

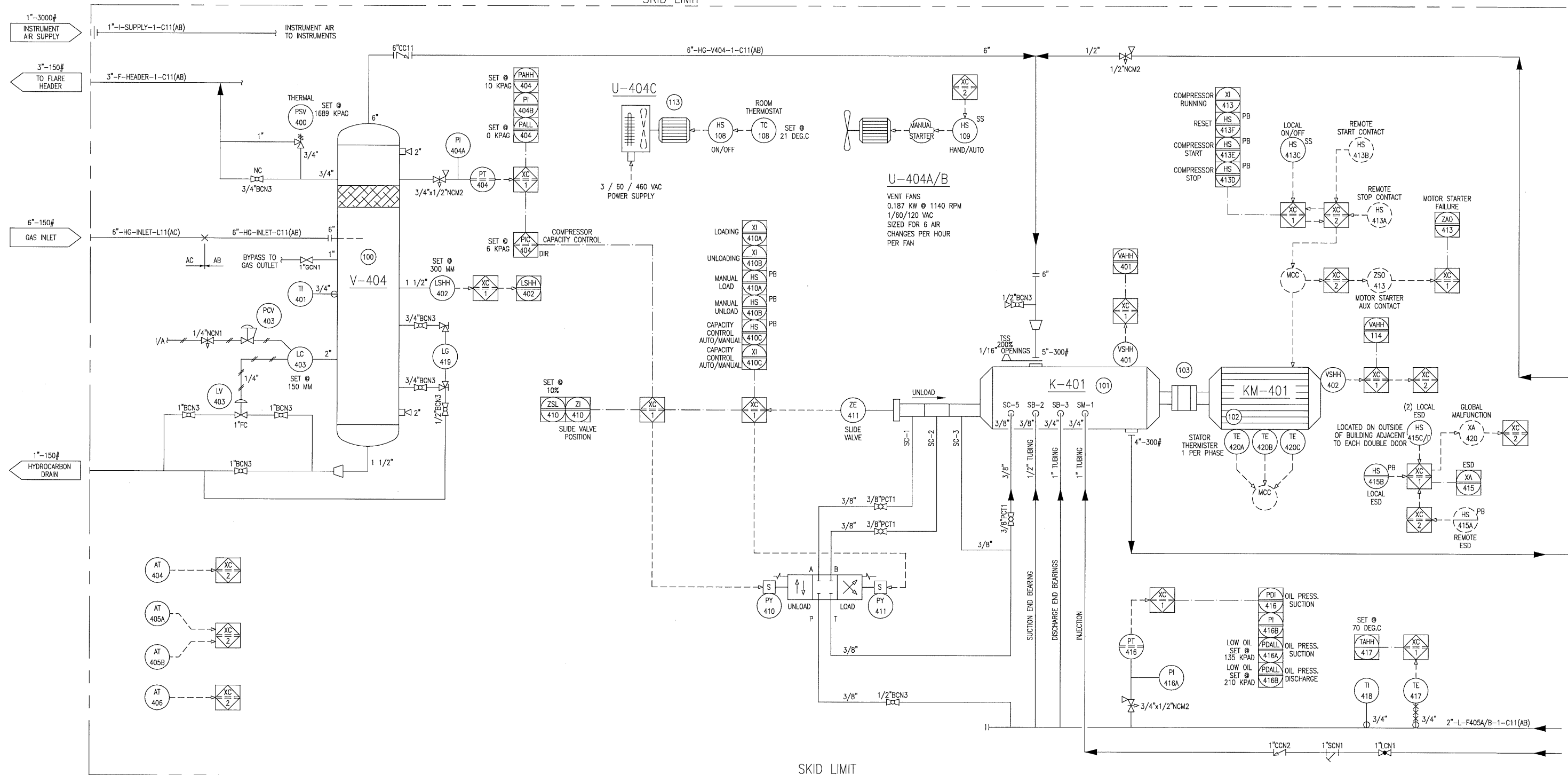
V-404
INLET SUCTION SCRUBBER
 SIZE: 508 MM O.D. x 1830 MM S/S
 MAWP: 1689 KPAG @ 121 DEG.C
 MDMT: 1689 KPAG @ -29 DEG.C
 C.A.: 1.6 MM
 SHELL MATERIAL: SA-106-B
 HEAD MATERIAL: SA-516-70
 WEIGHT: 455 KGS.

U-404C
ROOM HEATER
 MAKE: RUFFNECK
 MODEL: XL416-480360
 DUTY: 15 KW/HR
 MOTOR: 0.187 KW EXPLOSION PROOF
 CLASS 1, DIV. 1
 POWER: 3 / 60 / 460 VAC

K-401
GAS COMPRESSOR
 FRICK: TDSH 193S
 OPERATING SPEED: 3550 RPM
 SUCTION PRESS.: 100 KPAA @ 16 DEG.C
 DISCHARGE PRESS.: 662 KPAA @ 82 DEG.C
 SUCTION FLOW: 0.688 MMSCFD
 OIL PRESSURE: DISCHARGE PRESS. -103 KPAG
 OIL TEMPERATURE: 60 DEG.C
 OIL FLOW RATE: 62 LPM @ 100% LOAD
 POWER DRAW: 80 KW
 CAPACITY: 0.688 MMSCFD @ 100%
 WEIGHT: 861 KGS.

KM-401
COMPRESSOR MOTOR
 WESTINGHOUSE
 94 KW @ 3550 RPM
 3/60/460 VAC
 SERVICE FACTOR: 1.15
 CLASS 'F' INSULATION, CLASS 'B' RISE
 EFF.: FULL LOAD/ 3/4 LOAD: 93.0/91.74
 FULL LOAD AMPS: 140
 LOCKED ROTOR CURRENT: 907.5 AMPS
 ENCLOSURE: TEFC
 CLASS 1, DIV. 2
 FRAME SIZE: 444TS
 WEIGHT: 750 KGS.

SKID LIMIT



SKID GENERAL NOTES

- | | | | | | |
|---------------------------------|--------------------------|-----------------------|----------------------|--------------|-----------|
| - UNIT LOCATION: | INDOORS | - POWER REQUIREMENTS: | COMPRESSOR MOTOR | 3/60/460 VAC | 94 KW |
| - ELECTRICAL CLASSIFICATION: | CLASS 1, DIV. 1, GROUP D | - KM-401 | OIL PUMP MOTOR | 3/60/460 VAC | 1.125 KW |
| - MIN. DESIGN AMBIANT TEMP.: | -29 DEG.C | - PM-406 | OIL SEPARATOR HEATER | 1/60/120 VAC | 2000 WATT |
| - MAX. DESIGN AMBIANT TEMP.: | 32 DEG.C | - HTR-402 | GLYCOL PUMP MOTOR | 3/60/460 VAC | 1.5 KW |
| - SITE ELEVATION: | 831 M | - PM-407 | COOLER FAN MOTOR | 3/60/460 VAC | 1.5 KW |
| - ATMOSPHERIC PRESSURE: | 93.1 KPAA | - CM-401 | ROOM HEATER | 3/60/460 VAC | 15 KW |
| - SYSTEM OIL CHARGE: | 300 LITRES | - H-404C | CONTROL PANEL POWER | - | 24 VDC |
| - OIL TYPE: | S5-150 | - H-404A/B | VENT FANS | 1/60/120 VAC | 0.18 KW |
| - 50/50 ETHYLENE GLYCOL CHARGE: | 145 LITRES | - ESTIMATED WEIGHT: | 16450 KGS. | | |
| - INSTRUMENT AIR CONSUMPTION: | 5 SCFM | | | | |

- | | | |
|---------------------------|---------------|-----------|
| 2 AS BUILT | 21/11/95 G.S. | <i>AL</i> |
| 1 ISSUED FOR CONSTRUCTION | 26/9/95 G.S. | <i>AL</i> |
| 0 ISSUED FOR APPROVAL | 25/8/95 G.S. | <i>AL</i> |

P & I FLOW DIAGRAM

PANCANADIAN PETROLEUM LTD. (LSD: 05-01-38-17 W4M)
 HALKIRK VAPOUR RECOVERY UNIT, TAG NO. Q404

G. STANGNESS *AL* 25/8/95
 N.T.S. N/A
 2114-012 100145-1 1 OF 3 2

LINE IDENTIFICATION

A-B-CDDD-E-FGH-I,J

- A : NOMINAL LINE SIZE IN INCHES
- B : FLUID
 - A AMMONIA
 - C CARBON DIOXIDE
 - F FUEL GAS
 - G GLYCOL
 - H HYDROGEN
 - IA INSTR. AIR SUPPLY
 - IG INSTR. GAS SUPPLY
 - L LUBE OIL (COMPRESSOR)
 - N NITROGEN
 - O OXYGEN
 - P PROPANE
 - R REIMER WATER
 - S STEAM
 - V PRODUCED/PROCESS WATER
 - W WATER SUPPLY (SOFTENED)
- C : EQUIPMENT TYPE
 - B BLOWER/FAN
 - C COMPRESSOR
 - E EXCHANGER
 - F FILTER
 - H HEATER
 - M MEMBRANE
 - P PUMP
 - S OIL SKIMMER
 - MODIFIER
 - M MOTOR/ENGINE
 - T TANK
 - V PRESSURE VESSEL

DDD : EQUIPMENT NUMBER: 100 TO 999 SEQUENTIAL NUMBERS

E : LINE NUMBER: 1 TO 9 SEQUENTIAL NUMBERS FROM EQUIPMENT

FGH : PIPING SPECIFICATION

- F : MATERIAL GROUP
 - C CARBON STEEL
 - L LOW TEMP. CARBON STEEL
 - S STAINLESS STEEL
- G : ANSI 16.5 FLANGE CLASS
 - 1 150#
 - 3 300#
 - 6 600#
 - 9 900#
 - 15 1500#
 - 25 2500#

H : LINE MATERIAL SPECIFICATION REFERENCE: 1 TO 9 SEQUENTIAL NUMBERS

III : MODIFIER / GENERAL

- H PLUS THICKNESS IN INCHES (HOT INSULATION)
- C PLUS THICKNESS IN INCHES (COLD INSULATION)
- PP PLUS THICKNESS IN INCHES (PERSONAL PROTECTION)
- ST STEAM TRACING
- GT GLYCOL TRACING
- ET ELECTRICAL TRACING

EXAMPLE: 3"-A-V100-2-C11-HT1", ET
 3" - LINE SIZE
 A - AMMONIA
 V100 - OIL SEPARATOR
 2 - SECOND LINE FROM VESSEL
 C11 - CARBON STEEL LINE
 1 150# ANSI FLANGE RATING
 1 LINE MATERIAL SPECIFICATION REFERENCE
 HT1" - HEAT TRACING INSULATION 1" THICK
 ET - ELECTRIC TRACING

LINE CODE

- PRIMARY PROCESS LINE
- SECONDARY PROCESS LINE
- INSTRUMENT PROCESS LINE (TUBING)
- BY OTHERS
- SKID LIMIT
- PNEUMATIC SIGNAL
- ELECTRIC SIGNAL
- CAPILLARY TUBING
- INSTRUMENT SYSTEM LINK (ELECTRONIC MEMORY SHARING)

