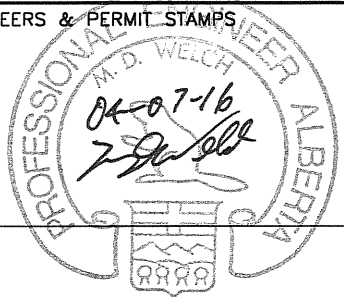


VERIFY ADEQUACY OF FLARE HEADER

NOTE 1:  
TIE ALL PSV OUTLETS TOGETHER INSIDE BUILDING IN COMMON HEADER

PERMIT TO PRACTICE  
TECHNA-WEST ENGINEERING LTD.  
PERMIT NUMBER: P 2304



NO.	REVISIONS	DWN	APPR	DATE
4	AS BUILT	PP		04-07-05
3	REV PER CUSTOMER MARK-UPS	CP		04-06-16
2	REV PER CUSTOMER MARK-UPS	CP		04-06-04
1	REV LIQ. LEVELS PER CUSTOMER	CP		04-05-31
0	ISSUED FOR CONSTRUCTION	CP		04-05-25
A	ISSUED FOR APPROVAL	PP		04-05-06



DATE	04-05-06
DESIGNED BY	IPS
DRAWN BY	P.PIOT
CHECKED BY	
APPROVED BY	
PROJECT NO.	2634-001
SHEET NO.	1 OF 1
TITLE	P&ID FOR 54"OD x 16'-0" S/S 3 PHASE HORIZONTAL SEPARATOR/24"OD x 6'-0" S/S BLOWCASE PACKAGE-STANDARD SERVICE
FILENAME	2643-001PID
REFERENCE NO.	
SCALE	N.T.S.
DRAWING NO.	CCL-2643-001PID
REV. NO.	4

The Association of Professional Engineers, Geologists and Geophysicists of Alberta

