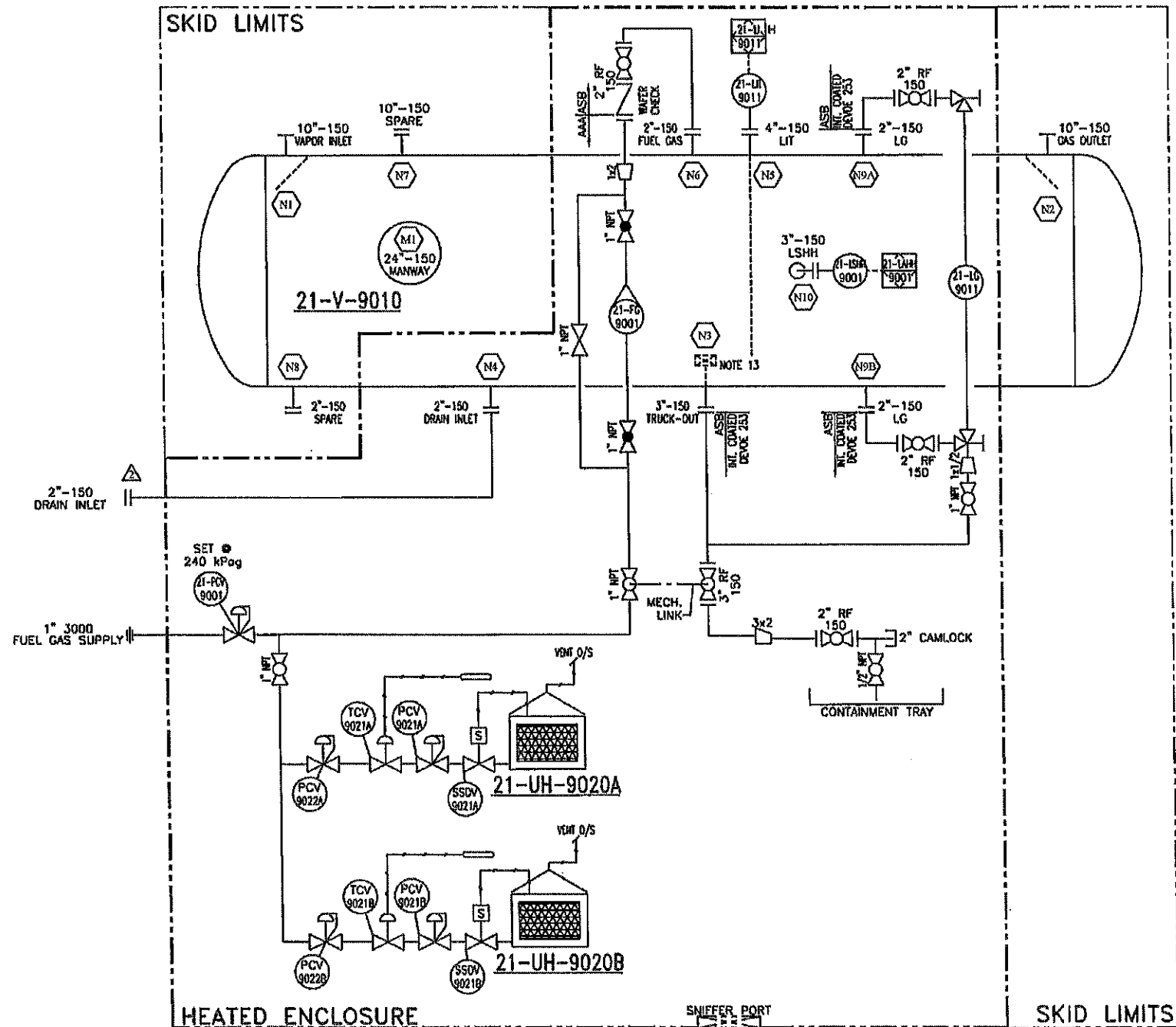




21-V-9010
FLARE KNOCKOUT DRUM
60" ID x 20'-0" S/S
50 PSIG @ 200°F
C.A.: 1/8"
SERIAL #: 15369
CRN: -
BUILT: 2010

21-UH-9020A/B
CATADYNE MK-24x24
DUTY: 20,000 BTU/HR
12 VOLT, NATURAL GAS
e/w VENT HOOD

REV. NO.	DATE	REVISION	BY	APP'D
0	02/17/10	ISSUED FOR FABRICATION	DSG	JAM
1	04/01/10	AS BUILT	JAH	
2	04/16/10	ADDED 2" DRAIN INLET SPOOL	JMB	

