

IPS MANUFACTURING LIMITED

DRAWING INDEX

Date: Nov 7/04
 Job #: 3072-001
 Customer: Hydro Energy
 Description: 48" x 16' 0" 200PS 2 ph horiz sep proc

Date	Rev. #	Description (Or Changes)	IPS Approval (Initial/Date)
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P&ID

04-09-27	A	ISSUED FOR APPROVAL	JB
04-10-27	0	ISSUED FOR CONSTRUCTION	JB
04-11-03	1	ADD WH-401	JB 04-11-07
04-12-07	2	REVISED PER ORDER #2	JB 04-12-14
05-01-02	3	AS BUILT	JB 05-01-16

BOM

04-09-27	A	ISSUED FOR APPROVAL	JB
04-10-28	0	ISSUED FOR CONSTRUCTION	JB
04-11-03	1	REVISED DESCRIPTION	JB 04-11-07
04-12-07	2	REVISED PER ORDER #2	JB 04-12-14
05-01-02	3	AS BUILT	JB 05-01-16

PS1

04-10-28	0	ISSUED FOR CONSTRUCTION	JB 04-11-11
04-11-10	1	REVISED PER ORDER #3	JB 04-11-11

Layout

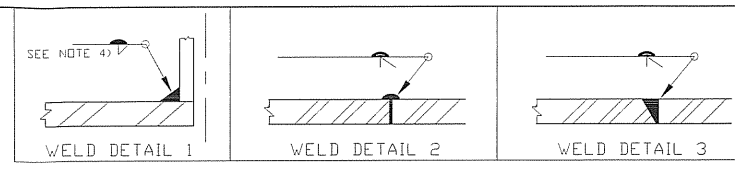
04-10-01	A	ISSUED FOR APPROVAL	JB
04-10-28	0	ISSUED FOR CONSTRUCTION	JB 04-11-07
04-11-16	1	REVISED PER CUSTOMER REQUEST	JB 04-11-11
04-12-07	2	REVISED PER ORDER #2	JB 04-12-14
05-01-02	3	AS BUILT	JB 05-01-16

Skid

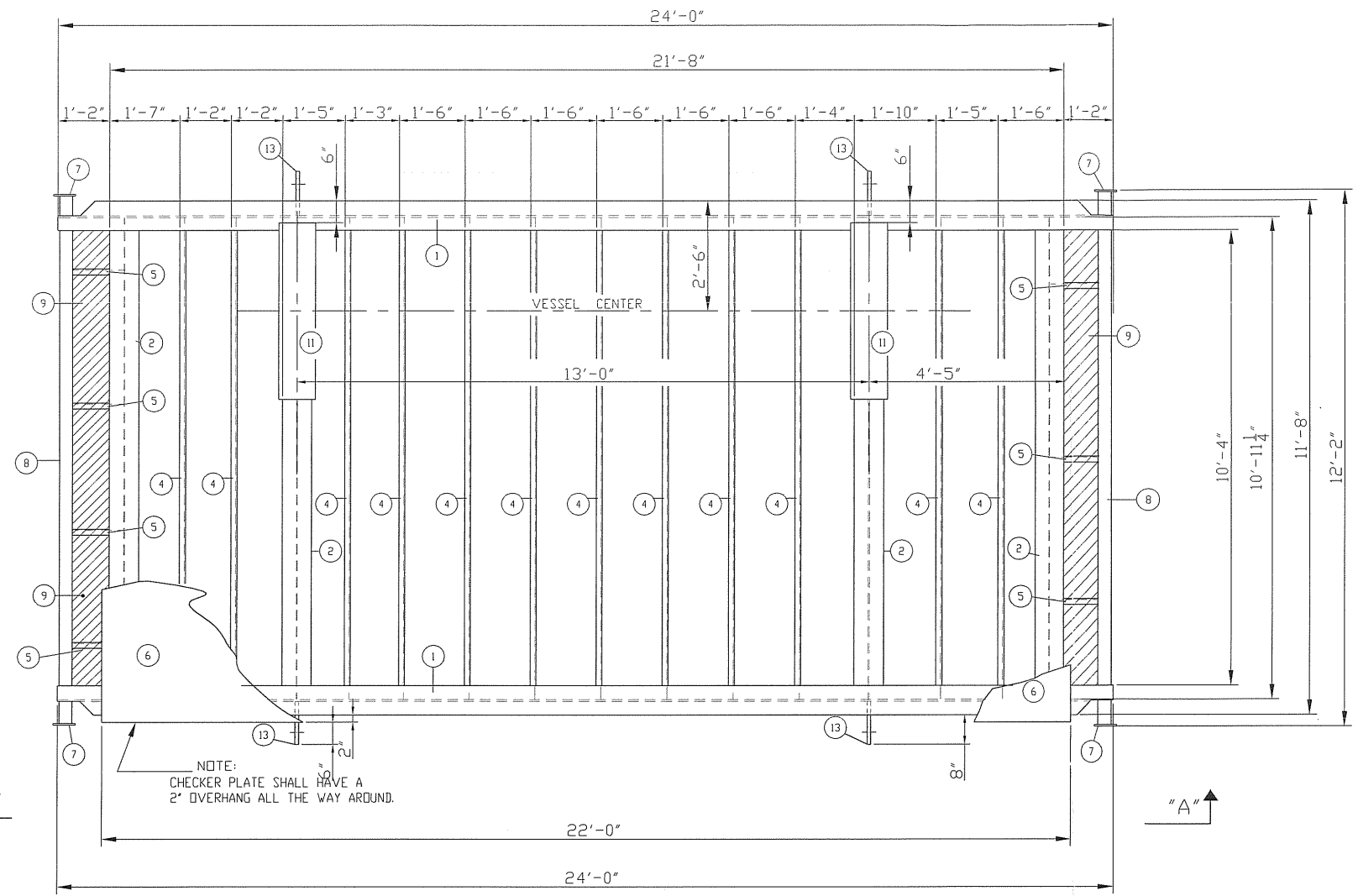
04-10-04	A	ISSUED FOR APPROVAL	JB
04-10-07	B	ADD SIGNATURES TO SHEET	JB 04-11-07
04-11-04	0	IFC	JB 04-12-14
05-03-01	1	AS BUILT	JB 05-03-04

PS2

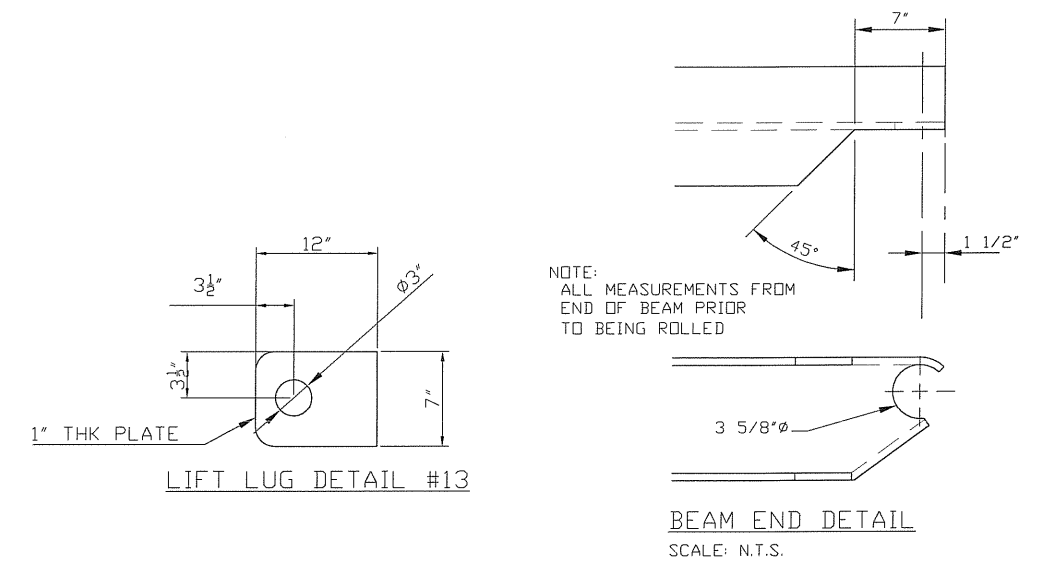
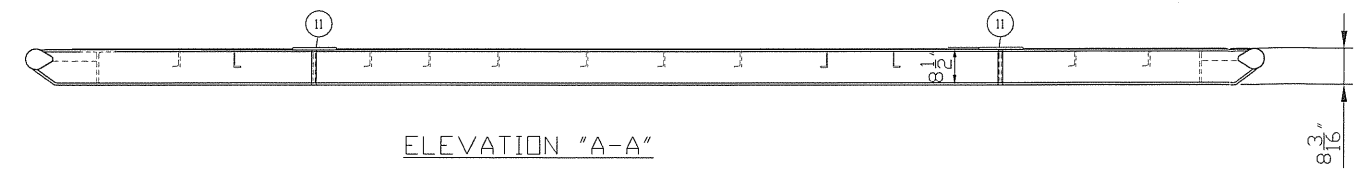
04-10-28	0	ISSUED FOR CONSTRUCTION	JB 04-11-11
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BILL OF MATERIALS		
MARK	QUANTITY	DESCRIPTION
1	2	W8 x 31# x 24'-0" LONG
2	4	W8 x 31# x 10'-11 5/8" LONG
3		
4	12	C4 x 5.4# x 10'-11 5/8" LONG
5	7	C4 x 5.4# x 14" LONG
6	3	CHECKER PLATE: 5'-0" x 10'-0" x 3/16" THK.
	2	CHECKER PLATE: 4'-0" x 10'-0" x 3/16" THK.
	1	CHECKER PLATE: 6'-0" x 8'-0" x 3/16" THK.
7	4	PLATE: 3/8" THK x 7" LG x 5" WIDE
8	2	PIPE: 3" SCH.STD. PIPE x 12'-2" LG
9	2	BAR GRATING: 1" THK x 10'-4" LG x 10 1/2" WIDE
10		
11	2	BASE PLATES: 4'-0" x 10" x 1/2" THK.
12		
13	4	LIFT LUGS: 12" x 7" x 1" THK - SEE DETAIL