VALVE IDENTIFICATION

A"BCDE,F

- A : NOMINAL VALVE SIZE IN INCHES
- B : TYPE
 - A ANGLE GLOBE
 - B BALL
 - C CHECK
 - G GATE
 - L GLOBE
 - M MANIFOLD
 - N NEEDLE
 - P PLUG
 - S STRAINER
 - U BUTTERFLY
- C : BODY MATERIAL
 - B BRONZE
 - C CARBON STEEL
 - I CAST IRON
 - L LOW TEMP. CARBON STEEL
 - S STAINLESS STEEL
- D : END CONNECTIONS
 - 1 FLANGED 150#
 - 3 FLANGED 300#
 - 6 FLANGED 600#
 - 9 FLANGED 900#
 - B BUTT WELD
 - C SW BY NPT
 - F NPT BY FLANGE (MANIFOLD)
 - N NPT (SCREWED)
 - M NPT MALE BY NPT FEMALE
 - S SW (SOCKETWELD)
 - T TUBE (SWAGELOCK)
- E : IDENTIFIER - NUMBER USED TO SPECIFY VALVE REFER TO VALVE DATA SHEETS
- F : MODIFIER
 - C CHAIN OPERATOR
 - E EXTENDED BONNET
 - G GEAR OPERATOR
 - L LOCKING DEVICE
 - N NACE TRIM
 - O OXYGEN SERVICE/CLEANING
 - P FULL PORT DESIGN
 - R RTJ FLANGED
 - S SPRING HANDLE (CLOSE)
 - X SPECIAL SPECIFICATIONS

EXAMPLE: 6"GC11,C
 6" VALVE SIZE
 G GATE
 C CARBON STEEL

CONTROL VALVES

- POSITIONER DIAPHRAGM CONTROL VALVE
- OUTLET PRESSURE REGULATOR (SELF-CONTAINED)
- INLET PRESSURE REGULATOR (SELF-CONTAINED)
- PRESSURE DIFFERENTIAL CONTROL VALVE (SELF-CONTAINED)
- TWO-WAY SOLENOID VALVE
- THREE-WAY SOLENOID VALVE
- MOTOR ACTUATOR
- HYDRAULIC / PNEUMATIC PISTON OPERATED
- PRESSURE DIFFERENTIAL CONTROL VALVE (SELF-CONTAINED)
- PRESSURE SAFETY/RELIEF VALVE
- DESIGNATES ORIFICE LETTER (SIZE)
- RUPTURE DISC FOR PRESSURE RELIEF
- RUPTURE DISC FOR VACUUM RELIEF

MISCELLANEOUS

- CONTINUOUS LIQUID DRAINER OR STEAM TRAP
- FLEXIBLE CONNECTION
- SPECTACLE BLIND (LINE OPEN)
- SPECTACLE BLIND (LINE CLOSED)
- CONE STRAINER
- BUCKET STRAINER
- Y-PATTERN STRAINER
- TEE STRAINER
- VORTEX BREAKER
- DIAPHRAM SEAL
- SKID TIE-POINTS
- OPEN DRAIN
- THICKNESS INSULATION - (C) COLD (H) HOT (HT) HEAT TRACING (PP) PERSONNEL PROTECTION
- ELECTRIC HEAT TRACE
- STEAM OR GLYCOL HEAT TRACE

VALVES

- ANGLE GLOBE VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- GATE VALVE
- GLOBE VALVE
- NEEDLE VALVE
- PLUG VALVE
- 3-WAY VALVE
- 4-WAY VALVE

VALVE CONNECTIONS

- SCREWED
- WELDED (BUTT OR SOCKET)
- SCREWED BY WELDED
- FLANGED

	(MODIFIER)	INSTRUMENT IDENTIFICATION GENERAL REFERENCE (ISA - S5.1)														
		FIRST LETTER	SUCCEEDING LETTERS	PRIMARY ELEMENT	INDICATOR	RECORDER	CONTROLLER			TRANS-MITTER	CONTROL		CONTROL VALVE OR REGULATOR	SELF-ACTIVATED VALVE	RELAY OR CONVERTOR	
						BLIND	INDICATING	RECORDING		SWITCH	ALARM					
A	ANALYSIS	ALARM	AE	AI	AR	AC	AIC	ARC	AT	AS()	AA()	AV				AY
B	BURNER FLAME	USER'S CHOICE	BE	BI	BR	BC			BT	BS()	BA()	BV				BY
C	CONDUCTIVITY	CONTROL (CLOSE)	CE	CI	CR	CC	CIC	CRC	CT	CS()	CA()	CV				CY
D	DENSITY OR MASS (DIFFERENTIAL)		DE	DI	DR	DC	DIC	DRC	DT	DS()	DA()	DV				DY
E	VOLTAGE	PRIMARY ELEMENT	EE	EI	ER	EC	EIC	ERC	ET	ES()	EA()	EV				EY
F	FLOW (RATIO OR FRACTION)	SHUTDOWN FIRST OUT	FE	FI	FR	FC	FIC	FRC	FT	FS()	FA()	FV	FCV			FY
G	GAGING	GLASS	GE	GI	GR	GC	GIC	GRC	GT	GS()	GA()	GV				
H	HAND	(HIGH)				HC	HIC	HRC	HT	HS()		HV	HCV			HY
I	CURRENT	INDICATE	IE	II	IR	IC	IIC	IRC	IT	IS()	IA()					IY
J	POWER (SCAN)		JE	JI	JR	JC	JIC	JRC	JT	JS()	JA()					JY
K	TIME	CONTROL STATION		KI	KR	KC	KIC	KRC	KT	KS()	KA()					KY
L	LEVEL	LIGHT (LOW)	LE	LI	LR	LC	LIC	LRC	LT	LS()	LA()	LV	LCV			LY
M	MOISTURE, HUMIDITY	(MIDDLE OR INTERMEDIATE)	ME	MI	MR	MC	MIC	MRC	MT	MS()	MA()	MV				MY
N	USER'S CHOICE															
O	PRESSURE OR VACUUM	ORIFICE (OPEN)														
P	POINT	POINT	PE	PI	PR	PC	PIC	PRC	PT	PS()	PA()	PV	PCV			PY
Q	QUANTITY OR EVENT (INTEGRATE/TOTALIZE)			QI	QR	QC	QIC	QRC	QT	QS()	QA()	QV				QY
R	RADIOACTIVITY	RECORD OR PRINT	RE	RI	RR	RC	RIC	RRC	RT	RS()	RA()					RY
S	SPEED OR FEQUENCY	SWITCH		SI	SR	SC	SIC	SRC	ST	SS()	SA()					SY
T	TEMPERATURE	TRANSMIT	TE	TI	TR	TC	TIC	TRC	TT	TS()	TA()	TV	TCV			TY
U	MULTI-VARIABLE	MULTIFUNCTION		UI	UR	UC	UIC	URC				UV				
V	VISCOSITY OR VI	VALVE OR DAMPER	VE	VI	VR	VC	VIC	VRC	VT	VS()	VA()	VW				VY
W	WEIGHT OR FORCE	WELL	WE	WI	WR	WC	WIC	WRC	WT	WS()	WA()	VV				WY
X	UNCLASSIFIED	UNCLASSIFIED (DIAGNOSTIC)	XE	XI	XR	XC	XIC	XRC	XT	XS()	XA()	XV				XY
Y	USER'S CHOICE	RELAY OR COMPUTE														YY
Z	POSITION	DRIVE OR ACTUATE	ZE	ZI	ZR	ZC	ZIC	ZRC	ZT	ZS()	ZA()					ZY

INSTRUMENTS

- THERMOWELL (THREADED)
- THERMOWELL (WELDED)
- LOCAL MOUNTED
- LOCAL PANEL MOUNTED
- MOUNTED BEHIND OR IN LOCAL PANEL
- MAIN PANEL MOUNTED
- MOUNTED BEHIND OR IN MAIN PANEL
- MAN MACHINE INTERFACE IN MAIN PANEL
- PILOT LIGHT * COLOUR - (A) AMBER (G) GREEN (R) RED (B) BLUE (O) ORANGE (W) WHITE
- RELAY OR CONVERTER * FOR INPUT/OUTPUT SEQUENCES DESIGNATION: SIGNAL:
 - E VOLTAGE
 - H HYDRAULIC
 - I CURRENT (ELECTRICAL)
 - O ELECTROMAGNETIC OR SONIC
 - P PNEUMATIC
 - R RESISTANCE (ELECTRICAL)
- PROGRAMMABLE LOGIC CONTROLLER (PLC) OR YORK MICROPROCESSOR XC REPRESENTS GENERAL LOGIC
 - 1 = LOCAL PANEL
 - 2 = MAIN PLANT PLC
- INTERLOCK
- ELECTRICAL (HARD WIRE) INTERLOCK

- (C) -CLOSE
- (H) -HIGH ALARM
- (HH)-HIGH SHUTDOWN
- (O) -OPEN
- (L) -LOW ALARM
- (LL)-LOW SHUTDOWN
- (XX)-DIAGNOSTIC SHUTDOWN (USED TO INDICATE THE DIAGNOSTIC CHECK REQ'D ON THE ANALOG INPUT)

ABBREVIATIONS

- AOUT AUTOMATIC OUTPUT
- CA CORROSION ALLOWANCE
- CHO CHAIN OPERATED
- CUST CUSTOMER
- DIR DIRECT ACTING
- DB DEADBAND
- Δ DELTA (DIFFERENTIAL)
- ESD EMERGENCY SHUTDOWN
- FC FAIL CLOSED
- FO FAIL OPEN
- FLP FAIL LAST POSITION
- GAIN GAIN
- HI HIGH
- HS HAND SWITCH
- HTR HEATER
- I/A INSTRUMENT AIR SUPPLY
- I/G INSTRUMENT GAS SUPPLY
- I/O INPUT / OUPUT
- LB/HR POUNDS PER HOUR
- FT3/DAY CUBIC FEET PER DAY
- FT3/HR CUBIC FEET PER HOUR
- FT3/MIN CUBIC FEET PER MINUTE
- LC LOCKED CLOSED
- LO LOCKED OPEN
- MAX MAXIMUM
- MAMP MAXIMUM ALLOWABLE WORKING PRESSURE
- MDMT MINIMUM DESIGN METAL TEMPERATURE
- MIN MINIMUM
- MCC MOTOR CONTROL CENTER
- MOUT MANUAL OUTPUT
- MS MOTOR STARTER
- NC NORMALLY CLOSED
- NLL NORMAL LIQUID LEVEL
- NO NORMALLY OPEN
- OIC OPERATOR INTERFACE COMPUTER
- PB PUSH BUTTON
- PL PILOT LIGHT
- PLC PROGRAMMABLE LOGIC CONTROLLER
- REV REVERSE ACTING
- RST RESET (INTEGRAL)
- SCR SILICON CONTROLLED RECTIFIER
- S/F SEAM TO FACE OF FLANGE
- SP SETPOINT
- SPC CALCULATED SETPOINT
- SS SELECTOR SWITCH
- S/S SEAM TO SEAM
- T/T TANGENT TO TANGENT
- TS/TS TUBESHEET TO TUBESHEET
- T/L TUBE LENGTH
- V/H VENT HEADER

GENERAL NOTES

- TUBING TO BE 304SS, SEAMLESS. 0.035" WALL THICKNESS, CADMIUM PLATED CARBON STEEL FITTINGS WITH STAINLESS STEEL FERRULES.
- ALL TEMPERATURE INSTRUMENTS TO BE PROVIDED WITH A THERMOWELL.

