



CODE SHEET

VISTA Projects Limited			
VENDOR DRAWING/DOCUMENT SQUAD CHECK			
A	Reviewed without exception. Proceed with fabrication. Issue final drawings/ documents.		
B	Reviewed except as marked and/or noted. Proceed with fabrication and resubmit drawing/document. Shipment will not be released, if any drawings/documents requiring approval, as per purchase order conditions, are at this code.		
C	Not accepted. Revise as marked and resubmit drawing/document for review. Shipment will not be released, if any drawings/documents requiring approval, as per purchase order conditions, are at this code.		
D	Not required for review. Received for information.		
Reviewed only as to general conformity with the design concept and specifications provided. The engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. Sole responsibility for correct design, detail and dimensions shall remain with the party submitting the drawing/document.			
SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DM01	V-4630		2012-07-05

PROJECT NAME: Murphy Cardette CSS / 1780

VENDOR NAME: Kootenay / 1780-012

DOCUMENT
NUMBER: 12-061-1A

VENDOR
REVISION: 0

DOCUMENT
DESCRIPTION: Vertical Gas Separator

VENDOR
TRANSMITTAL
NUMBER: Transmittal #17

HEAD TO SHELL	LONG OR CIRC. SEAM	SKIRT TO HEAD	TRANSITION WELD	CPLG RECESSED	CPLG SADDLED	THREDOLET
(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0
NOZZLE	NOZZLE	NOZZLE	NOZZLE	SUP ON FLANGE	WELDNECK FLG	DRAIN NOZZLE
(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0
SW CPLG	SW NOZZLE	DRAIN NOZZLE	NOZZLE	NOZZLE	NOZZLE	NOZZLE
(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0	(NOTE #7) KIL-5 REV.0 KIL-6 REV.0

WPS NOTES:

- WELDS REQUIRED WHEN PAD IS SPUR
- WELDS 1/2" NPT UNLESS NOTED ON VESSEL Dwg.
- RADIUS AS PER UG-76
- WPS KIL-6 REV.0 IS ACCEPTABLE FOR ALL TACK WELDS.

DESIGN DATA

20.10. ASME CODE SEC. VIII DIV. 1. ADD. 2011.
 PARA: UM-11(a)
 HEAD MATERIAL: SA-516-70N 25mm (1.00") NOM. WALL (0.9375" MIN)
 SHELL MATERIAL: SA-516-70N 25mm (1.00") NOM. WALL
 MDMT: -29°C @ 4,200 KPa (-20°F @ 609 PSIG) TEMP.: 245°C (473°F)
 NOZZLE: SA-108-B SMLS / SA-108N FLANGES: SA-108N
 MAWP (INTERNAL): 4,200 KPa (609 PSIG)
 -29/245°C (-20/473°F)
 MAWP (EXTERNAL): FULL VACUUM
 HYDROTEST: 5,480 KPa (792 PSIG) RADIOGRAPHY: RT-1 (FULL INCLUDING NOZZ. BW)
 STRESS RELIEVE: 60 MINUTES @ 607°C ±4°C (1150°F ±25°F)
 CORR. ALLOW.: 3.2mm (0.125") JOINT EFF.: LS-100% / CS-100%
 VOLUME: 4.90 CU. M (171.70 CU. FT)
 EMPTY WT: 5,227 Kg (11,500 LBS) FULL WT: 10,105 Kg (22,231 LBS)
 YEAR BUILT: 2012 SERIAL No.: 12-061.VS1
 CRN No.: CRN REFERENCE DRAWING No.:
 W.P.R. No.: WP-2840.2 AQP No.: 1479
 SURFACE PREP.: SSPC-SP8
 PRIME: SEE GENERAL NOTE 10 TAG No.: Y-4030
 PAINT: SEE GENERAL NOTE 10
 INSULATION: SEE GENERAL NOTE 11 LOCATION: SEE TITLE BLOCK

	MARK NO.	NO. REQ'D	SIZE	SCH.	RATING AND FACING	SERVICE	PROJECTION		FILLET		REPAD			WELD#
							INSIDE(MIN)	OUTSIDE	"F"	"J"	"W"	"R"	"S"	
△	N1	1	3"	XXH	CL300 RFLWN	INLET	1"	9 7/8"	5/8"	3/8"	—	—	—	9,13
△	N2	1	3"	----	CL300 RFLWN	VAPOUR OUTLET	0	9 7/8"	5/8"	3/8"	—	—	—	8
	N3	1	4"	XXH	CL300 RFLWN	LIQUID OUTLET	FLUSH	AS SHOWN	1"	—	—	—	—	13,14
	N4	1	2"	----	CL300 RFLWN	PG-4030	0	6 7/8"	3/8"	—	—	—	—	8,13
	NSA/B	2	2"	----	CL300 RFLWN	LG-4030	0	6 7/8"	3/8"	—	—	—	—	8
△	N6	1	2"	----	CL300 RFLWN	TG-4030	0	6 7/8"	3/8"	—	—	—	—	8
	N7	1	4"	----	CL300 RFLWN	LSLL-4031	0	6 7/8"	1/2"	—	—	—	—	8
△	N8	1	4"	----	CL300 RFLWN	LSHH-4031	0	6 7/8"	1/2"	—	—	—	—	8
△	N9	—	—	----	----	----	—	—	—	—	—	—	—	—
	N10	1	4"	----	CL300 RFLWN	UT-4030	0	6 7/8"	1/2"	—	—	—	—	8
	N11	1	2"	----	CL300 RFLWN	SWEEP GAS	0	6 7/8"	3/8"	—	—	—	—	8
△	N12	1	4"	----	CL300 RFLWN	SPARE	0	6 7/8"	1/2"	—	—	—	—	8
	N13	1	3"	----	CL300 RFLWN	SPARE	0	6 7/8"	3/8"	—	—	—	—	8
	M1	1	20" ID	----	CL300 RFLWN	W/W/BLIND & DAVIT	0	AS SHOWN	3/8"	—	—	—	—	8

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	MAT'L
1	1	SHELL - 48" ID x 12'-0" S/S x 1" THK.	SA-516-70N
2	2	HEADS - 48" ID 2:1 S.E. x 1" NOM. (0.9375" MIN.) W/ 2" SF	SA-516-70N
3	1 PC	SKIRT - 3/8" THK. ROLLED TO 50" OD x 30" LG (CTS)	SA-516-70N
4	1 PC	BASE PLATE - 58" OD x 48" ID x 1" THK.	SA-36
5	3 PCS	VORTEX BREAKER - 3/8" PL (CUT PER DWG. DET'L)	SA-516-70N
6	1	NAME PLATE C/W MOUNTING BRACKET	SS/SA-516-70N
7	2	LIFT LUG - 1" THK x 6" WD x 12 1/4" HT (CTS)	SA-516-70N
8	1	DAVIT SLEEVE - 2 1/2" SCH. STD SMLS PIPE x CTS	SA-108-B
9	1	RING - 2 1/2" SCH. STD. SMLS PIPE x 1" LG	SA-108-B
10	1	DAVIT ARM - 2" SCH. XXH SMLS PIPE x CTS	SA-108-B
11	1	PLATE - 3/4" THK. x 2" WD x 8" LG	SA-36
12	1	U BAR - 3/4" THK. ROUND BAR (BEND AS SHOWN)	SA-36
13	1	EYE BOLT - 3/4" FB x 9 1/2" CLOSED EYE 7" NC	SA-36
14	1	WASHER - 3/4"	S.S.
15	2	NUTS - 3/4"	2H
16	1	HANDLE - 3/4" THK. ROUND BAR (BEND AS SHOWN)	SA-36
17	1	BLIND END - 1/4" PL x 2 7/8" OD	SA-36
18	2 PCS	INSULATION RING - 1/4" PL x 53 1/8" OD x 50 1/8" ID	SA-516-70N
19	12	HEX NUT - 1/2"	SA-194-2H
20	1 PC	FLOAT HOOD - 3/8" PL (CUT PER DWG. DET'L)	SA-516-70N
21	2 PCS	GROUND LUG - 1/4" PL (CUT PER DWG. DET'L)	SA-36
N1	1	FLANGE - 3" CL300 RFLWN SCH. XXH BORE	SA-105N
1 PC		NECK - 3" SCH. XXH SMLS PIPE x 22 5/8" LG	SA-106-B
1 PC		INLET DIVERTER - 3/8" PLATE x 3 1/2" W x 6" LG (ROUNDED TOP SIDE)	SA-36
N2	1	FLG - 3" CL300 RFLWN x 12" LG (0.81" WT)	SA-105N
N3	1	FLANGE - 4" CL300 RFLWN SCH. XXH. BORE	SA-105N
1 PC		NECK - 4" SCH. XXH SMLS PIPE x 3 7/8" LG	SA-106-B
1		ELBOW - 4" SCH. XXH x 90° LR	SA-234-WPB
1 PC		NECK - 4" SCH. XXH SMLS PIPE x 22 1/4" LG	SA-106-B
N4	1	FLG - 2" CL300 RFLWN x 9" LG (0.66" WT)	SA-105N
1		BLIND FLANGE - 2" CL300 RF c/w 3/4" NPT TAP	SA-105N
1		GASKET - 2" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
8		STUD - 5/8" x 3 1/2" LG C/W 2 HEX. NUTS EA.	B7M/2HM
NSA/B	2	FLG - 2" CL300 RFLWN x 9" LG (0.66" WT)	SA-105N
2		BLIND FLANGE - 2" CL300 RF c/w 3/4" NPT TAP	SA-105N
2		GASKET - 2" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
16		STUD - 5/8" x 3 1/2" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N6	1	FLG - 2" CL300 RFLWN x 9" LG (0.66" WT)	SA-105N
1		BLIND FLANGE - 2" CL300 RF c/w 3/4" NPT TAP	SA-105N
1		GASKET - 2" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
8		STUD - 5/8" x 3 1/2" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N7,N8	2	FLG - 4" CL300 RFLWN x 9" LG (0.88" WT)	SA-105N
2		HUB FLANGE - 4" CL300 RF c/w 2" NPT TAP	SA-105N
2		GASKET - 4" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
16		STUD - 3/4" x 4 1/2" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N10	1	FLG - 4" CL300 RFLWN x 9" LG (0.88" WT)	SA-105N
1		BLIND FLANGE - 4" CL300 RF	SA-105N
2		GASKET - 4" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
8		STUD - 3/4" x 8" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N11	1	FLG - 2" CL300 RFLWN x 9" LG (0.66" WT)	SA-105N
N12	1	FLG - 4" CL300 RFLWN x 9" LG (0.88" WT)	SA-105N
1		BLIND FLANGE - 4" CL300 RF	SA-105N
1		GASKET - 4" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
8		STUD - 3/4" x 4 1/2" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N13	1	FLG - 3" CL300 RFLWN x 9" LG (0.81" WT)	SA-105N
1		BLIND FLANGE - 3" CL300 RF	SA-105N
1		GASKET - 3" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
8		STUD - 3/4" x 4 1/4" LG C/W 2 HEX. NUTS EA.	B7M/2HM
M1	1	FLANGE - 20" CL300 RFLWN x 18" LG (3.68" WT)	SA-105N
1		BLIND FLANGE - 20" CL300 RF	SA-105N
1		GASKET - 20" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
24		STUD - 1 1/4" x 8 1/4" LG C/W 2 HEX. NUTS EA.	B7M/2HM

MATERIAL NOTE:

- ALL MATERIAL TO BE NACE CERTIFIED TO NACE MR0103-MR0175/ISO-1565 LATEST EDITION.

GENERAL NOTES:

- M1 FORGING IS IMPACT TESTED PER UG-84(1), 18/12 FT-LB @ -29°C. ALL OTHER COMPONENTS ARE EXEMPT PER UG-20(1) 1-5, UCS-66(b)(1)(c), UCS-66(c) & UCS-66(b)(1)(c), UCS-66. MDMT IS -29°C @ 4,200 KPa (-20°F @ 609 PSIG).
- MTR TO BE PROVIDED FOR ALL PRESSURE RETAINING MATERIAL.
- EXTERNAL LOADINGS ON PROCESS NOZZLES WERE CONSIDERED PER UG-22.
- DIMENSIONAL TOLERANCES AS PER KOOTENAY ENGR. SPEC. KI-004 REV.0.
- ALL BOLT HOLES TO STRADDLE CENTERLINES.
- SUBSTITUTION OF MATERIAL IS NOT ACCEPTABLE UNLESS ENGINEERING DEPARTMENT APPROVAL OBTAINED.
- WELDING JOINT PREPARATION AND FIT-UP AS PER KOOTENAY ENGR. SPEC KI-003 REV.0.
- ADJUST DIMENSION TO MAINTAIN INSIDE PROJECTION.
- VESSEL TO BE REGISTERED IN ALBERTA, SASKATCHEWAN, AND BRITISH COLUMBIA.
- ENTIRE VESSEL TO BE EXTERNALLY SANDBLASTED TO SP-B. ENTIRE VESSEL TO BE APPLIED WITH TWO COATS OF RUSTOLEUM 7086 GREY PRIMER @ 1.5-2 MILS DFT. SKIRT, NOZZLE NECKS, AND FLANGES TO BE FINISH PAINTED WITH RUSTOLEUM 906 SILVER GREY INDUSTRIAL HIGH GLASS ENAMEL TO 1.5-2 MILS DFT.
- VESSEL TO BE INSULATED WITH 1 1/2" THK. 3.5-LB DENSITY MINERAL WOOL INSULATION c/w 0.020" STUCCO EMBOSSED ALUMINUM WITH MOISTURE BARRIER (MANWAY IS INSULATED).
- PRE-HEAT HEADS AND SHELL TO 50°F PRIOR TO WELDING.
- ALL SHARP CORNERS SHALL BE ROUNDED PER UG-76.
- VESSEL IS NOT DESIGNED FOR CYCLIC SERVICE.

