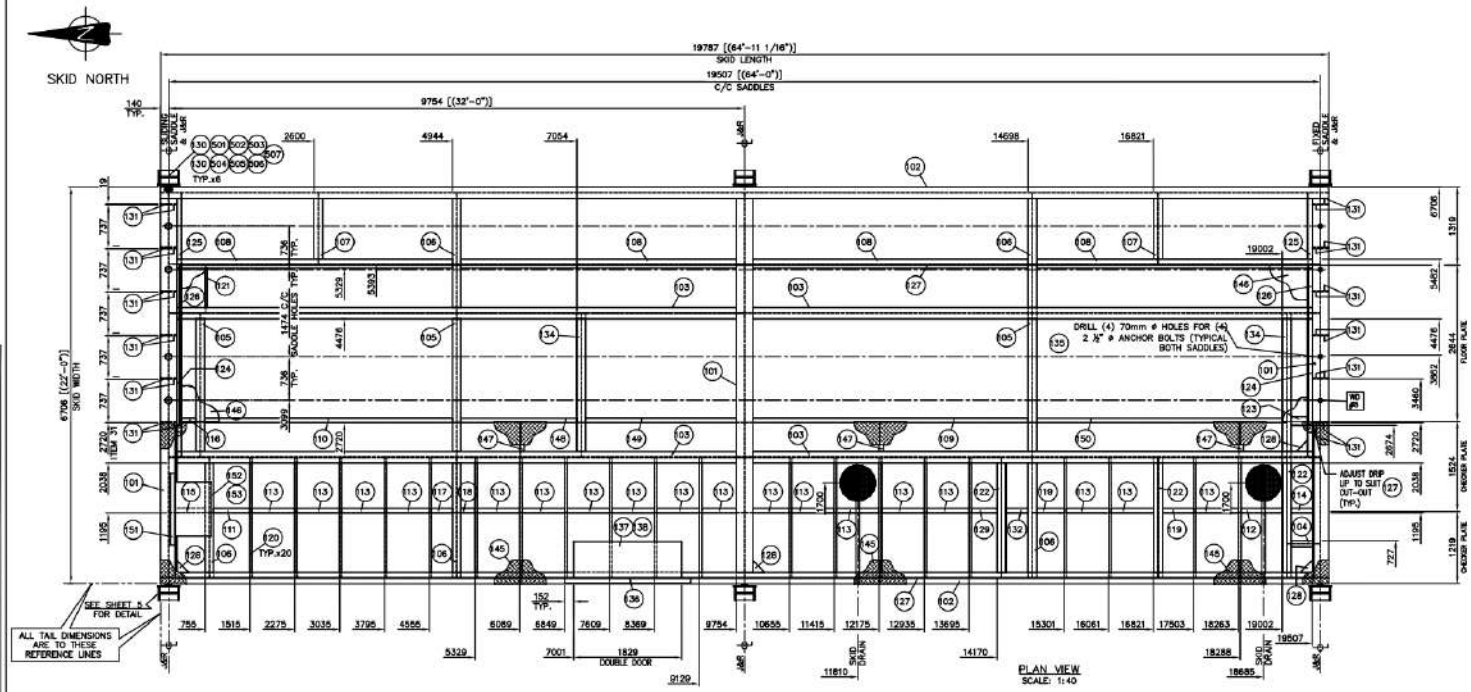
VESSEL, PIPING and SKID

-Finish: One (1) coat of Industrial Enamel, Warm Grey

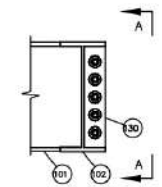
8. INTERNAL COATING

Vessel

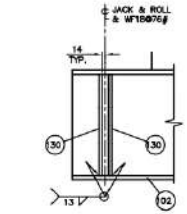
Trade Name:	Devoe 253
Application:	2 coats at 5 to 6 mils each, total DFT: 10 to 12. mils
Surface Preparation:	SSPC-SP5 – white metal



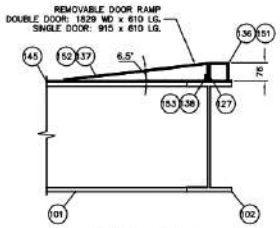
PLAN VIEW
SCALE: 1:40



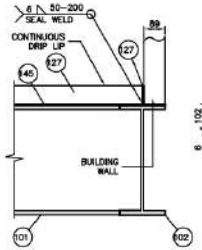
JACK & ROLL GUSSET DETAIL
SCALE: 1:10
(12) REQUIRED



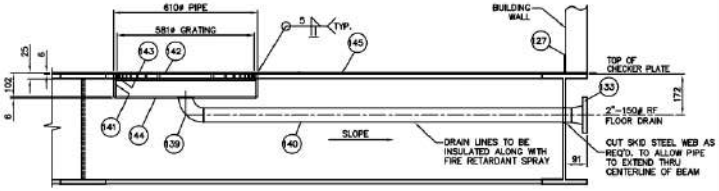
VIEW A–A
(12) REQUIRED



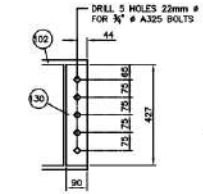
DOOR RAMP DETAIL
SCALE: 1:10
(1 DOUBLE DOOR & 1 SINGLE DOOR REQUIRED)



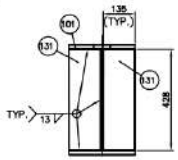
DRIP LIP DETAIL
SCALE: 1:10
(SKID PERIMETER & AROUND SADDLES)



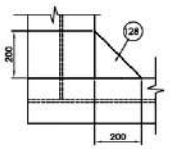
FLOOR DRAIN DETAIL
SCALE: 1:10
(2) REQUIRED



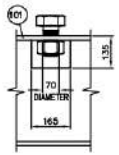
DETAIL ITEM #130
SCALE: 1:10
(12) REQUIRED



SADDLE GUSSET DETAIL
SCALE: 1:10
(24) REQUIRED



ITEM 126 DETAIL
SCALE: 1:10
(4) REQUIRED



SADDLE ANCHOR BOLT DETAIL
SCALE: 1:10
(8) REQUIRED

FULL SIZE CONNECTION (FULL STRENGTH)	FLOOR SUPPORT FULL COPE	FLOOR SUPPORT NO COPE	FLOOR PLATE TO SKID CONNECTION	FLOOR PLATE SEAMS	TYPICAL BOLTING	STIFFENER PLATE
1	4	5	6	7	8	9
WF18x60 & WF18x76 WPS: FC–01/SM–01	WF10x22/WF6x15 C4x5.4/C3x3x0.25 WPS: FC–01/SM–01	– WPS: FC–01/SM–01	– WPS: FC–01/SM–01	– WPS: FC–01/SM–01	– WPS: FC–01/SM–01	WF18x76 WPS: FC–01/SM–01