BILTON
Welding & Manufacturing Ltd.
BOX 6106
5815 37 Street
INNISSFAH, AB
CANADA
403-227-7799
1-888-227-4923
FAX 227-7796

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MURPHY OIL COMPANY LTD			
TUPPER WEST FLARE KNOCKOUT PACKAGE - TAG: 21-PK-900			
P&ID			
DATE: 11/30/09	SHEET: 4 OF 5	JOB ORDER:	SALE ORDER: 001730
DRAWN BY: DSG	PURCHASE ORDER: 54096129-204	DRAWING NO.:	SIZE
LOCATION: VARIOUS	APP'D BY: JAM	C973-4	D
			REV. 2

INSTRUMENTATION

TAG	QTY	PART No.	DESCRIPTION
21-UH-9020	2	1-004210	24" x 24" CATADYNE HEATER, 12 VOLT NATURAL GAS e/w VENT HOOD & 12 VOLT STARTING CABLES
21-LG-9011	2	1-006182	3/4" NPT PENBERTHY 2TM7 LEVEL GAUGE (NACE)
21-FD-9001	1	1-009778	1" FNPT, METAL TUBE ROTAMETER QM25263G (593 to 9927 SCFH)
21-PCV-9001	1	1-007477	1" NPT FISHER 627 REGULATOR, DUCTILE IRON BODY, 1/4" ORIFICE, SET @ 240 kPag
21-LSHH-9001	1	1-003649	2" NPT SOR 1510C ELECTRIC LEVEL SWITCH (NACE) - SHIPPED LOOSE
21-LIT-9011	1	1-009779	ROSEMOUNT 5300 LEVEL TRANSMITTER MODEL 5301HA1S1E4E005000CAE8WTC1 - SHIPPED LOOSE