**NOTES:**

- QUANTITIES IN B.O.M. ARE FOR ONE (1) UNIT.
- ALL PIPING TO BE IN ACCORDANCE WITH THE LATEST EDITION OF ASME B31.3 PRESSURE PIPING CODE.
- VESSEL TO BE FABRICATED TO THE LATEST EDITION OF ASME SECTION VIII, DIVISION 1 PRESSURE VESSELS.
- ALL HIGH PRESSURE THREADED PIPING TO BE: SA-106B SMLS, SCH.160, LOW PRESSURE THREADED PIPE TO BE SCH.80 WELDED PIPING TO BE SCH.80
- TUBING DETAILS: 3/8" 316 S.S. TUBING c/w 316 S.S. FITTINGS AND FERRULES.
- PAINTING: ALL TO BE CLEANED TO SSPC-SP-3  
1st COAT PRIMER: DEVDE GREY FAST DRY PRIMER  
FINISH COAT: DEVDE GREY ENAMEL
- PROTECT ALL OPENINGS FOR SHIPMENT
- BUILDING: 14'-0" WIDE x 28'-0" LONG x 14'-10" HIGH GABLE STYLE x 12'-6" LOW EAVE  
EXTERIOR: 22 GAUGE GALVALUME  
INTERIOR: 24 GAUGE FLUTED ALUMINUM INTERIOR c/w R-12 INSULATION IN WALLS & ROOF  
VENTILATION: FOUR (4) 12" x 12" ADJUSTABLE LOUVER c/w SCREEN  
DOORS: TWO (2) 3'-0" WIDE x 7'-0" HIGH STEEL MAN DOOR  
c/w IWG WINDOW, CHECK CHAIN, PANIC-LOCK, WEATHER-STRIPPING & CANOPIES  
WINDOWS: TWO (2) 36" x 38" DOUBLE GLAZED SLIDING WINDOWS c/w SCREENS  
ICE RAKES: TWO (2) FULL LENGTH ICE RAKES, EAVESTROUGHS AND DOWNSPOUTS  
EXHAUST FANS: TWO FANS, XP, CLASS 1 DIV 1 GROUP C & D, 12 A.C.P.H., 120V/3P/60 Hz
- HYDROTEST TO 1.5x DESIGN PRESSURE
- ALL BUTT WELDED PIPING TO BE 15% X-RAY
- ALL STUDS ARE SA-193-B7M, NUTS ARE SA-193-2HM, GASKETS 316 S.S.
- MAWP 2" Sch.80 BUTTWELDED c/w 150# FLANGES @ 100°F IS 285 PSIG c/w 1/8" C.A.  
MAWP 2" Sch.80 BUTTWELDED c/w 600# FLANGES @ 100°F IS 1480 PSIG c/w 1/8" C.A.  
MAWP 4" Sch.80 BUTTWELDED c/w 300# FLANGES @ 100°F IS 740 PSIG c/w 1/8" C.A.  
MAWP 2" Sch.80 BUTTWELDED c/w 300# FLANGES @ 100°F IS 740 PSIG c/w 1/8" C.A.  
MAWP 6" Sch.80 BUTTWELDED c/w 150# FLANGES @ 100°F IS 285 PSIG c/w 1/8" C.A.  
MAWP 6" Sch.80 BUTTWELDED c/w 300# FLANGES @ 100°F IS 740 PSIG c/w 1/8" C.A.  
MAWP 1 1/2" Sch.80 BUTTWELDED c/w 300# FLANGES @ 100°F IS 740 PSIG c/w 1/8" C.A.  
MAWP 4" Sch.80 BUTTWELDED c/w 600# FLANGES @ 100°F IS 1480 PSIG c/w 1/8" C.A.  
MAWP 6" Sch.80 BUTTWELDED c/w 600# FLANGES @ 100°F IS 1480 PSIG c/w 1/8" C.A.
- S.S.TUBING THICKNESS NPS 3/8" (0.035"WT), NPS 1/2"(0.049"WT)
- PACKAGE TO INCLUDE 1/2" NPT VENT HEADER c/w DRIP POT.
- SKID TO HAVE 3" HIGH CONTAINMENT c/w IPS STD. 12"Ø FLOOR DRAIN
- PACKAGE TO HAVE ONE (1) NEMA 4x JUNCTION BOX, c/w WIEDMULLER TERMINALS AND TWO (2) RAILS.
- PACKAGE TO HAVE TWO (2) ESD BUTTONS (ALB800H1HZ4R) LOCATED NEAR DOORS AND WIRED TO SKID EDGE J.B.
- CYCLICAL STRESS ANALYSIS TO BE PERFORMED ON THE BLOWCASE VESSEL (V-0103)

**VALVE LISTING**

TAG	QTY	MAKE	DESCRIPTION
2"BA1B1	7	NUTRON	2" 300# RF BALL VALVE R.P. STD SERVICE
1/4"NE4P1	8	CENTURY	1/4" NPT 6000# MxF NEEDLE VALVE C.S. STD SERVICE
1/2"NE4P1	4	CENTURY	1/2" NPT 6000# MxF NEEDLE VALVE C.S. STD SERVICE
1/2"BA4N1	6	BALON	1/2" NPT 3000# R.P. BALL VALVE, STD SERVICE,
1"BA4N1	14	BALON	1" NPT 3000# R.P. BALL VALVE, STD. SERVICE,
1"GL4H1	3	NAVCO	1" NPT CLASS 800# GLOBE VALVE STD. SERVICE
2"BA1D1	4	NUTRON	2" 600# RF R.P. BALL VALVE STD. SERVICE,
3/4"BA4N1	4	BALON	3/4" NPT 3000# R.P. BALL VALVE, STD SERVICE,
1"Y4N1	3	ALTA	1" NPT CLASS 800# 'Y' STRAINER STD. SERVICE
1"C4N1	2	NAVCO	1" NPT CLASS 800# CHECK VALVE STD. SERVICE
2"C1D1	1	WHEATLEY	2"600# RF SWING CHECK VALVE STD SERVICE
1"BA4N1	2	NUTRON	1" NPT 3000# R.P. BALL VALVE, STD. SERVICE, CAR SEAL OPEN
2"BA4N1	6	BALON	2" NPT 3000# R.P. BALL VALVE, STD. SERVICE,
2"C1B1	1	WHEATLEY	2"300# RF SWING CHECK VALVE STD SERVICE
2"Y4N1	2	ALTA	2" NPT CLASS 800# 'Y' STRAINER STD. SERVICE
2"C4N1	1	NEWCO	2" NPT CLASS 800# CHECK VALVE STD. SERVICE
SPEC BLIND	2		6"300# RF SPEC BLIND STD. SERVICE
SPEC BLIND	1		2"300# RF SPEC BLIND STD. SERVICE