KOOTENAY INDUSTRIES LTD.

CALGARY, ALBERTA

DRAWN BY: KS
CHECKED BY: KT

S/N: 12-061.VS1

DATE: 12-02-15
SCALE: 1:20

CADOTTE CSS PILOT 13-09-085-17 W5M
 1219mm ID x 3658mm S/S x 4,200 KPAG x 245°C x 3mm CA
 VERTICAL GAS SEPARATOR - V-4030
 PKG-4000 (SOUR SERVICE)

MURPHY OIL CORP.
c/o VISTA PROJECTS LTD.

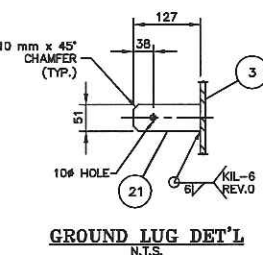
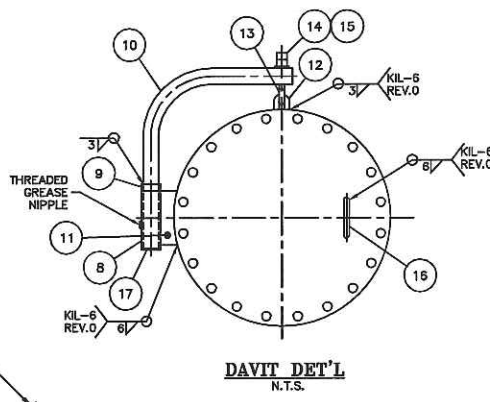
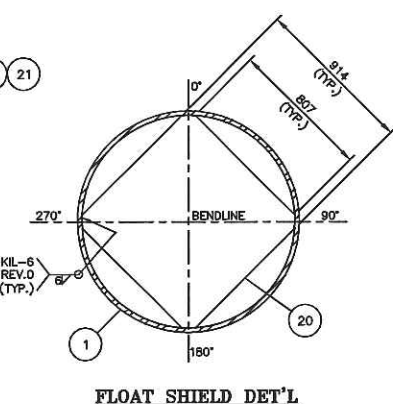
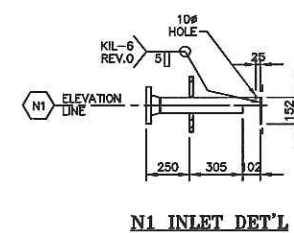
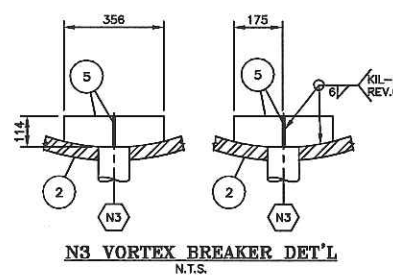
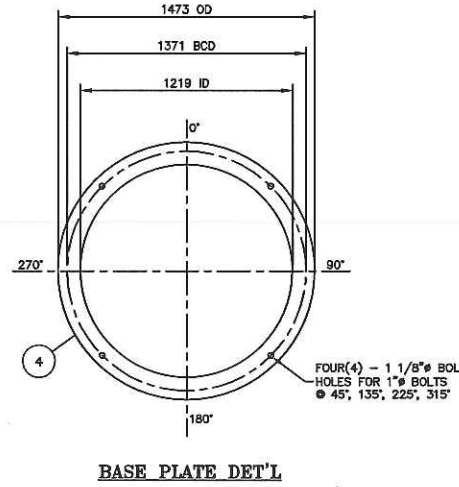
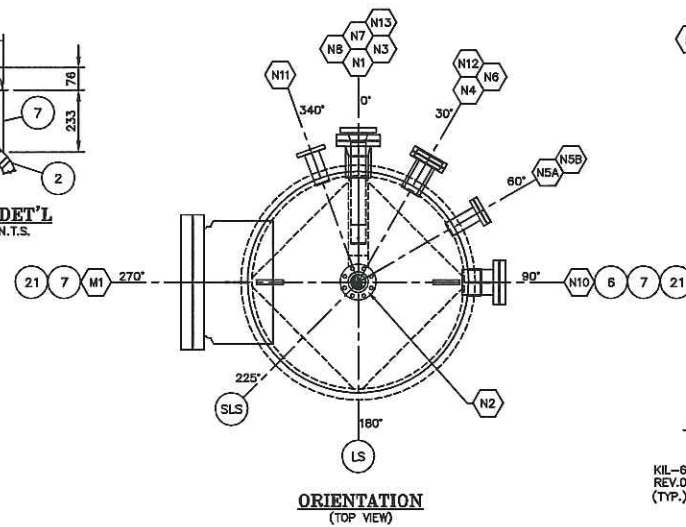
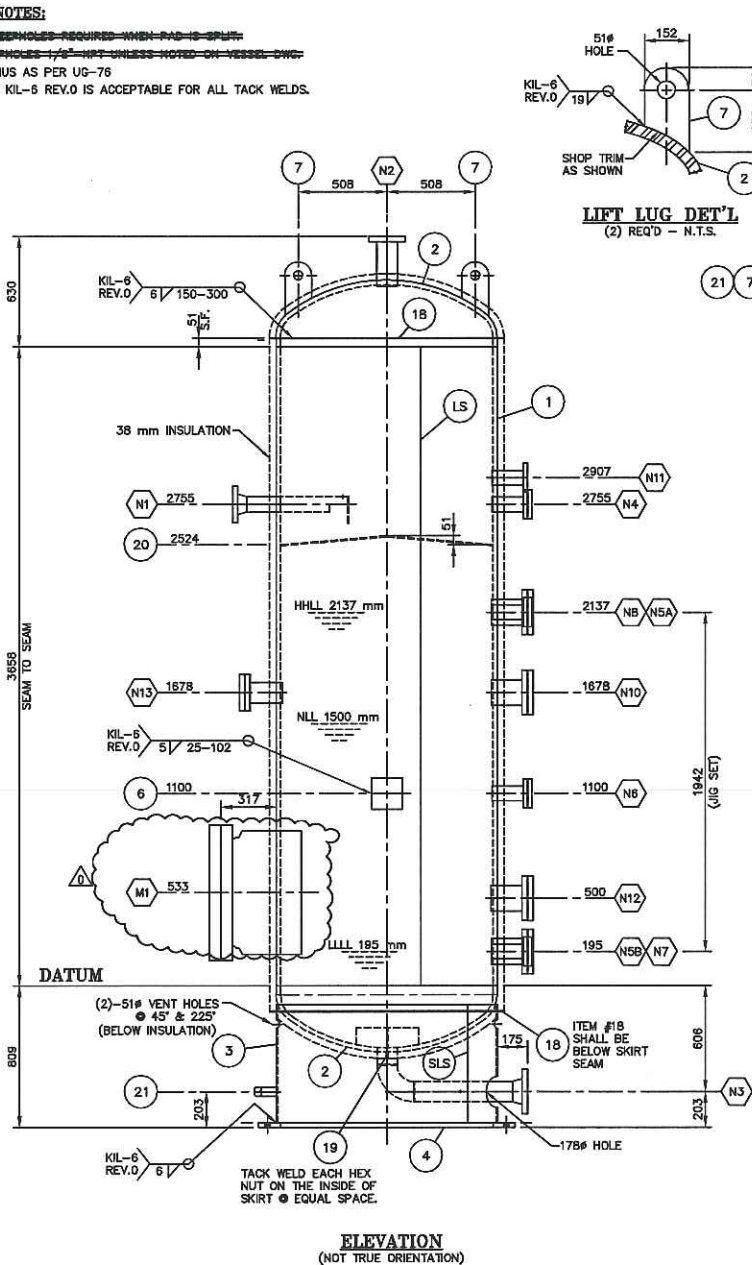
12-061-A

REV. A

REV.	DESCRIPTION	APP'D	DATE	BY	DATE
1	ISSUED FOR CONSTRUCTION		11-05-01	CF	12-06-18
2	REVISED AND REISSUED FOR APPROVAL	KT	11-05-01	CF	12-05-01
3	REVISED AND REISSUED FOR APPROVAL	KT	11-03-02	CF	12-03-20
4	ISSUED FOR APPROVAL	KT	11-03-02	KS	11-03-02
5	PROJECT CO-ORDINATOR CHECKED:		DATE:	BY:	

(1) REQ'D

TIME CARD
12-061-VS1



CODE SHEET

VISTA Projects Limited			
VENDOR DRAWING/DOCUMENT SQUAD CHECK			
A	Reviewed without exception. Proceed with fabrication. Issue final drawings/ documents.		
B	Reviewed except as marked and/or noted. Proceed with fabrication and resubmit drawing/document. Shipment will not be released, if any drawings/documents requiring approval, as per purchase order conditions, are at this code.		
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D	Not required for review. Received for information.		
Reviewed only as to general conformity with the design concept and specifications provided. The engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. Sole responsibility for correct design, detail and dimensions shall remain with the party submitting the drawing/document.			
SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DM01	V- 4040		2012-07-05

PROJECT NAME: Murphy Cadotte CSS/1780

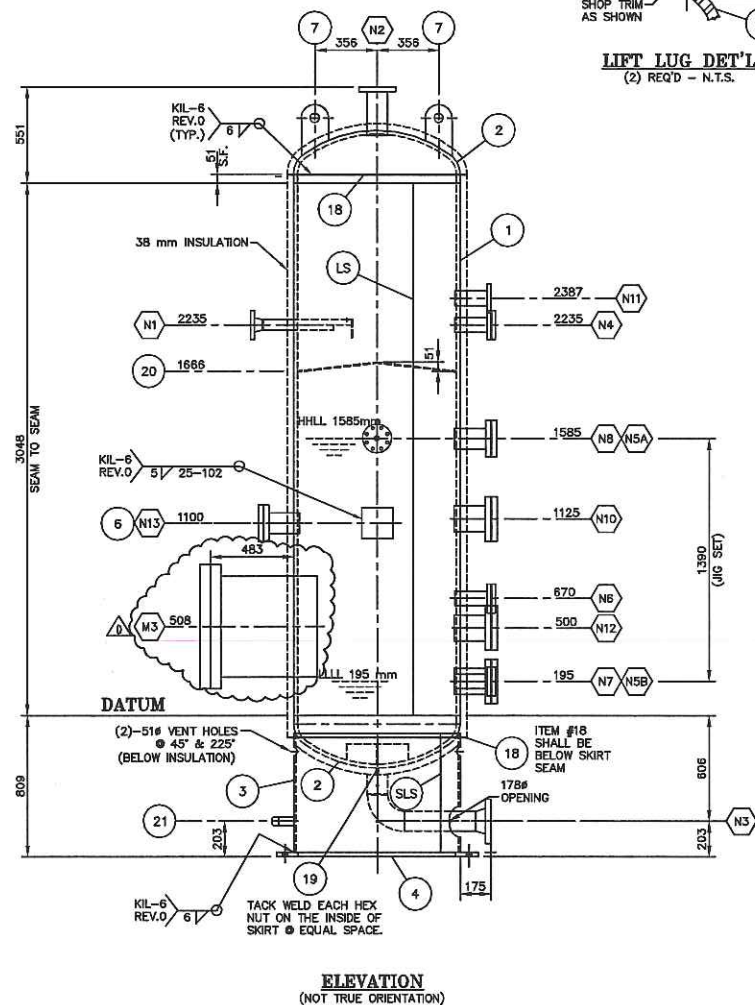
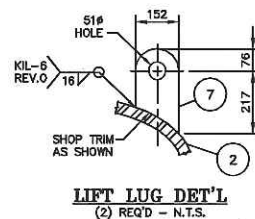
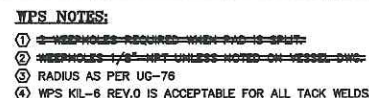
VENDOR NAME: Kootenay / 1780-012

DOCUMENT NUMBER: 12-061-B

VENDOR REVISION: 0

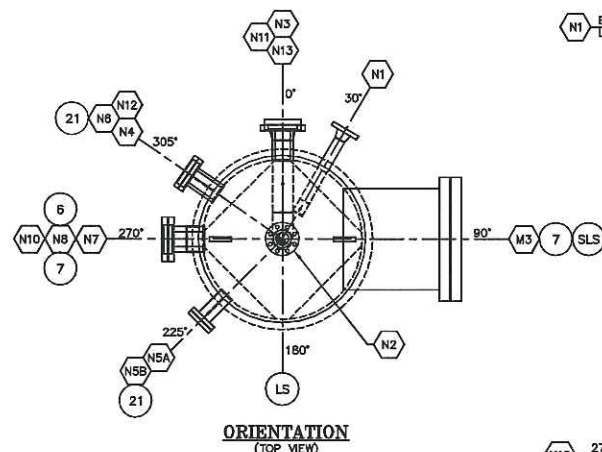
DOCUMENT DESCRIPTION: Vertical Gas Separator