PLANVIEW

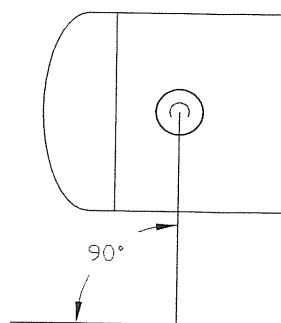


- NOTE:
- 1) SHOP TO LOCATE CHANNELS AT CHECKERED PLATE SEAMS
 - 2) DISTANCE BETWEEN INSIDES OF CHANNELS MAY VARY FROM GIVEN DIMENSIONS, BUT MAY NOT EXCEED 1'-6" INSIDE TO INSIDE OF MEMBERS
 - 3) ALL STEEL MINIMUM SA-36
 - 4) FILLET WELDS AROUND BASE PLATES ARE 3/8" ALL OTHER FILLETS ARE 1/4"
 - 5) ALL C4x5.4# WELDS ARE FILLET WELDS, ALL CHECKERED PLATE IS TO BE SEAL WELDED SEAMS ARE WELD DETAIL #2, ALL WIDE FLANGE MEMBERS COPE INTO WIDE FLANGE MEMBERS SHALL USE WELD DETAIL #3
 - 6) DIMENSIONS FEET AND INCHES

REV. #	REVISION	BY	DWN	APPR.	DATE
1	AS BUILT			PP	05-03-01
0	ISSUED FOR CONSTRUCTION			LG	04-11-04
B	ADD BAR GRATING TO BOTH ENDS			CP	04-10-07
A	ISSUED FOR APPROVAL			CP	04-10-04

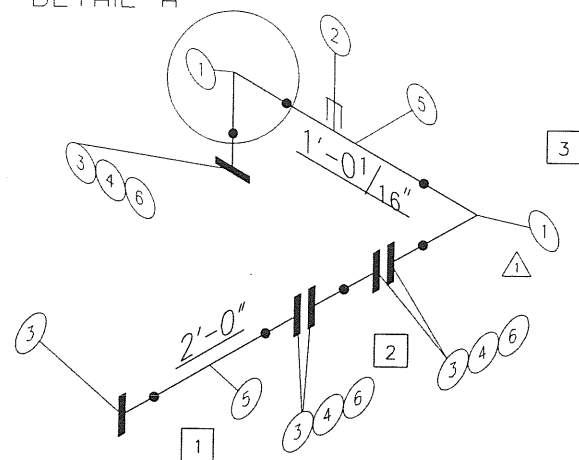


DATE 04-10-04	HUSKY ENERGY c/o		
DESIGNED BY IPS	LSD:		
DRAWN BY C.PRICHARD	TITLE 24'-0" x 11'-8" SKID BASE DRAWING FOR A 48"ID x 16'-0"S/S HORIZONTAL SEPARATOR c/w 22'-0"LG x 12'-0" BUILDING		
CHECKED BY M	PROJECT NO. 3072-001	FILENAME 3072-004SKD	REFERENCE NO.
APPROVED BY	SHEET NO. 1 OF 1	DRAWING NO. CCL-3072-004S	REV. NO. A
SCALE N.T.S.			



PLANVIEW "A"

DETAIL A



GAS INLET
8" 300# RF Sch. 80

BILL OF MATERIAL								HEAT NUMBERS
ITEM	QUANTITY	SIZE	CODE	RATING	DESCRIPTION			
1	2	8"	WLD-809080	Sch XS	90 LR EII BW	CS SA-234-WPB	213.00 lbs	
2	1		TOL-3M05X3-8	3000#	8"x1/2" TOL	CS SA-105N	0.24 lbs	
3	6	8"	FLG-30080RWN80	300#	RF WN Flange	Sch XS bore CS SA-105N	420.00 lbs	
4	3	8"	GSK-30080SSGRA	300#	1/8" Gasket RF	316 S.S. GRAPHOIL		
5	4'	8"	PIP-8080	Sch XS	Pipe Smls,CS SA 106 Gr.B		354.08 lbs	
6	40	7/8"	STU-0855M		Stud Bolt x 5 1/2" Alloy Steel	A193-B7M W/2 Hvy Hex Nuts A194-2HM	78.96 lbs	
						Total Weight:	1066.28 lbs	

**Issued For
Construction**

Issued to Fab. Manager *10/10/04*
Released for Fabrication *10/10/04*

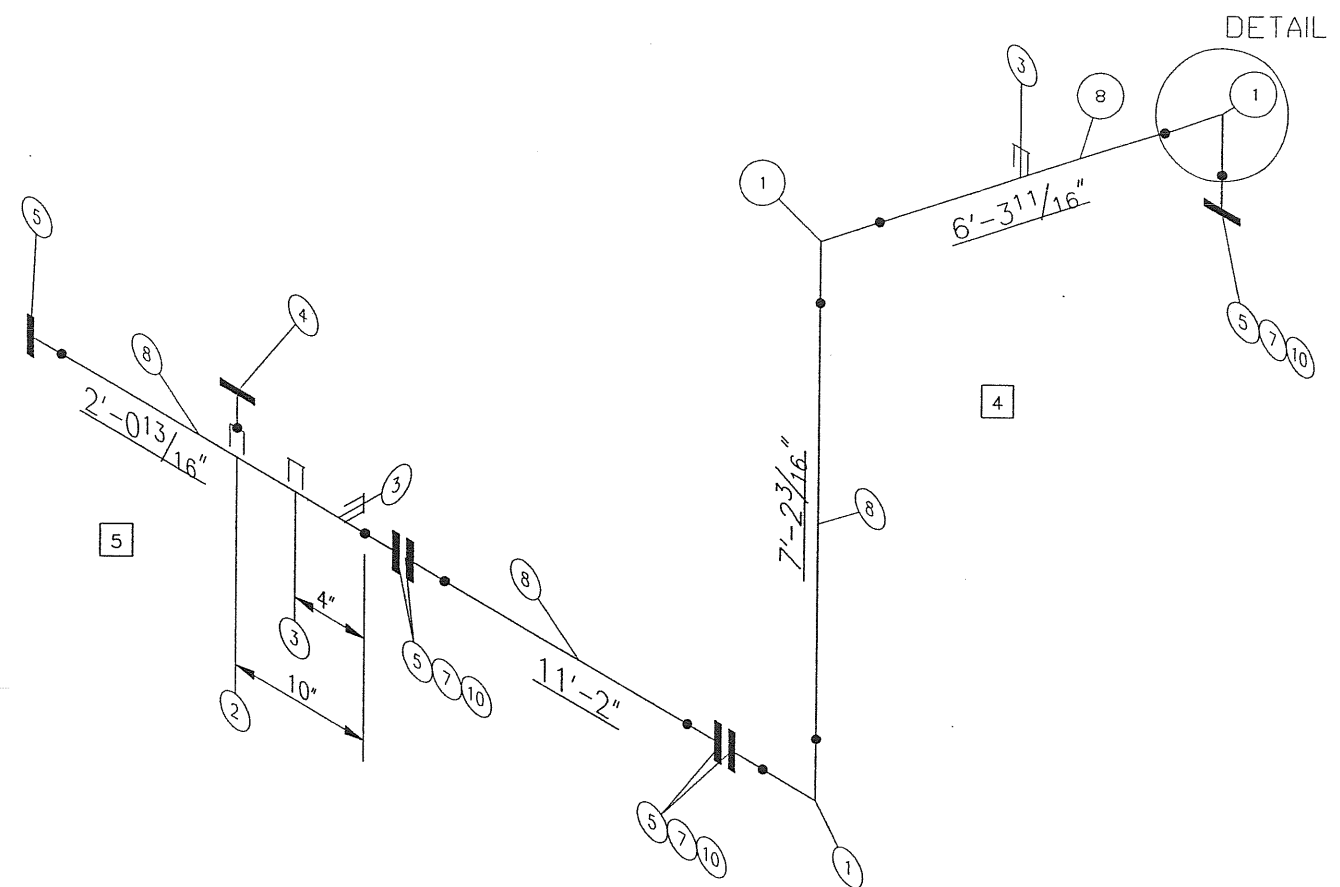
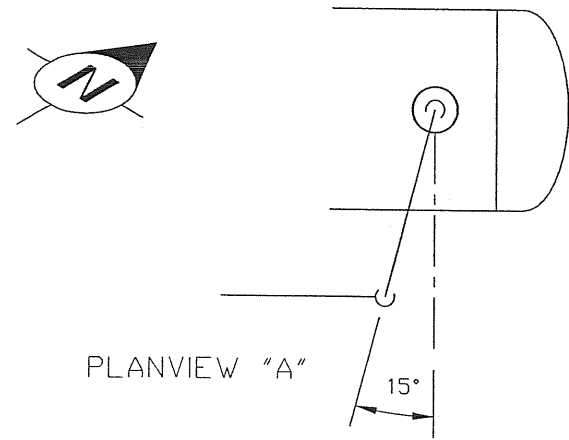
Bd

SPOOL VOLUME: 2.996 cu. ft.
HYDROTEST TO 1.5x DESIGN PRESSURE
DESIGN PRESSURE IS 740 PSig @ 100°F c/w 1/8" c.a.
O-LETS ARE SA-105N MATERIAL
WPS: IPS-4 Rev.1
10% X-RAY
DESIGNED FABRICATED TO ASME CODE B31.3
X-RAY TO B31.3 NORMAL

1 04-11-10 REV SPOOL#3 PER CUSTOMER CP 0 04-10-28 ISSUED FOR CONSTRUCTION PP RS LCP TO NO. DATE REVISIONS DWN UC CHR'D APPR		<p>IPS MANUFACTURING LIMITED</p>	DATE 04-10-28 DESIGNED BY IPS DRAWN BY P.PIOT CHECKED BY	HUSKY OIL 5-100 TITLE GAS INLET PIPING FOR 48"ID x 16'-0" S/S HORIZONTAL, 720 PSig @ 100 °F, 2 PHASE VESSEL
			PROJECT NO 3072-001 SHEET NO 1 OF 4 SCALE NTS	FILENAME 3072-001GI DRAWING NO. 3072-001GI REFERENCE NO. CCL-3072-001PS1 REV. NO.