PIPING

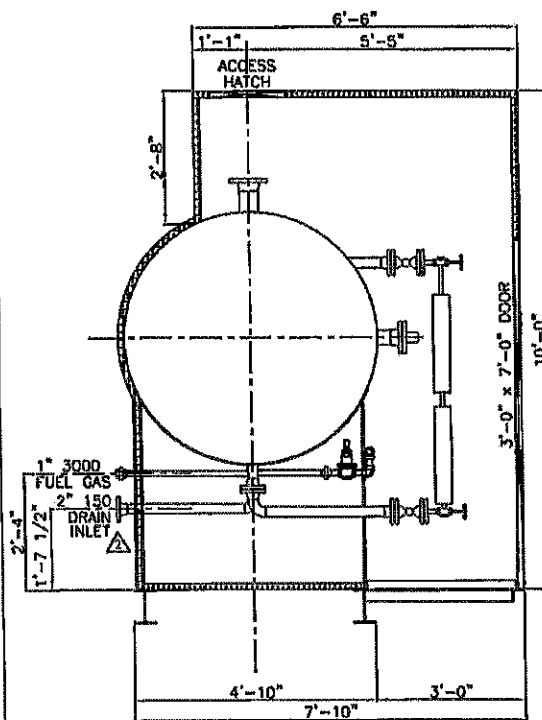
ITEM	QTY	PART No.	DESCRIPTION	MATERIAL
1	3	1-003993	2" x CLASS 150 RF RP MERIDIAN BALL VALVE FB2-R20R01N (IMPREGN 222 INTERNAL COATING)	A216-WCB
			A216 WCB BODY, 316SS BALL & STEM, R-PIFE SEAT, GRAPHITE PACKING, API 607 REV 4 (NACE)	
2	1	1-003992	3" x CLASS 150 RF RP MERIDIAN BALL VALVE FB2-R20R01N (IMPREGN 222 INTERNAL COATING)	A216-WCB
			A216 WCB BODY, 316SS BALL & STEM, R-PIFE SEAT, GRAPHITE PACKING, API 607 REV 4 (NACE)	
3	1	1-003616	2" x CLASS 150 RF RP MERIDIAN BALL VALVE FB2-R20R01N	A216-WCB
			A216 WCB BODY, 316SS BALL & STEM, R-PIFE SEAT, GRAPHITE PACKING, API 607 REV 4 (NACE)	
4	3	1-009767	1" NPT x CLASS 2000 MERIDIAN BALL VALVE M12B	SA-105-N
			A105 BODY, 304SS CF8, R-PTFE SEAT, PTFE SEAL (NACE)	
5	1	1-009768	1/2" NPT x CLASS 2000 MERIDIAN BALL VALVE M12B	SA-105-N
			A105 BODY, 304SS CF8, R-PTFE SEAT, PTFE SEAL (NACE)	
6	1	1-009769	2" x CLASS 150/300 RF DURABLE WLC-9003X WAFER CHECK VALVE	-
			CS BODY, 316SS TRIM & SEAT/STEM, INCONEL X-750 SPRING	
7	1	1-006164	3/4" NPT PENBERTHY 330J GAUGE VALVES (NACE)	-
8	2	1-005865	1" NPT x CLASS 800 MERIDIAN GLOBE VALVE J8TYCA	SA-105-N
			A105 BODY/BOLTED BONNET, 13Cr/HF TRIM 8, GRAPHITE PACKING, 13CR STEM	
9	1	1-009771	1" NPT x CLASS 800 MERIDIAN GATE VALVE G8NAB-DZ	SA-105-N
			A105 BODY/BOLTED BONNET, 13Cr/STELLITE 6 TRIM, GRAFOIL PACKING	

GENERAL NOTES:

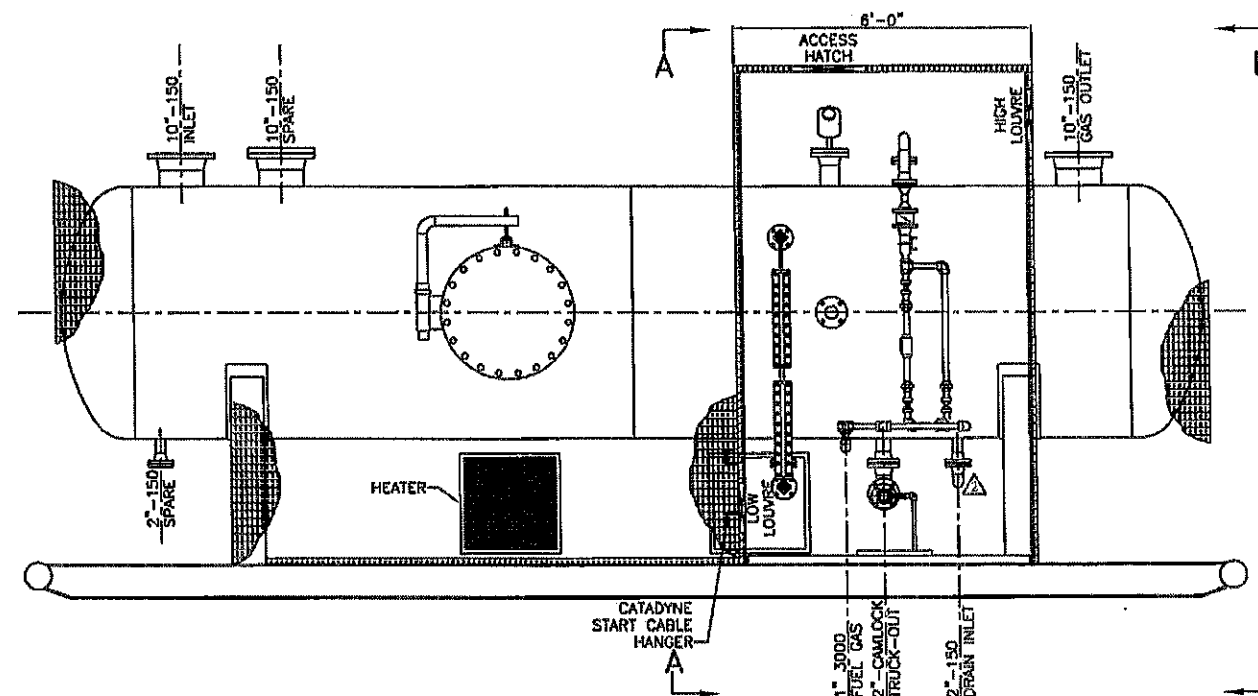
1. PIPING DESIGNED & FABRICATED TO ASME B31.3, LATEST EDITION -AS PER EQUINOX PIPING CLASSIFICATION AAA & ASB
2. TUBING MATERIAL: 316SS WELDED e/w 316SS SWAGELOK FITTINGS
3. PIPE MATERIAL: SA-108-B
4. FLANGE MATERIAL: SA-105-N
5. BOLTING MATERIAL: SA-193-B7M/SA-194-2HM
6. ALL THREADED FITTINGS SHALL BE CLASS 3000
7. ALL AAA THREADING PIPING TO BE SCH 40
8. ALL ASB THREADING PIPING TO BE SCH 160
9. ALL INSTRUMENTS SHALL BE IDENTIFIED WITH STAINLESS STEEL TAGS
10. ALL INSTRUMENTS TAGS PREFIXED WITH "21-"
11. FUNCTION TEST SHALL BE PERFORMED ON ALL INSTRUMENTS
12. DRAIN ALL WATER FROM ALL INSTRUMENTS
13. ALL ELECTRICAL TO BE COMPLETED BY OTHERS
14. VESSEL TO BE INTERNALLY COATED WITH DEVOC 253
15. 6" INTERNAL PROJECTION FOR SEDIMENT BUILD-UP
16. FUEL GAS CONNECTION SHALL BE IDENTIFIED WITH STICKER ON OUTSIDE OF PACKAGE
17. CATADYNE CONNECTION LABELS TO READ "SEALS NEED TO BE POURED"
18. CATADYNE CABLE ENDS TO BE HEAVY DUTY BOOSTER CABLES
19. 21-LIT-9011 & 21-LSHH-9001 TO BE SHIPPED LOOSE