MATERIAL LIST

ITEM	QTY	PART/COMP. No.	DESCRIPTION	LENGTH	MATERIAL
101	3	–	WIDE FLANGE 18" @ 76#	6,504	G40.2150W
102	2	22513367	WIDE FLANGE 18" @ 60#	19,787	G40.2150W
103	4	22513367	WIDE FLANGE 18" @ 60#	9,743	G40.2150W
104	1	–	WIDE FLANGE 4" @ 13#	560	G40.2150W
105	3	22511027	WIDE FLANGE 10" @ 22#	2,427	G40.2150W
106	5	22511027	WIDE FLANGE 10" @ 22#	2,028	G40.2150W
107	2	22510147	WIDE FLANGE 6" @ 15#	1,196	G402.144W
108	4	22510147	WIDE FLANGE 6" @ 15#	4,868	G40.2150W
109	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	4,868	SA–36/44W
110	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	4,265	SA–36/44W
111	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	684	SA–36/44W
112	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	734	SA–36/44W
113	18	22011967	ANGLE 3.00" x 3.00" x 0.250"	755	SA–36/44W
114	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	352	SA–36/44W
115	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	679	SA–36/44W
116	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	316	SA–36/44W
117	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	454	SA–36/44W
118	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	309	SA–36/44W
119	2	22011967	ANGLE 3.00" x 3.00" x 0.250"	528	SA–36/44W
120	20	22111427	CHANNEL C4 @ 5.4#	2,027	G402144W
121	1	22111427	CHANNEL C4 @ 5.4#	825	G402.144W
122	3	22510147	WIDE FLANGE 6" @ 15#	2,027	G40.2150W
123	1		CHANNEL C6 @ 8.2#	277	G402.144W
124	2	22011969	ANGLE 3.00" x 3.00" x 0.375"	2,427	SA–36/44W
125	2	22011969	ANGLE 3.00" x 3.00" x 0.375"	1,196	SA–36/44W
126	2	10514420	BAR FLAT 3.000" x 0.250"	825	SA–36/44W
127	1	10514420	BAR FLAT 3.000" x 0.250" DRIP LIP (SHOP CUT TO SUIT)	50,000	SA–36/44W
128	4	16002100	PLATE 0.500" THK. (8" x 8") SEE DETAIL	200 x 200	SA–36/44W
129	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	470	SA–36/44W
130	12	–	PLATE 0.500" THK. (3 1/2" x 16 13/16")	90 x 427	SA–350W1 Cat. 4
131	24	16002200	PLATE 0.750" THK. (5 1/4" x 16 13/16")	134 x 427	SA–36/44W
132	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	375	SA–36/44W
133	2	31023006	FLANGE RFWN 2" 150# XH		SA–105N
134	2	22111427	WIDE FLANGE 6" @ 15#	2,427	G40.2150W
135	8	–	BOLT HEX 2.500" x 4 1/2" LG. C/W NUT & WASHER		SA–325
136	1	22011967	ANGLE 3.00" x 3.00" x 0.250" (84")	2,134	SA–36/44W
137	1	16002501	PLATE 0.250" THK. (72" x 27") BEND TO SUIT DOOR RAMP DETAIL	1,829 x 686	SA–36/44W
138	1	10512420	BAR FLAT 1.000" x 0.250" (72")	1,829	SA–36/44W
139	2	30002509	ELL WELD 2" XH LR 90		SA–234–WPB
140	2	13021039	PIPE 2" XH SMLS	1,556	SA–106–B
141	2	–	PIPE 24" STD (0.375" THK.) SMLS (4")	100	SA–106–B
142	2	29555374	GRATING #19–4, 1"x3/16"	581 #	CARBON STEEL
143	2	16002501	PLATE 0.250" THK. (GRATING SUPPORT RING)	591 O.D. x 546 I.D.	SA36/44W
144	2	16002501	PLATE 0.250" THK. (SHOP CUT TO SUIT)	597 O.D. x 64 I.D.	SA–36/44W
145	1	20025100	CHECKER PLATE 0.250" THK. (585 sq.ft) (SHOP CUT TO SUIT)	19,787 x 2,743	MILD STEEL
146	1	16002501	FLOOR PLATE 0.250" THKX (585 sq.ft) (SHOP CUT TO SUIT)	19,125 x 2,743	MILD STEEL
147	3	22011967	ANGLE 3.00" x 3.00" x 0.250"	581	SA–36/44W
148	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	2,104	SA–36/44W
149	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	2,758	SA–36/44W
150	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	4,301	SA–36/44W
151	1	22011967	ANGLE 3.00" x 3.00" x 0.250"	1,219	SA–36/44W
152	1	16002501	PLATE 0.250" THK. (36" x 27") BEND TO SUIT DOOR RAMP DETAIL	915 x 686	SA–36/44W
153	1	10512420	BAR FLAT 1.000" x 0.250" (36")	915	SA–36/44W

GENERAL NOTES:

1. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH CSA–STANDARD W47.1
2. ALL FILLET WELDS TO BE 6mm (¼") UNLESS NOTED OTHERWISE.
3. ALL MEMBERS ARE TO BE FLUSH WITH THE TOP OF SKID, UNLESS NOTED OTHERWISE.
4. SEE PAINTING SCHEDULE PER 120151619–90.
5. UNDERSIDE OF FLOOR PLATE TO BE STITCH WELDED TO SUPPORT MEMBERS.
6. UNDERSIDE OF SKID TO BE COVERED WITH 76mm (3") FIRE RETARDANT SPRAY FOAM INSULATION.
7. ALL BOLT HOLES TO BE DRILLED.
8. CUT LENGTH DO NOT INCLUDE WELD GAP, SHOP TO ADJUST AS REQUIRED.
9. ALL SHARP EDGES TO BE GROUND SMOOTH TO REMOVE DAMAGED MATERIAL.
10. ANY FLAME CUT EDGES TO BE GROUND SMOOTH TO REMOVE DAMAGED MATERIAL.
11. PROVIDE A 6mm DRAW HOLE AT BOTTOM OF H.S.S. COLUMNS JUST ABOVE WELD TO BASE PLATE AND UNDERSIDE OF H.S.S. BEAM(S).

SEE SHEET 2 FOR STRUCTURAL SKID PIPE SUPPORTS & ELEVATIONS.
SEE SHEET 3 FOR STRUCTURAL SKID–3D ISO VIEW & PIPE SUPPORTS.
SEE SHEET 4 FOR PILE LOCATIONS & WELD DETAILS.
SEE SHEET 5 FOR JACK & ROLL DETAILS.

SKID STEEL WEIGHT

WEIGHT OF STEEL SKID INCLUDING PIPE SUPPORTS (LB/Kg)	41,577 LB / 18,859 Kg
WEIGHT OF BUILDING (LB/Kg) @ 3.5 LBS/Sq.FT	13,260 LB / 6,015 Kg
TOTAL WEIGHT (LB/Kg) (INCL. 10%)	60,320 LB / 27,361 Kg