BILL OF MATERIAL

ITEM	QUANTITY	SIZE	CODE	RATING	DESCRIPTION	HEAT NUMBERS
1	3	8"	WLD-809080	Sch XS	90 LR Ell BW CS SA-234-WPB 213.00 lbs	
2	1		WOL-8020	Sch XS	8"x2" WOL CS SA-105N 1.75 lbs	
3	3		TOL-3M05X3-8	3000#	8"x1/2" TOL CS SA-105N 0.72 lbs	
4	1	2"	FLG-30080RWN20	300#	RF WN Flange Sch XS bore CS SA-105N 8.50 lbs	
5	6	8"	FLG-30080RWN80	300#	RF WN Flange Sch XS bore CS SA-105N 280.00 lbs	
6						
7	5	8"	GSK-30080SS	300#	1/8" Gasket RF 316 S.S. FLEXITALLIC	
8	27'	8"	PIP-8080	Sch XS	Pipe Smls,CS SA 106 Gr.B 676.99 lbs	
9						
10	60	7/8"	STU-0855M		Stud Bolt x 5 1/2" Alloy Steel A193-B7M W/2 Hvy Hex Nuts A194-2HM 78.96 lbs	
					Total Weight: 1264.55 lbs	



GAS OUTLET
8" 300# RF Sch. 80

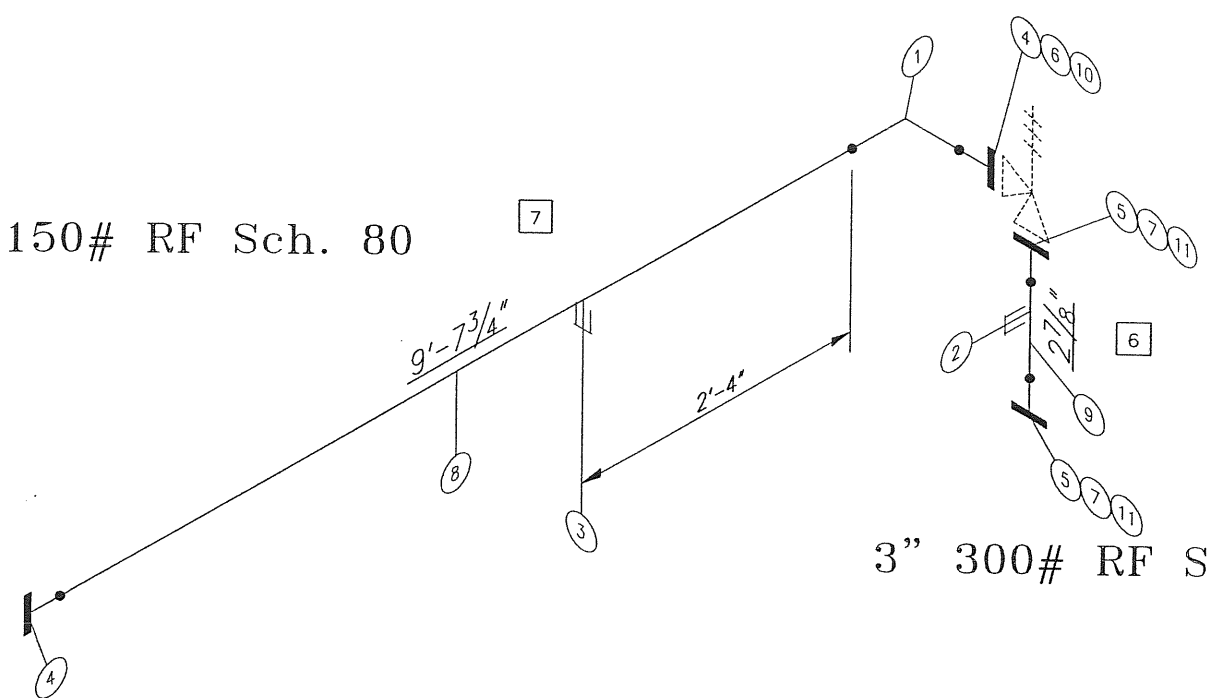
Issued For Construction
 Issued to Fab. Manager *DDV 8/04 JG*
 Released for Fabrication *DDV 8/04 JG*

SPOOL VOLUME: 5.327 cu. ft.
 HYDROTEST TO 1.5x DESIGN PRESSURE
 DESIGN PRESSURE IS 720 PSig @ 100°F c/w 1/8" c.a.
 O-LETS ARE SA-105N MATERIAL
 WPS: IPS-4 Rev.1
 10% X-RAY
 DESIGNED FABRICATED TO ASME CODE B31.3
 X-RAY TO B31.3 NORMAL

		DATE: 04-10-28 DESIGNED BY: IPS DRAWN BY: P.PIOT CHECKED BY: <i>h</i> APPROVED BY: <i>DDV</i>	HUSKY OIL 5-100 TITLE: GAS OUTLET PIPING FOR 48"ID x 16'-0" S/S HORIZONTAL, 720 PSig @ 100 °F, 2 PHASE VESSEL PROJECT NO.: FILENAME: DLYH610G0 REFERENCE NO.: <i>Dy 610</i>
0 04-10-28 NO. DATE	ISSUED FOR CONSTRUCTION REVISIONS	PP <i>DDV</i> DVN Y OC CAV D APPR	SCALE: NTS SHEET NO.: 2 OF 4 DRAWING NO.: CCL-3072-001 PS2 REV. NO.: <i>1</i>



4" 150# RF Sch. 80



3" 300# RF Sch. 80

PSV OUTLET

BILL OF MATERIAL

ITEM	QUANTITY	SIZE	CODE	RATING	DESCRIPTION	HEAT NUMBERS
1	1	4"	WLD-809040	Sch XS	90 LR Ell BW CS SA-234 Gr.WPB 12.40 lbs	
2	1		TOL-3M1X2-2.5	3000#	3"x1" TOL CS SA-105N 0.62 lbs	
3	1		TOL-3M10	3000#	4"x1" TOL CS SA-105N 0.62 lbs	
4	2	4"	FLG-15080RWN40	150#	RF WN Flange Sch XS bore CS SA-105N 32.00 lbs	
5	2	3"	FLG-30080RWN30	300#	RF WN Flange Sch XS bore CS SA-105N 22.00 lbs	
6	1	4"	GSK-15080SS	150#	1/8" Gasket RF 316 S.S. FLEX	
7	2	3"	GSK-3/60030SS	300#	1/8" Gasket RF 316 S.S. FLEX	
8	10'	4"	PIP-8040	Sch XS	Pipe Smls,CS SA-106 Gr.B 104.08 lbs	
9	1'	3"	PIP-8030	Sch XS	Pipe Smls,CS SA-106 Gr.B 2.46 lbs	
10	8	5/8"	STU-0635M		Stud Bolt x 3 1/2" Alloy Steel A193-B7M W/2 Hvy Hex Nuts A194-2HM 9.36 lbs	
11	16	3/4"	STU-0742M		Stud Bolt x 4 1/4" Alloy Steel A193-B7M W/2 Hvy Hex Nuts A194-2HM 15.57 lbs	
					Total Weight: 199.10 lbs	