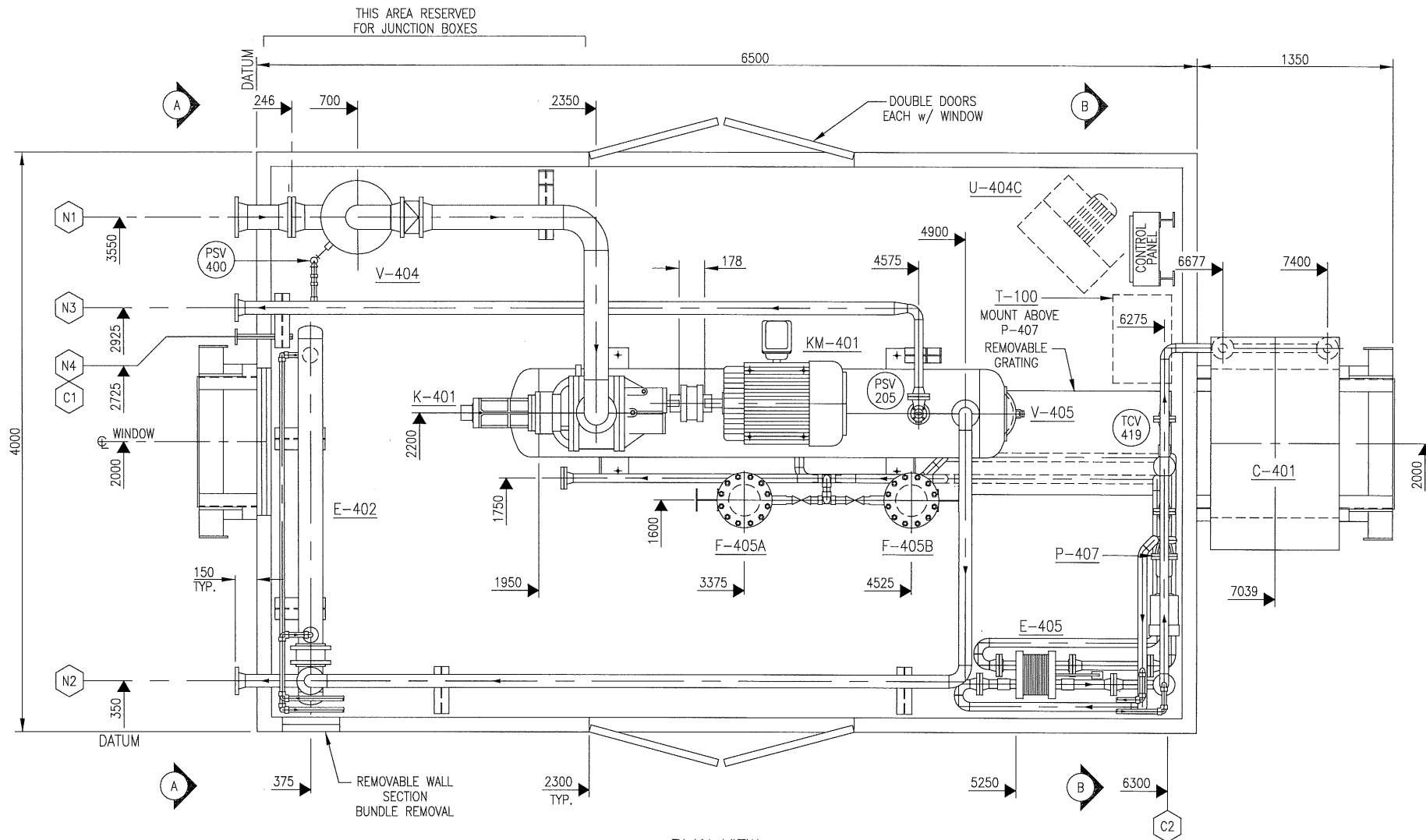
LEGEND FOR P & I FLOW DIAGRAM

PANCANADIAN PETROLEUM LTD. (LSD: 05-01-38-17-W4M)
 HALKIRK VAPOUR RECOVERY UNIT, TAG NO.: Q404

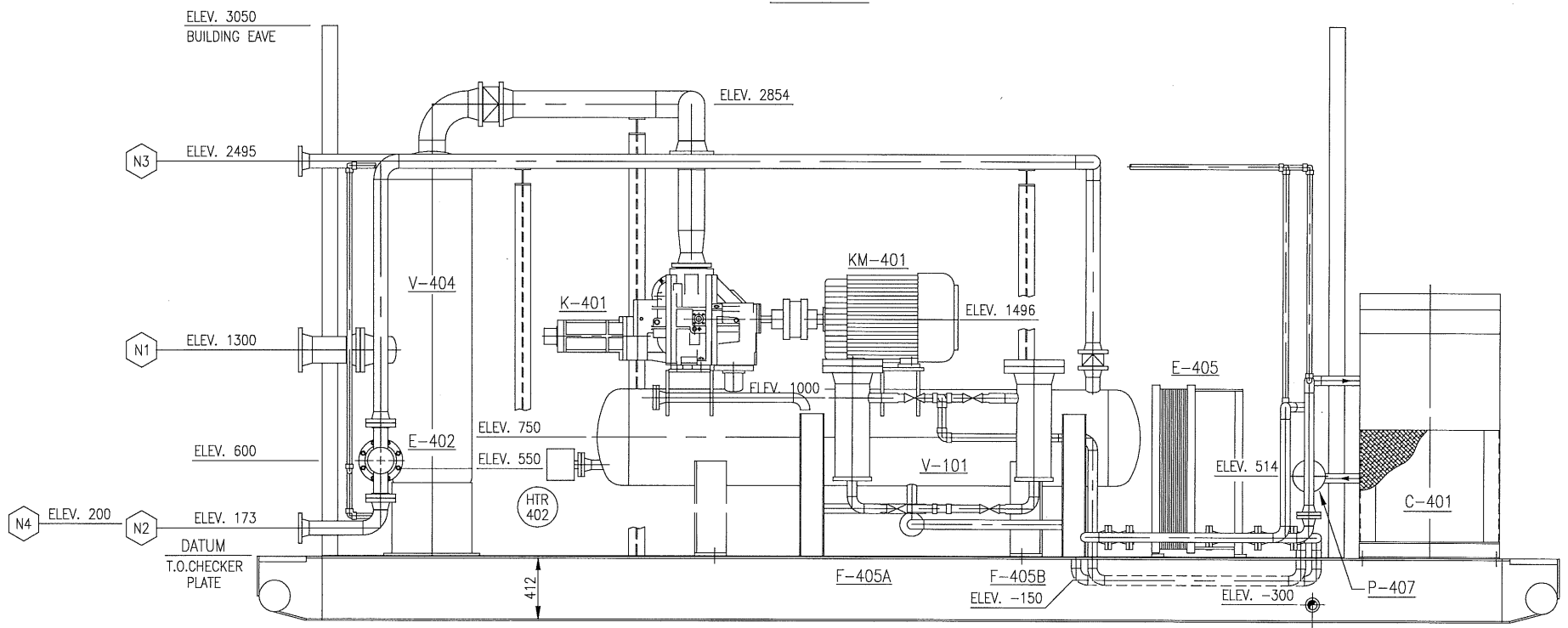
G. STANGNESS 28/08/95
 N.T.S. N/A
 2114-012 100145-1 3 OF 3

1 AS BUILT
 0 ISSUED FOR APPROVAL
 21/11/95 G.S.
 25/08/95 G.S.

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PLAN VIEW



ELEVATION

NOZZLE SCHEDULE						
MARK	SIZE	RATING	TYPE	DESCRIPTION	LINE DESIGNATION	ELEVATION
N1	6"	150#	RFWN	GAS INLET	6"-HG-INLET-L11(AC)	1300
N2	3"	150#	RFWN	GAS OUTLET	3"-HG-E402-1-L11(AC)	173
N3	3"	150#	RFWN	FLARE HEADER	3"-F-HEADER-1-C11(AB)	2495
N4	1"	150#	RFWN	HYDROCARBON DRAIN	---	200
C1	1"	3000#	CPLG.	INSTRUMENT AIR SUPPLY	1"-I-SUPPLY-1-C11(AB)	2467
C2	2"	3000#	CPLG.	FLOOR DRAIN	---	-300

NOTES:
 -NOZZLE ELEVATIONS ARE FROM CENTERLINE OF PIPE TO TOP OF SKID.
 -SKID DEPTH IS 412.
 -FLANGED BOLT HOLES TO STRADDLE MAIN CENTERLINES.
 -CENTER OF GRAVITY

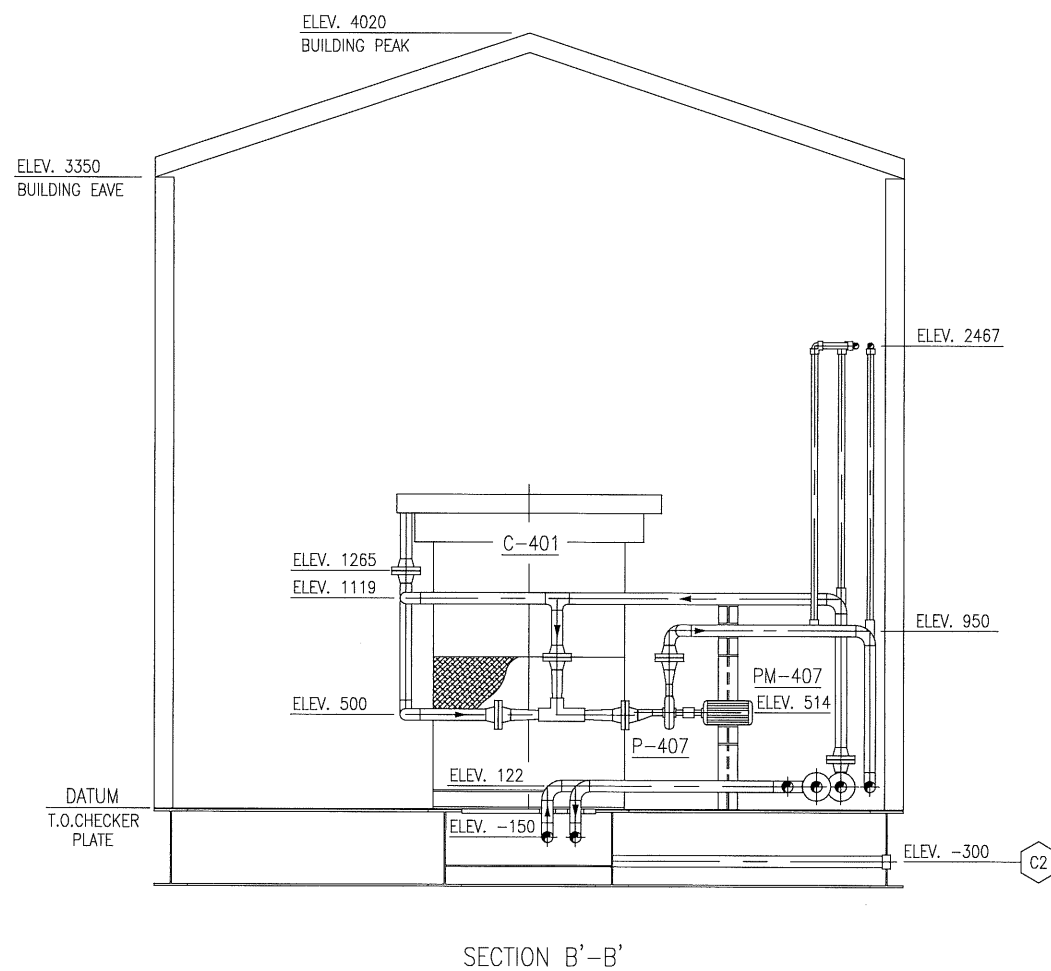
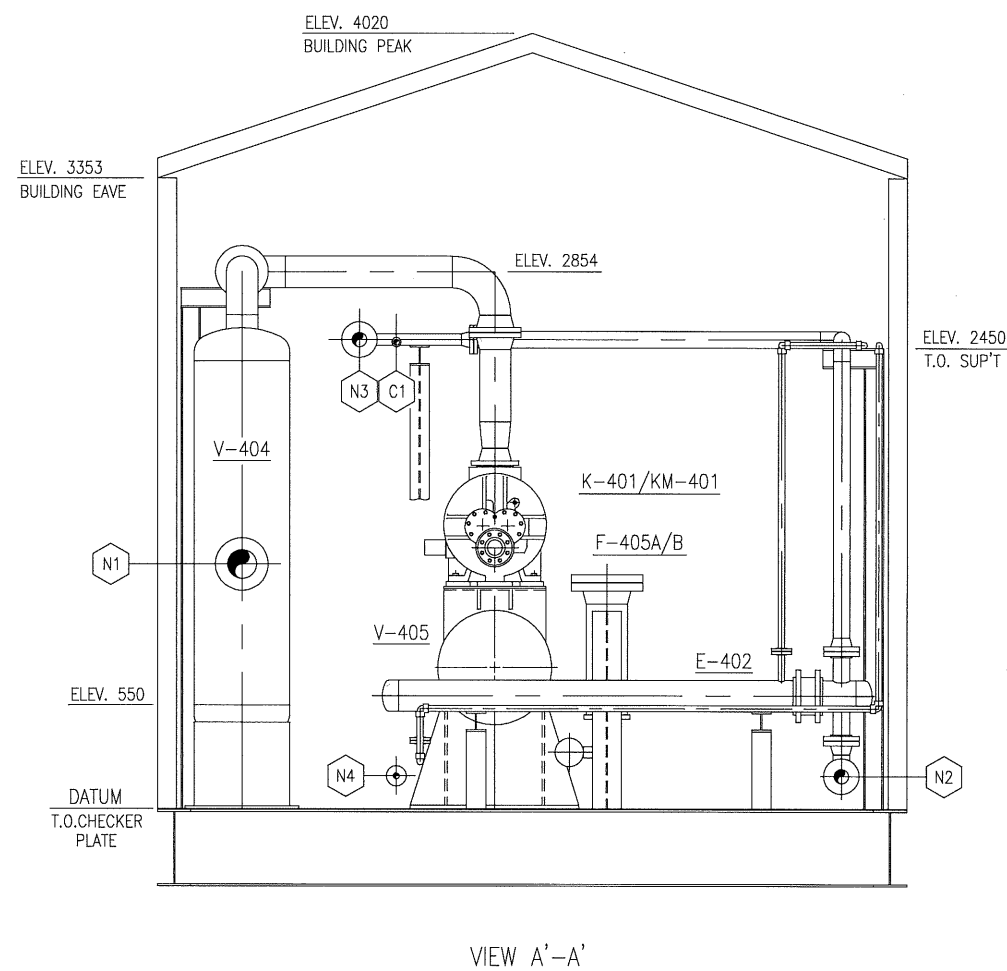
SHIPPING SPECIFICATIONS
 SHIPPING WEIGHT: 16450 KGS.
 SHIPPING HEIGHT: 4350 MM
 SHIPPING LENGTH: 8300 MM
 SHIPPING WIDTH: 4500 MM