REV	DATE MM/DD/YY	REV BY	CHK'D BY	APP'D BY	DESCRIPTION
01	01/29/14	LH	JF	JF	ISSUED FOR CONSTRUCTION

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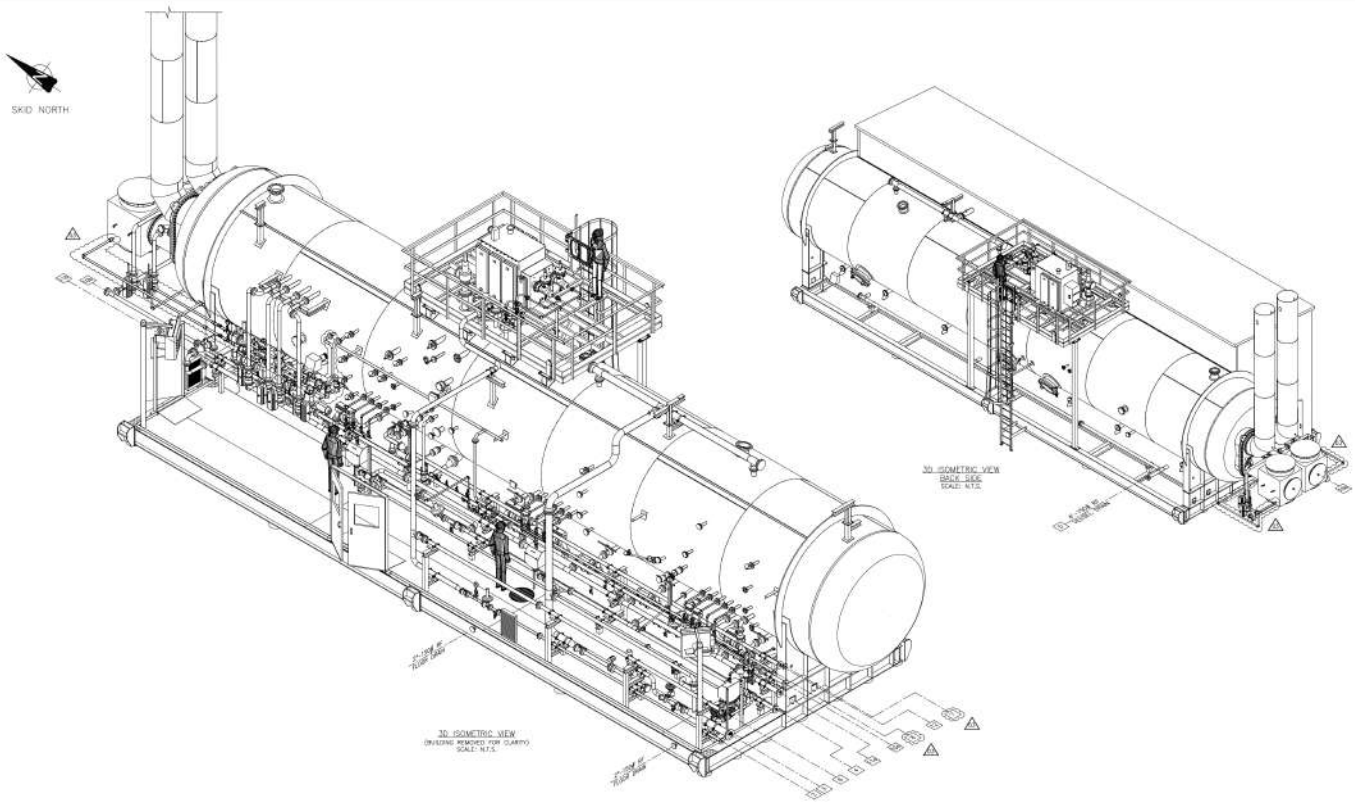
CAMERON
PROCESS SYSTEMS–CANADA

LOCAL: CANADA

TITLE: STRUCTURAL SKID – HORIZONTAL D.P. TREATER
3,658mm (12'–0") O.D. x 21,336mm (70'–0") S/S TAG: V–3000

FILE NAME:
PLOT DATE:
PLOTTED BY: BRB



TAG	DESCRIPTION	SIZE-RATING	TAG	DESCRIPTION	SIZE-RATING
8	FUEL GAS INLET	2"-150# RF	14	–	–
7	INSTRUMENT AIR INLET	2"-150# RF	13	–	–
6	FLARE OUTLET	3"-150# RF	12	INTERFACE DRAWOFF OUTLET	3"-150# RF
5	VESSEL DRAIN OUTLET	4"-150# RF	11b	DESAND DRAIN AT O/T END	4"-150# RF
4	PRODUCED WATER OUTLET	3"-150# RF	11a	DESAND DRAIN	4"-150# RF
3	CLEAN OIL OUTLET	6"-150# RF	10b	DESAND FLUSH/WATER SUPPLY B/T END	3"-150# RF
2	GAS OUTLET	2"-150# RF	10a	DESAND FLUSH/WATER SUPPLY	3"-150# RF
1	OIL EMULSION INLET	6"-150# RF	9	POU OUTLET	6"-150# RF

CUSTOMER CONNECTIONS

GENERAL NOTES:

1. ALL PIPING TO BE FABRICATED IN ACCORDANCE WITH ASME B31.3, LATEST EDITION.
2. UNLESS OTHERWISE INDICATED, SHOP SHALL LOCATE ALL CUSTOMER CONNECTIONS NOT SHOWN ON DRAWING.
3. ALL SKID EDGE DIMENSIONS SHALL HAVE A TOLERANCE OF ± 1"(1/8") OF THE INDICATED DIMENSIONS.
4. WELD GAP = 2 mm; SHOP TO ADJUST AS REQUIRED.
5. FOR SKID WEIGHT, SEE EMILE # 120151619-04.
6. FOR VESSEL WEIGHT, SEE EMILE # 120151619-05.
7. FOR PLATFORM WEIGHT, SEE EMILE # 120151619-28.
8. FOR LADDER WEIGHT, SEE EMILE # 120151619-31.
9. SHOP RUN 1" NPT PIPING.

TOTAL PIPING SKID PACKAGE DRY WEIGHT (LBS/Kg):	278,896 LBS. / 126,530 Kg				
TOTAL HYDROTEST SKID PACKAGE WEIGHT (LBS/Kg):	550,246 LBS. / 451,224 Kg				
OVERALL:	64'-10" / 20,726mm	26'-0" / 8,077mm	32'-9" / 9,983mm		
SHIPPING:	76'-10" / 23,419mm	23'-3" / 7,011mm	21'-11" mm / 6,428mm		
DESCRIPTION	LENGTH (FT-IN/MM)	WIDTH (FT-IN/MM)	HEIGHT (FT-IN/MM)		

OVERALL PACKAGE DIMENSIONS/WEIGHTS

REV	DATE	DRN	CHKD	APPD	DESCRIPTION
03	08/07/14	LH	JF	JT	ADDED FUEL GAS LINES TO FLAME ARRESTOR & REVISED AS NOTED
02	04/17/14	LH	JF	JT	REVISED PLATFORM AND WEIGHTS AS NOTED
01	03/18/14	LH	JF	JT	ISSUED FOR CONSTRUCTION

REVISIONS

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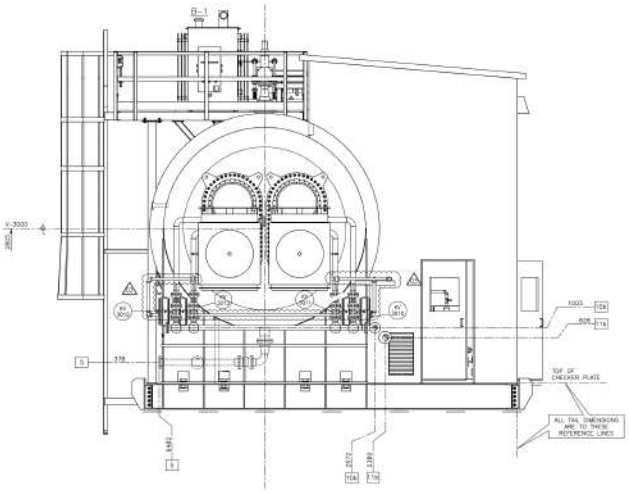
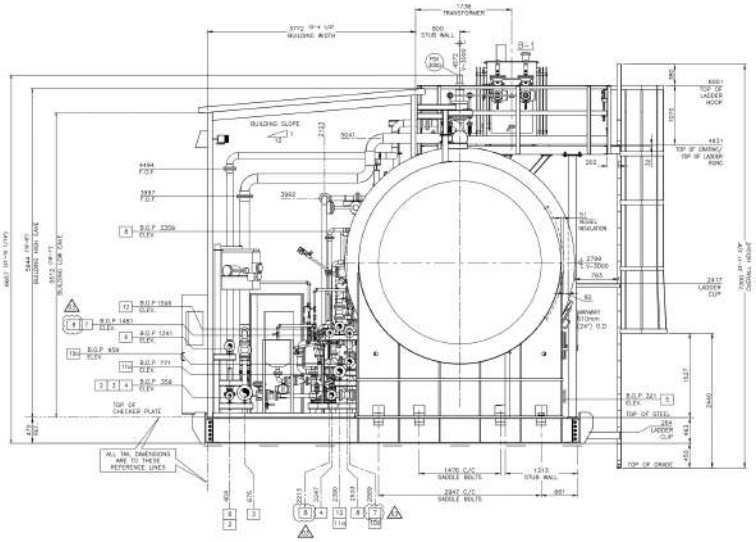
CAMERON
PROCESS SYSTEMS CANADA