**BILL OF MATERIALS**

TAG	QTY	MAKE	DESCRIPTION
PSV-110	1	MERCER	1"NPT x 1"NPT OUT RELIEF VALVE, MODEL 9100 WCB BODY, STANDARD SERVICE, SET @ 1440 PSIG
PSV-120	1	MERCER	1"NPT IN x 1"NPT OUT RELIEF VALVE, MODEL 9100 WCB BODY, STANDARD SERVICE, SET @ 150 PSIG
PI-110	1	WIKA	PRESSURE INDICATOR LIQUID FILLED, 4" DIA. FACE x 1/2"NPT END CONNECTION, 0 TO 1500 PSIG DUAL, S.S.
LSHH-103	1	SDR	2" NPT, ELECTRIC LEVEL SWITCH, MODEL 1510B-G2A-C-W9-ES-CS, SNAP DIRECT ACTING, 316 S.S. FLDAT, 303 SS BODY, 0-1500 PSIG MAMP, 24 VDC
LCV-101	1	FISHER	2"600# RF MODEL D4 LIQUID CONTROL VALVE, STD., 6-30 PSIG SPRING RANGE, FAIL OPEN, c/w 3/4" DRIFICE, 11 1/4" F/F
PRV-210/220/230/240/250	5	FISHER	1/4" FNPT MODEL 67CFR-362 PRESSURE REGULATOR, 0-35 PSIG RANGE, STANDARD SERVICE 250 PSIG MAMP
PI-100	1	WIKA	PRES. INDICATOR LIQUID FILLED, 4" DIA. FACE x 1/2"NPT END CONNECTION, 0-1000 PSIG DUAL, S.S.
PI-120	1	WIKA	PRESSURE INDICATOR LIQUID FILLED, 2 1/2" DIA. FACE x 1/4"NPT END CONNECTION, 0 TO 300 PSIG DUAL, S.S.
PSV-100	1	CONSOLIDATED	1 1/2"300#x 2"150# RELIEF VALVE, MODEL 1910FC, 'F' DRIFICE, C.S.BODY, STD SERVICE, SET @ 635 PSIG
TI-100/110	2	TREND	TEMPERATURE INDICATOR, 3" DIAL, 6" STEM 3/4" NPT -40°F TO 160°F RANGE, DUAL SCALE, c/w 1/2"x 3/4"x 6" 304 SSI. THERMOWELL
LG-110	1	PENBERTHY	3/4" NPT MODEL 1TM9 TRANSPARENT SITE GLASS c/w 330J VALVES, STD SERVICE
XV-111/112	2	AMOT	2727C FLOW CONTROL VALVE, # NAS-4000-N02 200 PSIG MAX. VALVE BODY PRESSURE, FREE FLOW IN ONE DIRECTION, ADJ. FLOW IN OTHER
PRV-120	1	FISHER	1" FNPT MODEL 627 PRESSURE REDUCING REG. STEEL BODY, 70-150 PSIG RANGE, 1/8" DRIFICE STANDARD SERVICE
PV-106	1	FISHER REMAN	4"600# RF MODEL V-100-1051 VEE BALL CONTROL VALVE, WAFER STYLE, 7 5/8" F/F STD. SERVICE. c/w FISHER 3610J POSITIONER
LSLL-103 LC-120	2	SDR	2" NPT, PNEUMATIC LEVEL SWITCH, MODEL 1530B-G2A-C-W9-CS-PS, SNAP DIRECT ACTING, 316 S.S. FLDAT, 303 SS BODY, 0-1500 PSIG MAMP, 6-30 PSIG
PSHH-106 PSSL-106	2	SDR	1/2" NPT, MINI HERMIT PRESSURE SWITCH STD. SERVICE, 24 VCD