CERTIFIED
AS BUILT

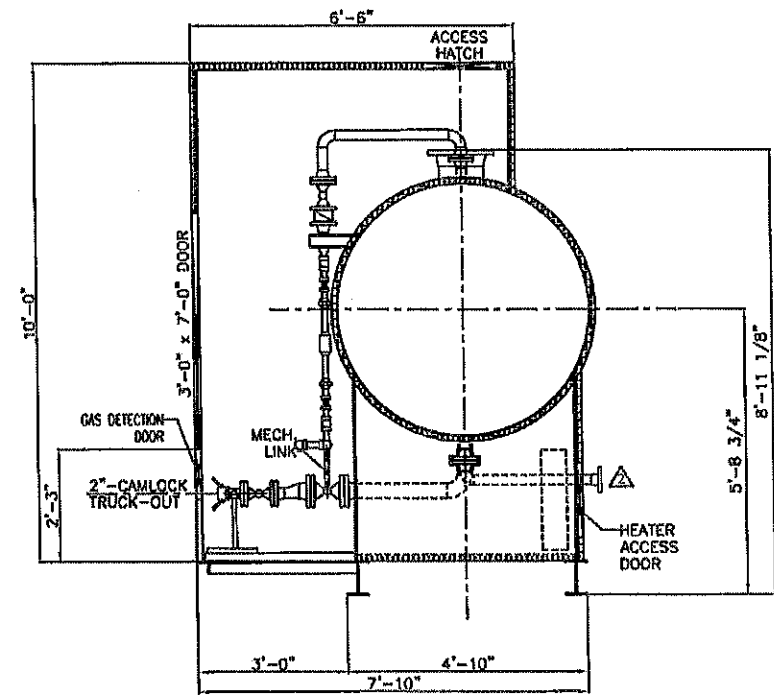
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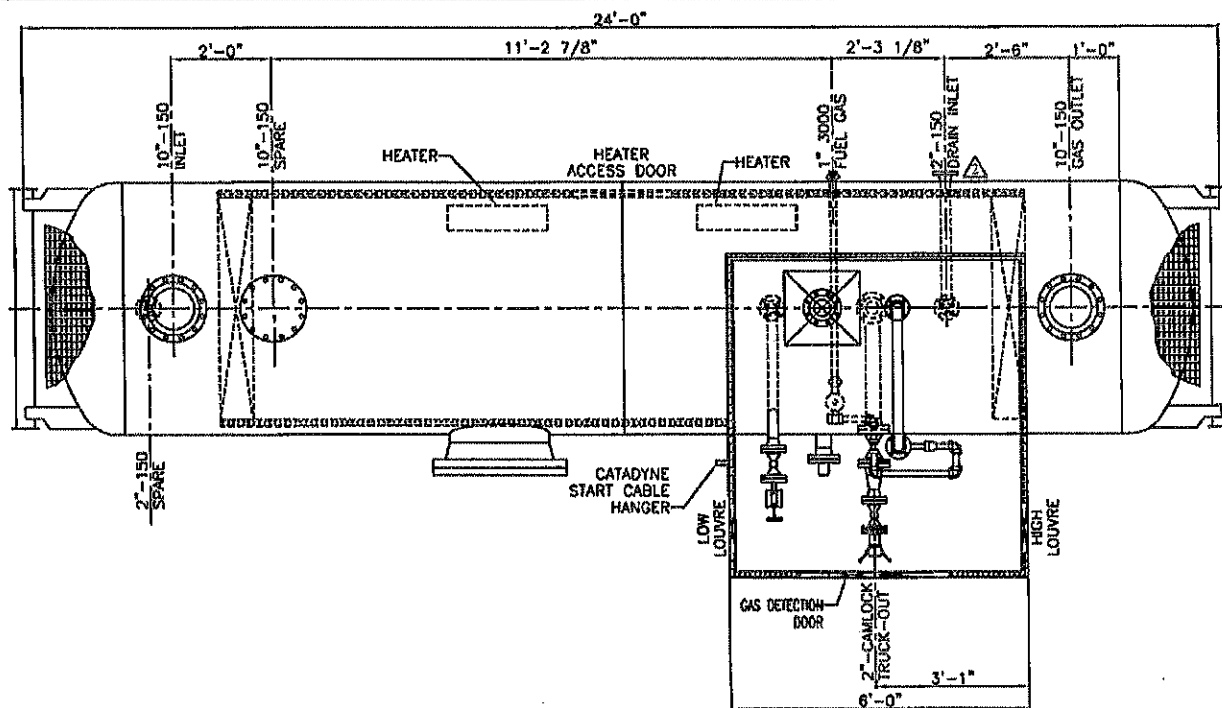
ORIENTATION VIEW A-A



ELEVATION VIEW



ORIENTATION VIEW B-B



PLAN VIEW

BILL OF MATERIALS						
ITEM	QTY	REF.	PART No.	DESCRIPTION	MATERIAL	WEIGHT
1	5	INSULATION	-	1 1/2" x 23'-2" LG RIGID URETHANE, TAN STEEL CLADDING ONE SIDE w/ CURFS	-	-
2	2	INSULATION	-	1 1/2" x 10'-0" LG RIGID URETHANE, TAN STEEL CLADDING ONE SIDE	-	-
3	3	INSULATION	-	1 1/2" x 16'-2" LG RIGID URETHANE, CLADDING TAN ONE SIDE & WHITE ONE SIDE	-	-
4	5	INSULATION	-	1 1/2" x 10'-0" LG RIGID URETHANE, CLADDING TAN ONE SIDE & WHITE ONE SIDE	-	-
5	2	INSULATION	-	1 1/2" x 9'-8" LG RIGID URETHANE, CLADDING TAN ONE SIDE & WHITE ONE SIDE	-	-
6	2	INSULATION	1-001529	12" x 12" SLIDING LOUVRE (MOUNTED IN HEATED ENCLOSURE)	ALUM	-
7	1	INSULATION	1-009957	10" x 10" SNIFFER DOOR (MOUNTED IN DOOR)	ALUM	-