VENDOR TRANSMITTAL NUMBER: Trans # 17

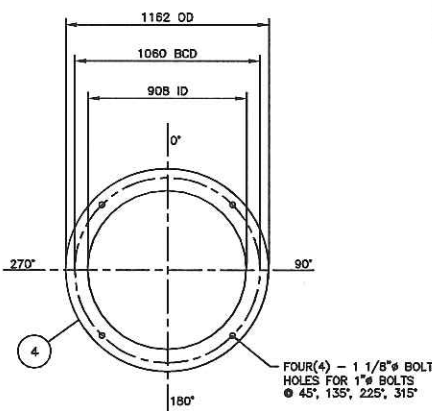


TIME CARD
12-061-VS2

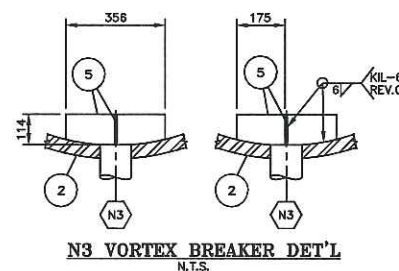
20.10. ASME CODE SEC: VIII DIV. I ADD.: 2011
 PARA: UW-11(g)
 HEAD MATERIAL: SA-516-70N 22mm (0.875") NOM WALL (0.8125" MIN)
 SHELL MATERIAL: SA-516-70N 22mm (0.875") NOM WALL
 MDMT: -29°C @ 4,200 kPa (-20°F @ 609 PSIG) TEMP: 245°C (473°F)
 NOZZLE: SA-106-B SMLS / SA-105N FLANGES: SA-105N
 MAWP (INTERNAL): 4200 KPa (609 PSIG)
 -29/245°C (-20/473°F)
 MAWP (EXTERNAL): FULL VACUUM
 HYDROTEST: 5,480 KPa (792 PSIG) RADIOGRAPHY: RT-1 (FULL INCLUDING NOZZ, BW)
 STRESS ALLOW: 60 MINUTES @ 60°C +4°C (110°F +25°F)
 CORR. RELIEF: 3.2mm (0.125") JOINT EFF: LS-100% / CS-100%
 VOLUME: 2.3 MJ, M (80.10 CU. FT)
 EMPTY WT: 3,455 Kg (7,600 LBS) FULL WT: 5,730 Kg (12,606 LBS)
 VULN BUILT TO: 3,455 Kg (7,600 LBS) SERIAL NO.: 12-061VS2
 CRN No.: CRN REFERENCE DRAWING NO.:
 W.P.R. No.: WP-2949.2 AQP No.: 1479
 SURFACE PREP: SSPC-SP6
 PRIME: SEE GENERAL NOTE 10 TAG No.: Y-4040
 PAINT: SEE GENERAL NOTE 10
 INSULATION: SEE GENERAL NOTE 11 LOCATION: SEE TITLE BLOCK



ORIENTATION
(TOP VIEW)



BASE PLATE DET'L



N1 INLET DET'L

DAVIT DET'L
N.T.S.

GROUND LUG DET'L
N.T.S.

1. M3 FORMING IS IMPACT TESTED PER UC-84(1)(1), 18/12 FT-15
 -29°C, ALL OTHER COMPONENTS ARE EXEMPT PER UC-68(1) 1-5,
 UCS-66(1)(a), UCS-66(a), & UCS-66(1)(c), UC-66(1)
 MDMT IS -28°C @ 4,200 KPa(g) (-207 @ 609 PSi(g)).
2. MTR TO BE PROVIDED FOR ALL PRESSURE RETAINING MATERIAL.
3. EXTERNAL LOADINGS ON PROCESS NOZZLES WERE CONSIDERED PER UG-22.
4. DIMENSIONAL TOLERANCES AS PER KOOTENAY ENGR. SPEC. KI-004 REV.D.
5. ALL BOLT HOLES TO STRADDLE CENTERLINES.
6. SUBSTITUTION OF MATERIAL IS NOT ACCEPTABLE UNLESS ENGINEERING
 DEPARTMENT APPROVAL OBTAINED.
7. WELDING JOINT PREPARATION AND FIT-UP AS PER KOOTENAY ENGR. SPEC
 KI-003 REV.D.
8. ADJUST DIMENSION TO MAINTAIN INSIDE PROJECTION.
9. VESSEL TO BE REGISTERED IN ALBERTA, SASKATCHEWAN AND BRITISH COLUMBIA.
10. ENTIRE VESSEL TO BE EXTERNALLY SANDBLASTED TO SP-6, ENTIRE VESSEL
 TO BE COATED WITH TWO COATS OF RUSTOLEUM 708 GREY PRIMER @
 1.5-2 MILS DFT. SPOUT, NOZZLE NECKS, AND FLANGES TO BE FINISH
 PAINTED WITH RUSTOLEUM 908 SILVER GREY INDUSTRIAL HIGH GLOSS ENAMEL
 @ 1.5-2 MILS DFT.
11. VESSEL TO BE INSULATED WITH 1 1/2" THK. 3.5-LB DENSITY MINERAL WOOL
 INSULATION c/w 0.020" DETACHED ALUMINUM ALLOY INSULATION BARRIER
 (MANTWAY IS INSULATED).
12. PRE-HEAT HEADS AND SHELL TO 50°F PRIOR TO WELDING.
13. ALL SHARP CORNERS SHALL BE ROUNDED PER UG-78.
14. VESSEL IS NOT DESIGNED FOR CYCLIC SERVICE.

▲	ISSUED FOR CONSTRUCTION			CF	12-06-18
▲	REVISED AS PER CUSTOMER REQUEST	KT	12-05-01	CF	12-05-01
▲	REVISED AS PER CUSTOMER REQUEST	KT	12-04-02	CF	12-04-02
▲	REVISED AND REISSUED FOR APPROVAL	KT	12-03-20	CF	12-03-20
▲	ISSUED FOR APPROVAL	KT	11-03-02	KS	11-03-02
REV.	DESCRIPTION	APP'D	DATE	BY	DATE
PROJECT CO-ORDINATOR CHECKED: DATE: BY:					

ITEM	QTY	DESCRIPTION	MAT'L
1	1	SHELL - 36" ID x 10'-0" S/S x 7/8" THK.	SA-516-70N
2	2	HEADS - 36" ID 2:1 S.E. x 7/8" NOM. (0.8125" MIN.) W/ 2" SF	SA-516-70N
3	1 PC	SKIRT - 3/8" THK. ROLLED TO 37 3/4" OD x 30" LG (CTS)	SA-516-70N
4	1 PC	BASE PLATE - 45 3/4" OD x 35 3/4" ID x 1" THK.	SA-36
5	1 PC	VORTEX BREAKER - 3/8" PL (CUT PER DWG. DETL.)	SA-516-70N
6	1	NAME PLATE C/W MOUNTING BRACKET	SS/SA-516-70N
7	2	LIFT LUG - 1" THK x 152" WD x 11 5/8" HT (CTS)	SA-516-70N
8	1	DAVIT SLEEVE - 2 1/2" SCH. STD. SMLS PIPE x CTS	SA-106-B
9	1	RING - 2 1/2" SCH. STD. SMLS PIPE x 1" LG	SA-106-B
10	1	DAVIT ARM - 2" SCH. XXH SMLS PIPE x CTS	SA-106-B
11	1	PLATE - 3/4" THK. x 2" WD x 8" LG	SA-36
12	1	U BAR - 3/4" Ø ROUND BAR (BEND AS SHOWN)	SA-36
13	1	EYE BOLT - 3/4" FB x 9 1/2" CLOSED EYE 7" NC	SA-36
14	1	WASHER - 3/4" Ø	S.S.
15	2	NUTS - 3/4" Ø	2H
16	1	HANDLE - 3/4" Ø ROUND BAR (BEND AS SHOWN)	SA-36
17	1	BLIND END - 1/4" PL x 2 7/8" Ø	SA-516
18	2 PCS	INSULATION RING - 1/4" PL x 41 7/8" OD x 37 7/8" ID	SA-516-70N
19	12	HEX NUT - 1/2"	SA-194-2H
20	1 PC	FLOAT HOOD - 3/8" PL (CUT PER DWG DET'L)	SA-516-70N
21	2 PCS	GROUND LUG - 1/4" PL (CUT PER DWG DET'L)	SA-516-70N
N1	1	FLANGE - 2" CL300 RFWN SCH. 160 BORE	SA-105N
1 PC		NECK - 2" SCH. 160. SMLS PIPE x 20" LG	SA-106-B
1 PC		INLET DIVERTER - 3" SCH. PLATE x 2 3/8" W x 4" LG (ROUNDED TOP SIDE).	SA-36
N2	1	FLG - 3" CL300 RFLWN x 12" LG (0.81" WT)	SA-105N
N3	1	FLANGE - 4" CL300 RFWN SCH. XXH BORE	SA-105N
1 PC		NECK - 4" SCH. XXH. SMLS PIPE x 4 1/2" LG (ELL TO HD)	SA-106-B
1		ELBOW - 4" SCH. XXH x 90° LR	SA-234-WPE
1 PC		NECK- 4" SCH. XXH SMLS PIPE x 16 1/4" LG(ELL TO FLG)	SA-106-B
N4,N6	2	FLG - 2" CL300 RFLWN x 9" LG (0.66" WT)	SA-105N
	2	BLIND FLANGE - 2" CL300 RF c/w 3/4" NPT TAP	SA-105N
	2	GASKET - 2" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
	16	STUD - 5/8" Ø x 3 1/2" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N5A,B	2	FLG - 2" CL300 RFLWN x 9" LG (0.66" WT)	SA-105N
	2	BLIND FLANGE - 2" CL300 RF c/w 3/4" NPT TAP	SA-105N
	2	GASKET - 2" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
	16	STUD - 5/8" Ø x 3 1/2" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N7,N8	2	FLG - 4" CL300 RFLWN x 9" LG (0.88" WT)	SA-105N
	2	HUB FLANGE - 4" CL300 RF c/w 2" NPT TAP	SA-105N
	2	GASKET - 4" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
	16	STUD - 3/4" Ø x 4 1/2" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N10	1	FLG - 4" CL300 RFLWN x 9" LG (0.88" WT)	SA-105N
	1	BLIND FLANGE - 4" CL300 RF	SA-105N
	2	GASKET - 4" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
	8	STUD - 3/4" Ø x 8" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N11	1	FLG - 2" CL300 RFLWN x 9" LG (0.66" WT)	SA-105N
N12	1	FLG - 4" CL300 RFLWN x 9" LG (0.88" WT)	SA-105N
	1	BLIND FLANGE - 4" CL300 RF	SA-105N
	1	GASKET - 4" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
	8	STUD - 3/4" Ø x 4 1/2" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N13	1	FLG - 3" CL300 RFLWN x 9" LG (0.81" WT)	SA-105N
	1	BLIND FLANGE - 3" CL300 RF	SA-105N
	1	GASKET - 3" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
	8	STUD - 3/4" Ø x 4 1/4" LG C/W 2 HEX. NUTS EA.	B7M/2HM
M3	1	FLANGE - 18" CL300 RFBHWN x 25 1/4" LG	SA-105N
	1	BLIND FLANGE - 18" CL300 RF	SA-105N
	1	GASKET - 18" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
24	STUD - 1 1/4" Ø x 7 3/4" LG C/W 2 HEX. NUTS EA.		B7M/2HM

12-061-B

REV. 10/10

CODE SHEET

VISTA Projects Limited			
VENDOR DRAWING/DOCUMENT SQUAD CHECK			
A	Reviewed without exception. Proceed with fabrication. Issue final drawings/documents.		
B	Reviewed except as marked and/or noted. Proceed with fabrication and resubmit drawing/document. Shipment will not be released, if any drawings/documents requiring approval, as per purchase order conditions, are at this code.		
C	Not accepted. Revise as marked and resubmit drawing/document for review. Shipment will not be released, if any drawings/documents requiring approval, as per purchase order conditions, are at this code.		
D	Not required for review. Received for information.		
Reviewed only as to general conformity with the design concept and specifications provided. The engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. Sole responsibility for correct design, detail and dimensions shall remain with the party submitting the drawing/document.			
SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DM61	V-5020		AUG 15 2012

PROJECT NAME: Murphy Cadotte

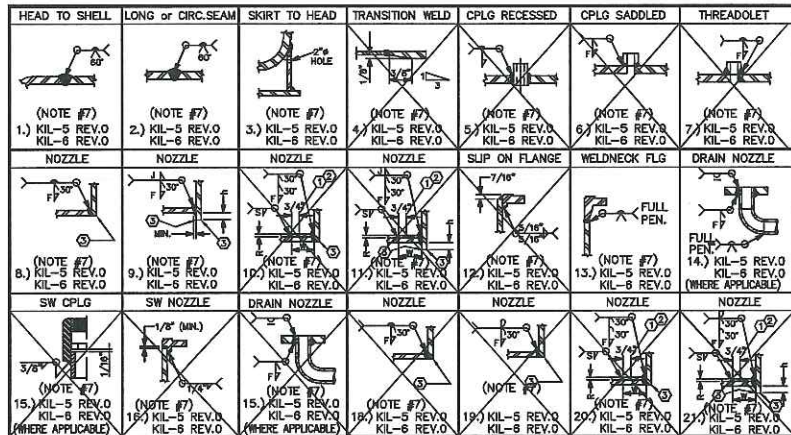
VENDOR NAME: Kootenay Industries / 1780-012