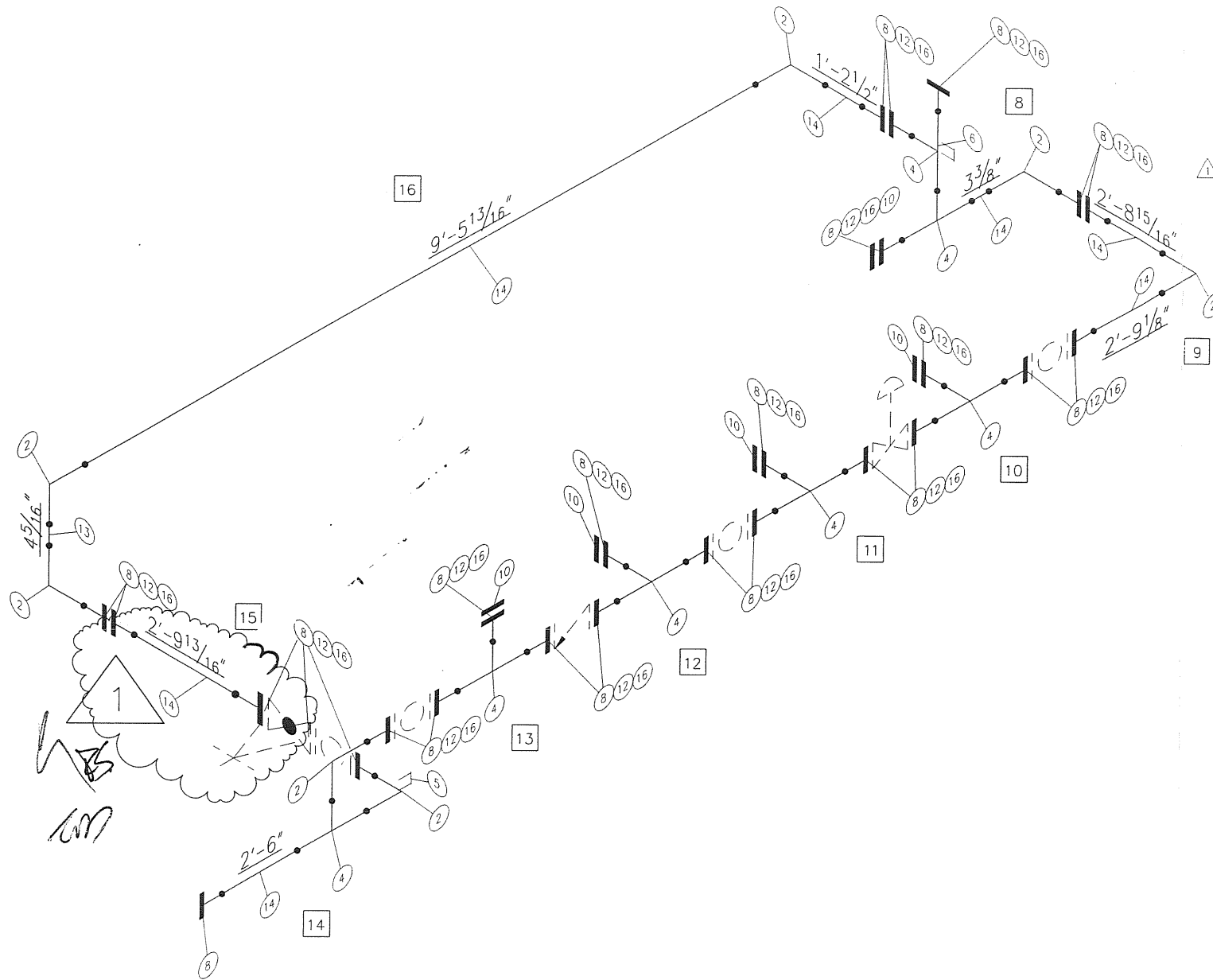
Issued For Construction
 Issued to Fab. Manager NOV 8/04 JLB
 Released for Fabrication NOV 8/04 JLB

SPOOL VOLUME: 0.887 cu. ft.
 HYDROTEST TO 1.5x DESIGN PRESSURE
 SPOOL #7 :DESIGN PRESSURE IS 285 PSIG @ 100°F c/w 1/8" c.a.
 SPOOL #6 :DESIGN PRESSURE IS 720 PSIG @ 100°F c/w 1/8" c.a.
 O-LETS ARE SA-105N MATERIAL
 WPS: IPS-4 Rev.1
 10% X-RAY
 DESIGNED FABRICATED TO ASME CODE B31.3
 X-RAY TO B31.3 NORMAL

DATE 04-10-28 DESIGNED BY IPS DRAWN BY P.PIOT CHECKED BY [Signature] APPROVED BY [Signature]		HUSKY OIL 5-100 TITLE PSV OUTLET PIPING FOR 48"ID x 16'-0" S/S HORIZONTAL, 720 PSIG @ 100 °F, 2 PHASE VESSEL	
PROJECT NO. SHEET NO. 3 OF 4		FILENAME DLY#610PSV REFERENCE NO. DLY 610 CCL-302-001 PS3	
SCALE NTS		REV. NO.	



IPS MANUFACTURING LIMITED



LIQUIDS OUTLET
2" 300# RF Sch. 80

BILL OF MATERIAL

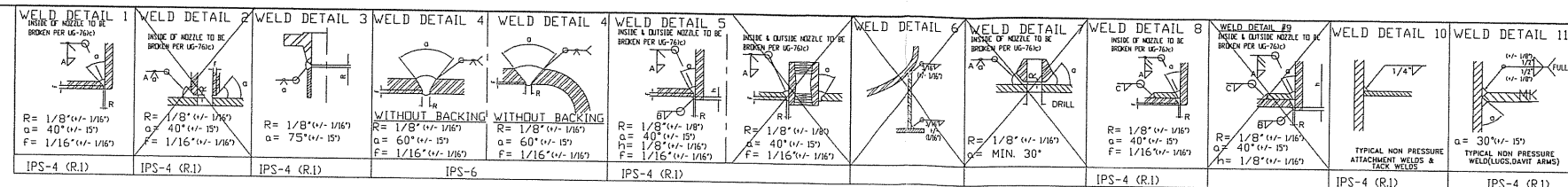
ITEM	QUANTITY	SIZE	CODE	RATING	DESCRIPTION	HEAT NUMBERS
1						
2	7	2"	WLD-809020	Sch XS	90 LR Ell BW CS SA-234-WPB 10.35 lbs	
3						
4	7	2"	WLD-80T20	Sch XS	Tee BW CS SA-234-WPB 16.48 lbs	
5	1		EOL-3M05	3000#	2"x1/2" EOL CS SA-105N 0.24 lbs	
6	1		TOL-3M07x2-2.5	3000#	2"x3/4" TOL CS SA-105N 0.35 lbs	
7						
8	25	2"	FLG-30080RWN20	300#	RF WN Flange Sch XS bore CS SA-105N 161.50 lbs	
9						
10	5	2"	FLG-300RBL20	300#	RF Blind Flange CS SA-105N 32.00 lbs	
11						
12	22	2"	GSK-3/60020SS	300#	1/8" Gasket RF 316 S.S. FLEXITALLIC	
13						
14	24'	2"	PIP-8020	Sch XS	Pipe Smls,CS SA-106 Gr.B 31.10 lbs	
15						
16	172	5/8"	STU-0635M		Stud Bolt x 3 1/2" Alloy Steel A193-B7M W/2 Hvy Hex Nuts A194-2HM 23.12 lbs	
					Total Weight:	522.91 lbs

**Issued For
Construction**

Issued to Fab. Manager *Dec 8/07*
Released for Fabrication *Dec 8/07*
PS.