INSULATION/ENCLOSURE DETAILS:

- INSULATION: 1 1/2" THK RIGID URETHANE
ENCLOSURE EXTERIOR: 0.016" THK CLADDING TAN (QC8315)
ENCLOSURE INTERIOR: 0.016" THK CLADDING WHITE (QC8317)
VESSEL EXTERIOR: 0.016" THK CLADDING TAN (QC8315)
- (1) 3'-0" x 7'-0" INSULATED PANEL MAN-DOOR c/w
-PANIC HARDWARE & LOCK SET
- (1) 18" x 24" HINGED HEATER ACCESS DOOR
- (1) 10" x 10" GAS DETECTION (SNIFFER) DOOR
-MOUNTED IN MAN-DOOR
- (1) 18" x 18" REMOVABLE ROOF ACCESS HATCH (SCREWED DOWN)
- (2) 12" x 12" LOUVRES c/w SLIDE CLOSURE
- PACKAGE SHIPPING DIMENSIONS: 8'-6" W x 11'-0" HIGH x 24'-6" LG
- PACKAGE SHIPPING WEIGHT: 12,000 LBS

REV. NO.	DATE	REVISION	BY	APP'D
0	02/17/10	ISSUED FOR FABRICATION	DSO	JAM
1	04/01/10	AS BUILT	JAM	
2	04/16/10	ADDED 2" DRAIN INLET SPOOL	JMB	

BILTON
BOX 6106
5815 37 Street
INNISFAIR, AB
CANADA
403-227-7799
1-888-227-4923
FAX 227-7796
Welding & Manufacturing Ltd.