PERMIT TO PRACTICE STAMP

ENGINEER STAMP

2	AS BUILT	02/11/95	G.S.	AL
1	ISSUED FOR CONSTRUCTION	26/09/95	G.S.	AL
0	ISSUED FOR APPROVAL	06/09/95	G.S.	AL
REV.	DESCRIPTION	DATE	BY	APPR.
Calgary • Houston • Salt Lake • Princeton				
TITLE: SKID LAYOUT				
FOR: PANCANADIAN PETROLEUM LTD. (LSD: 05-01-38-17-W4M) HALKIRK VAPOUR RECOVERY UNIT, TAG NO. Q404				
DRAWN BY: G.STANGNESS	APPR. BY: AL	DATE: 30/08/95		
SCALE: 1:20	DRAWING No.: 100145-2	W.O. No.: N/A	REV: 2	
CUST. PO No: 2114-012	SHT. No.: 1 OF 2			

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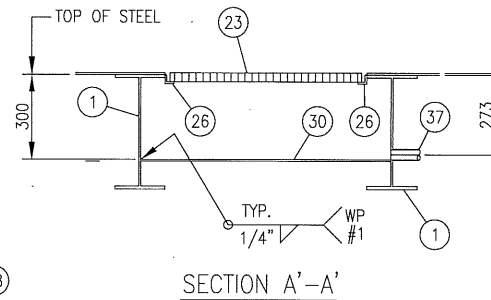
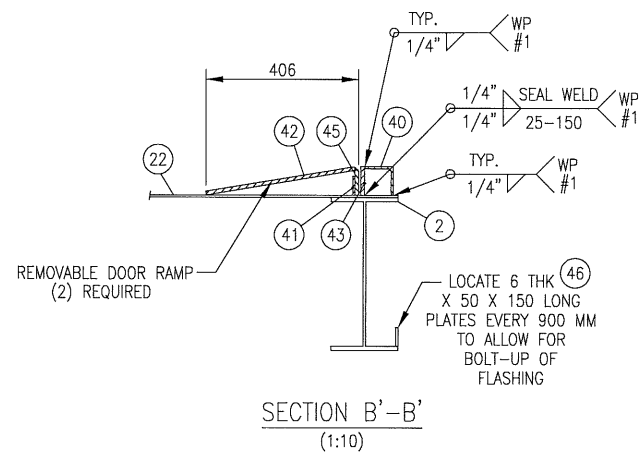
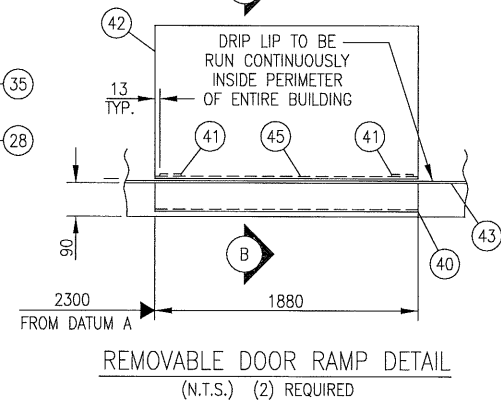
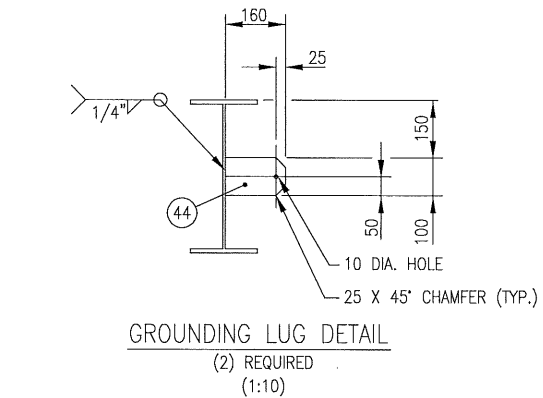
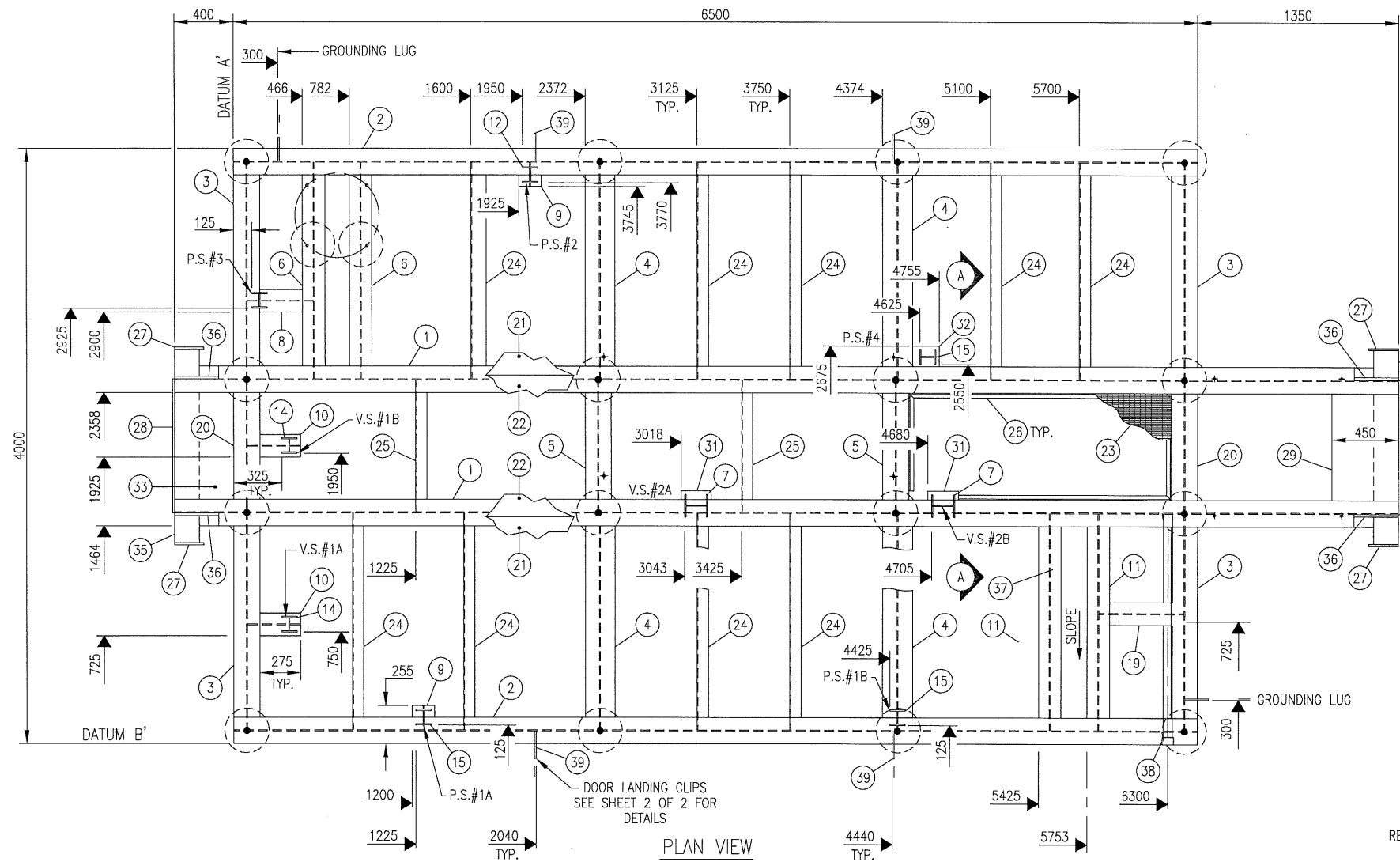
REV.	DESCRIPTION	DATE	BY	APPR.
2	AS BUILT	02/11/95	G.S.	<i>RL</i>
1	ISSUED FOR CONSTRUCTION	26/09/95	G.S.	<i>RL</i>
0	ISSUED FOR APPROVAL	06/09/95	G.S.	<i>RL</i>

		Calgary • Houston • Salt Lake • Princeton	
TITLE: SKID LAYOUT			
FOR: PANCANADIAN PETROLEUM LTD. (LSD: 05-01-38-17-W4M) HALKIRK VAPOUR RECOVERY UNIT, TAG NO. Q404			
DRAWN BY: G.STANGNESS	APPR. BY: <i>RL</i>	DATE: 30/08/95	
SCALE: 1:20	DRAWING No.: 100145-2	W.O. No.: N/A	REV.: 2
CUST. PO No:	SHT. No.: 2 OF 2		