LT-103	1	MAGTECH	LEVEL TRANSMITTER, 24 VDC, STD. SERVICE. MODEL# LTM-200D-316-3/4"-0.659-100F-740psi-66"-X MOUNT IN 3" BRIDAL, 4-20 mA OUTPUT, CSA APPRD. CLASS 1, DIV.1 GROUPS, B,C & D, TITANIUM FLOAT FOR HIGH PRESSURE
PY-106	1	FISHER	MODEL 546 1/P TRANSDUCER, 4-20 mA, 6-30 PSIG RANGE, STD. SERVICE
BDY-103 BDY-106	2	ASCO	3- WAY SOLENOID VALVE, 24 VDC, 6-30 PSIG 6-30 PSIG RANGE, STD. SERVICE
FQT/FQI-103	1	HALLIBURTON	2"NPT TURBINE METER, STD. SERVICE, c/w MC II PLUS TOTALIZER, 24 VDC
SV-110	1	AMOT	MODEL 4057CF SWITCHING VALVE NON-OVERLAP 1/4" NPT, VITON O-RINGS, PRESS. OPERATED, 15 PSIG MIN. ARMING PRESSURE REQ'D, 125 PSIG MAMP @180°F, STD. SERV.
LCV-110/111	2	FISHER	1" NPT MODEL D2 LIQUID CONTROL VALVE, FAIL CLOSED, STD. SERVICE, 3/8" ADJUSTABLE TRIM 6-30 PSIG INPUT
LCV-112 BDV-103	2	FISHER	1" NPT MODEL D2 LIQUID CONTROL VALVE, FAIL OPEN, STD. SERVICE, 1/2" ADJUSTABLE TRIM 6-30 PSIG INPUT
LC-100	1	FISHER	2" NPT MODEL L2 LEVEL CONTROL, SNAP DIRECT ACTING, STD. SERVICE, 1 7/8" DIA.x 12" LG PVC VERTICAL DISPLACER, MAMP 1500 PSIG
LC-110/111	2	SDR	2" NPT MODEL 1530B LEVEL SWITCH, STD. SERVICE 0-1500 PSIG MAX. MODEL PS-1530-B-G2A-C-JD-PS 316 S.S. FLDAT, 303 S.S. BODY
PT-106	1	ROSEMOUNT	1/2" NPT MODEL 3051 PRESSURE TRANSMITTER 0-1000-PSIG MAX. STD.SERVICE
LCV-100 LCV-120	2	FISHER	1" NPT MODEL D2 LIQUID CONTROL VALVE, FAIL CLOSED, STD. SERVICE, 3/8" ADJUSTABLE TRIM 6-30 PSIG INPUT
AE/AIT-101 AE/AIT-100	2	GENERAL MONITOR	MODEL S4000T FOR LEL DETECTION, 24 VDC, 4-20 mA OUTPUT, c/w SEPARATION KITS
LG-100	1	PENBERTHY	3/4" NPT MODEL 1TM9 TRANSPARENT SITE GLASS c/w 330J VALVES, STD SERVICE
FQT/FQI-107	1	HALLIBURTON	1"NPT TURBINE METER, STD. SERVICE, c/w MC II PLUS TOTALIZER, 24 VDC

SUPPLIED AND INSTALLED BY CUSTOMER

**VALVE LEGEND**

**END CONNECTION:**  
 FLANGED RF= 1  
 FLANGED RTJ=2  
 BUTTWELDED= 3  
 THREADED= 4  
 SOCKETWELD= 5  
 SW/SCRD= 6  
 TUBING= 7

**VALVE SERVICE:**  
 NORMAL TEMP, SWEET PROCESS=1  
 NORMAL TEMP, SOUR PROCESS=1S  
 LOW TEMP, SWEET PROCESS=2  
 LOW TEMP, SOUR PROCESS=2S