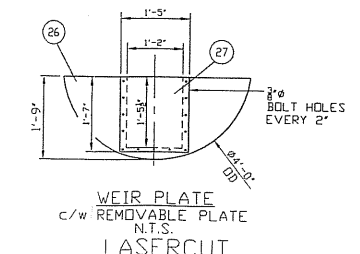
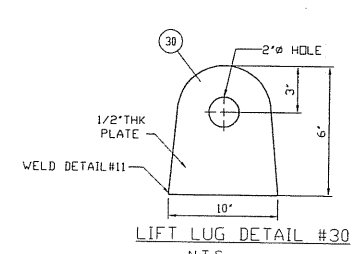
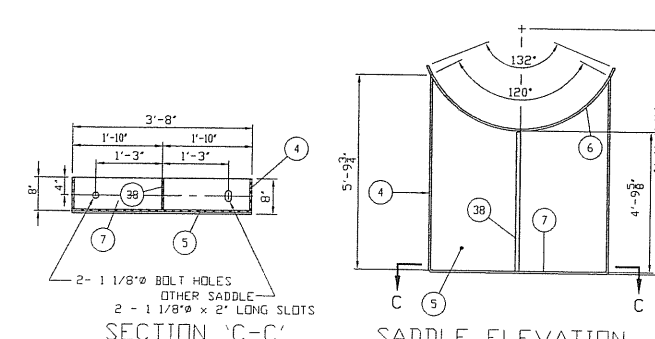
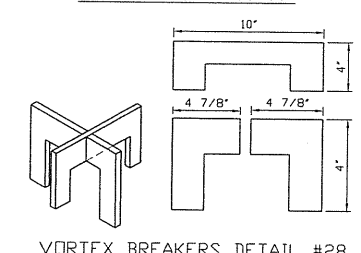
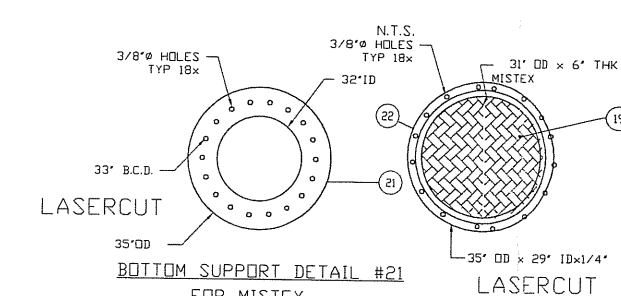
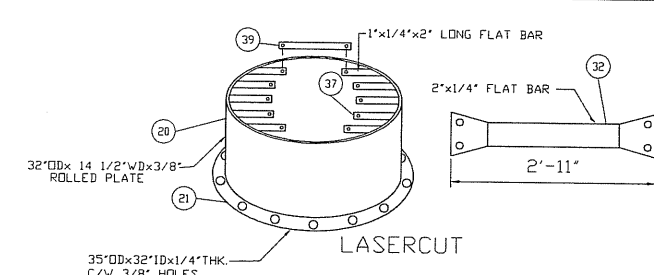
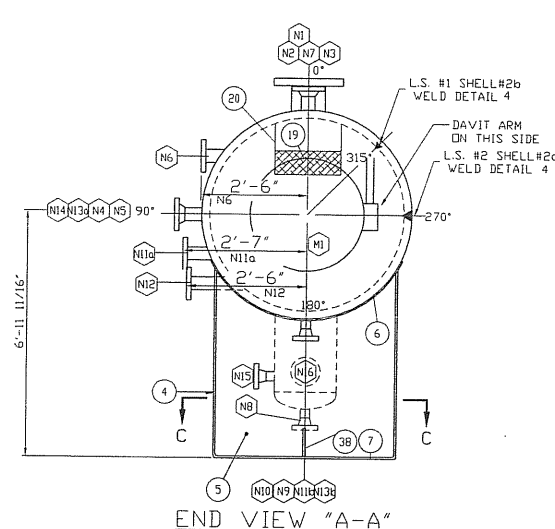
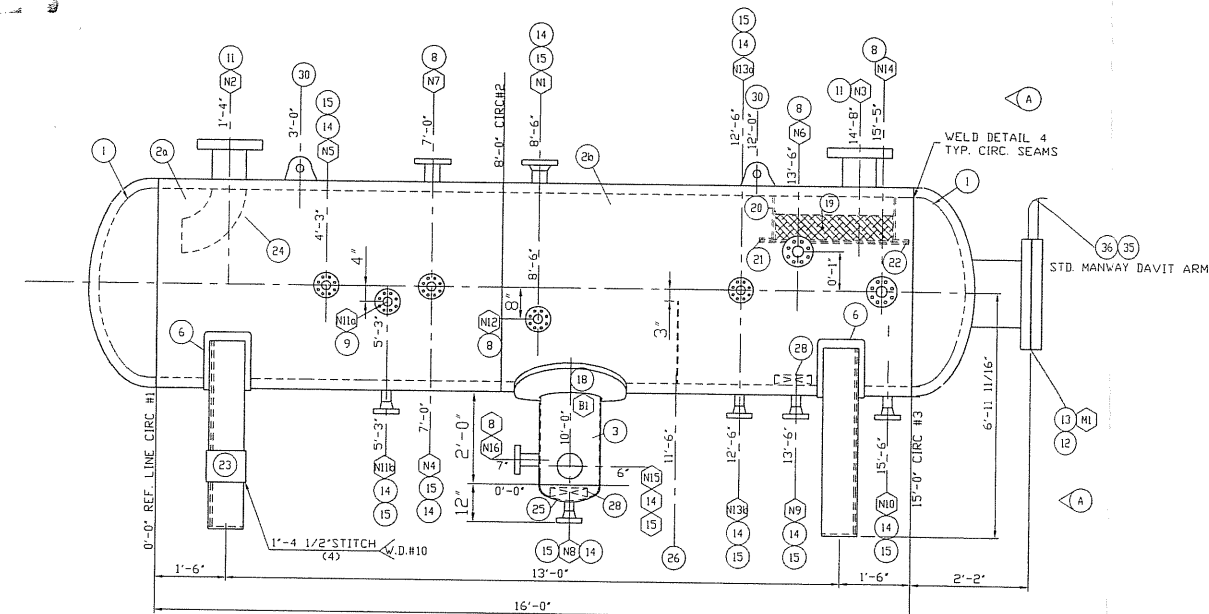
SPOOL VOLUME: 0.517 cu. ft.
HYDROTEST TO 1.5x DESIGN PRESSURE
DESIGN PRESSURE IS 720 PSig @ 100°F c/w 1/8" c.a.
O-LETS ARE SA-105N MATERIAL
WPS: IPS-4 Rev.1
10% X-RAY
DESIGNED FABRICATED TO ASME CODE B31.3
X-RAY TO B31.3 NORMAL

		DATE: 04-10-28 DESIGNED BY: IPS DRAWN BY: P.PIOT CHECKED BY: <i>[Signature]</i> APPROVED BY: <i>[Signature]</i> SCALE: NTS	HUSKY OIL 5-100 TITLE: LIQUIDS OUTLET PIPING FOR 48"ID x 16'-0" S/S HORIZONTAL, 720 PSig @ 100 °F, 2 PHASE VESSEL PROJECT NO: 3072-001 SHEET NO: 4 OF 4 FILENAME: 3072-001LIQUIDS DRAWING NO: CCL-3072-001PS4 REFERENCE NO:
1 04-12-07 REV SPOOL# 15 PER CHANGE ORDER #2 CP <i>[Signature]</i> 0 04-10-28 ISSUED FOR CONSTRUCTION PP <i>[Signature]</i> CP <i>[Signature]</i> NO. DATE REVISIONS DWN GC CHR'D APPR			



MARK			QTY.	DESCRIPTION	MATERIAL
1	2	HEADS: 48" ID x 1 1/8" NOM THK. (1.0625" MIN.) 2:1 SE C/W 2" SF			SA-516-70N
2a	1	SHELL PLATE: 48" ID x 8'-0" S/S x 1" THK.			SA-516-70N
2b	1	SHELL PLATE: 48" ID x 8'-0" S/S x 1" THK.			SA-516-70N
3	1	BOOT SHELL SMLS PIPE: 16" SCH.100 (0.902" MIN.) x 2'-3" LG-CTS			SA-106-B
4	4	SIDE PLATE: 8" x 3/8" THK x 5'-9 3/4" LONG (SHOP FIT)			SA-36
5	2	FACE PLATE: 3'-6" x 3/8" THK x 5'-9 3/4" LONG (SHOP FIT)			SA-36
6	2	WEAR PLATE: 58" LONG x 12" WIDE x 3/8" THK. (ROLL TO 50" ID)			SA-516-70N
7	2	BASE PLATE: 3'-8" LONG x 8" WIDE x 1/2" THK.			SA-36
8	5	FVC FLANGE 3" 300# RFLWN (3" ID x 0.81" THK WALL) x 9" LG-CTS			SA-105-N
9	1	FVC FLANGE 2" 300# RFLWN (2" ID x 0.655" THK WALL) x 9" LG-CTS			SA-105-N
10					
11	2	FVC FLANGE 8" 300# RFLWN (8" ID x 1 1/8" THK WALL) x 12" LG-CTS			SA-105-N
12	1	MANWAY FVC FLANGE 18" 300# RFLWN (18" ID x 2.375" THK WALL) x 18" LG			SA-105-N
13	1	BLIND FLANGE: 18" 300# RF			SA-105-N
14	10	FLANGE 2" 300# RFLWN c/w SCH 160 BORE			SA-105-N
15	10	PIPE 2" SMLS SCH 160 (0.344" WALL) x 4 3/4" LONG-CTS			SA-106-Gr.B
16					
17					
18	1	ROLLED REPAD: 24" OD x 16 1/8" ID x 1 1/8" THK-ROLL TO 50" ID			SA-516-70N
19	1	MISTEX PAD: 31" OD x 6" THK x 9 LBS/CU. FT.-SEE DETAIL			316 S.S.
20	1	MISTEX SPT: PL ROLL TO 32" OD x 3/8" THK x 14 1/2" LG-TRIM TO FIT			SA-516-70N
21	1	MISTEX SUPPORT PLATE: 35" OD x 32" ID x 1/4" THK PLATE			SA-36
22	1	PLATE: 35" OD x 29" ID x 1/4" THK c/w EXP. METAL-SEE DETAIL			SA-36
23	1	NAME PLATE: 6" x 6" x 3/16"			SA-36
24	1	INLET DEFLECTOR: 8" 90° LR ELBOW Sch. STD.			SA-234-WPB
25	1	BOOT HEAD: 16" OD x 1" NOM THK. (0.90" MIN.) 2:1 SE C/W 2" SF			SA-516-70N
26	1	WEIR PLATE: 21" LG x 48" OD x 3/8" THK c/w REMOVABLE PLATE-SEE DTL			SA-36
27	1	REMOVABLE PLATE c/w 3/8" Dia BOLTS C.T.S. - SEE DETAIL			SA-36
28	2 SETS	VORTEX BREAKERS: 10" x 4" x 1/4" THK STD- SEE DTL			SA-516-70N
29					
30	2	LIFT LUG PLATE: 1/2" THK x 6" x 10" SEE DETAIL			SA-516-70N
31					
32	1	FLAT BAR: 2" WD x 1/4" x 35" LG-C.T.S.			SA-36
33					SA-36
34					
35	1	STANDARD DAVIT ARM - 1" THK PLATE			SA-516-70N
36	1	2" 160 PIPE FOR DAVIT ARM (0.344" WALL)			SA-106B
37	10	FLAT BAR: 1" WD x 1/4" THK x 2" LONG			SA-36
38	2	RIB PLATE: 3/8" THK x 8" x 4'-9 5/8" C.T.S.			SA-36
39	5	FLAT BAR: 1" WD x 1/4" THK-C.T.S.			SA-36

AS BUILT



ALL SA-516-70N & FVC'S ARE FINE GRAIN PRACTICE
 MAWP EQUALS DESIGN PRESSURE
 REFERENCE DWG: IPS-48H-720-B Rev.0
 WPS: IPS-4 Rev.1
 IPS-6
 TOLERANCE SPECS AS PER DWG: DMV-2002TOL Rev.0