DOCUMENT
NUMBER: 12-061-C

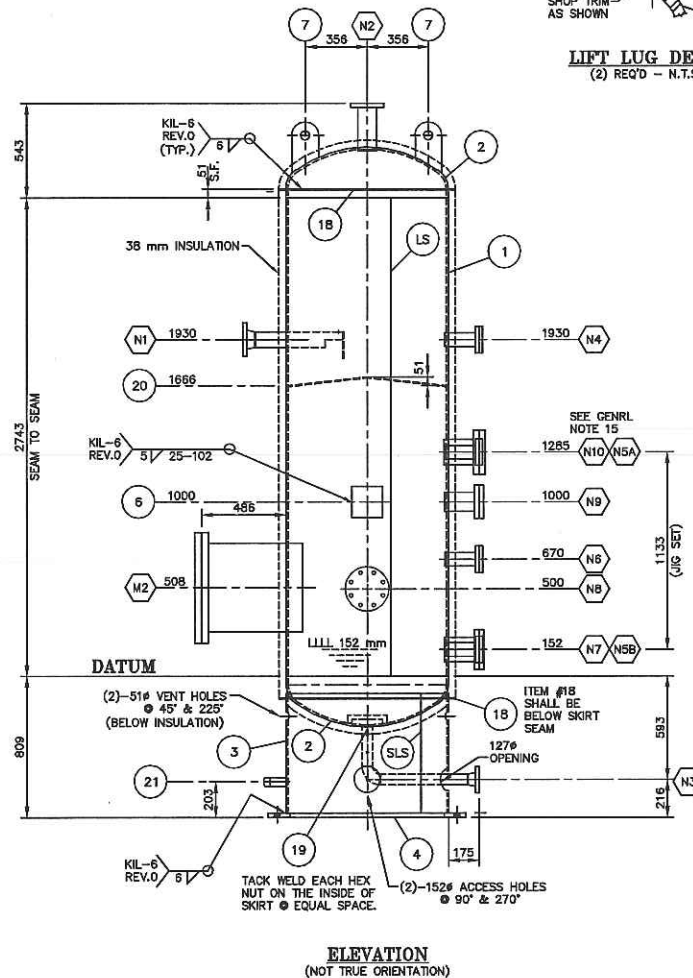
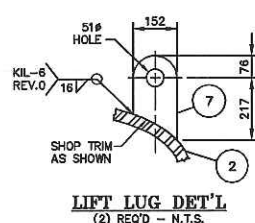
VENDOR
REVISION: 1

DOCUMENT
DESCRIPTION: 36" ID x 9'-0" S/S x 229 PSIG x 473 F x 1/8" CA Vertical Gas Separator - V-5020 (Sour Service)

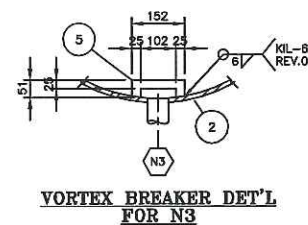
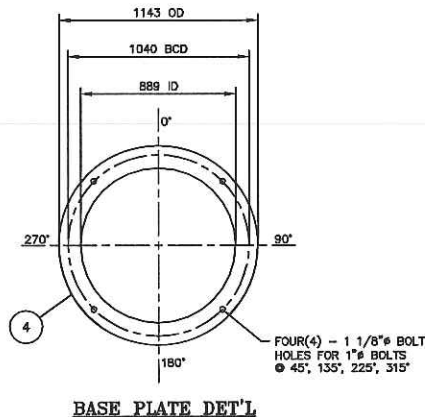
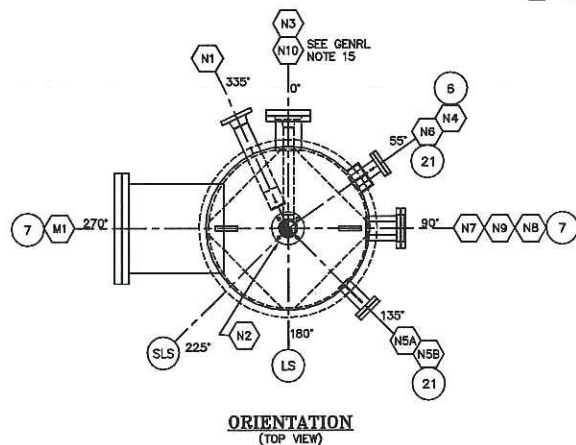
VENDOR
TRANSMITTAL
NUMBER: 21



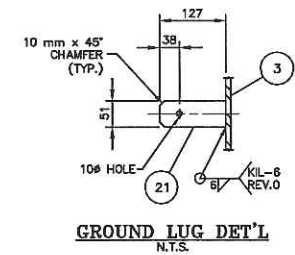
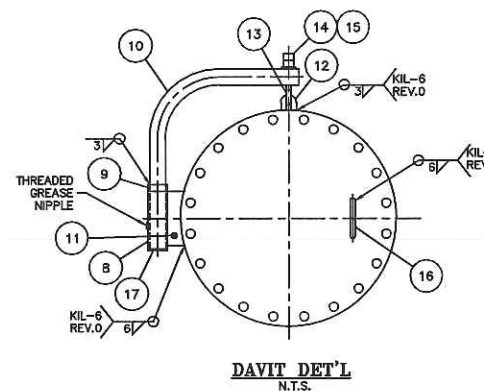
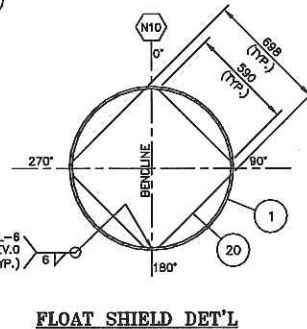
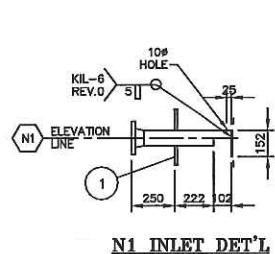
WPS NOTES:
 1. WELDS REQUIRED WHEN PAD IS SPOT.
 2. WELDS REQUIRED WHEN PAD IS SPOT.
 3. RADIUS AS PER UG-78.
 4. WPS KIL-6 REV.0 IS ACCEPTABLE FOR ALL TACK WELDS.



DESIGN DATA
 20.10 ASME CODE SEC. VIII, DIV. 1, ADD. 2011.
 PARA: UM-11(a)
 HEAD MATERIAL: SA-516-70N 13mm (0.5") NOM WALL (0.4375" MIN)
 SHELL MATERIAL: SA-516-70N 13mm (0.5") NOM WALL
 MDMT: -29°C @ 1.580 kPa (-20°F @ 229 PSIG) TEMP.: 150°C (302°F)
 NOZZLE: SA-106-B SMLS / SA-105N FLANGES: SA-105N
 MAWP (INTERNAL): 1.580 kPa (229 PSIG)
 -29/150°C (-20/302°F)
 MAWP (EXTERNAL): FULL VACUUM
 HYDROTEST: 2.054 kPa (298 PSIG) RADIOGRAPHY: RT-1 (FULL INCLUDING NOZZ. BW)
 STRESS RELIEVE: 60 MINUTES @ 607°C ±4°C (1150°F ±25°F)
 CORR. ALLOW.: 3.2mm (0.125") JOINT EFF.: LS-100% / CS-100%
 VOLUME: 2.2 CU. M (78.90 CU. FT)
 EMPTY WT: 2.409 Kg (5.300 LBS) FULL WT: 4.607 Kg (10.136 LBS)
 YEAR BUILT: 2012 SERIAL No.: 12-061.VS3
 CRN No.: V8560.2 CRN REFERENCE DRAWING No.:
 W.P.R. No.: WP-2940.2 AQP No.: 1479
 SURFACE PREP.: SSPC-SP8
 PRIME: SEE GENERAL NOTE 10 TAG No.: Y-5020
 PAINT: SEE GENERAL NOTE 10
 INSULATION: SEE GENERAL NOTE 11 LOCATION: SEE TITLE BLOCK



MARK NO.	NO. REQ'D	SIZE	SCH.	RATING AND FACING	SERVICE	PROJECTION	FILLET	REPAD	WELD#
N1	1	3"	160	CL150 RFLWN	INLET	0	9 7/8"	3/8"	9,13
N2	1	3"	---	CL150 RFLWN	VAPOUR OUTLET	0	9 7/8"	3/8"	8
N3	1	2"	160	CL150 RFLWN	LIQUID OUTLET	FLUSH	AS SHOWN	3/8"	13,14
N4	1	2"	---	CL150 RFLWN	PG-5020	0	6 7/8"	3/8"	8
N5A/B	2	2"	---	CL150 RFLWN	LG-5020	0	6 7/8"	3/8"	8
N6	1	2"	---	CL150 RFLWN	TG-5020	0	6 7/8"	3/8"	8
N7	1	4"	---	CL150 RFLWN	LSLL-5021	0	6 7/8"	3/8"	8
N8	1	4"	---	CL150 RFLWN	SPARE	0	6 7/8"	3/8"	8,13
N9	1	3"	---	CL150 RFLWN	SPARE	0	6 7/8"	3/8"	8,13
N10	1	4"	---	CL300 RFLWN	LT-5020	0	6 7/8"	3/8"	8,13
M2	1	18" ID	---	CL150 RFLWN	W/W BLND & DAVIT	0	AS SHOWN	3/8"	8



MATERIAL NOTE:

1. ALL MATERIAL TO BE NACE CERTIFIED TO NACE MR0103-MR0175/ISO-1565 LATEST EDITION.

GENERAL NOTES:

- MATERIAL IMPACT TESTING OF ALL COMPONENTS ARE EXEMPT PER UG-20(d) 1-5, UCS-66(b)(1)(c), UCS-66(c).
- MDMT IS -29°C @ 1.580 kPa (-20°F @ 229 PSIG).
- MTR TO BE PROVIDED FOR ALL PRESSURE RETAINING MATERIAL.
- EXTERNAL LOADINGS ON PROCESS NOZZLES WERE CONSIDERED PER UG-22.
- DIMENSIONAL TOLERANCES AS PER KOOTENAY ENGR. SPEC. KI-004 REV.0.
- ALL BOLT HOLES TO STRADDLE CENTERLINES.
- SUBSTITUTION OF MATERIAL IS NOT ACCEPTABLE UNLESS ENGINEERING DEPARTMENT APPROVAL OBTAINED.
- WELDING JOINT PREPARATION AND FIT-UP AS PER KOOTENAY ENGR. SPEC KI-003 REV.0.
- ADJUST DIMENSION TO MAINTAIN INSIDE PROJECTION.
- VESSEL TO BE REGISTERED IN ALBERTA, SASKATCHEWAN AND BRITISH COLUMBIA.
- ENTIRE VESSEL TO BE EXTERNALLY SANDBLASTED TO SP-B. ENTIRE VESSEL TO BE PAINTED WITH TWO COATS OF RUSTOLEUM 7088 GREY PRIMER @ 1.5-2 MILS DFT. SKIRT, NOZZLE NECKS, AND FLANGES TO BE FINISH PAINTED WITH RUSTOLEUM 906 SILVER GREY INDUSTRIAL HIGH GLASS ENAMEL TO 1.5-2 MILS DFT.
- VESSEL TO BE INSULATED WITH 1 1/2" THK, 3.5-LB DENSITY MINERAL WOOL INSULATION c/w 0.020" STUCCO EMBOSSED ALUMINUM WITH MOISTURE BARRIER (MANWAY IS INSULATED).
- PRE-HEAT HEADS AND SHELL TO 50°F PRIOR TO WELDING.
- ALL SHARP CORNERS SHALL BE ROUNDED PER UG-76.
- VESSEL IS NOT DESIGNED FOR CYCLIC SERVICE.
- CL300 FLANGE IS USED FOR LT (N10).