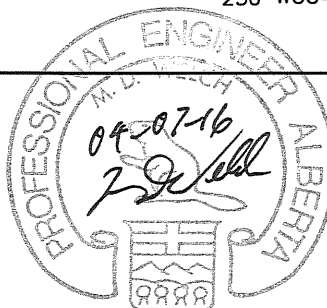
**ANSI CLASS:**  
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 300#=#B  
 400#=#C  
 600#=#D  
 900#=#E  
 1500#=#F  
 2500#=#G

**THREADED/SOCKET WELDED CLASS:**  
 API 602 WOG  
 CLASS 800=#H 1000 WOG=#L  
 CLASS 1500=#J 2000 WOG=#M  
 CLASS 2500=#K 3600 WOG=#N  
 6000 WOG=#P  
 10000 WOG=#Q  
 TUBING RATING=#R  
 250 WOG=#S

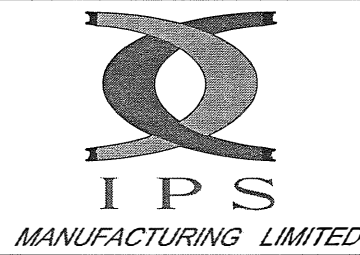
**VALVE TYPE:**  
 BALL(R.P.)=#BA  
 BALL (F.P.)=#BAF  
 NEEDLE=#NE  
 FULL BODY CHECK=#C  
 GATE=#GA  
 GLOBE=#GL  
 PISTON CHECK=#CP  
 Y-STRAINER=#Y

**VALVE SIZE:** 2" BA 1 D 1S

**PERMIT TO PRACTICE**  
**TECHNA-WEST ENGINEERING LTD.**  
 PERMIT NUMBER: P 2304  
 The Association of Professional Engineers,  
 Geologists and Geophysicists of Alberta