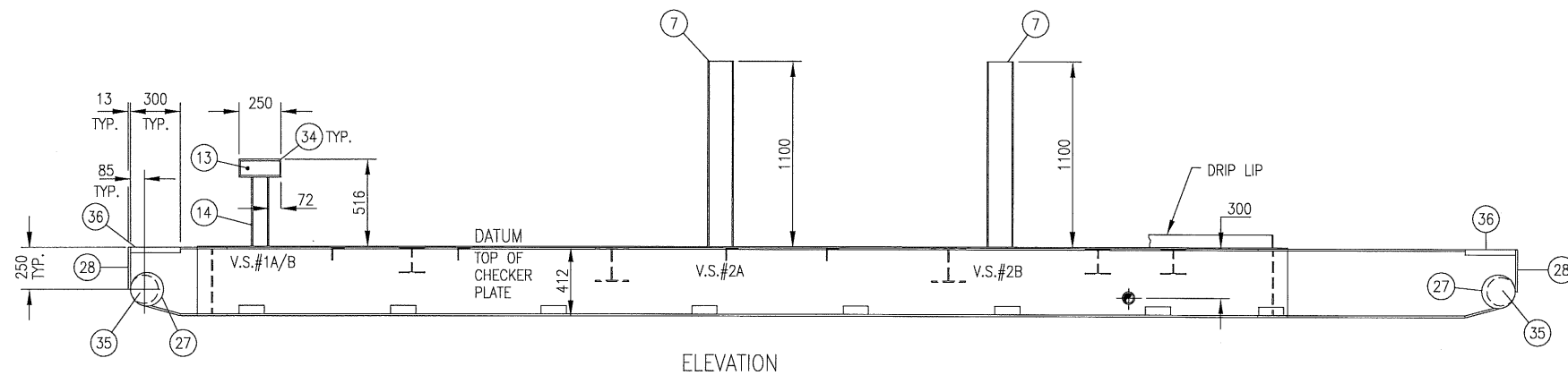
PERMIT TO PRACTICE STAMP

ENGINEER STAMP

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○ SUGGESTED PILE LOCATIONS



BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	MATERIAL
1	2	W16 X 36 X 8250 LG	SA-36
2	2	W16 X 36 X 6500 LG	SA-36
3	4	W16 X 36 X 1456 LG	SA-36
4	4	W8 X 31 X 1456 LG	SA-36
5	2	W16 X 36 X 887 LG	SA-36
6	2	W6 X 15 X 1456 LG	SA-36
7	2	W6 X 15 X 1100 LG	SA-36
8	1	W6 X 15 X 447 LG	SA-36
9	2	W6 X 15 X 162 LG	SA-36
10	2	W6 X 15 X 360 LG	SA-36
11	2	W6 X 15 X 1456 LG	SA-36
12	1	W4 X 13 X 2664 LG	SA-36
13	3	W4 X 13 X 238 LG	SA-36
14	2	W4 X 13 X 410 LG	SA-36
15	4	W4 X 13 X 2344 LG	SA-36
16	2	W4 X 13 X 313 LG	SA-36
17	1	W4 X 13 X 463 LG	SA-36
18	1	W4 X 13 X 363 LG	SA-36
19	1	W6 X 15 X 575 LG	SA-36
20	2	W16 X 36 X 887 LG	SA-36
21	2	CHECKER PLATE: 1/4" THK X 1524 X 6500 LG.	CARBON STEEL
22	1	CHECKER PLATE: 1/4" THK X 950 X 4575 LG	CARBON STEEL
23	1	GRATING: 1 1/4" THK X 700 X 1750 LG	SA-36
24	9	ANGLE: 3" X 3" X 1/4" X 1456 LG	SA-36
25	2	ANGLE: 3" X 3" X 1/4" X 887 LG	SA-36
26	1	ANGLE: 1 1/4" X 1 1/4" X 1/4" X 5100 LG CTS	SA-36
27	4	PLATE: 3/8" THK X 200 DIA.	SA-36
28	2	PLATE: 1/2" THK X 250 X 900 LG	SA-36
29	1	PLATE: 1/4" THK X 450 X 716 LG	SA-36
30	1	PLATE: 1/4" THK X 887 X 1941 LG	SA-36
31	2	PLATE: 3/8" THK X 76 X 200 LG	SA-36
32	1	PLATE: 3/8" THK X 139 X 178 LG	SA-36
33	1	PLATE: 1/4" THK X 400 X 716 LG	SA-36
34	14	PLATE: 1/4" THK X 103 X 106 LG	SA-36
35	2	PIPE: 6" NOM. XH WT X 1300 LG	SA-106-B
36	4	PIPE: 1" NOM. XH WT X 300 LG.	SA-106-B
37	1	PIPE: 2" NOM. STD WT X 1600 LG. CTS	SA-106-B
38	1	HALF CPLG: 2"-3000# NPT	SA-105
39	4	PLATE: 1/2" THK X 125 X 185 LG.	SA-36
40	2	ANGLE: 3" X 3" X 1/4" THK X 1880 LG	SA-36
41	4	PLATE: 1/4" THK X 57 X 150 LG	SA-36
42	2	CHECKER PLATE: 1/4" THK X 413 X 1880 LG	SA-36
43	1	PLATE: 1/4" THK X 76 X 21000 LG (CTS)	SA-36
44	2	PLATE: 3/8" THK X 100 X 160 LG	SA-36
45	2	PLATE: 1/4" THK X 76 X 1880 LG	SA-36
46	24	PLATE: 1/4" THK X 50 X 150 LG	SA-36

GENERAL NOTES:

- WEIGHT OF SKID STEEL BASE: 4925 KGS
- COPE FLANGES WHERE REQUIRED.
- ALL WELDS TO BE 1/4" FILLETS ALL AROUND, UNLESS OTHERWISE NOTED.
- ALL CUT LENGTHS ARE EXACT TOL +0.0"/-0.125" (+0 MM/-3 MM)
- ALL BOLT HOLES ARE 3/4" (19 MM) UNLESS OTHERWISE NOTED.
- SURFACE PREP: SANDBLAST TO SSPC-SP6
PRIMER: ONE COAT OF RED OXIDE PRIMER
PAINT: TWO COATS OF TAUPE ENAMEL
- FULL PENETRATION STRENGTH WELD IS REQ'D AT THESE LOCATIONS.
- PERIMETER AND ALL PANEL JOINTS OF CHECKER PLATE ARE TO BE SEAL WELDED. SKID MEMBERS TO UNDERSIDE OF CHECKER PLATE TO BE STITCH WELDED AT 2"(50 MM) OF FILLET ON 16"(405 MM) CENTERS.

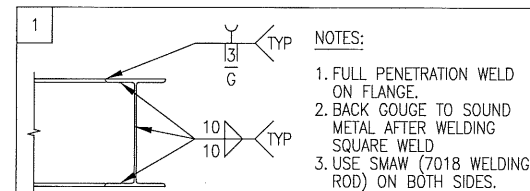
REV.	DESCRIPTION	DATE	BY	APPR.
3	AS BUILT	21/11/95	G.S.	[Signature]
2	ADDED PILE LOCATIONS & DOOR LANDING CLIPS	26/09/95	G.S.	[Signature]
1	ISSUED FOR CONSTRUCTION	25/09/95	G.S.	[Signature]
0	ISSUED FOR APPROVAL	08/09/95	G.S.	[Signature]

TOROMONT PROCESS SYSTEMS INDUSTRIES
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TITLE: **SKID STEEL**

FOR: PANCANADIAN PETROLEUM LTD. (LSD: 05-01-38-17-W4M)
HALKIRK VAPOUR RECOVERY UNIT, TAG NO. Q404

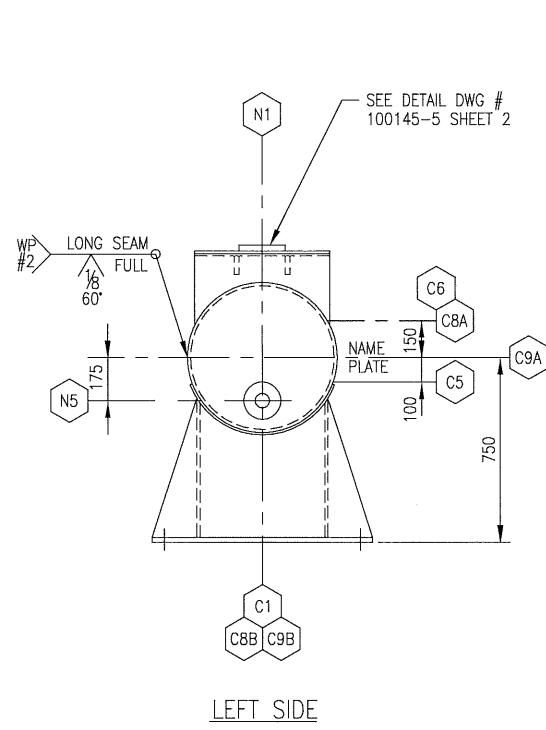
DRAWN BY: G. STANGNESS APPR. BY: [Signature] DATE: 07/09/95
SCALE: 1:20 DRAWING No.: 100145-3 W.O. No.: N/A REV.: 3
CUST. PO No: 2114-012