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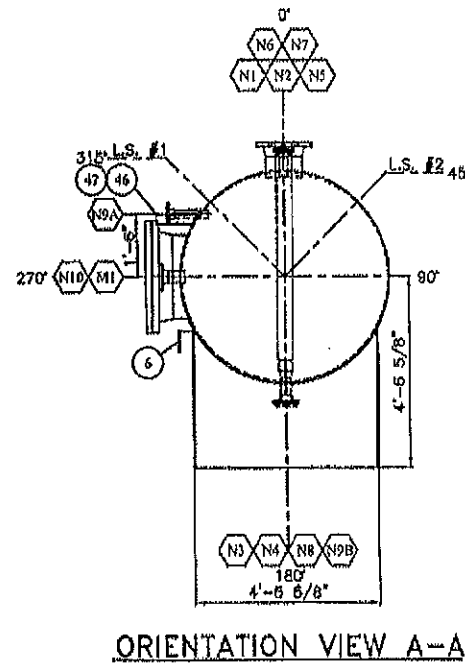
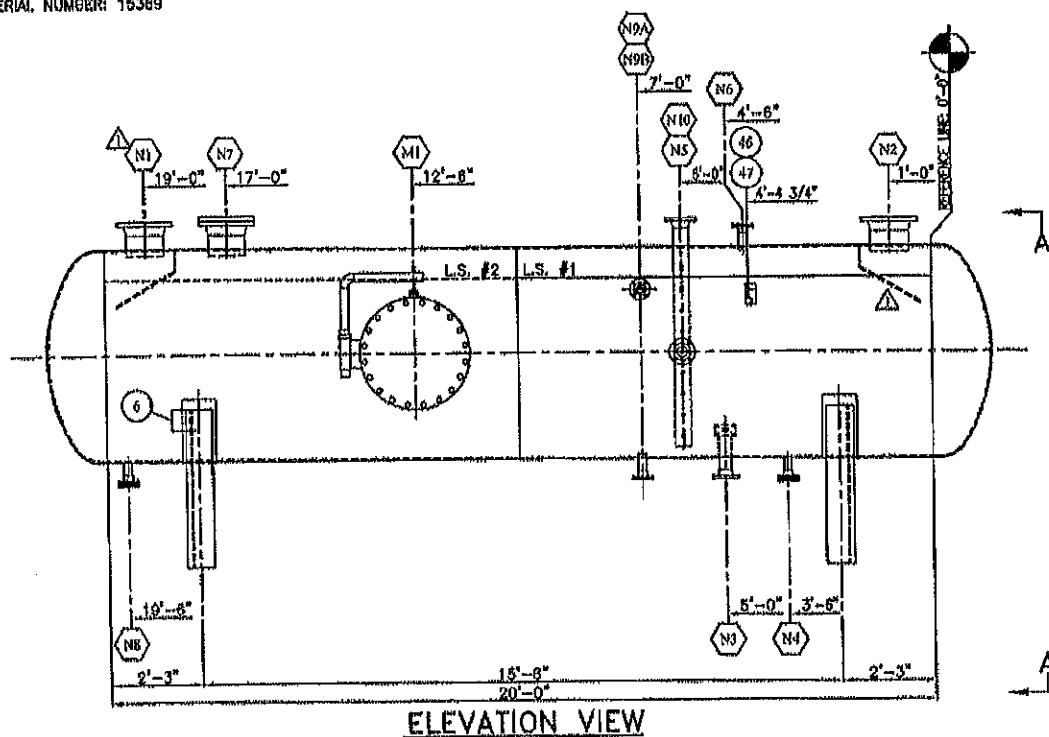
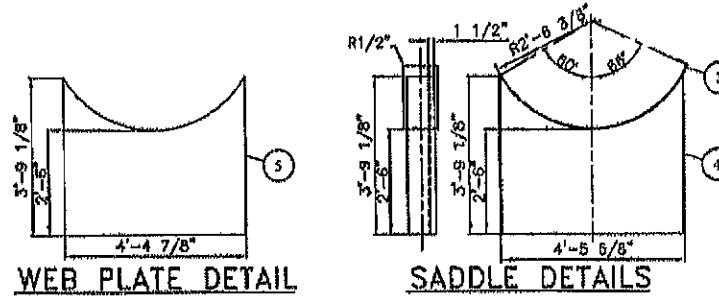
MURPHY OIL COMPANY LTD			
TUPPER WEST FLARE KNOCKOUT PACKAGE - TAG: 21-PK-900 GENERAL ARRANGEMENT			
DATE: 12/02/09	SHEET: 1 OF 5	SALE ORDER: 001730	
DRAWN BY: DSO		JOB ORDER: D1221	SIZE D
PURCHASE ORDER: 54096129-204		DRAWING NO.: C973-1	REV. 2
LOCATION: VARIOUS			
APP'D BY: JAM			