CLIENT:
TITLE: 3D ISOMETRIC – HORIZONTAL O.P. TREATER
3,658mm (12'-0") O.D. x 21,336mm (70'-0") S/S TAG: V-3000

PLOT DATE: Dec 17, 2014 3:18pm
PLOTTED BY: LJH



END VIEW "C" - "C"
FIRETUBE END
SCALE: 1:30
STACKS REMOVED FOR CLARITY



END VIEW "D" - "D"
COALESCING END
SCALE: 1:30

8	FUEL GAS INLET	2"-150# RF	14	–	–
7	INSTRUMENT AIR INLET	2"-150# RF	13	–	–
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4	PRODUCED WATER OUTLET	3"-150# RF	11a	DESAND DRAIN	4"-150# RF
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2	GAS OUTLET	2"-150# RF	10a	DESAND FLUSH/WATER SUPPLY	3"-150# RF
1	OIL EMULSION INLET	6"-150# RF	9	PSV OUTLET	6"-150# RF
TAG	DESCRIPTION	SIZE-RATING	TAG	DESCRIPTION	SIZE-RATING

CUSTOMER CONNECTIONS

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6. FOR VESSEL WEIGHT, SEE DWG # 120151619-05.
7. FOR PLATFORM WEIGHT, SEE DWG# 120151619-28.
8. FOR LADDER WEIGHT, SEE DWG# 120151619-31.
9. SHOP RUN 1" NPT PIPING.

TOTAL PIPING SKID PACKAGE DRY WEIGHT (LBS/Kg):	278,896 LBS. / 126,510 Kg		
TOTAL HYDROTEST SKID PACKAGE WEIGHT (LBS/Kg):	350,246 LBS. / 471,024 Kg		
OVERALL:	84'-0" / 25,756mm	26'-0" / 8,077mm	32'-0" / 9,982mm
SHIPPING:	74'-10" / 23,418mm	23'-2" / 7,011mm	24'-11" mm / 6,426mm
DESCRIPTION:	LENGTH (1'-0/MM)	WIDTH (1'-0/MM)	HEIGHT (1'-0/MM)

OVERALL PACKAGE DIMENSIONS/WEIGHTS

REV	DATE	DRN	CHKD	APPD	DESCRIPTION
03	08/07/14	LH	JF	JT	ADDED FUEL GAS LINES TO FLAME ARRESTOR & REVISED AS NOTED
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01	03/18/14	LH	JF	JT	ISSUED FOR CONSTRUCTION

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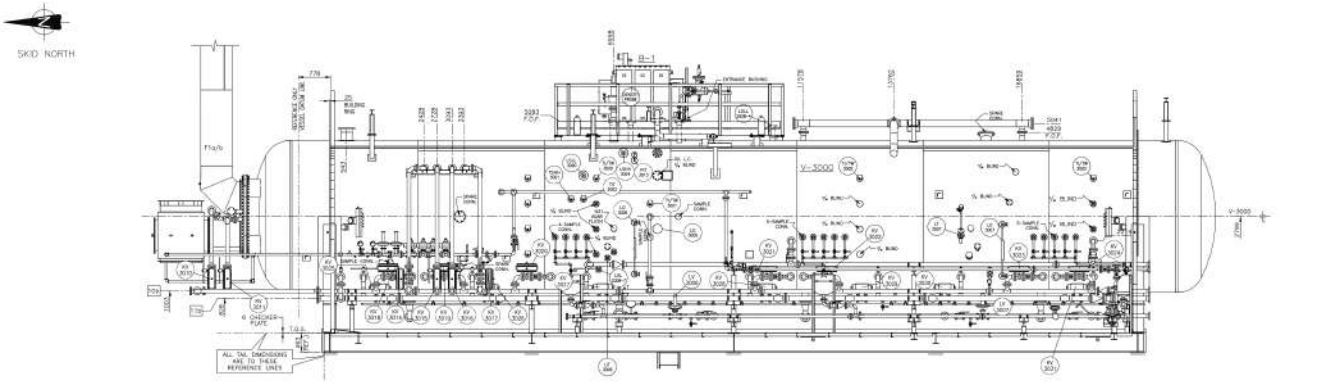
CAMERON
PROCESS SYSTEMS CANADA

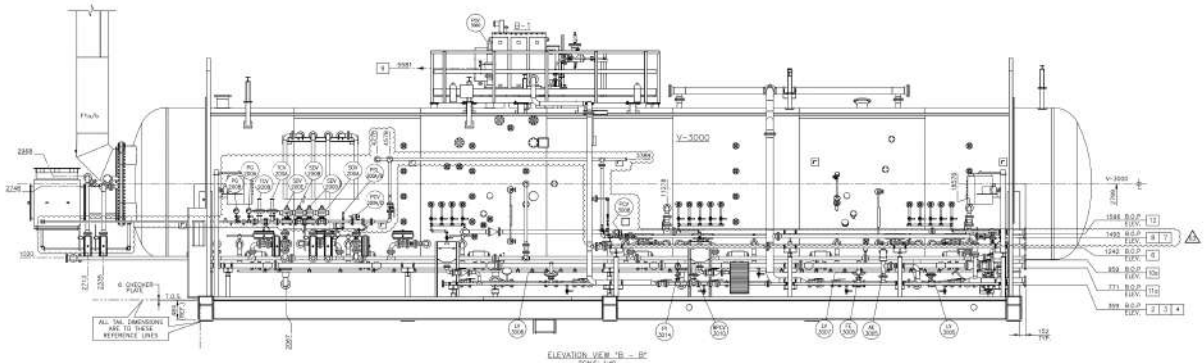
LEGAL: DRAWN:

TITLE: END ELEVATIONS – HORIZONTAL O.P. TREATER
3,658mm (12'-0") O.D. x 21,336mm (70'-0") S/S TAG: V-3000

PLOTTED BY: LJH



ELEVATION VIEW "A – A"
SCALE: 1:80
(INSTRUMENTATION AND DESAND SYSTEM)
(BUILDING WALL & ROOF REMOVED FOR CLARITY)



ELEVATION VIEW "B – B"
SCALE: 1:40
(BUILDING WALL & ROOF REMOVED FOR CLARITY)