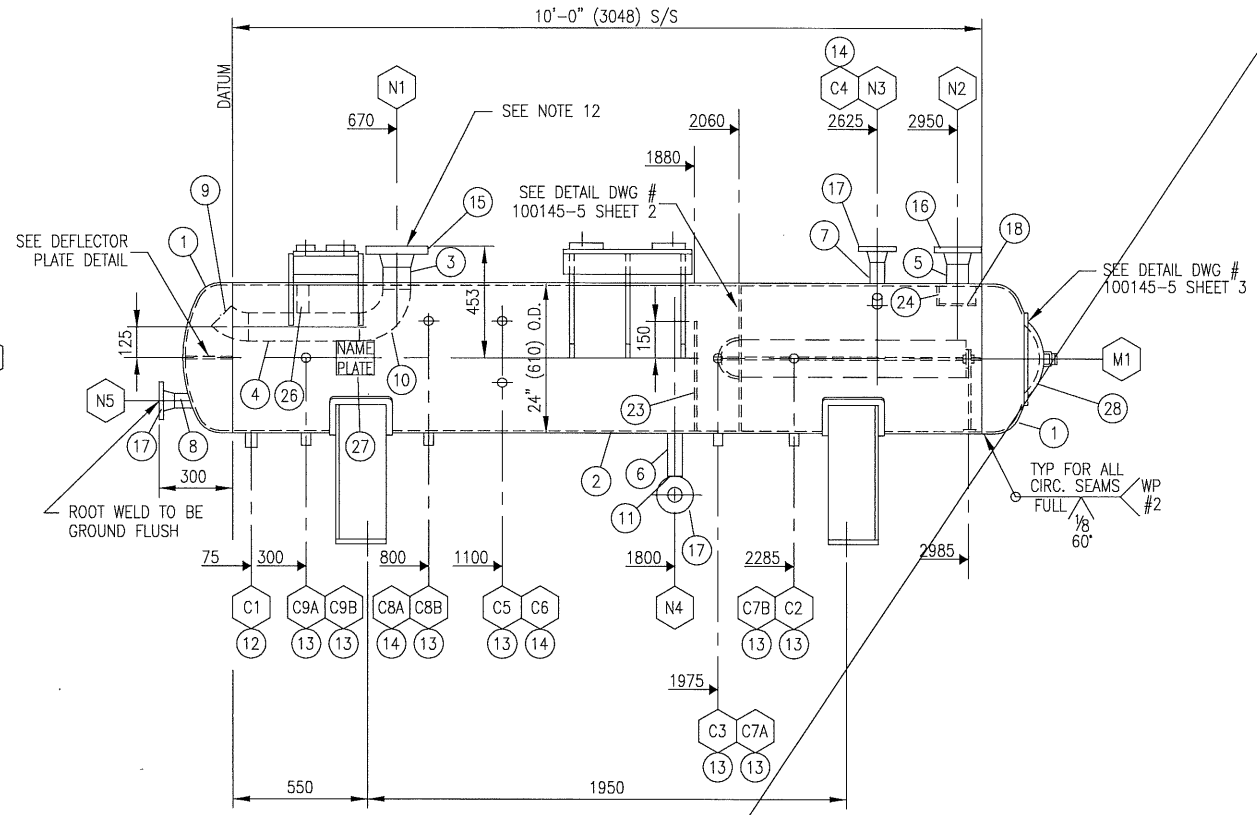
PERMIT TO PRACTICE STAMP

ENGINEER STAMP

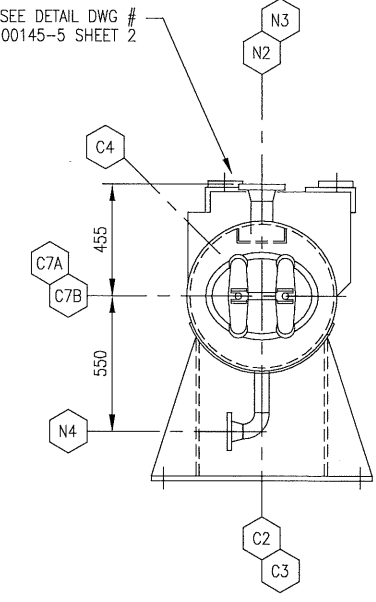
LPS DATE: SEP 19, 1995 TIME: 3:53 PM



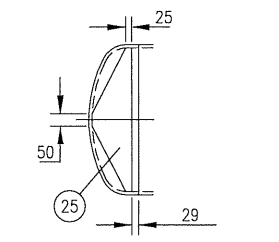
LEFT SIDE



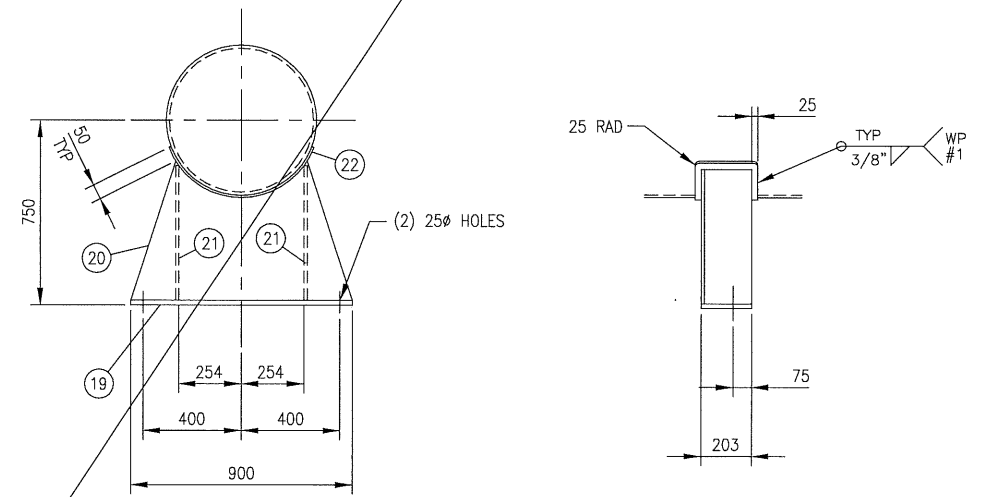
ELEVATION



RIGHT SIDE



DEFLECTION PLATE DETAIL



SADDLE DETAIL

SEE DETAIL DWG # 100145-5 SHEET 2

SEE DETAIL DWG # 100145-5 SHEET 3

GENERAL NOTES:

- FLANGE BOLT HOLES TO STRADDLE MAJOR CENTER-LINES OF VESSEL, UNLESS OTHERWISE NOTED.
- ALL FLANGES TO BE ANSI 16.5, UNLESS OTHERWISE NOTED.
- EXTERIOR & INTERIOR OF VESSEL TO BE FREE OF WELD SLAG, SPATTER, GREASE, MOISTURE, ETC.
- ALL CUT LENGTHS ARE FINISHED LENGTHS, PIPING CUT LENGTHS ARE BASED ON 1/8" (3) WELD GAP.
- PROJECT NAME PLATE 1"(25) FROM SHELL/INSUL.
- COVER ALL OPENINGS FOR SHIPPING.
- SURFACE PREPARATION: SANDBLAST TO SSPC-SP6.
- PRIMER: ONE COAT OF RED OXIDE PRIMER (SPEC # PRI-1)
- FINISH: ONE COAT OF TAUPE ENAMEL. (SPEC # FIN-1)
- INSULATION: NONE
- ALL TACK WELDS TO BE PER WP #1.
- N1 FLANGE TO BE INSTALLED WITH THE COMPRESSOR IN POSITION FOR FINAL ALIGNMENT.
- * - BASED ON NEW AND COLD.
- WHERE POSSIBLE, SEAL WELD INTERNAL AND EXTERNAL ATTACHMENTS.



WP #1 P1-91-1
WP #2 P1-94-1

200410 1995
V-101 2114-012

1	2	HEAD: 24"ODx1/2"THK (7/16"MIN) 2:1 SE 2"SF	SA-516-70
2	1	SHELL: 1/2"THK x 3048 LG (ROLL TO 24" OD)	SA-516-70
3	1	PIPE: 4"NOM x SCH 80 x 84 LG	SA-106B
4	1	PIPE: 4"NOM x SCH 80 x 448 LG	SA-106B
5	1	PIPE: 3"NOM x SCH 80 x 103 LG	SA-106B
6	1	PIPE: 2"NOM x SCH 160 x 180 LG	SA-106B
7	1	PIPE: 2"NOM x SCH 160 x 108 LG	SA-106B
8	1	PIPE: 2"NOM x SCH 160 x 95 LG	SA-106B
9	1	ELBOW: 4" 45' LR BW SCH 80	SA-234 WPB
10	1	ELBOW: 4" 90' LR BW SCH 80	SA-234 WPB
11	1	ELBOW: 2" 90' LR BW SCH 160	SA-234 WPB
12	1	CPLG: 1 1/2"-6000# NPT	SA-105
13	8	CPLG: 3/4"-6000# NPT	SA-105
14	3	CPLG: 3/4"-6000# NPT 75 LG	SA-105
15	1	FLANGE: 4"-300# RFWN SCH 80 BORE	SA-105
16	1	FLANGE: 3"-150# RFWN SCH 80 BORE	SA-105
17	3	FLANGE: 2"-150# RFWN SCH 160 BORE	SA-105
18	1	CHANNEL: C8 x 11.5 x 6"LG	SA-36
19	2	PLATE: 3/4"THK x 203 x 900 LG	SA-36
20	2	PLATE: 1/2"THK x 565 x 900 LG CTS	SA-36
21	4	PLATE: 1/2"THK x 190 x 546 LG	SA-36
22	2	PLATE: 3/8"THK x 253 x 760 LG(ROLL TO 24"ID)	SA-516-70
23	1	PLATE: 3/8"THK x 582 OD CTS	SA-36
24	1	PLATE: 3/8"THK x 60 x 160 LG	SA-36
25	1	PLATE: 1/4"THK x 162 x 581 LG CTS	SA-36
26	1	PLATE: 1/4"THK x 50 x 110 LG	SA-36
27	1	NAME PLATE c/w 1/4" MOUNTING BRACKET	SA-36
28	1	ELLIPTICAL MANWAY: 12"ID x 16"ID x 1"THK	SA-106C

DESIGN AND FABRICATION TO BE IN ACCORDANCE WITH THE PROVINCE OF ALBERTA REGULATIONS AND A.S.M.E. CODE SEC. VIII DIV 1 1992 EDITION 1994 ADDENDA

245	PSIG	1689	KPAG
250	DEG.F	121	DEG.C
-20°F @ 245 PSIG		-29°C @ 1689 KPAG	
245	PSIG	1689	KPAG
DESIGN			
427	PSIG *	2950	KPAG *
0.0625"		1.6	MM
0.0625"		1.6	MM
0.0625"		1.6	MM
NO			
HYDROCARBONS			
32.4	FT3	0.9175	M3
2890	LBS	1310	KGS
4915	LBS	2230	KGS
3340	LBS	1518	KGS
WP 496.2			
UG-20(f)			

SHELL (CAT 'A')	UW-12(b)	SPOT	0.85
HEAD (CAT 'B')	UW-11(a)5(b)/UW-12(d)	SPOT	1.00
NEW AND COLD MAWP	285 PSIG	1965	KPAG

2	AS BUILT	21/11/95	GS
1	ISSUED FOR CONSTRUCTION	19/09/95	EP
0	ISSUED FOR APPROVAL	01/09/95	EP

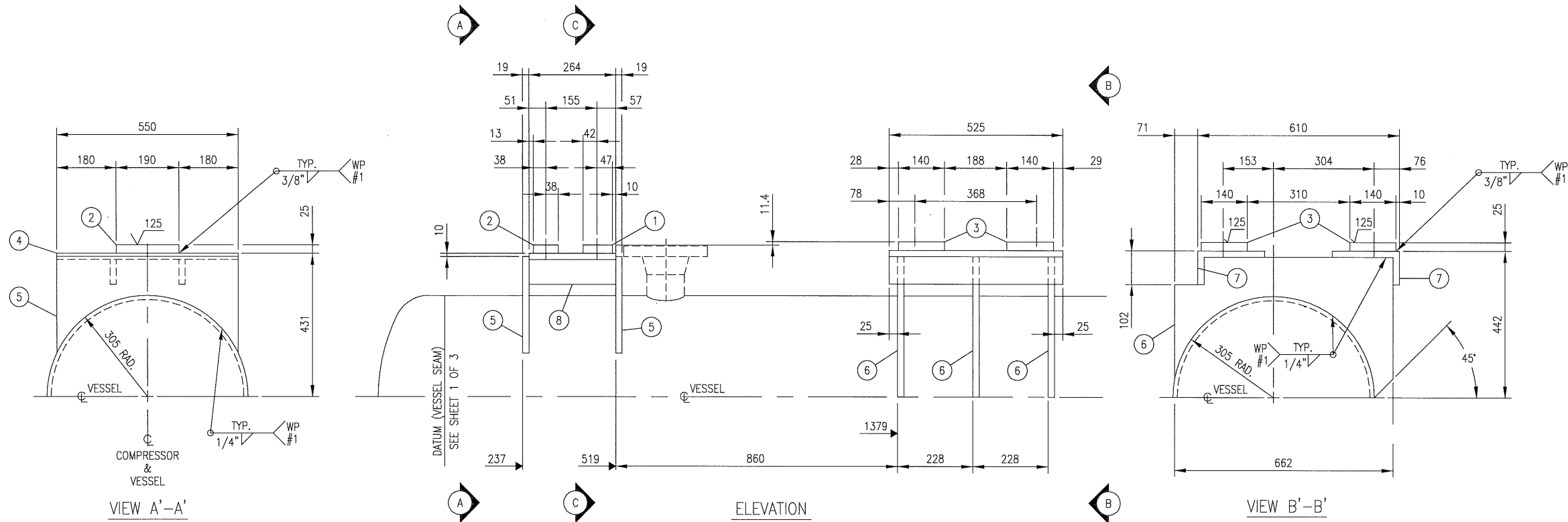
C9A/B	LSLL	3/4"	6000#	NPT	CPLG	-	-	MIN	-	3	#1	3/8"	-	-
C8A/B	LG	3/4"	6000#	NPT	CPLG	-	-	MIN	-	3	#1	3/8"	-	-
C7A/B	FUTURE PDISH	3/4"	6000#	NPT	CPLG	-	-	MIN	-	3	#1	3/8"	-	-
C6	PI	3/4"	6000#	NPT	CPLG	-	-	MIN	-	3	#1	3/8"	-	-
C5	TE	3/4"	6000#	NPT	CPLG	-	-	MIN	-	3	#1	3/8"	-	-
C4	TI	3/4"	6000#	NPT	CPLG	-	-	MIN	-	3	#1	3/8"	-	-
C3	INTERMEDIATE OIL RETURN	3/4"	6000#	NPT	CPLG	-	-	FLUSH	-	3	#1	3/8"	-	-
C2	SECONDARY OIL RETURN	3/4"	6000#	NPT	CPLG	-	-	FLUSH	-	3	#1	3/8"	-	-
C1	FILL/DRAIN	1 1/2"	6000#	NPT	CPLG	-	-	FLUSH	-	3	#1	3/8"	-	-
N5	HEATER	2"	150#	RFWN	160	DET	3/8"	STRAIGHT	1	#1	3/8"	1/4"	-	-
N4	OIL OUTLET	2"	150#	RFWN	160	DET	FLUSH	PROFILE	1	#1	3/8"	-	-	-
N3	PSV	2"	150#	RFWN	160	150	3/8"	STRAIGHT	1	#1	3/8"	1/4"	-	-
N2	OUTLET	3"	150#	RFWN	80	150	3/8"	STRAIGHT	1	#1	3/8"	1/4"	-	-
N1	INLET	4"	300#	RFWN	80	148	3/8"	STRAIGHT	1	#1	3/8"	1/4"	-	-
M1	MANWAY	12"x16"	600#	-	-	-	1"	STRAIGHT	1	#1	3/8"	3/8"	-	-