ITEM	QTY	DESCRIPTION	MAT'L
1	1	SHELL - 36" ID x 9'-0" S/S x 1/2" THK.	SA-516-70N
2	2	HEADS - 36" ID 2:1 S.E. x 1/2" NOM. (0.4375" MIN.) W/ 2" SF	SA-516-70N
3	1 PC	SKIRT - 3/8" THK. ROLLED TO 37" OD x 30" LG (CTS)	SA-516-70N
4	1 PC	BASE PLATE - 45" OD x 35" ID x 1" THK.	SA-36
5	1 PC	VORTEX BREAKER - 3/8" PL (CUT PER DWG. DET'L)	SA-516-70N
6	1	NAME PLATE C/W MOUNTING BRACKET	SS/SA-516-70N
7	2	LIFT LUG - 1" THK x 152" WD x 11 1/2" HT (CTS)	SA-516-70N
8	1	DAVIT SLEEVE - 2 1/2" SCH. STD. SMLS PIPE x CTS	SA-106-B
9	1	RING - 2 1/2" SCH. STD. SMLS PIPE x 1" LG	SA-106-B
10	1	DAVIT ARM - 2" SCH. XH SMLS PIPE x CTS	SA-106-B
11	1	PLATE - 3/4" THK. x 2" WD x 8" LG	SA-36
12	1	U BAR - 3/4" ROUND BAR (BEND AS SHOWN)	SA-36
13	1	EYE BOLT - 3/4" FB x 9 1/2" CLOSED EYE 7" NC	SA-36
14	1	WASHER - 3/4"	S.S.
15	2	NUTS - 3/4"	2H
16	1	HANDLE - 3/4" ROUND BAR (BEND AS SHOWN)	SA-36
17	1	BLIND END - 1/4" PL x 2 7/8" OD	SA-36
18	2 PCS	INSULATION RING - 1/4" PL x 40 1/8" OD x 37 1/8" ID	SA-516-70N
19	12	HEX NUT - 1/2"	SA-194-2H
20	1 PC	FLOAT HOOD - 3/8" PL (CUT PER DWG. DET'L)	SA-516-70N
21	2 PCS	GROUND LUG - 1/4" PL (CUT PER DWG. DET'L)	SA-516-70N
N1	1	FLANGE - 3" CL150 RFLWN SCH. 160	SA-105N
1 PC		NECK - 3" SCH. 160 SMLS PIPE x 20" LG	SA-106-B
1 PC		INLET DIVERTER - 3/8" PLATE x 3 1/2" W x 6" LG (ROUNDED TOP SIDE)	SA-36
N2	1	FLG - 3" CL150 RFLWN x 12" LG (0.62" WT)	SA-105N
N3	1	FLANGE - 2" CL150 RFLWN SCH. 160. BORE	SA-105N
1 PC		NECK - 2" SCH. 160 SMLS PIPE x 9 1/8" LG	SA-106-B
1		ELBOW - 2" SCH. 160 x 90° LR	SA-234-WPB
1 PC		NECK - 2" SCH. 160 SMLS PIPE x 19 7/8" LG	SA-106-B
N4	1	FLG - 2" CL150 RFLWN x 9" LG (0.53" WT)	SA-105N
1		BLIND FLANGE - 2" CL150 RF c/w 3/4" NPT TAP	SA-105N
1		GASKET - 2" CL150 RF, 1/8" THK, GRAPHITE FILLED	316 SS
4		STUD - 5/8" x 3 1/4" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N5A/B	2	FLG - 2" CL150 RFLWN x 9" LG (0.53" WT)	SA-105N
2		BLIND FLANGE - 2" CL150 RF c/w 3/4" NPT TAP	SA-105N
2		GASKET - 2" CL150 RF, 1/8" THK, GRAPHITE FILLED	316 SS
8		STUD - 5/8" x 3 1/4" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N6	1	FLG - 2" CL150 RFLWN x 9" LG (0.53" WT)	SA-105N
1		BLIND FLANGE - 2" CL150 RF c/w 3/4" NPT TAP	SA-105N
1		GASKET - 2" CL150 RF, 1/8" THK, GRAPHITE FILLED	316 SS
4		STUD - 5/8" x 3 1/4" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N7	1	FLG - 4" CL150 RFLWN x 9" LG (0.75" WT)	SA-105N
1		HUB FLANGE - 4" CL150 RF c/w 2" NPT TAP	SA-105N
1		GASKET - 4" CL150 RF, 1/8" THK, GRAPHITE FILLED	316 SS
8		STUD - 5/8" x 3 3/4" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N8	1	FLG - 4" CL150 RFLWN x 9" LG (0.75" WT)	SA-105N
1		BLIND FLANGE - 4" CL150 RF	SA-105N
2		GASKET - 4" CL150 RF, 1/8" THK, GRAPHITE FILLED	316 SS
8		STUD - 5/8" x 3 3/4" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N9	1	FLG - 3" CL150 RFLWN x 9" LG (0.62" WT)	SA-105N
1		BLIND FLANGE - 3" CL150 RF	SA-105N
1		GASKET - 3" CL150 RF, 1/8" THK, GRAPHITE FILLED	316 SS
4		STUD - 5/8" x 3 3/4" LG C/W 2 HEX. NUTS EA.	B7M/2HM
N10	1	FLG - 4" CL300 RFLWN x 9" LG (0.88" WT)	SA-105N
1		BLIND FLANGE - 4" CL300 RF	SA-105N
2		GASKET - 4" CL300 RF, 1/8" THK, GRAPHITE FILLED	316 SS
8		STUD - 3/4" x 8" LG C/W 2 HEX. NUTS EA.	B7M/2HM
M2	1	FLANGE - 18" CL150 RFLWN x 23" LG (1.0" WT)	SA-105N
1		BLIND FLANGE - 18" CL150 RF	SA-105N
1		GASKET - 18" CL150 RF, 1/8" THK, GRAPHITE FILLED	316 SS
16		STUD - 1 1/8" x 6" LG C/W 2 HEX. NUTS EA.	B7M/2HM

KOOTENAY INDUSTRIES LTD.
 CALGARY, ALBERTA

DRAWN BY: KS
 CHECKED BY: KT

S/N: 12-061.VS3

DATE: 12-02-15
 SCALE: 1:20

CADOTTE CSS PILOT 13-09-085-17 W5M
 914mm ID x 2743mm S/S x 1579 KPAG x 150°C x 3mm CA
 VERTICAL GAS SEPARATOR - V-5020
 PKG-4000(SOUR SERVICE)

MURPHY OIL CORP.
 c/o VISTA PROJECTS LTD.

12-061-C

REV.	DESCRIPTION	APP'D	DATE	BY	DATE
1	REVISED TAGGING			CF	12-08-01
2	ISSUED FOR CONSTRUCTION	KT	11-05-18	CF	12-05-18
3	REVISED AND REISSUED FOR APPROVAL	KT	11-05-01	CF	12-05-01
4	REVISED AND REISSUED FOR APPROVAL	KT	11-03-20	CF	12-03-20
5	ISSUED FOR APPROVAL	KT	11-03-02	KS	11-03-02

PROJECT CO-ORDINATOR CHECKED: DATE: BY:

(1) REQ'D

TIME CARD
 12-061-VS3



CODE SHEET

VISTA Projects Limited			
VENDOR DRAWING/DOCUMENT SQUAD CHECK			
A	Reviewed without exception. Proceed with fabrication. Issue final drawings/documents.		
B	Reviewed except as marked and/or noted. Proceed with fabrication and resubmit drawing/document. Shipment will not be released, if any drawings/documents requiring approval, as per purchase order conditions, are at this code.		
C	Not accepted. Revise as marked and resubmit drawing/document for review. Shipment will not be released, if any drawings/documents requiring approval, as per purchase order conditions, are at this code.		
D	Not required for review. Received for information.		
Reviewed only as to general conformity with the design concept and specifications provided. The engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. Sole responsibility for correct design, detail and dimensions shall remain with the party submitting the drawing/document.			
SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DP02	PKG-4000	<i>[Signature]</i>	2012-08-27

PROJECT NAME: Murphy Cadotte

VENDOR NAME: Kootenay / 1780-012

DOCUMENT
NUMBER: 12-061-D

VENDOR
REVISION: 4

DOCUMENT
DESCRIPTION: Process building Skid PKG-4000
(Sour Service)

VENDOR
TRANSMITTAL
NUMBER: #22

EF-4000A/B EXHAUST FANS

MAKE: 12" VENTUR
MOTOR: 1/4 HP, 120V/1PH/60HZ
EXPLOSION PROOF
CAP: 12 AC/PHR
C/W: (2) MANUAL MOTOR
START, THERMOSTATE H/A.

V-4030 GROUP SEPARATOR

SIZE: 48"ID x 12'-0" S-S
DESIGN: 2 PHASE VERTICAL
DESIGN PRESSURE: 809 PSIG
DESIGN TEMP: 473°F
M.D.M.T. -20°F
CAL: 1/8"
SERVICE: SOUR

V-5020 PRODUCED GAS SEPARATOR

SIZE: 36"ID x 9'-0" S-S
DESIGN: 2 PHASE VERTICAL
DESIGN PRESSURE: 323 PSIG
DESIGN TEMP: 302°F
M.D.M.T. -20°F
CAL: 1/8"
SERVICE: SOUR

V-4040 TEST SEPARATOR

SIZE: 36"ID x 10'-0" S-S
DESIGN: 2 PHASE VERTICAL
DESIGN PRESSURE: 609 PSIG
DESIGN TEMP: 473°F
M.D.M.T. -20°F
CAL: 1/8"
SERVICE: SOUR

The diagram illustrates a complex industrial process involving three vertical separators.
V-4030 (Group Separator): Receives gas inlets (N1, N2, N3, N4, N5, N6, N7, N19) and liquid inlets (N1, N2, N3, N4, N5, N6, N7, N19). It features a manifold five valve, pressure transmitters (PT 4031, PT 4032, PT 4033), and level transmitters (LT 4031, LT 4032, LT 4033). It has a 3" SCH STD gas outlet and a 2" SCH STD liquid outlet.
V-5020 (Produced Gas Separator): Receives gas inlets (N1, N2, N3, N4, N5, N6, N7, N19) and liquid inlets (N1, N2, N3, N4, N5, N6, N7, N19). It features a manifold five valve, pressure transmitters (PT 5021, PT 5022, PT 5023), and level transmitters (LT 5021, LT 5022, LT 5023). It has a 2" SCH STD gas outlet and a 2" SCH STD liquid outlet.
V-4040 (Test Separator): Receives gas inlets (N1, N2, N3, N4, N5, N6, N7, N19) and liquid inlets (N1, N2, N3, N4, N5, N6, N7, N19). It features a manifold five valve, pressure transmitters (PT 4041, PT 4042, PT 4043), and level transmitters (LT 4041, LT 4042, LT 4043). It has a 2" SCH STD gas outlet and a 2" SCH STD liquid outlet.
EF-4000A/B (Exhaust Fans): Two fans are shown, each with a 12" venturi and a 1/4 HP motor. They are connected to a common vent header (N19) and have a 1" SCH 80 gas outlet.
Coriolis Meter: A Coriolis meter is shown measuring the flow of liquid between the separators.
Instruments: Various instruments are shown, including pressure transmitters (PT), level transmitters (LT), and flow meters (FM).
Piping: The diagram shows a network of piping connecting the separators, fans, and instruments. Piping is labeled with sizes (e.g., 2" SCH 80, 3" SCH STD) and materials (e.g., 304 SS, 316 SS).

KOOTENAY INDUSTRIES LTD.

CALGARY, ALBERTA

DRAWN BY: CF
CHECKED BY: KT

DATE: 12-02-13
SCALE: N.T.S.

CADOTTE CSS PILOT 13-09-085-17 W5M
P&ID FOR
PROCESS BUILDING SKID PKG-4000
(SOUR SERVICE)

MURPHY OIL CANADA
c/o VISTA PROJECTS LTD.

12-061-D

REV. A

REV.	DESCRIPTION	APP'D	DATE	BY	DATE
1	REVISED AS NOTED	KT	12-08-01	CF	12-08-20
2	REVISED AS NOTED	KT	12-03-27	CF	12-03-01
3	REVISED AS PER CUSTOMER MARKUP	KT	12-03-27	CF	12-03-01
4	REVISED AS PER CUSTOMER MARKUP	KT	12-03-27	CF	12-03-01
5	ISSUED FOR APPROVAL	KT	12-02-13	CF	12-02-13
6	PROJECT CO-ORDINATOR CHECKED: DATE:				

(1) REQ'D

JOB No.
12-061-PPS



CODE SHEET

VISTA Projects Limited			
VENDOR DRAWING/DOCUMENT SQUAD CHECK			
A	Reviewed without exception. Proceed with fabrication. Issue final drawings/ documents.		
B	Reviewed except as marked and/or noted. Proceed with fabrication and resubmit drawing/document. Shipment will not be released, if any drawings/documents requiring approval, as per purchase order conditions, are at this code.		
C	Not accepted. Revise as marked and resubmit drawing/document for review. Shipment will not be released, if any drawings/documents requiring approval, as per purchase order conditions, are at this code.		
D	Not required for review. Received for information.		
Reviewed only as to general conformity with the design concept and specifications provided. The engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. Sole responsibility for correct design, detail and dimensions shall remain with the party submitting the drawing/document.			
SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DP02	PKG-4000	RZ	2012-08-27

PROJECT NAME: Murphy Cadotte

VENDOR NAME: Kootenay / 1780-012

DOCUMENT
NUMBER: 12-061-D1

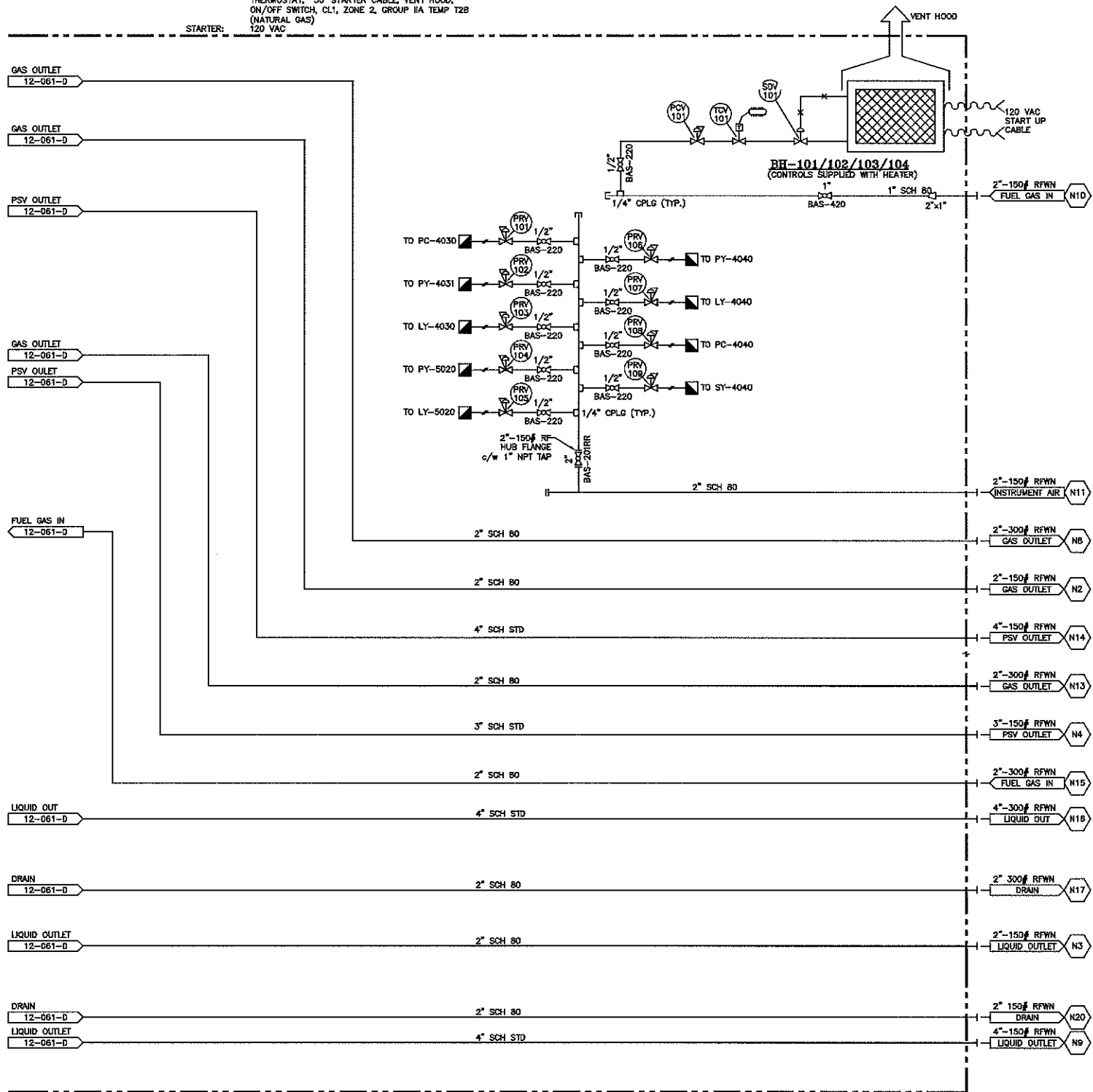
VENDOR
REVISION: 4

DOCUMENT
DESCRIPTION: Process building, Skid PKG-4000
(Sour Service)