NOZZLE WELD SCHEDULE														
MARK	SIZE	SCH.	RTG.	TYPE	SERVICE	LOCATION	OSP	INSIDE PROJ.	WELD DETAIL	A FILLET	B FILLET	C FILLET	REPAD (ODxTHK)	NOZZLE CUT LENGTH
N1	2"	160	300#	RFLWN	SPARE	SHELL	6"	SF	1 & 3	3/8"	-	-	-	4 3/4"
N2	8"	FVC	300#	RFLWN	INLET	SHELL	8"	1 1/4"	5	1/2"	3/8"	-	-	11 5/16"
N3	8"	FVC	300#	RFLWN	GAS OUTLET	SHELL	8"	1 1/4"	5	1/2"	3/8"	-	-	11 5/16"
N4	2"	160	300#	RFLWN	PI	SHELL	6"	SF	1 & 3	3/8"	-	-	-	4 3/4"
N5	2"	160	300#	RFLWN	TI	SHELL	6"	SF	1 & 3	3/8"	-	-	-	4 3/4"
N6	3"	FVC	300#	RFLWN	HC LC	SHELL TANAS SHWN	6"	SF	1	3/8"	-	-	-	9"
N7	3"	FVC	300#	RFLWN	PSV	SHELL	6"	SF	1	3/8"	-	-	-	7 5/8"
N8	2"	160	300#	RFLWN	H2O OUT	BOOT HD	6"	GF	1 & 3	3/8"	-	-	-	4 3/4"
N9	2"	160	300#	RFLWN	HC OUT	SHELL	6"	GF	1 & 3	3/8"	-	-	-	4 3/4"
N10	2"	160	300#	RFLWN	HC DRAIN	SHELL	6"	GF	1 & 3	3/8"	-	-	-	4 3/4"
N11a	2"	FVC	300#	RFLWN	H2O LG	SHL-TAN AS SHWN	6"	SF	1	3/8"	-	-	-	8 3/16"
N11b	2"	160	300#	RFLWN	H2O LG	SHELL	6"	SF	1 & 3	3/8"	-	-	-	4 3/4"
N12	3"	FVC	300#	RFLWN	H2O LC	SHL TAN AS SHWN	6"	SF	1	3/8"	-	-	-	9"
N13a/b	2"	160	300#	RFLWN	HC LG	SHELL	6"	SF	1 & 3	3/8"	-	-	-	4 3/4"
N14	3"	FVC	300#	RFLWN	HLSD	SHELL	6"	SF	1	3/8"	-	-	-	7 5/8"
N15	2"	160	300#	RFLWN	LT	BOOT SHELL	6"	SF	1 & 3	3/8"	-	-	-	4 1/2"
N16	3"	FVC	300#	RFLWN	LSL	BOOT SHELL	6"	SF	1	3/8"	-	-	-	7 15/16"
M1	18"	FVC	300#	RFLWN	MANWAY/INSP.	HEAD	AS SHWN	1 3/4"	5	1/2"	1/2"	-	-	17 1/4"
B1	16"	100	300#	PIPE	BOOT	SHELL	AS SHWN	SF	8 & 4	1/2"	-	5/8"	24" x 1 1/8"	26 7/8"

DESIGN AND FABRICATE TO ASME CODE, SECTION VIII DIV. 1 2001 EDITION, 2003 ADDENDA
 DESIGN PRESSURE & TEMPERATURE: 720 PSIG AT 100°F PREHEAT 50°F MDMT: -20°F
 IMPACT TESTS: HEADS/SHELL/REPAD EXEMPT AS PER UCS-66 Fig.66.1 AND FVC EXEMPT AS PER UCS-66(b)(1)(b) SA-105N FLG & SA-106B PIPE EXEMPT PER UCS-66(b)(2) AND UG-20f(1-5) BOOT HEAD EXEMPT AS PER UCS-66(b)(3)
 RADIOGRAPHY: RT-2, LONGSEAMS FULL PER UW-11(a) & CIRC SPOT PER UW 11(a)(5b)
 POST WELD HEAT TREATMENT: NONE HYDROSTATIC TEST PRESSURE: 1080 PSIG FOR 60 MINS
 HEAD MINIMUM THICKNESS: 1.0625" CORROSION ALLOWANCE: 1/16"
 WEIGHT EMPTY: 13,500 LBS. WEIGHT FULL OF WATER: 27,500 LBS. CAPACITY: 223 cu.ft

CALC PKG REV. LEVEL	REV. CALCS REQ'D	NO.	REVISION	DATE
0	NO	1	AS BUILT - REV. CRN	04-12-30
0	NO	0	ISSUED FOR CONSTRUCTION	04-11-03
			REVISION	BY DWN/PC QC

DATE: 04-10-04
 DESIGNED BY: IPS
 DRAWN BY: C. RICHARD
 CHECKED BY:
 APPROVED BY:
 SCALE: N.T.S.

HUSKY ENERGY c/o
 LSD:
 TITLE: HORIZONTAL GROUP SEPARATOR V-0100
 48" ID x 16'-0" S/S
 720 PSIG @ 100°F, 1/16" C.A.

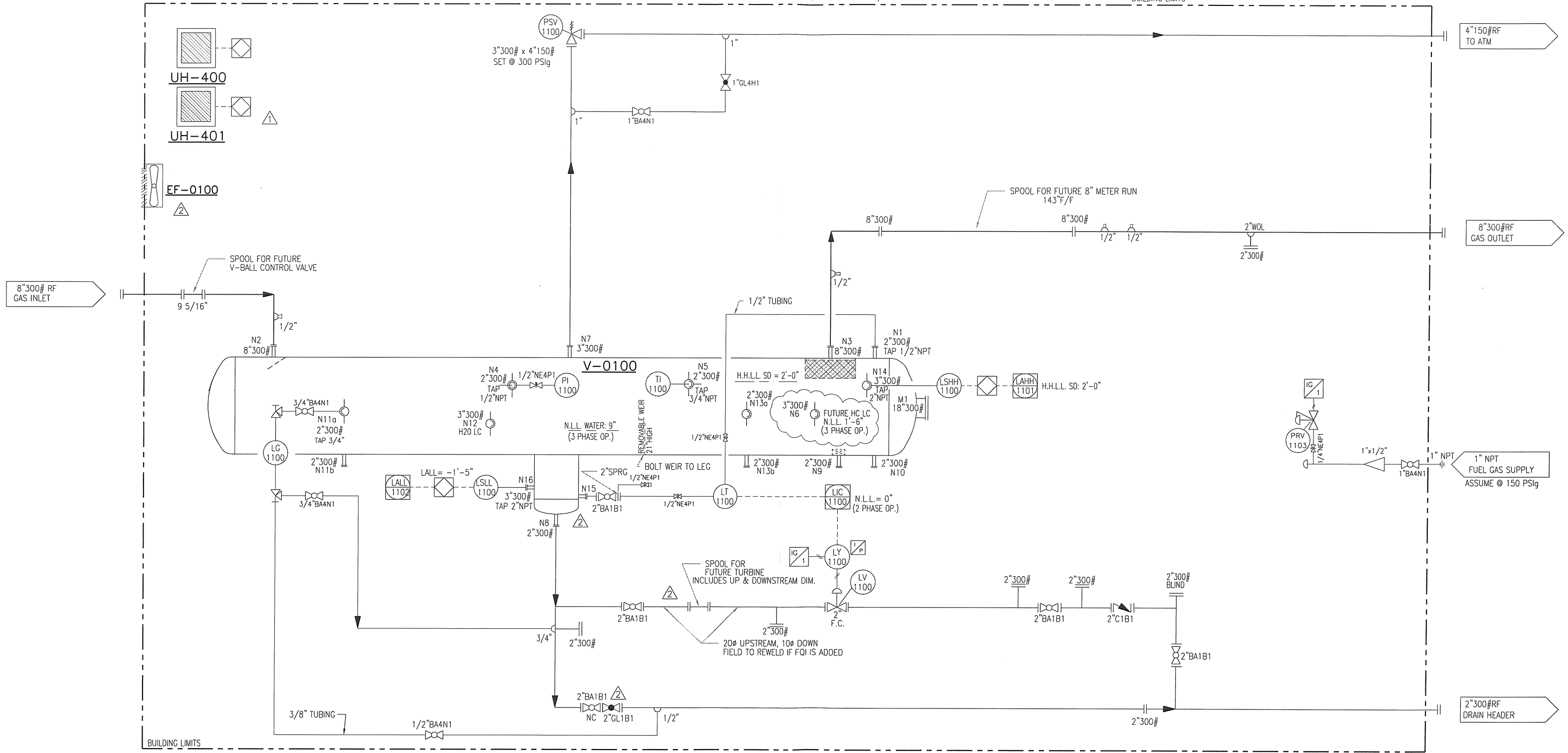
PROJECT NO: 3072-001
 FILENAME: 3072-002
 CRN NO: R-9614.2
 SHEET NO: 1 OF 1
 DRAWING NO: V-3072-002
 REV. NO: 1

IPS MANUFACTURING LIMITED

EF-0100
EXHAUST FAN
120 VOLT, 1 PHASE
ELECTRICAL BY OTHERS
12 A.C.P.H.
MOUNT HIGH IN END WALL
EXPLOSION PROOF SERVICE

UH-400/401
BUILDING HEATERS
MAKE: RUFFNECK 24,000 BTUH
240 VOLT ELECTRIC
7.5 KW, XP SINGLE PHASE, 60 Hz
THERMOSTAT BUILT IN
FX4-240160-075-T

V-0100
3 PHASE HORIZONTAL SEPARATOR
SIZE: 48" ID x 16'-0" S/S
C/W LIQUID BOOT: 16" OD x 2'-0" LONG
DESIGN PRESSURE: 720 PSIG @ 100°F
CORROSION ALLOWANCE: 1/16"
X-RAY: RT-2
MDMT: -20°F
REGISTERED IN AB., B.C., SK.
DESIGNED 3 PHASE/DRESSED 2 PHASE



V-100 V-3072-002
SKID 3072-003

A.S.