8	FUEL GAS INLET	2"–150# RF	14	–	–
7	INSTRUMENT AIR INLET	2"–150# RF	13	–	–
6	FLARE OUTLET	3"–150# RF	12	INTERFACE DRAINOFF OUTLET	3"–150# RF
5	VESSEL DRAIN OUTLET	4"–150# RF	11b	DESAND DRAIN AT O/T END	4"–150# RF
4	PRODUCED WATER OUTLET	3"–150# RF	11a	DESAND DRAIN	4"–150# RF
3	CLEAN OIL OUTLET	6"–150# RF	10b	DESAND FLUSH/WATER SUPPLY B/T END	3"–150# RF
2	GAS OUTLET	2"–150# RF	10a	DESAND FLUSH/WATER SUPPLY	3"–150# RF
1	OIL EMULSION INLET	6"–150# RF	9	POV OUTLET	6"–150# RF
TAG	DESCRIPTION	SIZE–RATING	TAG	DESCRIPTION	SIZE–RATING

CUSTOMER CONNECTIONS

GENERAL NOTES:

1. ALL PIPING TO BE FABRICATED IN ACCORDANCE WITH ASME B31.3, LATEST EDITION.
2. UNLESS OTHERWISE INDICATED, SHOP SHALL LOCATE ALL CUSTOMER CONNECTIONS NOT SHOWN ON DRAWING.
3. ALL SKID EDGE DIMENSIONS SHALL HAVE A TOLERANCE OF ± 1% (1%) OF THE INDICATED DIMENSIONS.
4. WELD GAP = 2 mm. SHOP TO ADJUST AS REQUIRED.
5. FOR SKID WEIGHT, SEE EMAIL 120151619-04.
6. FOR VESSEL WEIGHT, SEE DWG # 120151619-03.
7. FOR PLATFORM WEIGHT, SEE DWG# 120151619-28.
8. FOR LADDER WEIGHT, SEE DWG# 120151619-31.
9. SHOP RUN 1" NPT PIPING.

TOTAL PIPING SKID PACKAGE DRY WEIGHT (LBS/Kg):	278,898 LBS. / 126,530 Kg		
TOTAL HYDROTEST SKID PACKAGE WEIGHT (LBS/Kg):	550,246 LBS. / 431,024 Kg		
OVERALL	64'-10" / 20,798mm	26'-0" / 8,077mm	32'-0" / 9,983mm
SHIPPING	70'-10" / 23,419mm	23'-0" / 7,011mm	21'-11" mm / 6,428mm
DESCRIPTION	LENGTH (FT-IN/MM)	WIDTH (FT-IN/MM)	HEIGHT (FT-IN/MM)

OVERALL PACKAGE DIMENSIONS/WEIGHTS

REV	DATE	DRN BY	CHKD BY	APPD BY	DESCRIPTION
03	08/07/14	LH	JF	JT	ADDED FUEL GAS LINES TO FLAME ARRESTOR & REVISED AS NOTED
02	04/17/14	LH	JF	JT	REVISED PLATFORM AND WEIGHTS AS NOTED
01	03/18/14	LH	JF	JT	ISSUED FOR CONSTRUCTION

REVISIONS

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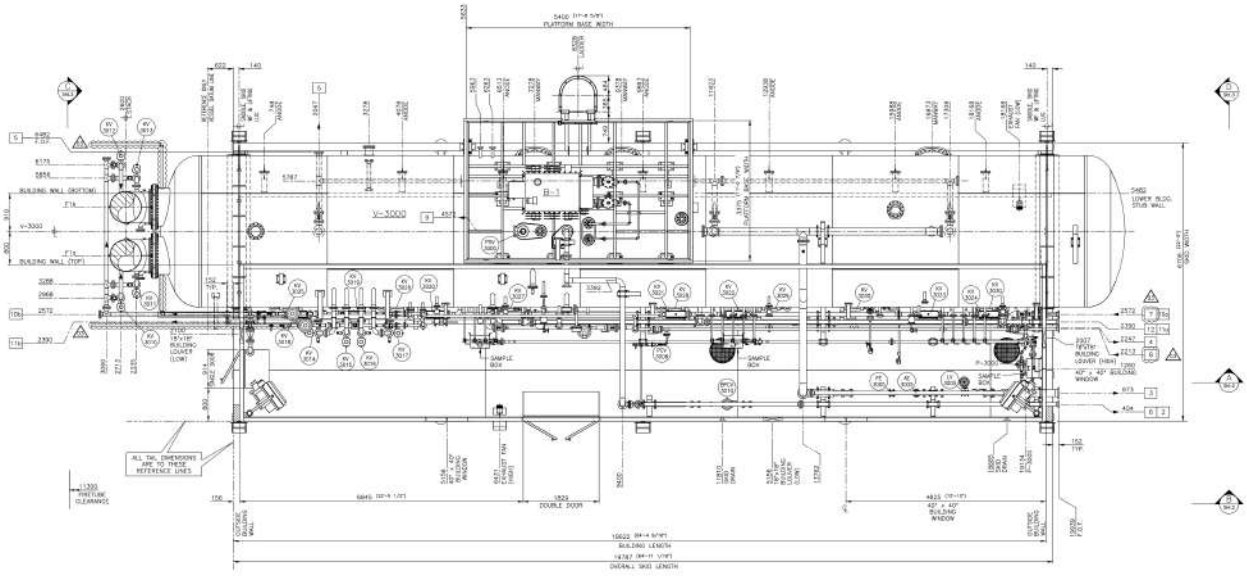
CAMERON
PROCESS SYSTEMS CANADA

CLIENT:
TITLE: ELEVATIONS – HORIZONTAL O.P. TREATER
3,658mm (12'-0") O.D. x 21,336mm (70'-0") S/S TAG: V-3000

DRAWN:

PLOTTED BY: LJH



PLAN VIEW
SCALE:1:40
(BUILDING ROOF & PLATFORM GRATING REMOVED FOR CLARITY)

TAG	DESCRIPTION	SIZE-RATING	TAG	DESCRIPTION	SIZE-RATING
8	FUEL GAS INLET	2"-150# RF	14	–	–
7	INSTRUMENT AIR INLET	2"-150# RF	13	–	–
6	FLARE OUTLET	3"-150# RF	12	INTERFACE DRAWOFF OUTLET	3"-150# RF
5	VESSEL DRAIN OUTLET	4"-150# RF	11b	DESAND DRAIN AT O/T END	4"-150# RF
4	PRODUCED WATER OUTLET	3"-150# RF	11a	DESAND DRAIN	4"-150# RF
3	CLEAN OIL OUTLET	6"-150# RF	10b	DESAND FLUSH/WATER SUPPLY B/T END	3"-150# RF
2	GAS OUTLET	2"-150# RF	10a	DESAND FLUSH/WATER SUPPLY	3"-150# RF
1	OIL EMULSION INLET	6"-150# RF	9	POV OUTLET	6"-150# RF

CUSTOMER CONNECTIONS

GENERAL NOTES:

1. ALL PIPING TO BE FABRICATED IN ACCORDANCE WITH ASME B31.3, LATEST EDITION.
2. UNLESS OTHERWISE INDICATED, SHOP SHALL LOCATE ALL CUSTOMER CONNECTIONS NOT SHOWN ON DRAWING.
3. ALL SKID EDGE DIMENSIONS SHALL HAVE A TOLERANCE OF ± 1% (1%) OF THE INDICATED DIMENSIONS.
4. WELD GAP = 2 mm; SHOP TO ADJUST AS REQUIRED.
5. FOR SKID WEIGHT, SEE EMILE # 120151619-04.
6. FOR VESSEL WEIGHT, SEE DWG # 120151619-03.
7. FOR PLATFORM WEIGHT, SEE DWG# 120151619-28.
8. FOR LADDER WEIGHT, SEE DWG# 120151619-31.
9. SHOP RUN 1" NPT PIPING.