VENDOR
TRANSMITTAL
NUMBER: # 22

BH-101/102/103/104 BUILDING HEATERS

MAKE: BRUEST CATADYNE
MODEL: B24-24CS
DUTY: 24,000 BTU/HR
ACCESSORIES: GRILL GUARD, SAFETY SHUT-OFF, PILOT, REGULATOR, THERMOSTAT, 30' STARTER CABLE, VENT HOOD, ON/OFF SWITCH, CL1, ZONE 2, GROUP IIA TEMP T28 (NATURAL GAS)
STARTER: 120 VAC



BILL OF MATERIAL

TAG#	QTY	DESCRIPTION
BAS-220	14	1/2"-NPT REG. PORT BALL VALVES, NAVCO H1, 2000#, NACE
BAS-220F	4	1/2"-NPT FULL PORT BALL VALVES, MERIDIAN MAC2CF, 2000# WOG, NACE
BAS-320	8	3/4"-NPT REG. PORT BALL VALVES, NAVCO H1, 2000# WOG, NACE
BAS-201RR	3	2"-150# RF, REG. PORT BALL VALVES, JAG FB2-R20R01N, NACE
BAS-203RR	8	2"-300# RF, REG. PORT BALL VALVES, JAG FB2-R20R03N, NACE
BAS-301RR	1	3"-150# RF, REG. PORT BALL VALVES, JAG FB2-R30R01N, NACE
BAS-303RR	1	3"-300# RF, REG. PORT BALL VALVES, JAG FB2-R30R03N, NACE
BAS-403RR	2	4"-300# RF, REG. PORT BALL VALVES, JAG FB2-R40R03N, NACE
GLS-203RR	1	2"-300# RF REG. PORT, GLOBE VALVE, VELAN F-1074C-02NB, NACE
GLS-303RR	1	3"-300# RF REG. PORT, GLOBE VALVE, VELAN F-1074C-02NB, NACE
GAS-220	6	1/2"-NPT REG. PORT, GATE VALVES, 2000#, KF GA08015XU-N, NACE
GAS-320	3	3/4"-NPT REG. PORT, GATE VALVES, 2000#, KF GA08015XU-N, NACE
GAS-203RR	1	2"-300# RF REG. PORT, GATE VALVE, VELAN F-1064C-02NB, NACE
CHS-203RR	2	2"-300# RF REG. PORT, SWING CHECK VALVE, VELAN F-1114C-02NB, NACE
NES-3260	4	3/4"-MNPT X 1/2"-FNPT NPT NEEDLE VALVE, AGCO, SS, 8000#
NES-280	2	1/2"-MNPT X 1/2"-FNPT NPT NEEDLE VALVE, WGL, SS, 8000#
SPEC BLIND	3	2"-300# SPEC BLIND, SCH 80, SA-516-70N
SPEC BLIND	3	3"-300# SPEC BLIND, SCH STD, SA-516-70N
SPEC BLIND	2	4"-300# SPEC BLIND, SCH STD, SA-516-70N
SPEC BLIND	1	2"-150# SPEC BLIND, SCH 80, SA-516-70N
SPEC BLIND	2	3"-150# SPEC BLIND, SCH STD, SA-516-70N
SP-01	3	1" X 1" NPT RP STRAHMAN SAMPLING VALVE, 316 SS BODY & TRIM, CLASS 600, 2" PISTON EXTENSION, HAND WHEEL OPERATED

NOZZLE SCHEDULE

NOZZLE NUMBER	SIZE	RATING	SERVICE	ELEVATION
N1	3"	150# RFWN	V-5020 INLET	XX
N2	2"	150# RFWN	V-5020 GAS OUTLET	XX
N3	2"	150# RFWN	V-5020 LIQUID OUTLET	XX
N4	3"	150# RFWN	V-5020 PSY OUT	XX
N5	3"	300# RFWN	V-4030 EMULSION INLET	XX
N6	2"	300# RFWN	V-4030 FUEL GAS INLET	XX
N7	4"	150# RFWN	V-4030 PSY OUT	XX
N8	2"	300# RFWN	V-4030 GAS OUTLET	XX
N9	4"	150# RFWN	V-4030 LIQUID OUTLET	XX
N10	2"	150# RFWN	BUILDING HEATERS FUEL GAS INLET	XX
N11	2"	150# RFWN	INSTRUMENT AIR INLET	XX
N12	2"	300# RFWN	V-4040 EMULSION INLET	XX
N13	2"	300# RFWN	V-4040 GAS OUTLET	XX
N14	4"	150# RFWN	V-4040 PSY OUTLET	XX
N15	2"	300# RFWN	V-4040 FUEL GAS INLET	XX
N16	4"	300# RFWN	V-4040 LIQUID OUTLET	XX
N17	2"	300# RFWN	V-4040, V-4030 DRAIN	XX
N18	-	-	-	-
N19	1"	3000# NPT	VENT HEADER	XX
N20	2"	150# RFWN	V-5020 DRAIN	XX
M1	20"	300# RFLWN	V-4030 MANWAY	XX
M2	18"	150# RFLWN	V-5020 MANWAY	XX
M3	18"	300# RFLWN	V-4040 MANWAY	XX

NOTES:

- INSTR. TUBING:
3/8" 316 SS SWAGelok c/w 316 SS FITTINGS
PROCESS TUBING:
1/2" 316 SS SWAGelok c/w 316 SS FITTINGS
HEATER TUBING:
3/8" 316 SS SWAGelok c/w 316 SS FITTINGS
- ANY EXHAUSTING INSTRUMENTS TO BE VENTED TO VENT HEADER.
- FISHER 67 CFR REGULATORS AND VALVE DIAPHRAGMS ARE NOT VENTED.
- ALL PIPING SHALL HAVE 1" THK PERSONAL PROTECTION INSULATION (VALVES AND FLANGES NOT INCLUDED) c/w CLADDING EXCEPT EMULSION INLET (N5) TO V-4030 AND EMULSION INLET (N12) TO V-4040 BY-PASS LINE AROUND V-4030, V-4030 LIQUID OUTLET LINE TO N5, V-4040 LIQUID OUTLET LINE TO N16 AND DRAIN LINES FROM V-4030 & V-4040.
- VESSELS INSULATED WITH 1 1/2" THK MINERAL WOOL INSULATION c/w STUCCO EMBOSSED ALUMINUM /w MOISTURE BARRIER.
- MINIMUM PIPE REQ'D 15' UPSTREAM AND 5' DOWNSTREAM.

BILL OF MATERIAL

TAG#	QTY	DESCRIPTION
LG-4040/5020/4030	3	DANIEL 61RL REFLEX LEVEL GAUGE C/W 15 GAUGE COOKS, 9 1/8" VISIBLE LENGTH.
PG-4040/4030	2	4"-DIAL WGL PRESSURE INDICATORS, DUAL UNIT, LIQUID FILLED, 1/2" NPT BOTTOM CONNECTION, 0-8000 KPA RANGE, NACE.
PG-5020	1	4"-DIAL WGL PRESSURE INDICATORS, DUAL UNIT, LIQUID FILLED, 1/2" NPT BOTTOM CONNECTION, 0-2000 KPA RANGE, NACE.
TD-4043/5020/4030	3	5" DIAL FACE, WGL TEMPERATURE INDICATOR, 50 TO 500°F, DUAL SCALE, 1/2" X 3/4" X 9" LG, 316SS TW.
LSH-4041/4031	2	2" NPT SOR 1510B-G2A-L9-ES ELECTRIC LEVEL SWITCH, 24 VDC, XP
LSL-4041/5021/4031	3	2" NPT SOR 1510B-G2A-L9-ES ELECTRIC LEVEL SWITCH, 24 VDC, XP
LT-4040/5020/4030	3	4"-300# FISHER DLS3010-249VS LEVEL TRANSMITTER, 4-20mA, CSA, XP, HART, DIRECT ACTING, NACE.
PSV-4030	1	1"-300# RF X 2"-150# RF FARRIS 26DA12-120 RELIEF VALVE, NACE PRIMARY ZONE, SET @ 4200 KPA.
PSV-5020	1	1"-150# RF X 2"-150# RF FARRIS 26DA12-120 RELIEF VALVE, NACE PRIMARY ZONE, SET @ 1227 KPA.
PSV-4040	1	1"-300# RF X 2"-150# RF FARRIS 26DA12-120 RELIEF VALVE, NACE PRIMARY ZONE, SET @ 4200 KPA.
PCV/PC-4033	1	2"-300# RF CYS D BODY CONTROL VALVE, 1/2" TRIM, FC c/w MOUNTED CYS 4150 PRESSURE CONTROLLER, REVERSE ACTING, 1-6000 KPA BOURDON TUBE, NACE.
FE-4031	1	1" 30' SPONSER GAS TURBINE METER 304SS C/W SP714C 6-28 VDC AMPLIFIER C/W XARTU/1-VC VOLUME CORRECTOR.
LV/LV/LY-4030	1	2"-300# RF NORRISEAL 2220-S38NTTV9 DUMP VALVE, 1/2" TRIM, FC, NACE SOUR PROCESS, SWEET INSTRUMENT, C/W MOUNTED ASCO EF8320-G302 3-WAY SOLENOID VALVE, LOW-POWER, 24 VDC, CSA, XP C/W MOUNTED CONTROL AIR I/P TRANSDUCER, 4-20 MA, 6-30 PSI, CSA, XP
FE-4032/FC-4032	1	1" 300# RF ORIFICE FLANGE UNION (SET), SA-105N, 1/2" NPT TAPS C/W FOUR (4) - ORIFICE PLATES (0.125" INSTALLED) (0.25", 0.375" AND 0.5" SHIPPED LOOSE)
RT/TIT/TIT/FE-4032	1	ROSEMOUNT 3IN1 MULTIVARIABLE TRANSMITTER 3051SMV5M12C3R2A11A1C12K6M5 C/W INTEGRAL 5-VALVE MANIFOLD, 316SS, NACE, 0-100" WC, 0-8000 KPA STATIC, 0-150°F c/w RTD ASSEMBLY & TW, 316 SS, 3/4" NPT PROCESS
PIT-4031	1	ROSEMOUNT 3051SG5A2E12A1AKS GAUGE PRESSURE TRANSMITTER, 0-8000 KPA, NACE
PV/PV-4031	1	2"-300# RF CYS 'D' CONTROL VALVE, 1/2" TRIM, FC c/w CONTROL AIR I/P TRANSDUCER, NACE
LV/LV/LY-5020	1	2"-150# RF NORRISEAL 2220-S38NTTV9 DUMP VALVE, 1/2" TRIM, FC, NACE SOUR PROCESS, SWEET INSTRUMENT, C/W MOUNTED ASCO EF8320-G302 3-WAY SOLENOID VALVE, LOW-POWER, 24 VDC, CSA, XP C/W MOUNTED CONTROL AIR I/P TRANSDUCER, 4-20 MA, 6-30 PSI, CSA, XP
PIT-5021	1	ROSEMOUNT 3051SG5A2E12A1AKS GAUGE PRESSURE TRANSMITTER, 0-800 KPA, SOUR, NACE
PV/PV-5021	1	2"-150# RF CYS 'E' SERIES CONTROL VALVE C/W EQUAL % TRIM, FC C/W CONTROL AIR I/P TRANSDUCER, NACE
TE/TIT-4041	1	ROSEMOUNT 3144PD1A1K8M5 TEMPERATURE TRANSMITTER C/W RTD & TW, 316 SS, 3/4" NPT PROCESS CONNECTION, NACE
PG-4041	1	4" DIAL DUAL SCALE, LIQUID FILLED, 1/2" NPT BM, WGL, 0-5000 KPA RANGE, NACE
AIT-4040	1	2" 300# RF PHASE DYNAMICS FULL RANGE WATER-IN-OIL ANALYZER, MODEL# FLR2026B083B, 316SS, 3/4" NPT CONNECTION.
FE/TIT-4041	1	4" 300# RF MICRO MOTION CORIOLIS METER, MODEL# CMF400M438NQBEEZZ, 316SS, 1/2" NPT CONNECTION
SY-4040	1	CARON CONTROLS PNEUMATIC SAMPLING SYSTEM
LV/LV/LY-4040	1	3"-300# RF CYS SERIES 'ET' CONTROL VALVE, c/w 667-45 ACTUATOR FC, 6-30 PSI SIGNAL, BENCH SET @ 10-30 SPI, 3-7/16" PORT EQUAL % TRIM, 1-1/2" TRAVEL, LOC BODY, NACE, LOW TEMP, c/w ASCO MODEL #EF8320 G202, 3-WAY, 24 VDC SOLENOID, c/w CONTROLAIR 950 XP I/P TRANSDUCER, GAS 4-20 mA INPUT, 6-30 PSI OUTPUT CSA, XP.
PIT-4043	1	ROSEMOUNT 3051SG5A2E12A1AKS GAUGE PRESSURE TRANSMITTER, 0-6000 KPA, SOUR, NACE
PV/PV-4043	1	2"-300# RF CYS 'D' CONTROL VALVE, 1/2" TRIM, FC C/W CONTROL AIR I/P TRANSDUCER, NACE
FE-4040/FC-4040	1	1" 300# RF ORIFICE FLANGE UNION (SET), SA-105N, 1/2" NPT TAPS C/W FOUR (4) - ORIFICE PLATES (0.125" INSTALLED) (0.250", 0.375" AND 0.5" SHIPPED LOOSE)
TIT/PIT/TIT/TE-4040	1	ROSEMOUNT 3-IN-1 MULTIVARIABLE TRANSMITTER C/W INTEGRAL 5-VALVE MANIFOLD, 316 SS, SOUR, NACE, 0-100" WC, 0-5000 KPA STATIC, 0-80°C c/w RTD ASSEMBLY & TW, 316 SS, 3/4" NPT PROCESS
FE-4042	1	1" 30' SPONSER GAS TURBINE METER 304SS C/W SP714C 6-28 VDC AMPLIFIER C/W XARTU/1-VC VOLUME CORRECTOR.
PCV/PCV-4042	1	2"-300# RF CYS 'D' BODY CONTROL VALVE, 1/2" TRIM, FC C/W MOUNTED CYS 4150 PRESSURE CONTROLLER, REVERSE ACTING, 0-8000 KPA BOURDON TUBE, NACE.
PRV-101-109	9	1/4" NPT FISHER 67-CFR REGULATOR, 0-241 KPA RANGE, STANDARD, NON-VENTED
ESD-4000A ESD-4000B	2	EMERGENCY SHUT DOWN BUTTONS, ONE LOCATED I/S, ONE LOCATED O/S.
AL-4000A AL-4000B	2	CL1, DIV 2, RED ALARM BEACONS ONE LOCATED I/S ONE LOCATED O/S.
AL-4000C AL-4000D	2	CL1, DIV 2, BLUE ALARM BEACONS ONE LOCATED I/S ONE LOCATED O/S.
AIT-4001A AIT-4001B	2	H2S DETECTORS c/w REMOTE SENSORS ONE LOCATED I/S
AIT-4002A AIT-4002B	2	LEL DETECTORS c/w REMOTE SENSORS ONE LOCATED I/S
AT-4000A AT-4000B	2	UV/IRS FIRE DETECTORS ONE LOCATED I/S.