REV.#	DESCRIPTION	BY	APPR.	DATE
3	AS BUILT	PP		05-01-12
2	REV AS PER CHANGE ORDER#2	CP		04-12-07
1	ADD UH-401	CP		04-11-03
0	ISSUED FOR CONSTRUCTION	PP		04-10-27
A	ISSUED FOR APPROVAL	PP		04-09-27



DATE	04-09-27	CLIENT	HUSKY ENERGY
DESIGNED BY	IPS		S-100
DRAWN BY	P.PIOT		LSO: 13-14-34-22 W4M
CHECKED BY		TITLE	P & ID FOR
APPROVED BY			FOR 48" ID x 16'-0" S/S 720 PSIG
			2 PHASE HORIZONTAL SEPARATOR V-0100
PROJECT NO.	3072-001	FILENAME	3072-001PID
SHEET NO.	1 OF 1	DRAWING NO.	CCL-3072-001P
SCALE	N.T.S.	REV. NO.	

NOTES:

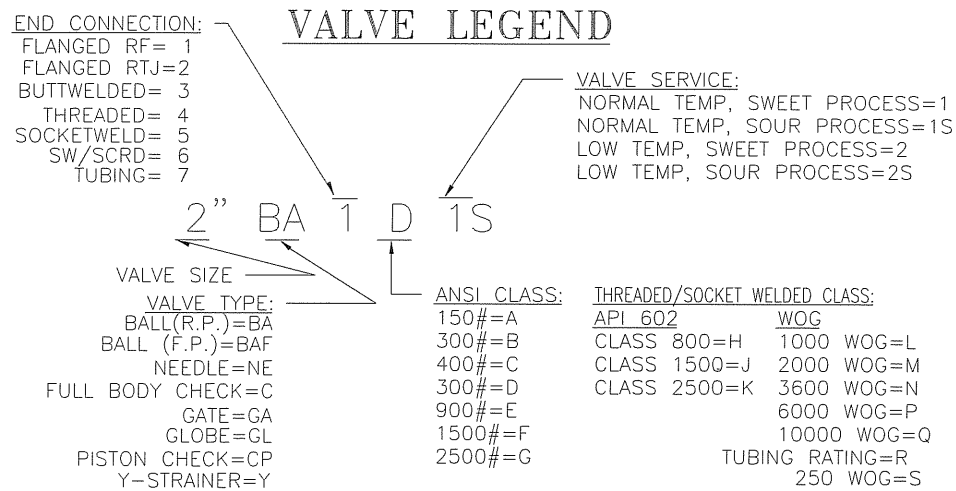
- QUANTITIES IN B.O.M. ARE FOR ONE (1) UNIT.
- ALL PIPING TO BE IN ACCORDANCE WITH THE LATEST EDITION OF ASME B31.3 PRESSURE PIPING CODE.
- VESSEL TO BE FABRICATED TO THE LATEST EDITION OF ASME SECTION VIII, DIVISION 1 PRESSURE VESSELS.
- THREADED PIPING TO BE: SA-106B SMLS, SCH.160 ON HIGH PRESSURE & SCH.80 ON LOW PRESSURE
- TUBING DETAILS: 3/8" 316 S.S. TUBING c/w 316 S.S. FITTINGS AND FERRULES. 0.035 WT
- PAINTING: VESSEL & PIPING TO BE CLEANED TO (SSPC-SP-3)
1st COAT PRIMER: DEVQE FAST DRY PRIMER
FINISH COAT: DEVQE GRAY
- PROTECT ALL OPENINGS FOR SHIPMENT
- BUILDING: 12'-0" WIDE x 22'-0" LONG x 12'-0" LOW EAVE GABLE STYLE
22 GAUGE TAN-BAYCOAT (5M-QC315 CLOVERDAL#CO-609) EXTERIOR c/w METRO BROWN TRIM BAYCOAT (5M-QC228 CLOVERDALE #CO-3157)
24 GAUGE WHITE INTERIOR, R12 INSULATION IN ROOF & WALLS
VENTILATION: TWO (2) 12" x 12" ADJUSTABLE LOUVERS c/w SCREENS AND CLOSURES
DOORS: TWO (2) 3'-0" WIDE x 7'-0" HIGH STEEL DOOR c/w IWG WINDOW, CHECK CHAIN, PANIC-LOCK, AND WEATHER-STRIPPING
WINDOWS: TWO (2) 38" WIDE x 36" DOUBLE GLAZED SLIDING WINDOWS c/w SCREENS
REMOVEABLE PANEL: 3'-0" WIDE x WALL HEIGHT
FAN: ONE(1) BUILDING FAN MOUNTED HIGH IN END WALL 12 ACPH, 120 VOLT, XP, ELECTRICAL BY OTHERS
- HYDROTEST TO 1.5 x DESIGN PRESSURE (AS LISTED ON SPOOLS)
- ALL BUTTWELDED PIPING TO BE 10% X-RAY
- ALL STUDS ARE SA-193-B7M, NUTS ARE SA-193-2HM, GASKETS 316 S.S.FLEX- GRAPHITE FILLED
- MAWP FOR: 2" Sch.80 c/w 300# FLANGES @ 100°F IS 740 PSIG c/w 1/8" c.o.
8" Sch.80 c/w 300# FLANGES @ 100°F IS 740 PSIG c/w 1/8" c.o.

VALVE LISTING

TAG	QTY.	MAKE	DESCRIPTION
2"BA1B1	5	NUTRON	2" 300# RF BALL VALVE R.P. STD. SERVICE
1"BA4N1	2	BALON	1" NPT 3000# BALL VALVE STD. SERVICE
1/4"NE4P1	1	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	1	BALON	1/2" NPT 3000# BALL VALVE F.P. STD. SERVICE
2"C1B1	1	WHEATLEY	2"300# RF SWING CHECK VALVE STD.SERVICE
3/4"BA4N1	2	BALON	3/4" NPT 3000# BALL VALVE R.P. STD. SERVICE
1"GL4H1	1	NAVCO	1"NPT CLASS 800 GLOBE VALVE, STD. SERVICE
2"GL1B1	1	NAVCO	2"300#RF GLOBE VALVE, STD.SERVICE
2"SPRG	1	TBA	2"300#RF SPLIT RING (BLEED RING) c/w TAPPED HOLES FOR DP TRANSMITTER

BILL OF MATERIALS

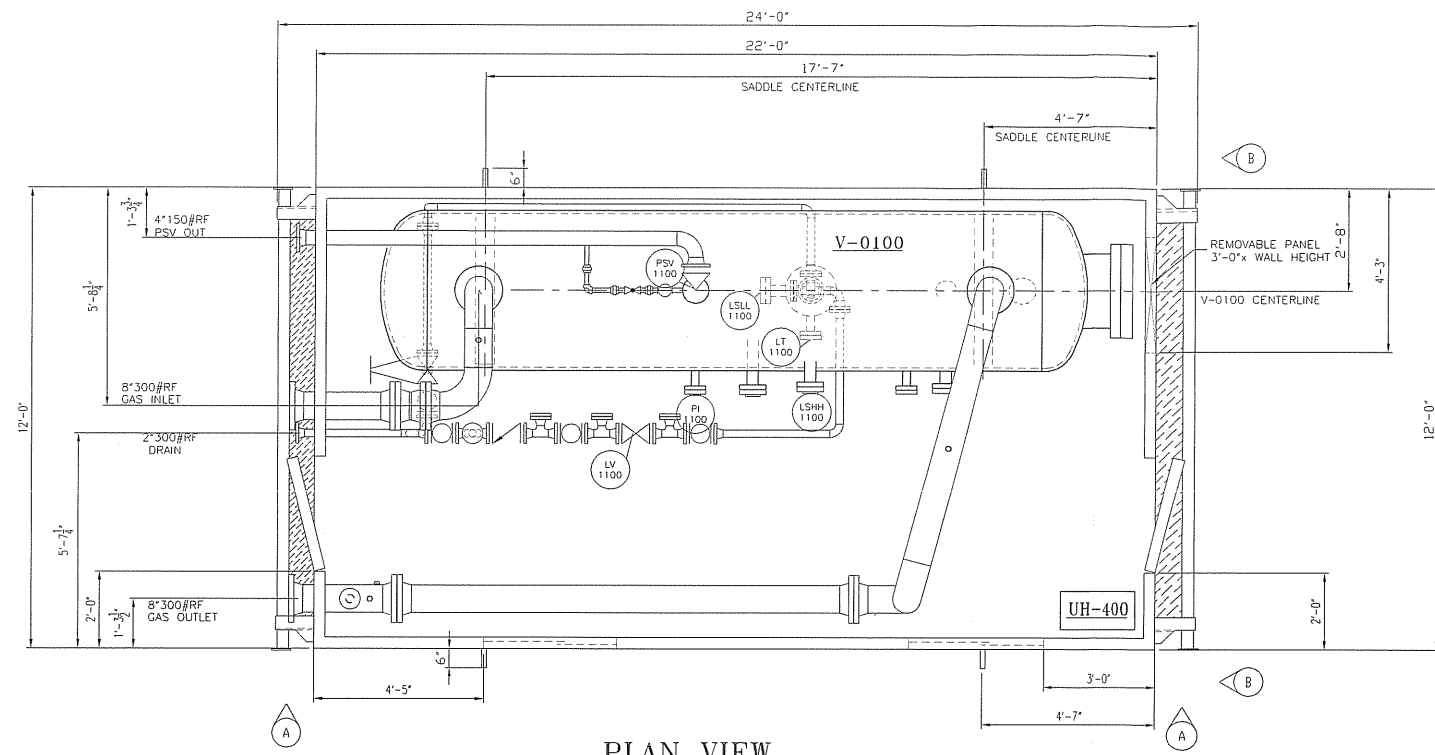
TAG	QTY.	MAKE	DESCRIPTION
LT-1100	1	ROSEMOUNT	MODEL 3051 DIFFERENTIAL PRESSURE TRANSMITTER 1/2" NPT SENSING CONNECTION, STD. SERVICE
LY-1100	1	FAIRCHILD	MODEL TCX1-7800-40IEN TRANSDUCER, 4-20 mA, 6-30 PSIG, STD. SERVICE
LV-1100	1	FISHER	2"300# RF MODEL D4 LIQUID CONTROL VALVE 6-30 PSIG INPUT RANGE, FAIL CLOSED, 1" TRIM SIZE, STD. SERVICE, 10 1/2" F/F
LG-1100	1	PENBERTHY	MODEL 330J GAUGE VALVES, 3/4"NPT, 3RM7 REFLEX LEVEL GAUGE, STD. SERVICE
PI-1100	1	WIKA	PRESSURE INDICATOR 4" DIA FACE x 1/2" NPT BOTTOM MOUNT END CONN. SS CASE & INTERNALS 0 TO 1000 PSIG DUAL SCALE
T1-1100 TW-1100	1	TREND	TEMPERATURE INDICATOR, 3" DIAL, 6" STEM 1/2" NPT -40°F TO 160°F RANGE, DUAL SCALE, c/w 1/2"x 3/4"x 6" 304 SST. THERMOWELL
PRV-1103	1	FISHER	1/4" FNPT MODEL 67 CFR PRESSURE REGULATOR 0-35 PSIG RANGE, STD. SERV. 250 PSIG MAWP
PSV-1100	1	FARRIS	3"300#RF x 4"150#RF RELIEF VALVE, WCB BODY, SIZED FOR 20 MM SET @ 300 PSIG, STD. SERVICE
LSSH-1100 LSLL-1100	2	SDR	MODEL 1510B-G2A-C-JD-ES-CS, 2"NPT CONN. ELECTRIC LEVEL SWITCH, SNAP, DIRECT ACTING 1500 PSIG MAWP, 316 SS FLOAT, 303 S.S. BODY STD. SERVICE