TOTAL PIPING SKID PACKAGE DRY WEIGHT (LBS/Kg):	278,898 LBS. / 126,530 Kg	
TOTAL HYDROTEST SKID PACKAGE WEIGHT (LBS/Kg):	350,246 LBS. / 158,924 Kg	
OVERALL:	69'-10" / 21,336mm	26'-0" / 8,077mm	32'-0" / 9,753mm
SHIPPING:	70'-10" / 21,610mm	23'-3" / 7,011mm	21'-11 mm / 6,438mm
DESCRIPTION	LENGTH (FT-IN/MM)	WIDTH (FT-IN/MM)	HEIGHT (FT-IN/MM)

OVERALL PACKAGE DIMENSIONS/WEIGHTS

REV	DATE	DR	CHKD	APPD	DESCRIPTION
03	08/07/14	LH	JF	JT	ADDED FUEL GAS LINES TO FLAME ARRESTOR & REVISED AS NOTED
02	04/17/14	LH	JF	JT	REVISED PLATFORM AND WEIGHTS AS NOTED
01	03/18/14	LH	JF	JT	ISSUED FOR CONSTRUCTION

REVISIONS

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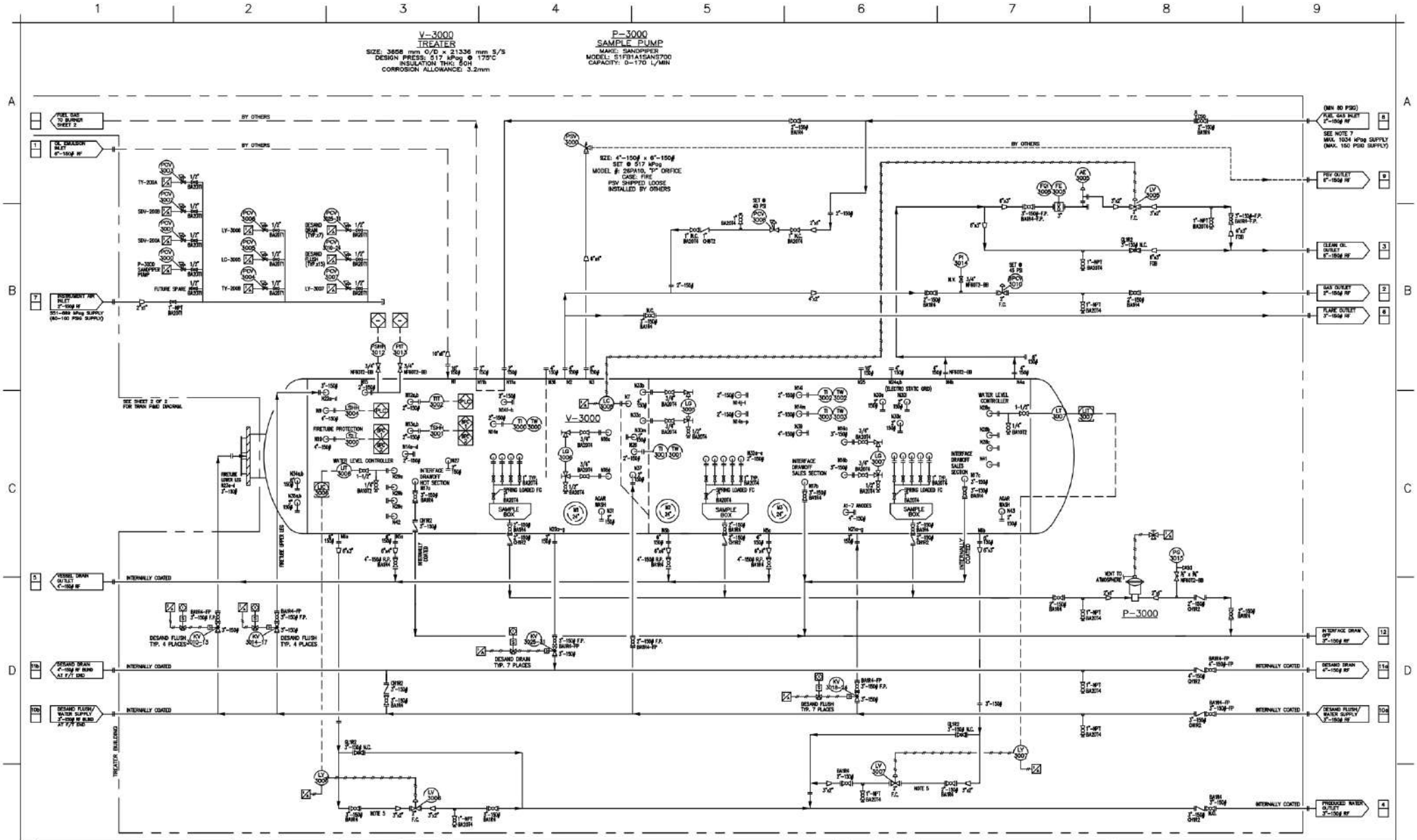
CAMERON
PROCESS SYSTEMS CANADA

LEGAL: DRAWN:

TITLE: GENERAL ARRANGEMENT – HORIZONTAL O.P. TREATER
3,658mm (12'-0") O.D. x 21,336mm (70'-0") S/S TAG: V-3000

PLOTTED BY: LH



TAG	DESCRIPTION	SIZE-RATING	PIPE SPEC.	TAG	DESCRIPTION	SIZE-RATING	PIPE SPEC.
8	FUEL GAS INLET	2"-150# RF	–	14	–	–	–
7	INSTRUMENT AIR INLET	2"-150# RF	–	13	–	–	–
6	FLARE OUTLET	3"-150# RF	–	12	INTERFACE DRAWOFF OUTLET	3"-150# RF	–
5	VESSEL DRAIN OUTLET	4"-150# RF	–	11b	DESAND DRAIN AT (F/T END)	4"-150# RF	–
4	PRODUCED WATER OUTLET	3"-150# RF	–	11a	DESAND DRAIN	4"-150# RF	–
3	CLEAN OIL OUTLET	6"-150# RF	–	10b	DESAND FLUSH/WATER SUPPLY (F/T END)	3"-150# RF	–
2	GAS OUTLET	2"-150# RF	–	10a	DESAND FLUSH/WATER SUPPLY	3"-150# RF	–
1	OIL EMULSION INLET	6"-150# RF	–	9	PSV OUTLET	6"-150# RF	–

CUSTOMER CONNECTIONS

GENERAL NOTES:

1. PIPING DESIGNED TO ASME CODE B31.3 – LATEST EDITION.
2. INSTRUMENTATION TO HAVE DUAL SCALES.
3. INSTRUMENTATION TUBING TO BE 3/4" DIAMETER 316SS, FITTINGS TO BE 316SS SWAGELOK C/W SS FERRULES.
4. INSTRUMENT AIR HEADER TO BE CARBON STEEL.
5. SPOOL TO BE 72" LONG TO ACCOMODATE FUTURE WATER METER.
6. MAXIMUM FUEL GAS SUPPLY TO BE 150 PSIG. OVERPRESSURE PROTECTION PROVIDED UPSTREAM PER CUSTOMER.
7. (*) INDICATED SUPPLIED BY OTHERS. H2S, LEL AND FIRE DETECTION BY OTHERS.
8. BURNER TRAIN TO CSA B149.3-10.
9. –
10. TRUCKS TO BE GROUNDED BEFORE CONNECTION TO EQUIPMENT.