KOOTENAY INDUSTRIES LTD.
CALGARY, ALBERTA

DRAWN BY: CF
CHECKED BY: KT
DATE: 12-02-13
SCALE: N.T.S.

CADOTTE CSS PILOT 13-09-085-17 W5M
P&ID FOR
PROCESS BUILDING SKID PKG-4000
(SOUR SERVICE)

MURPHY OIL CANADA
c/o VISTA PROJECTS LTD.

12-061-D1

REV. A

(1) REQ'D

JOB No.
12-061-PPS

REV.	DESCRIPTION	APP'D	DATE	BY	DATE
Δ	REVISED AS NOTED		12-08-01	CF	12-08-20
Δ	REVISED AS NOTED	KT	12-08-01	CF	12-08-01
Δ	REVISED AS PER CUSTOMER MARKUP	KT	12-03-27	CF	12-05-01
Δ	REVISED AS PER CUSTOMER MARKUP	KT	12-02-13	CF	12-03-27
Δ	ISSUED FOR APPROVAL	KT	12-02-13	CF	12-02-13
REV.	DESCRIPTION	APP'D	DATE	BY	DATE
PROJECT CO-ORDINATOR CHECKED: DATE: BY:					



CODE SHEET

VISTA Projects Limited			
VENDOR DRAWING/DOCUMENT SQUAD CHECK			
A	Reviewed without exception. Proceed with fabrication. Issue final drawings/ documents.		
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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DM01	PKG-Y600		2012-08-27

PROJECT NAME: Murphy Cadotte

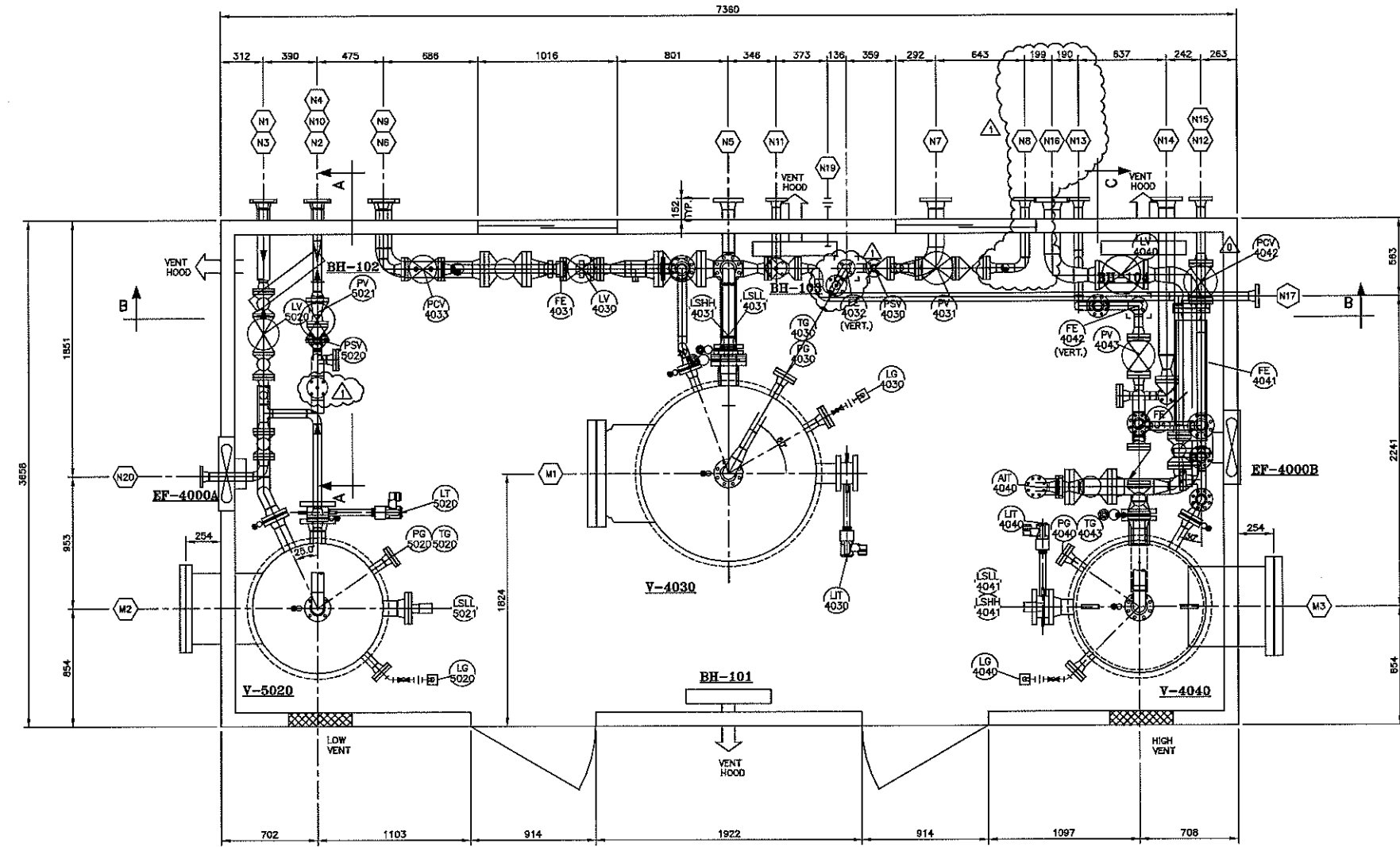
VENDOR NAME: Kootenay / 1780-012

DOCUMENT
NUMBER: 12-061-E

VENDOR
REVISION: 1

DOCUMENT
DESCRIPTION: Process building Skid PKG-4000
(Sour Service) Sheet 1 of 2

VENDOR
TRANSMITTAL
NUMBER: # 22

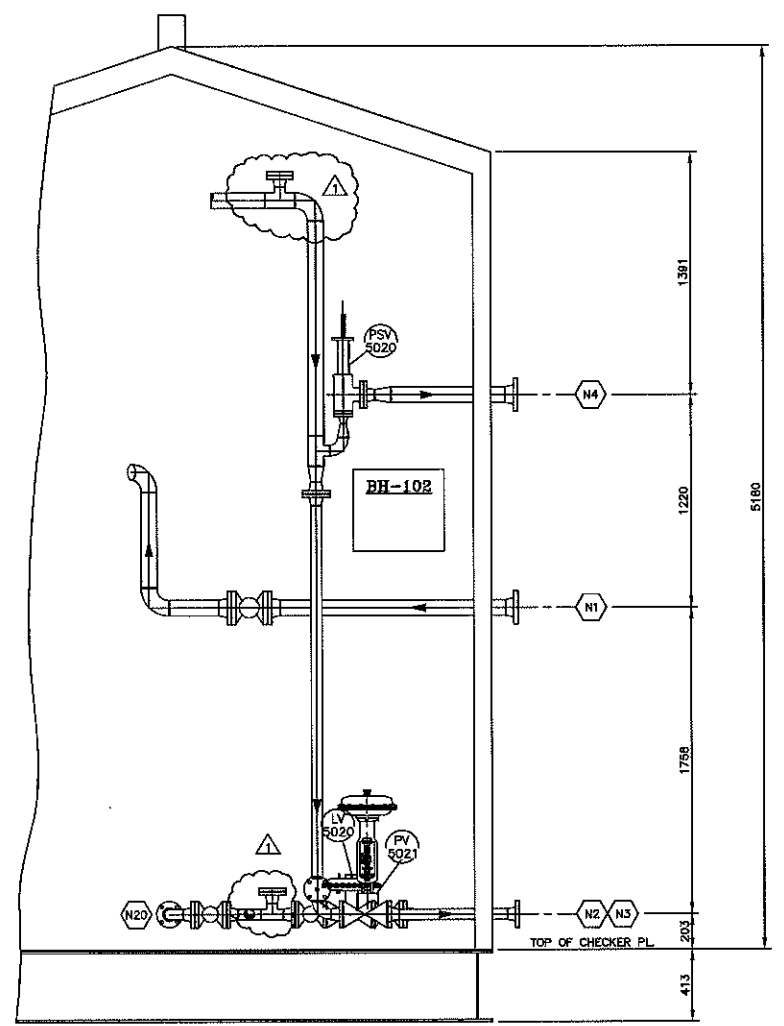


PLAN VIEW

GENERAL NOTES:

- THIS DRAWING TO BE READ IN CONJUNCTION WITH THE MECHANICAL FLOW DIAGRAM.
- ALL ELEVATIONS ARE REF. FROM TOP OF CHECKERED PLATE.
- ALL PIPING TO BE WELDED TO DIMENSIONS & ELEVATIONS SHOWN FOR CUSTOMER TIE-INS.
- MAIN PIPING TO BE BUILT IN ACCORDANCE WITH THE LATEST EDITION OF B31.3.
- ALL BUTTWELDED 0.125 C.A. PIPING TO BE:
150 ANSH: 2" - SCH 80; 2-1/2" & UP - SCH STD
300 ANSH: 2" - SCH 80; 2-1/2" & UP - SCH STD
MATERIALS: PIPING - SA-106-B SMLS
FLANGES - SA-105N
FITTINGS - SA-234-WPB
BOLTS - SA-193-B7M
NUTS - SA-194-2HM
GASKETS - 316 SS FLEXITALLIC
- ALL THREADED PIPING TO BE 3/4" AND SMALLER AND TO BE SCH 160
SA-106-B SMLS PIPE C/W 3000# SA-105N SCREWED FITTINGS.
- BUILDING:
DIM: 12'-0" W x 24'-2" LG x 15'-0" EAVE, GABLE STYLE WITH 4:12 SLOPE
22 GAUGE GALVALUME EXTERIOR WALLS AND ROOF
R-12 BATT INSULATION IN WALLS; R-20 IN ROOF
24 GAUGE WHITE ALUMINUM INTERIOR LINER
6mm VAPOR BARRIER
(2) 3'-0" x 7'-0" STEEL MANDOR (18 GAUGE DOOR, 20 GAUGE FRAME, R-4 INSULATED)
WITH LOCKING PANIC HARDWARE, LOCKSET, 24" x 24", 1WG WINDOW, CHECK-CHAIN,
WEATHER STRIPPING, ALUMINUM THRESHOLD, AND CANOPY.
(2) 40" x 40" 1WG DOUBLE GLAZED SLIDING WINDOWS c/w 1/2 SCREEN AND LATCH
(2) 18" x 32" MANUALLY ADJUSTABLE LOUVER c/w SCREENS AND MANUAL WING NUT CONTROL
ICE RAKES AT LOWER EAVES.
EAVES TROUGH
DOWNSPOUTS
- UNIT TO BE COMMERCIALY SANDBLASTED TO SSPC-SP8 PRIOR TO:
ONE(1) COAT OF RUST-OLEUM 7085 (GREY) PRIMER
ONE(1) COAT OF RUST-OLEUM 908 (SILVER GREY) INDUSTRIAL HIGH GLOSS ENAMEL
PIPING: AS PER ABOVE
SKID FLOOR: AS PER ABOVE
PIPE SUPPORTS: AS PER ABOVE
- ALL WELDED BUTTWELD PIPING SHALL BE 100% RADIOGRAPHICALLY INSPECTED
(NORMAL SERVICE) BUT NOT PWHT. PIPING TO BE HARDNESS TESTED, THREE (3) READINGS
ON ALL WELDS. ONE (1) IN CENTER OF WELD, ONE (1) EACH SIDE OF WELD
IN HAZ SHALL BE DONE. BHN 200 MAXIMUM
- ALL PIPING SHALL BE HYDROTESTED TO 1.5 TIMES THE DESIGN PRESSURE.
- ALL PIPE SUPPORT LOCATIONS TO BE DETERMINED BY SHOP.
- ALL UNION LOCATIONS TO BE DETERMINED BY SHOP.
- UNIT IS REGISTERED FOR ALBERTA, BRITISH COLUMBIA, AND SASKATCHEWAN SERVICE.
- SHIPPING DIMENSION: 26'-4" LG x 13'-8" W x 19'-6" H TBC
- SHIPPING WEIGHT: 60,000 LBS