V-101 OIL SEPARATOR

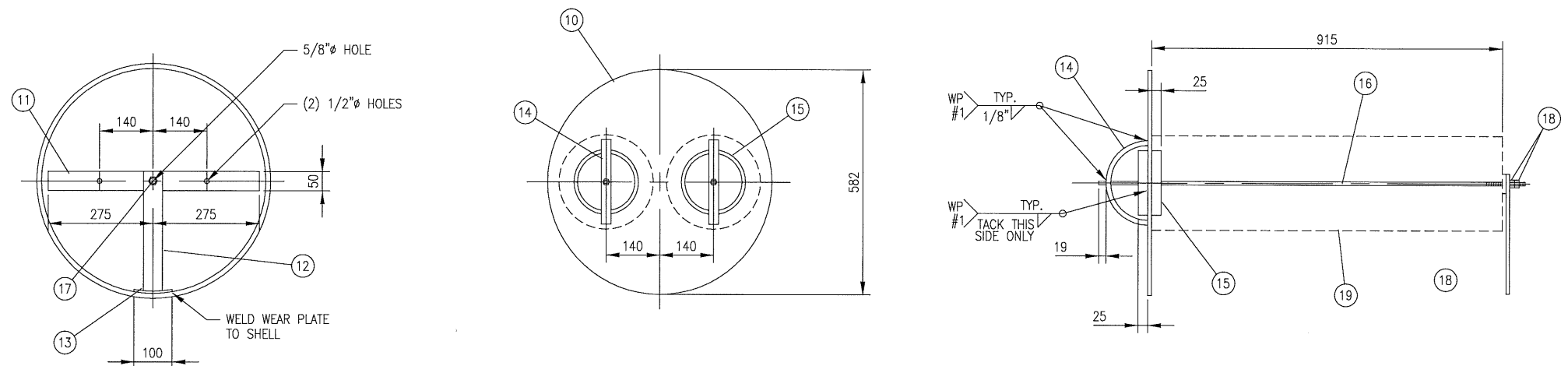
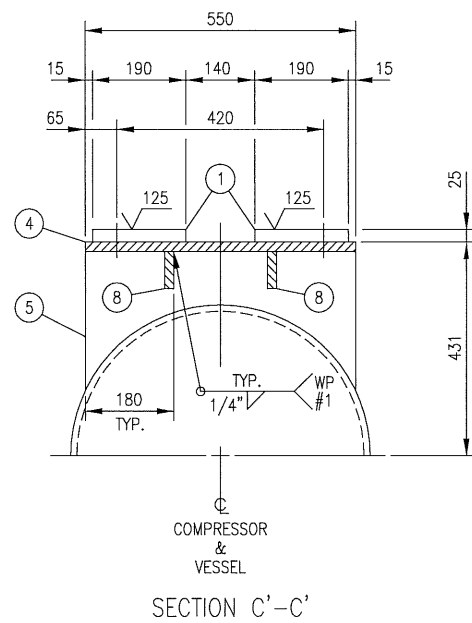
PANCANADIAN PETROLEUM LTD. (LSD: 05-01-38-17-W4M)
HALKIRK VAPOUR RECOVERY UNIT, TAG NO.: Q404

E. PETERS 31/08/95
1:15 200410
2114-012 100145-5 1 OF 3

LPS DATE: SEP 19 1995 TIME: 2:48 PM THE INFORMATION CONTAINED HEREIN IS THE CONFIDENTIAL PROPERTY OF TOROMONT PROCESS SYSTEMS AND IS NOT FOR PUBLICATION, AND NO PART THEREOF SHALL BE COPIED OR COMMUNICATED TO A THIRD PARTY WITHOUT AUTHORIZATION FROM TOROMONT PROCESS SYSTEMS.



BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	MATERIAL
1	2	PLATE: 1" THK X 89 X 190 LG	SA-36
2	1	PLATE: 1" THK X 76 X 190 LG	SA-36
3	4	PLATE: 1" THK X 140 X 140 LG	SA-36
4	1	PLATE: 1" THK X 264 X 550 LG	SA-36
5	2	PLATE: 1" THK X 290 X 550 CTS	SA-36
6	3	PLATE: 1" THK X 423 X 662 LG CTS	SA-36
7	2	ANGLE: L8" X 4" X 3/4" THK X 525 LG	SA-36
8	2	PLATE: 3/4" THK X 76 X 264 LG	SA-36
9			
10	1	PLATE: 3/8" THK X 582 OD (SEE DETAIL)	SA-36
11	1	PLATE: 3/8" THK X 50 X 550 LG	SA-36
12	1	PLATE: 3/8" THK X 50 X 311 LG	SA-36
13	1	PLATE: 1/4" THK X 50 X 100 LG	SA-36
14	2	PIPE: 8" NOM X SCH 80 X 25 LG (CUT IN HALF)	SA-106B
15	2	PIPE: 6" NOM X 16 GAUGE X 60 LG	C.S.
16	2	ROUND BAR: 3/8" DIA X 1076 LG TOE	SA-36
17	1	MACHINE BOLT: 1/2" DIA X 38 LG c/w NUT	SA-36
18	4	HEX NUT: 3/8" UNC	SA-36
19	2	FILTER ELEMENT: RSCO-1175-3	
20			



FILTER ELEMENT SUPPORT DETAILS

REV.	DESCRIPTION	DATE	BY	APPR.
2	AS BUILT	21/11/95	G.S.	AS
1	ISSUED FOR CONSTRUCTION	19/09/95	E.P.	AS
0	ISSUED FOR APPROVAL	01/09/95	G.S.	AS

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TITLE: **V-101 OIL SEPARATOR DETAILS**

FOR: **PANCANADIAN PETROLEUM LTD. (LSD: 05-01-38-17-W4M)**
HALKIRK VAPOUR RECOVERY UNIT, TAG NO. Q404

DRAWN BY: **G. STANGNESS** APPR. BY: **AS** DATE: **01/09/95**

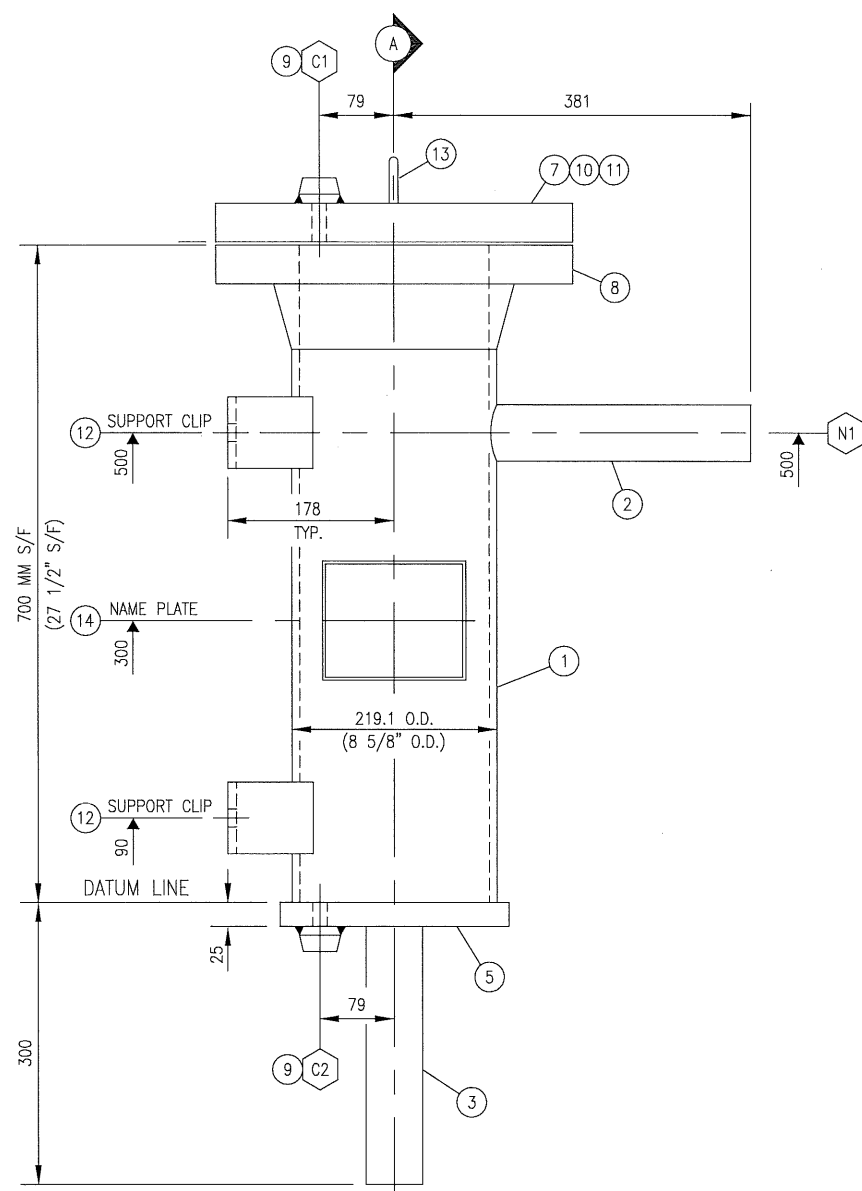
SCALE: **1:7.5** DRAWING No.: **100145-5** W.D. No.: **200410** REV.: **2**