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Date		22-Aug-14	
Customer			
Shop Order #		120151619 (12 x 70 Treater Package)	
LSD		TBA	
Field Contact			
Contact Phone #			
Hauler		Entrec	

Quantity	Ship	Part / TAG #	Discription	Weight
1			Treater Package	280,000
			c/w Building, process piping	
			c/w instrumentation, valves and electrical	
			L 83Ft x W 23-9' x H 22 (Approx)	
			Vessel Serial # 9412-03	
			Vessel A# 616273	
1			Double Door building Canopy	
1			Single Door building Canopy	
2			Fan Hood	
1			L2 Displacer (2" OD x 12" Long) (Oil Level control)	
1			L2 horizontal Extension	
2			30" OD x 20'-6" Smoke Stack	
2		3P-47701300	30" Stack Gaskets	
56		X65269209	1/2" x 2" Long Bolt UNC Gr 5	
56		X65109299	1/2" Nut UNC Gr 5	
7			Anode Pigtail wire Lead	
7			4" 150# RF Insulation Kits	
21			3 x 22 Aluminium Anodes	
2		76504869	Ruffneck FX5-480360-350-W	
2		76504930	Ruffneck XT-311 Thermostat	
2		76504866	Ruffneck PMK mounting Kit	
1		76525080	FARRIS 26PA10L-120/00 4X6 150RF Set @75 PSIG	
			4" 150 RF Inlet x 6" 150# RF Outlet	
			PSV Spool (ISO-40)	
1		3P-47258016	4" 150# RF Flex Gasket	
8		3P-X65510528	5/8" x 3-1/2" Stud	
16		3P-X65510500	5/8" Nut	
Page		1 of 3	Weight in lbs.	280000

Quantity	Initial	Part / TAG #	Discription	Weight
			Grid Electrical Components (-27)	
1		76524251	TRANSFORMER 100KVA MDP EDD 35% 480vac	
1		76524822	LRC II CONTROL PANEL DUAL POLARITY	
1		50209179	Killark Electric Light Fixture VUXBGG-1-100PX	
1		3P-61321121	Electric Voltmeter M55 0-100 VAC 3.5" FC (Simpson)	
1		50209181	Killark GRM-375L52 Meter housing C/w Mounting Bracket	
1		3P-61411070	Electric Warning Sign " Caution High Voltage"	
6		3P-42221000	1" M# UFBX1 T321SS Single Braid Flexible Hose (1" NPT x 24" Long)	
0		3P-30670138	2" x 1" XH SWAGE TBE	
14		3P-X30139500	1" 3000# Theaded Unions	
2		3P-48400020	4" 150# RF Entrance Bushing Blinds	
2		3P-47701401	4" 150# Durlon Gaskets	
16		3P-X65510530	5/8" x 4" B7M Studs	
32		3P-X65510500	5/8" Nuts 2HM	
2		50249465-001-01	ENTRANCE BUSHING ASSEMBLY MDL# EBE1500	
2		3P-48126051C	High Voltage Cable (120")	
2		76504861	Entrance Bushing Adapters 2" MNPT x 1.5" FNPT x 24" SA-106B	
6		3P-42220002	Electrcial Cable Clamp	
20 FT		50207133	Wire Rope 1/8" Diameter 316SS (FT)	
2		3P-48126010	Cable Weight	
4		3P-X65721075	U-BOLT 1" X 3/8" ROD C/W 4 NUTS CS	
2		3P-813127034	RAJAH FEMALE CONNECTOR CS	
16		3P-65508134	STUD 5/8" X 6" SA193B7M	
32		3P-X65510500	NUT 5/8" UNC HEX HEAD SA1942HM	
2		50249506-001-01	MODEL 5100 LEVEL INDICATOR ASSEMBLY C.S.	
2		50271681	Transformer Boot	
2		3P-47258017	GASKET 6" 150# SPW GRAY	
4		3P-X30570307	NIPPLE 1/2" X 4" XH SMLS TBE SA106B	
6		3P-X30135504	PLUG .50" 3000# HEX 316 SS	
10		3P-65114206	NUT 1/2" UNC HEX HEAD 304SS	
8		3P-882818006	WASHER FLAT 1/2" 304SS	
2		3P-X30124356	TEE .50" 3000# FPT SA105	
6		3P-X30570303	NIPPLE 1/2" X 2" SCH. XH SMLS TBE SA106B	
4		3P-P85007209	1/2" x 1/2" FNPT Needle Valve Teflon pkg	
2		50241854	1/2" x 1/2" NPT Block & Bleed Valve	
2		5A-T3F05S30SZ	1/2" NPT Ball	
2		3P-P85001912	6900GZE12	
2		50241902	1/2" MNPT x 1" FNPT PSV, set @ 13.6 psig	
2		50241903	3/4" MNPT liquid level flag indicator	
16		3P-x65510630	STUD 3/4" X 4" SA193B7M	
32		3P-X65510600	NUT 3/4" UNC HEX HEAD SA1942HM	
Page		2 of 3	Weight in lbs.	0

Quantity	Initial	Part / TAG #	Discription	Weight
			Grid Assembly Materials (-29)	
12		3P-22011967	3 x 3 Grid Angles @ 4180mm	
80			Grid Plate 3180 x 165	
1			Grid Plate 2822 x 165	
1			Grid Plate 2054 x 165	
164			Grid support bars (L-shaped)	
12			127 x 76 spice Plates	
24		50250190-001-01	HTA2000T-CS CARBON STEEL HANGER	
24		50249522-001-01	J-KIT ASSEMBLY - CS	
24		50249518-001-01	S-KIT ASSEMBLY - CS	
2		50208724	1/2" x 36" All thread contact rods	
2		3P-64334331	8" Float Ball	
2		3P-48910001	Low Level Float Switch	
1052		3P-X65909200	1/2" Flat Washer	
548		3P-X65109299	1/2" Nut UNC Gr 5	
528		3P-X65269207	1/2" x 1-1/2" Bolt GR5 CS	
524		3P-X95919200	1/2" Lock Washers CS	
1			Structural Transformer Platform (-28)	3500
			18'-10" Long x 11'-9" Wide x 4'-3" Tall	
40			5/8" x 2-1/2" bolt c/w Nut & Washer	
16			5/8" x 1-3/4" bolt c/w Nut & Washer	
2			6 x 6 x 15-6" HSS Support Beams	
				600
1			Ladder (-31)	
			23'-10" Long x 3'-4" Wide x 6'-10" Tall	
12			5/8" x 1-1/2" bolt c/w Nut & Washer	
Page		3 of 3	Weight in lbs.	4100