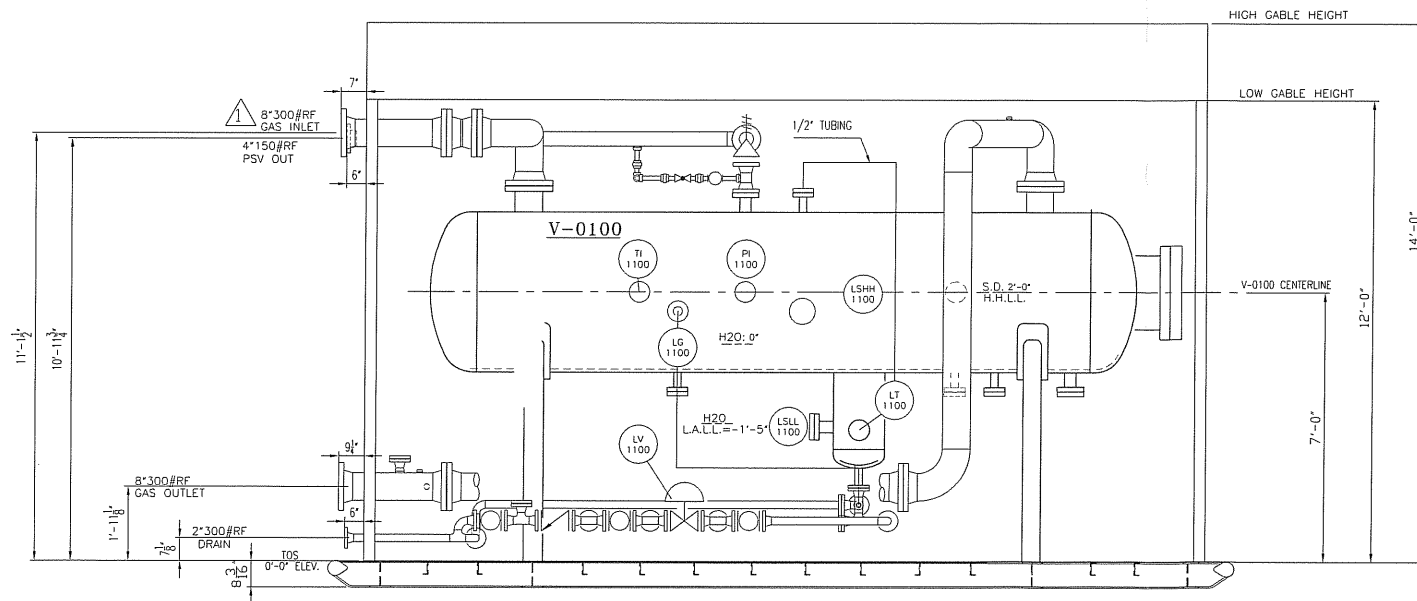
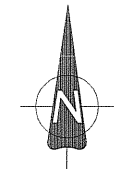
NO.	REVISIONS	DWN	APPR	DATE
3	AS BUILT		PP	05-01-12
2	REVISED AS PER CHANGE ORDER #2		CP	04-12-07
1	REV BLDG DESCRIPTION		CP	04-11-03
0	ISSUED FOR CONSTRUCTION		PP	04-10-28
A	ISSUED FOR APPROVAL		PP	04-09-27



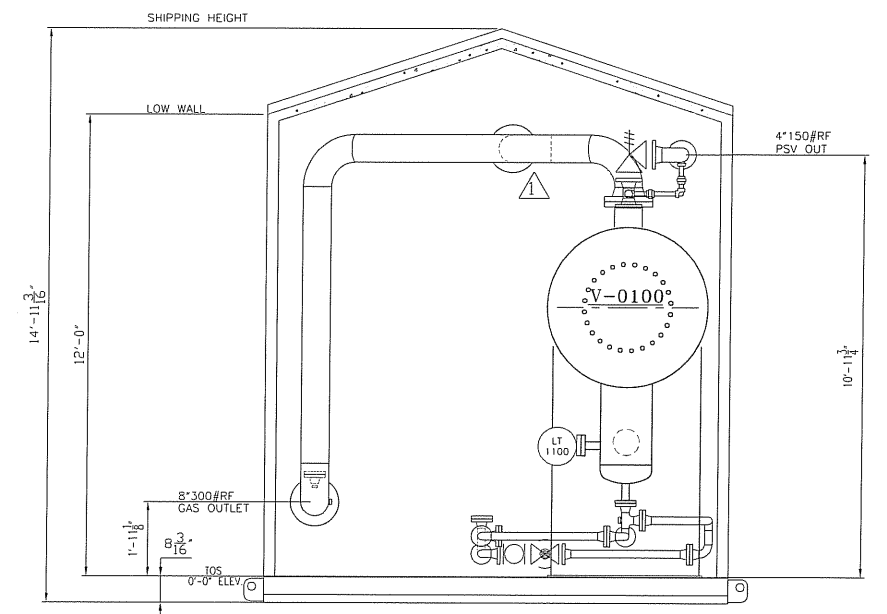
DATE 04-09-27	CLIENT HUSKY ENERGY c/o
DESIGNED BY IPS	LD: 13-14-34-22 W4M
DRAWN BY P.PIOT	TITLE BILL OF MATERIALS & NOTES FOR 48" ID x 16'-0" S/S 2 PHASE STD. HORIZONTAL SEPARATOR PACKAGE DESIGN PRESSURE: 720 PSIG @ 100°F
CHECKED BY [Signature]	PROJECT NO. 3072-001
APPROVED BY	FILENAME 3072-001BOM
SCALE N.T.S.	REFERENCE NO.
SHEET NO. 1 OF 1	DRAWING NO. CCL-3072-001BOM
	REV. NO. 3



PLAN VIEW



ELEVATION VIEW 'A-A'



END VIEW 'B-B'

STAMPS & PERMITS

OFFICE MNGR: _____ DATE: _____
ISSUED TO FAB MNGR: _____ DATE: _____

REV.	DESCRIPTION	DATE	DRAWN	CHK'D	APPR.
3	AS BUILT	05-01-12	PP		
2	REV PER CHANGE ORDER#2	04-12-07	CP		
1	REV GAS INLET PER CUSTOMER MARK-UPS	04-11-10	CP		
0	ISSUED FOR CONSTRUCTION	04-10-28	PP		
A	ISSUED FOR APPROVAL	04-10-01	CP		



DATE	04-10-01	HUSKY ENERGY c/o	
DESIGNED BY	IPS	LSD: 13-14-34-22 W4M	
DRAWN BY	C.PRICHARD	HORIZONTAL 2 PHASE SEPARATOR	
CHECKED BY		48"ID x 16'-0" S/S, MAWP 720 PSIG @ 100°F	
APPROVED BY		c/w 12'-0" x 22'-0" LONG BUILDING	
PROJECT NO.	3072-001	FILENAME	3072-001GA
SHEET NO.	1 OF 1	DRAWING NO.	CCL-3072-001L
SCALE		REFERENCE NO.	

REV. NO. 3