NOZZLE SCHEDULE				
NOZZLE NUMBER	SIZE	RATING	SERVICE	
N1	3"	150# RFWN	V-5020 INLET	
N2	2"	150# RFWN	V-5020 GAS OUTLET	
N3	2"	150# RFWN	V-5020 LIQUID OUTLET	
N4	3"	150# RFWN	V-5020 PSV OUT	
N5	3"	300# RFWN	V-4030 EMULSION INLET	
N6	2"	300# RFWN	V-4030 FUEL GAS INLET	
N7	4"	150# RFWN	V-4030 PSV OUT	
N8	2"	300# RFWN	V-4030 GAS OUTLET	
N9	4"	150# RFWN	V-4030 LIQUID OUTLET	
N10	2"	150# RFWN	BUILDING HEATERS FUEL GAS INLET	
N11	2"	150# RFWN	INSTRUMENT AIR INLET	
N12	2"	300# RFWN	V-4040 EMULSION INLET	
N13	2"	300# RFWN	V-4040 GAS OUTLET	
N14	4"	150# RFWN	V-4040 PSV OUTLET	
N15	2"	300# RFWN	V-4040 FUEL GAS INLET	
N16	4"	300# RFWN	V-4040 LIQUID OUTLET	
N17	2"	300# RFWN	V-4040, V-4030 DRAIN	
N18	-	-		
N19	1"	3000# NPT	VENT HEADER	
N20	2"	150# RFWN	V-5020 DRAIN	
M1	2"	300# RFWN	V-4030 MANWAY	
M2	20"	150# RFWN	V-5020 MANWAY	
M3	18"	300# RFWN	V-4040 MANWAY	



SECTION VIEW 'A-A'

(1) REQ'D
TIME CARD
12-061-PPW

REVISD AS NOTED				CF	12-08-15
ISSUED FOR CONSTRUCTION	KT	12-08-01	CF	12-08-01	
REVISD AS NOTED	KT	12-05-01	CF	12-05-01	
REVISD AS NOTED	KT	12-04-04	CF	12-04-04	
ISSUED FOR APPROVAL	KT	12-02-21	KS	12-02-21	
REV.	DESCRIPTION	APP'D	DATE	BY	DATE
PROJECT CO-ORDINATOR CHECKED: DATE:					

KOOTENAY INDUSTRIES LTD.
CALGARY, ALBERTA

DRAWN BY: KS
CHECKED BY: KT

DATE: 12-02-06
SCALE: 1:20

CADOTTE CSS PILOT 13-09-085-17 W5M
PIPING PLAN FOR
PROCESS BUILDING SKID PACKAGE (PKG-4000)
(SOUR SERVICE) SHEET 1 OF 2

MURPHY OIL CANADA
c/o VISTA PROJECTS LTD.

12-061-E



CODE SHEET

VISTA Projects Limited			
VENDOR DRAWING/DOCUMENT SQUAD CHECK			
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SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
Dm01	PKG-4000	De	2012-08-27

PROJECT NAME: Murphy Cadotte

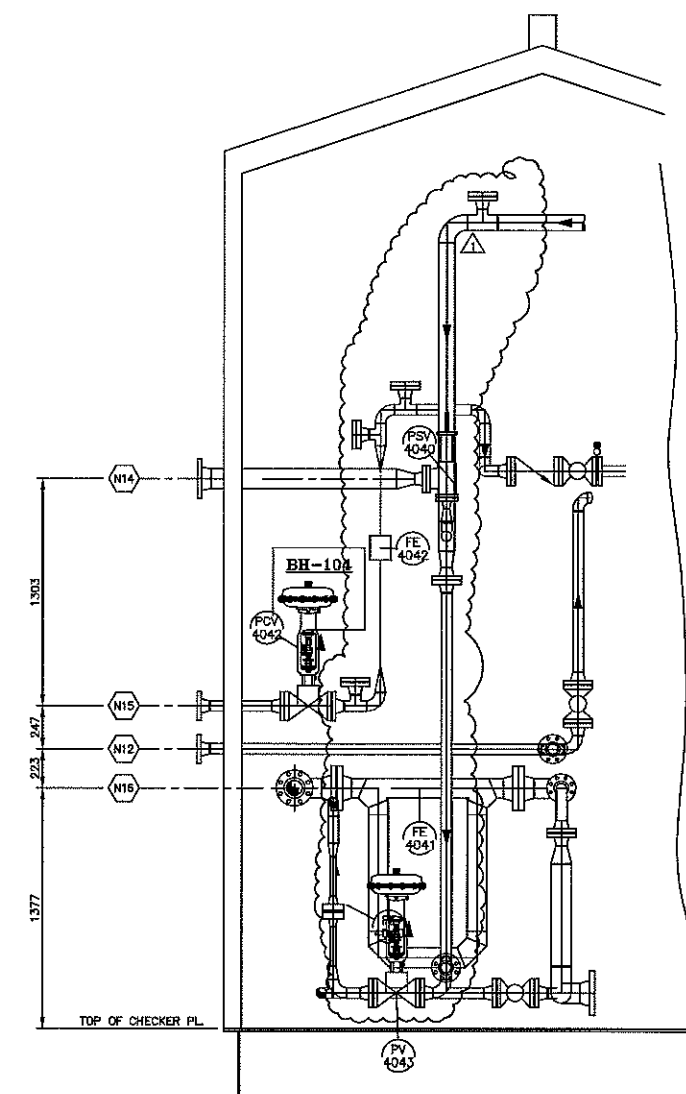
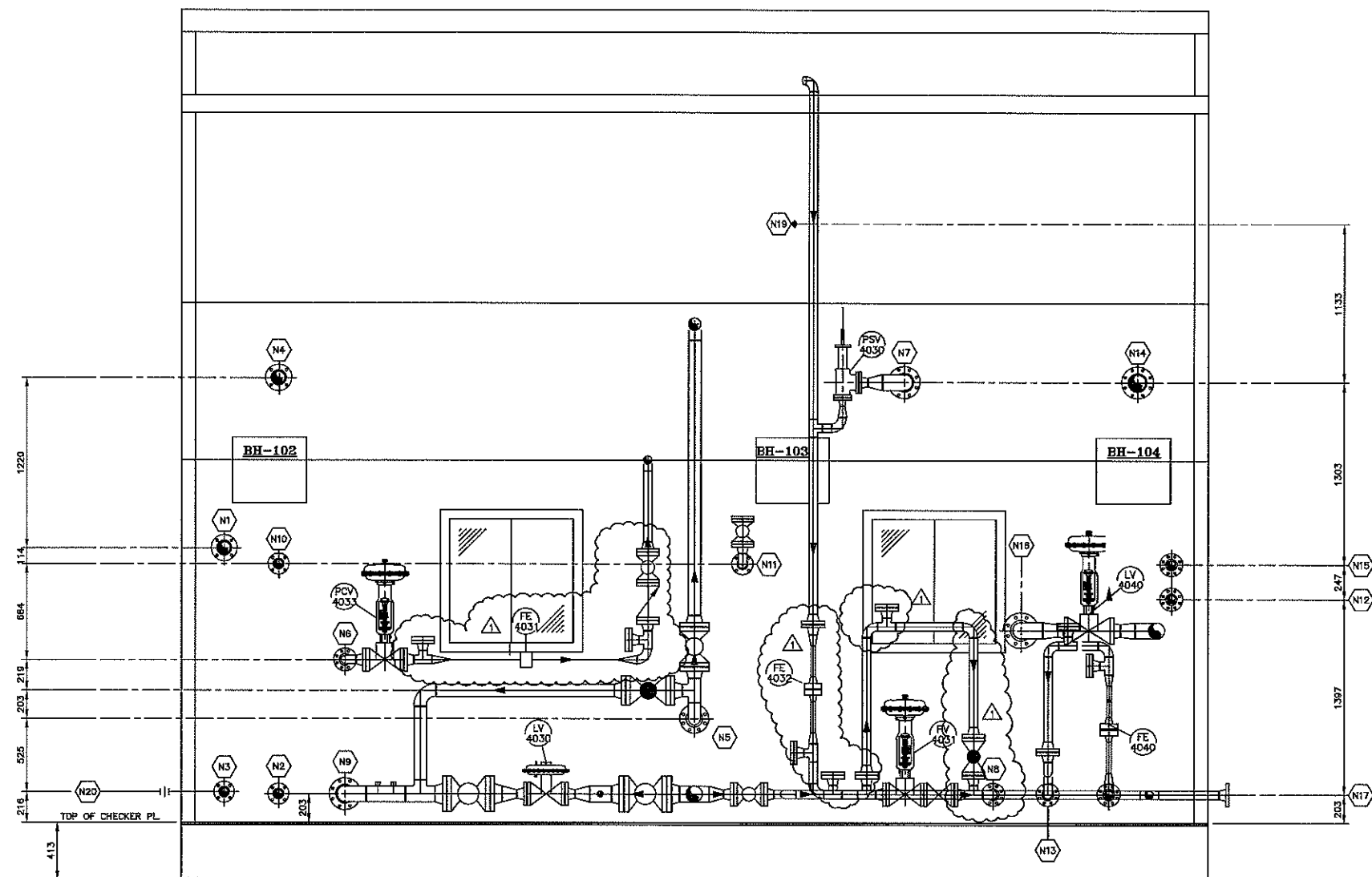
VENDOR NAME: Kootenay / 1780-012

DOCUMENT
NUMBER: 12-061-E1

VENDOR
REVISION: 1

DOCUMENT
DESCRIPTION: Process building Skid PKG-4000
(Sour Service) Sheet 2 of 2

VENDOR
TRANSMITTAL
NUMBER: #22



(1) REQ'D
TIME CARD
12-061-PPW

▲	REVISED AS NOTED			CF	12-08-11
▲	ISSUED FOR CONSTRUCTION	KT	12-08-01	CF	12-08-01
▲	REVISED AS NOTED	KT	12-05-01	CF	12-05-01
▲	REVISED AS NOTED	KT	12-04-04	CF	12-04-04
▲	ISSUED FOR APPROVAL	KT	12-02-21	KS	12-02-21
REV.	DESCRIPTION	APP'D	DATE	BY	DATE
PROJECT CO-ORDINATOR CHECKED:		DATE:		BY:	

KOOTENAY INDUSTRIES LTD.				
CALGARY, ALBERTA				
DRAWN BY:	KS		DATE:	12-02-05
CHECKED BY:	KT		SCALE:	1:20
CADOTTE CSS PILOT 13-09-085-17 W5M PIPING PLAN FOR PROCESS BUILDING SKID PACKAGE (PKG-4000) (SOUR SERVICE) SHEET 2 OF 2				
MURPHY OIL CANADA c/o VISTA PROJECTS LTD.			12-061-E1	REV. 

CODE SHEET

VISTA Projects Limited			
VENDOR DRAWING/DOCUMENT SQUAD CHECK			
A	Reviewed without exception. Proceed with fabrication. Issue final drawings/documents.		
B	Reviewed except as marked and/or noted. Proceed with fabrication and resubmit drawing/document. Shipment will not be released, if any drawings/documents requiring approval, as per purchase order conditions, are at this code.		
C	Not accepted. Revise as marked and resubmit drawing/document for review. Shipment will not be released, if any drawings/documents requiring approval, as per purchase order conditions, are at this code.		
D	Not required for review. Received for information.		
Reviewed only as to general conformity with the design concept and specifications provided. The engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. Sole responsibility for correct design, detail and dimensions shall remain with the party submitting the drawing/document.			
SDR CODE	EQUIPMENT TAG	REVIEWED BY	DATE
DC 03	PKG-4000	<i>[Signature]</i>	2012-07-16

PROJECT NAME: Murphy Gdltte / 1780-012

VENDOR NAME: Kootenay Industries Ltd.

DOCUMENT NUMBER: 12-061-F

VENDOR REVISION: B

DOCUMENT DESCRIPTION: Structural Steel Skid for Process Building Skid Package

VENDOR TRANSMITTAL NUMBER: #18