12 x 70		VALVE LIST				
TAG	QTY	DESCRIPTION	BODY	TRIM	MODEL#	MANU
BA1R4-FP	1	4" 150# RFFP BV NUTRON SLT (-50 TO 300F)	CS	SOUR	5A-B3F40R01L	NUTRON
BA1R4	3	4" 150# RFRP BV NUTRON SLT (-50 TO 300F)	CS	SOUR	5A-T3R40R01LZ	NUTRON
BA1R4-FP	25	3" 150# RFFP BV NUTRON SLT (-50 TO 300F)	CS	SOUR	5A-T3F30R01LZ	NUTRON
BA1R4	8	3" 150# RFRP BV NUTRON SLT (-50 TO 300F)	CS	SOUR	5A-T3R30R01LZ	NUTRON
BA1R4-FP	1	2" 150# RFFP BV NUTRON SLT (-50 TO 300F)	CS	SOUR	5A-T3F20R01LZ	NUTRON
BA1R4	11	2" 150# RFRP BV NUTRON SLT (-50 TO 300F)	CS	SOUR	5A-T3R20R01LZ	NUTRON
BA20T4-SR	3	1" 2000# NPT RPBV NUTRON SLT (-50 TO 300F) SR	CS	SOUR	5A-T3R10S20LZ	NUTRON
BA20T4	26	1" 2000# NPT RPBV NUTRON SLT (-50 TO 300F)	CS	SOUR	5A-T3R10S20LZ	NUTRON
BA30T2	6	3/4" 2000# NPT RPBV NUTRON SLT (-50 TO 300F)	CS	SOUR	5A-T3R07S20LZ	NUTRON
BA30T2	3	1/2" 2000# NPT FPBV NUTRON SLT (-50 TO 300F)	CS	SOUR	5A-T3F05S20LZ	NUTRON
BA30T2	2	1" 2000# NPT RPBV NUTRON	CS	SOUR	5A-T3R10S20SZ	NUTRON
BA30T2	32	1/2" 2000# NPT FPBV NUTRON	CS	SOUR	5A-T3F05S20LZ	NUTRON
CH1R2	1	4" 150# RF FP SWG CHK WHEATLEY NACE	WCC	NACE	9D-510-045027-166	WHEATLEY
CH1R2	4	3" 150# RF FP SWG CHK WHEATLEY NACE	WCC	NACE	9D-510-035027-166	WHEATLEY
CH1R2	4	2" 150# RF FP SWG CHK WHEATLEY NACE	WCC	NACE	9D-510-025027-166	WHEATLEY
CH80T2	1	1" 2160# NPT SWG CHK WTLY NACE	A105	316SS	9D-822-013216-167	WHEATLEY
GL1R2	3	3" 150# RF GLOBE VALVE WCB	WCB	316SS /STE	21F-CB4/2-NC	NEWCO
NF60T2	4	1/2NPT NV PNX PN6M8FFSSV SS VITON STD	316SS	VITON	PN6M8FFSSV	PHOENIX
NF60T2	0	1/4NPT NV PNX PN6M4FFSSV SS VITON STD	316SS	VITON	PN6M4FFSSV	PHOENIX
	4	3/4x1/2NPT NV PNX PN6H12F8FSSV SS VITON ST	316SS	VITON	PN6H12F8FSSV	PHOENIX

12 x 70 INSTRUMENT LIST

TAG	QTY	DESCRIPTION	MODEL	SIZE	NOTES
FE-3005	1	NUFLO EZ-IN 3RFx3	EZ-IN	3" RF	
FQI-3005	1	MC-III TOTALISER	EZ-IN	3" RF	
FQI-3005	1	HIGH TEMP PICK-UP (232 C)	EZ-IN	3" RF	
FQI-3005	1	HARDWARE KIT	EZ-IN	3" RF	
KV-3010 - 3013	4	3" 150 067 SERIES PLUG VALVE & ACTUATOR	067 Series / MATRYX	3" 150 RF	ESE600/4 80 PSIG LOW TEMP ACTUATOR & EF8320G202 24V SOL.
KV-3014 - 3031	18	3" 150 067 SERIES PLUG VALVE & ACTUATOR	067 Series / MATRYX	3" 150 RF	ESE600/4 80 PSIG STD TEMP ACTUATOR & EF8320G202 24V SOL
LIT-3006/3007	2	INVALCO 780 C/W Card	780	1.5" NPT	
LIT-3006/3007	2	Block / Bleed	780	1.5" NPT	C/W Block & bleed
LC-3005	1	FISHER PNUEMATIC LOW BLEED	L2	2" NPT	Sour.
LG-3001/2/3	3	Penberthy 1TM9	1TM9	1/2" NPT	1480 PSI @ 600F
LG-3001/2/3	3	Penberthy 330J-NE	330J	3/4"	3/4V x 1/2G NACE 3525 PSIG @ 260C
LV-3005	1	FISHER V-200	V200	2" - 150#	2" SOUR TRIM
LV-3006	1	FISHER D4 ATO/FC Size 40 ACT	D4	2" - 150#	3/4" SOUR TRIM
LV-3007	1	FISHER D4 ATO/FC Size 40 ACT	D4	2" - 150#	3/4" SOUR TRIM
LSHH-3004	1	VANKO	VEGA SWING 63	1" NPT	ELECTRIC LEVEL SWITCH, SPST CONTACT. 150 C
LSLL-3000	1	VANKO	VEGA SWING 63	1" NPT	ELECTRIC LEVEL SWITCH, SPST CONTACT. 150 C
PIT-3013	1	SMAR PT LD-291 0-100 PSIR 1/2 NPT LM	LD-291	1/2" NPT	
TIT-3002	1	SMAR TT301	TT301-1010-I3-PT4L3	1/2" NPT	
TIT-3002	1	THERMOWELL	008T-23.251.751846VT	1" NPT	
PCV-3008	1	1" NPT FISHER 627 35-80 PSIG VB SWT	627	1" NPT	1/2" ORIFICE
PCV-3000-3004	4	1/4" NPT FISHER 67CFR 35-125 PSIG VB SWT	67CFR	0.25" NPT	
PCV-3005/6/7/9	4	1/4" NPT FISHER 67CFR 5-35 PSIG VB SWT	67CFR	0.25" NPT	
PCV-3010-3031	22	1/4" NPT FISHER 67CFR 35-125 PSIG VB SWT	67CFR	0.25" NPT	
BPCV-3010	1	INVALCO BACK PRESSURE REGULATOR	RDFG-201-510	2" - 150#	SOUR TRIM 40-60 PSIG Range 250F
PI-3014/15	2	WIKA PG 233.54 0-100 PSI 4D 1/2 NPT LM	233.54	4" DIAL	
PSHH-3012	1	CCS PS 6900GZE14 1/2NPT 0-75R @63 PSI R	6900GZE	0.5" NPT	
PSV-3000	1	FARRIS 2600 P Orifice 4" x 6" 150 RF Set @ 75	26PA10	4" X 6"- 150# RF	CONVENTIONAL RELIEF VALVE, NACE PRIMARY ZONE (FIRE)
LY-3006 / 3007	2	ASCO - EF8320G202-24 3-Way SOLINOID VLV	I2P-100	0.25 NPT	
TSHH-3001	1	CCS 6900TUE16 TEMP SWITCH 185-315 Rising	6900TUEM16	0.5" NPT	ELECTRIC DPDT CONTACTS C/W THD TWL., 5' capillary 315Fmax
TI-3000 - 3003	4	TREND TEMPERATURE GAUGE 50-400F / C	50000	5" DIAL	52180A009GZ
TW-3000 - 3003	4	2" 150# RF 316SS TW 16.0	TW-10-F-A-I-DDBFF		EZ No. 55105432