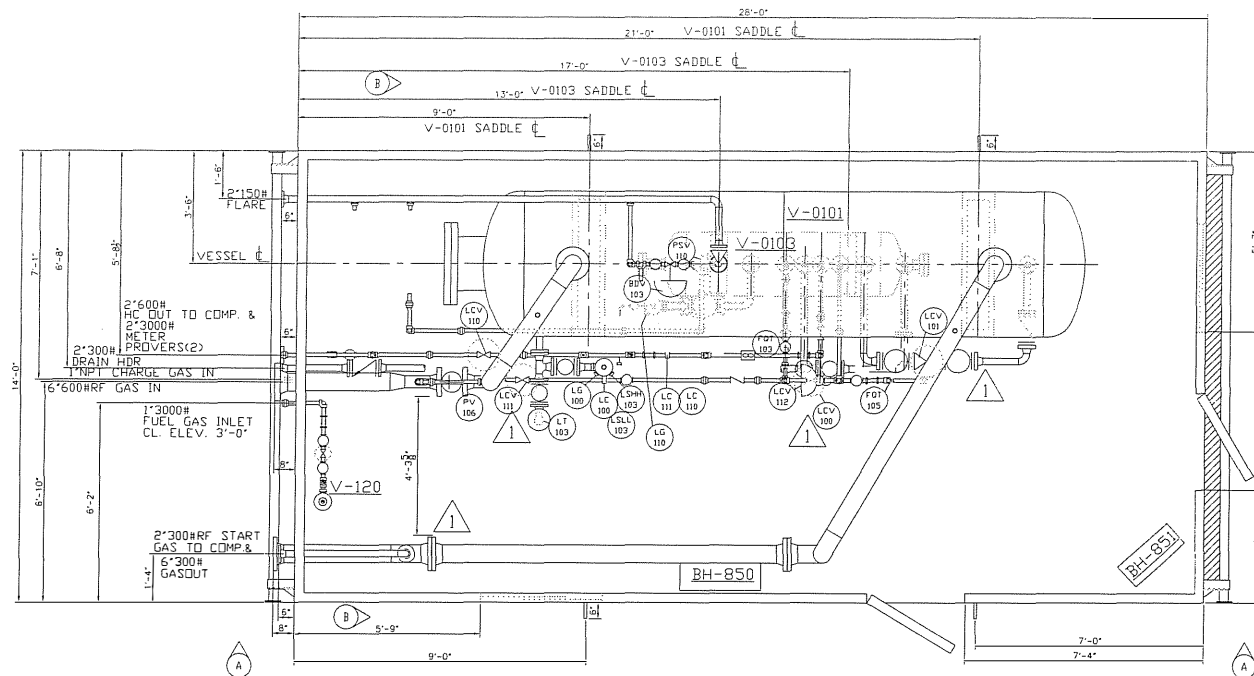


NO.	REVISIONS	DWN	APPR	DATE
3	AS BUILT	PP		04-07-05
2	REV PER CUSTOMER MARK-UPS	CP		04-06-16
1	REV PER CUSTOMER MARK-UPS	CP		04-06-04
0	REV PER CUSTOMER MARK-UPS/ISSUED FOR CONSTRUCTION	PP		04-05-25
A	ISSUED FOR APPROVAL	PP		04-05-06

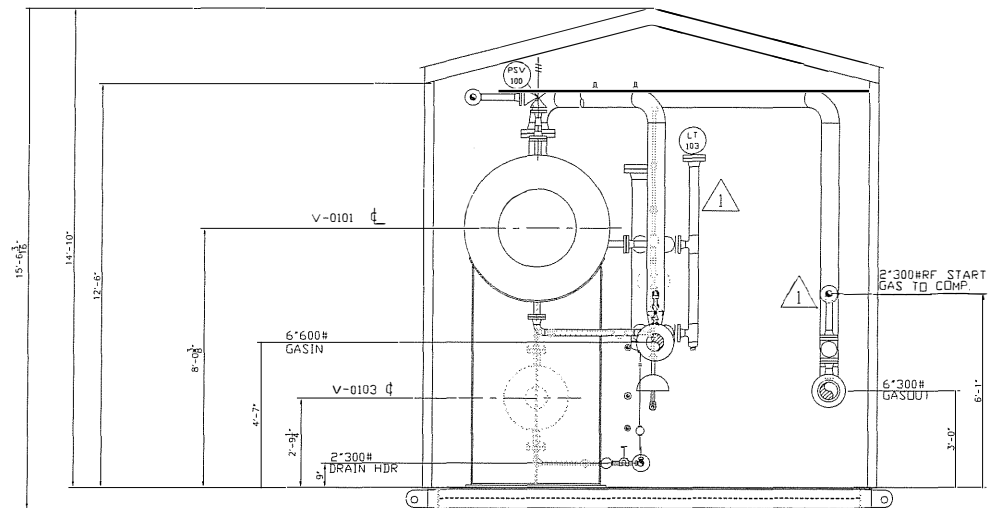


DATE 04-05-06  
 DESIGNED BY IPS  
 DRAWN BY P. PIOT  
 CHECKED BY  
 APPROVED BY  
 PROJECT NO. 2643-001  
 FILENAME 2643-001BOM  
 REFERENCE NO.  
 SCALE N.T.S.  
 SHEET NO. 1 OF 1  
 DRAWING NO. CCL-2643-001BOM  
 REV. NO. 3

CLIENT **CONOCOPHILLIPS CANADA LTD.**  
 LSD:WILLESSEN GREEN 7-16-44-9 W5M  
 TITLE **BILL OF MATERIALS & NOTES FOR HORIZONTAL SEPARATOR & HORIZONTAL BLOWCASE PACKAGE, STANDARD SERVICE**