CUST. PO No: **2114-012** SHT. No.: **2 OF 3**

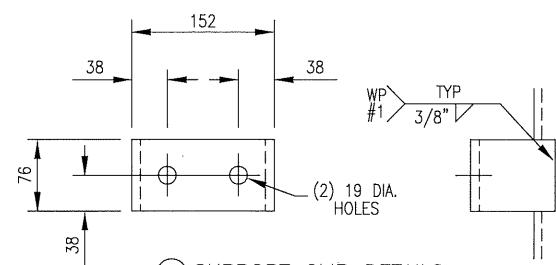
PERMIT TO PRACTICE STAMP

ENGINEER STAMP

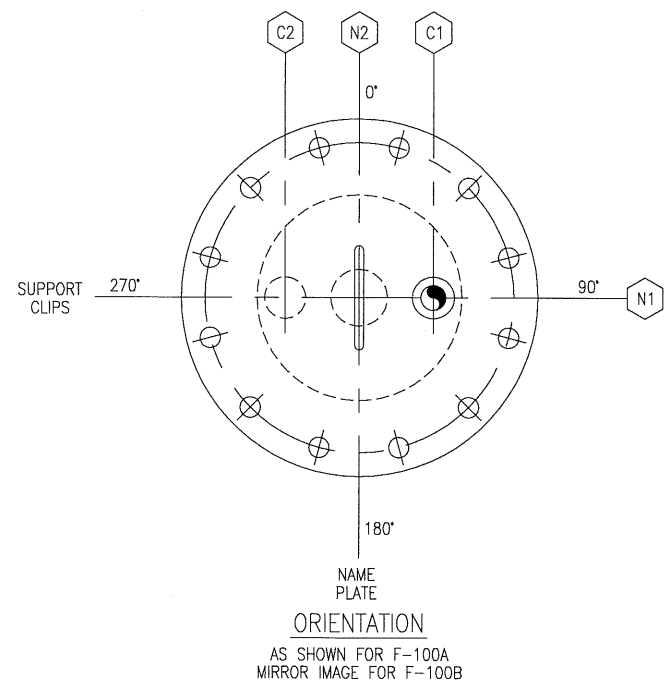
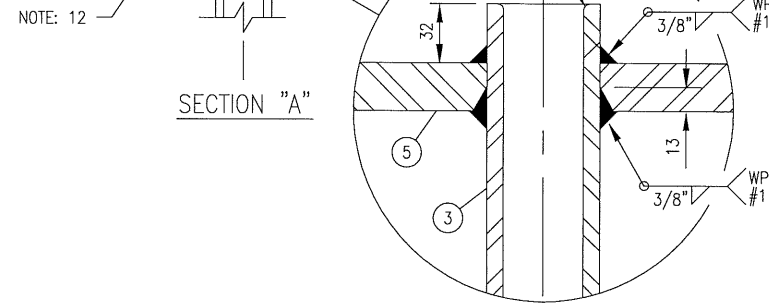
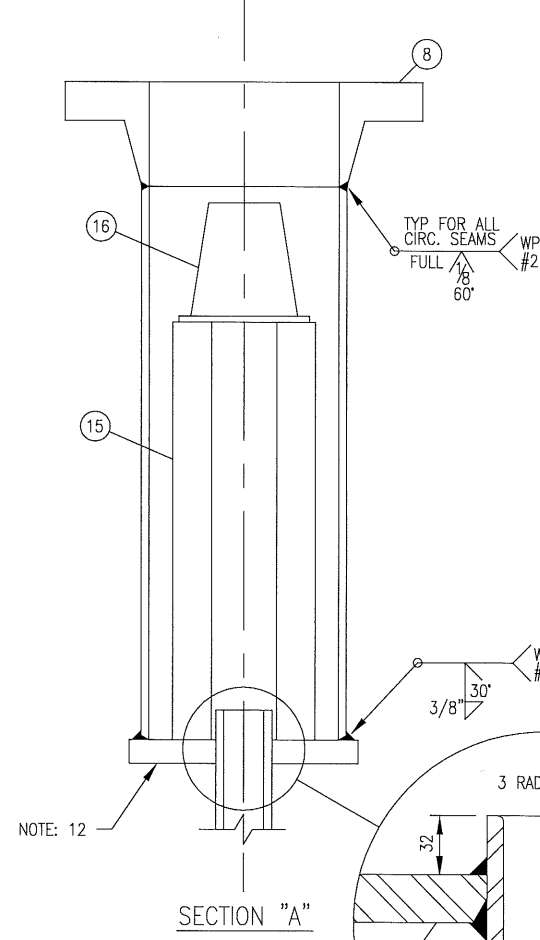
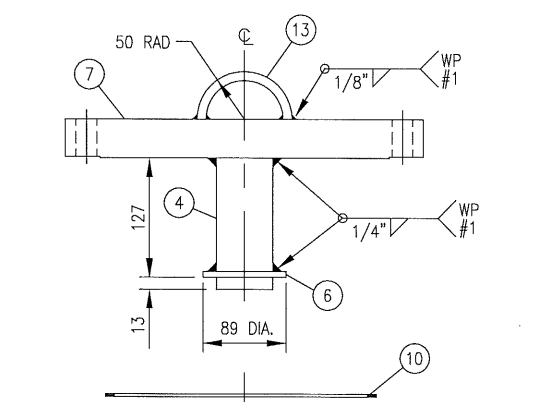
TPS DATE: NOV 27, 1995 TIME: 11:12 AM THE INFORMATION CONTAINED HEREIN IS THE CONFIDENTIAL PROPERTY OF TOROMONT PROCESS SYSTEMS AND IS NOT FOR PUBLICATION, AND NO PART THEREOF SHALL BE COPIED OR COMMUNICATED TO A THIRD PARTY WITHOUT AUTHORIZATION FROM TOROMONT PROCESS SYSTEMS.



ELEVATION



(2) SUPPORT CLIP DETAILS
(2) REQUIRED



GENERAL NOTES:

1. FLANGE BOLT HOLES TO STRADDLE MAJOR CENTER-LINES OF VESSEL, UNLESS OTHERWISE NOTED.
2. ALL FLANGES TO BE ANSI 16.5, UNLESS OTHERWISE NOTED.
3. EXTERIOR & INTERIOR OF VESSEL TO BE FREE OF WELD SLAG, SPATTER, GREASE, MOISTURE, ETC.
4. ALL CUT LENGTHS ARE FINISHED LENGTHS, PIPING CUT LENGTHS ARE BASED ON 1/8" (3) WELD GAP.
5. PROJECT NAME PLATE 1" (25) FROM SHELL/INSUL.
6. COVER ALL OPENINGS FOR SHIPPING.
7. SURFACE PREPARATION: SANDBLAST TO SSPC-SP6.
8. PRIMER: ONE COAT OF RED OXIDE PRIMER (SPEC # PRI-1)
9. FINISH: ONE COAT OF PLATINUM GREY ENAMEL (SPEC # FIN-1)
10. INSULATION: NONE
11. ALL TACK WELDS TO BE PER WP #1.
12. NDT TO BE PERFORMED AS PER UG93(d)

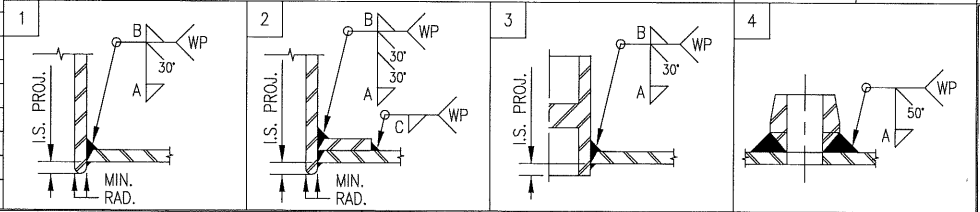
CERTIFIED BY
TOROMONT PROCESS SYSTEMS
DIVISION OF TOROMONT INDUSTRIES LTD
CALGARY, ALBERTA, CANADA

W

M.A.W.P. 400 PSI @ 250 °F
M.D.M.T. -20 °F @ 400 PSI
SERIAL # 200404 YEAR BUILT 1995

ITEM # F-100A/B CUST.PO.# 2114-012
CRN # _____ INSP. _____

WELDING PROCEDURE SPEC.	
TPS REF. No.	SPEC No.
WP #1	P1-91-1
WP #2	P1-94-1



BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	MATERIAL
1	1	PIPE: 8" NOM STD WT. X 585 LG	SA-106B SMLS
2	1	PIPE: 2" NOM SCH 160 WT. X 292 LG	SA-106B SMLS
3	1	PIPE: 2" NOM SCH 80 WT. X 337 LG	SA-106B SMLS
4	1	PIPE: 2" NOM STD WT. X 140 LG	SA-106B SMLS
5	1	PLATE: 1" THK 244 O.D. X 64 I.D.	SA-516-70
6	1	PLATE: 1/4" THK 89 O.D. X 64 I.D.	SA-516-70
7	1	BLIND FLANGE: 8"-300# RF	SA-105
8	1	FLANGE: 8"-300# RFWN STD BORE	SA-105
9	2	SOCKOLET: 3/4"-6000#	SA-105
10	1	GASKET: 8"-300# RF 3 MM THK FLEX.	304SS
11	12	STUD: 7/8" DIA. X 5 1/2" LG W/NUTS	SA-193B7/1942H
12	2	H.S.S.: 8" X 6" X 3/8" THK X 76 LG (CTS)	SA-36
13	1	ROUND BAR: 3/8" DIA. 178 LG (BEND TO SUIT)	SA-36
14	1	NAME PLATE W/ 1/4" THK BRACKET	304SS/SA-36
15	1	FILTER ELEMENT: 1833C	
16	1	PRESS PLATE: 1833P	

B.O.M. FOR (1) ONE
(2) TWO REQUIRED

DESIGN AND FABRICATION TO BE IN ACCORDANCE WITH THE PROVINCE OF ALBERTA REGULATIONS AND A.S.M.E. CODE SEC. VIII DIV 1 1992 EDITION 1994 ADDENDA			
DESIGN PRESSURE	400 PSIG	2758 KPAC	
DESIGN TEMPERATURE	250 DEG.F	121 DEG.C	
MIN. DESIGN METAL TEMPERATURE	-20F @ 400 PSIG	-29C @ 2758 KPAC	
MAX. ALLOWABLE WORKING PRESS.	400 PSIG	2758 KPAC	
LIMITED BY	DESIGN		
HYDROSTATIC TEST PRESSURE	600 PSIG	4137 KPAC	
CORR. ALLOW.	SHELL/HEAD 0.0625"	1.6 MM	
	NOZZLES 0.0625"	1.6 MM	
	INTERNAL 0.0625"	1.6 MM	
POST WELD HEAT TREATMENT	NO		
SERVICE	HYDROCARBONS		
VOLUME	0.80 FT3	0.023 M3	
WT. EMPTY (SHIPPING WT.)	286 LBS	130 KGS	
WT. FULL OF WATER (TEST WT.)	337 LBS	153 KGS	
OPERATING WT.	300 LBS	136 KGS	
WELDING PROC. REGISTRATION No.	WP 496.2		
EXEMPT FROM IMPACT TEST PER	UG-20(f)		
RADIOGRAPHY:	PART CODE	TYPE	JE
	SHELL (CAT 'B')	UW-11(a)5(b)/UW-12(d)	SPOT 1.00
	HEAD (CAT 'C')	UW-12(d)	NONE 0.85

REV.	DESCRIPTION	DATE	BY	APPR.
1	ISSUED FOR CONSTRUCTION	30/08/95	G.S.	P.L.
0	ISSUED FOR APPROVAL	30/08/95	G.S.	

TOROMONT PROCESS SYSTEMS
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TITLE: **STANDARD OIL FILTER**

FOR: PANCANDIAN PETROLEUM LTD. (LSD: 05-01-38-17-W4M)
HALKIRK VAPOUR RECOVERY UNIT, TAG NO. Q404

DRAWN BY: G. STANGNESS APPR. BY: P. LAING DATE: 30/08/95
SCALE: 1:4 DRAWING No.: W.O. No.: 200404 REV.:
CUST. PO No: 2114-012 100145-6 SHT. No.: 1 OF 1 1

MARK	SERVICE	SIZE	RATING	TYPE	BORE	O.S. PROJ	I.S. PROJ	I.S. PROF.	WLD	WP	WLD A	WLD B	WLD C
C2	DRAIN	3/4"	6000#	SOL	-	-	-	-	4	#1	3/8"	-	-
C1	VENT	3/4"	6000#	SOL	-	-	-	-	4	#1	3/8"	-	-
N2	OUTLET	2"	-	PIPE	160	DET.	32	STRAIGHT	1	#1	3/8"	-	-
N1	INLET	2"	-	PIPE	80	DET.	10	STRAIGHT	1	#1	3/8"	-	-

NOZZLE SCHEDULE