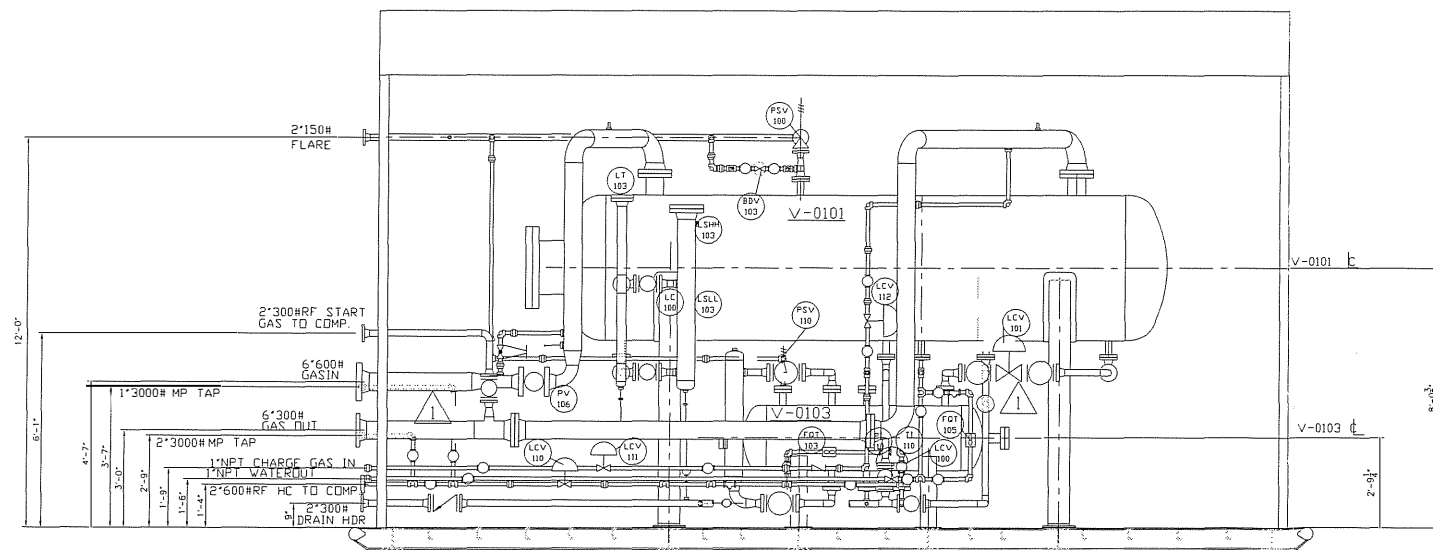


PLANVIEW



ELEVATION VIEW "B-B"

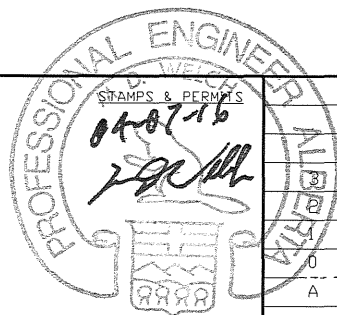
V-120 NOT SHOWN



ELEVATION VIEW "A-A"

PERMIT TO PRACTICE  
 TECHNA-WEST ENGINEERING LTD.  
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 The Association of Professional Engineers,  
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AS BUILT



OFFICE MNGR: \_\_\_\_\_ DATE: \_\_\_\_\_  
 ISSUED TO FAB MNGR: \_\_\_\_\_ DATE: \_\_\_\_\_

REV. #	REVISION	BY	DWN	APPR.	DATE
	AS BUILT			PP	04-07-05
	REV PER SHOP, MOVE BC CAGE			PP	04-06-18
	REV PER CUSTOMER MARK-UPS			CP	04-06-04
	REV PER CUSTOMER MARK-UPS/IFC			CP	04-05-25
	ISSUED FOR APPROVAL			CP	04-05-06



DATE	04-05-06		
DESIGNED BY	IPS		
DRAWN BY	C.PRICHARD		
CHECKED BY	[Signature]		
APPROVED BY	[Signature]		
SCALE	NTS	SHEET NO. 1 OF 1	REV. NO. 3
TITLE	LAYOUT FOR 54"OD x 16'-0" S/S HORIZONTAL SEPARATOR & 24"OD x 6'-0" S/S BLOWCASE PACKAGE c/w 14'-0" WIDE x 28'-0" LG BUILDING		
PROJECT NO.	2634-001	FILENAME	2643-001GA
DRAWING NO.	CCL-2643-001L		CRN NO.