CERTIFIED
AS BUILT

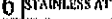
1. QUALITY CONTROL PROGRAM NUMBER: AQP-1317(8)
2. WELDING PROCEDURE REGISTRATION NUMBER: WP1970.2
3. SELECT CHEMISTRY REQUIREMENTS: NIL
4. ULTRASONIC TESTING: NIL
5. HIC TESTED PLATE: NIL
6. MPI: 100% WET FLOURESCENT TESTING OF THE FOLLOWING
-FILLET WELDS ON VESSEL ONLY
7. HARDNESS TEST:
3 POINT TRAVERSE ON (1) LONG SEAM, (1) CIRC SEAM &
(1) NOZZLE FILLET (HAZ/WELD/HAZ)
-HARDNESS VALUES SHALL NOT EXCEED 200HIN AFTER PWHT
8. PIPE & FLANGE IMPACT TESTS EXEMPT AS PER UCS-86(g)
9. PLATE IMPACT TESTS EXEMPT AS PER UCS-86
10. HEAT AFFECTED ZONE EXEMPT AS PER UCS-87(d)(3)
11. PRODUCTION WELD TO BE IMPACT TESTED AS PER UCS-84(c) AT A TEMP
NOT WARMER THAN -49F AND TO EXCEED 15/10 FT LBS
12. NUTS & BOLTS IMPACT TEST EXEMPT PER FIG. UCS-86(a)
13. PWHT: ACCORDING TO UCS-86
HEAT FROM AMBIENT TO 800F AT A MODERATE RATE
HEAT FROM 800F TO 1150F AT 400F/hr MAX.
SOAK AT 1150F FOR 80 MIN.
COOL TO 800F AT 800F/hr MAX
FROM 800F AIR COOL IN FURNACE
14. INTERNAL SANDBLAST: SPSC-SP5 (WHITE)
15. INTERNAL FINISH: DEVOTE 253/283HS AS PER MANUFACTURER'S SPECIFI
16. EXTERNAL SANDBLAST: SPSC-SP5 (COMMERCIAL)
17. EXTERNAL FINISH:
ALL AREAS: ONE (1) COAT CLOVAGUARD 83180 EPOXY PRIMER (8-8m
NON INSULATED AREAS: TWO (2) COATS CLOVATHANE 83400 (TAN CO-
18. ALL BOLT HOLES TO STRADDLE CENTERLINE
19. ALL REPADS/WEAR PADS TO HAVE 1/4" NPT WEEP HOLE
20. ALL OUTSIDE PROJECTIONS MEASURED ALONG CENTERLINE OF NOZZLE
21. ALL INSIDE PROJECTIONS MEASURED ALONG SHORTSIDE OF NOZZLE
22. FABRICATION TOLERANCE AS PER B&W&M DWG#; TOL2002
23. VESSEL TO BE REGISTERED IN ALBERTA & BRITISH COLUMBIA
24. VESSEL TO BE SUPPLIED WITH U-STAMP
25. VESSEL SERIAL NUMBER: 16389

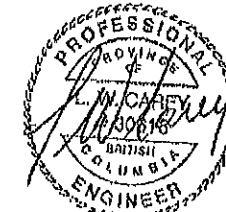
MARK	QTY	DESCRIPTION	NPS	CLASS	TYPE	PROJECTION		WELD DETAIL	WELD		REPAD	BILL OF MATERIALS ITEM NUMBER
						INSIDE	OUTSIDE		A	B		
N1	1	INLET	10	180	RFWN	1"	8"	1/2	1/4	-	-	12,13,14
N2	1	GAS OUTLET	10	180	RFWN	1"	8"	1/2	1/4	-	-	12,13,14
N3	1	TRUCK-OUT	3	180	RFWN	FLUSH	8"	1/2	1/4	-	-	15,16,17,18
N4	1	DRAIN INLET	2	160	RFWN	FLUSH	8"	1/3	1/4	-	-	19,20,21,22,23,24
N5	1	21-LG-9011	4	160	RFWN	1"	8"	1/2	1/4	-	-	23,24,25,26,27
N6	1	FUEL GAS INLET	2	150	RFWN	1"	8"	1/2	1/4	-	-	10,26,29
N7	1	SPARE	10	180	RFWN	1"	8"	1/2	1/4	-	-	13,14,30,31,32,33
N8	1	SPARE	2	180	RFWN	FLUSH	8"	1/3	1/4	-	-	19,20,21,22,23,24
N9A	1	21-LG-9011	2	160	RFWN	1"	9 1/2"	1/2	1/4	-	-	19,34,35
N9B	1	21-LG-9011	2	150	RFWN	1"	8"	1/2	1/4	-	-	19,26,35
N10	1	21-SIW-9001	3	150	RFWN	1"	8"	1/2	1/4	-	-	15,23,24,36,37,38
M1	1	MANWAY	24	180	RFWN	FLUSH	8"	1/3	3/8	-	-	30,40,41,42,43,44,45

ITEM	QTY	REF.	PART No.	DESCRIPTION	MATERIAL	WEIGHT
1	2	SHELL	1--002421	3/8" THK x 120" W ROLL TO 80" ID (CIRC=15'-10 7/8")	SA-518-70N	4840
2	2	HEAD	1--001388	3/8" THK (0.313" MIN) x 60" ID 2:1 S.E.	SA-518-70N	1016
3	2	SADDLE	1--003495	10" x 1/4" THK x 70 3/4" LG. ROLL TO 80 3/4" ID	SA-518-70N	150
4	4	SADDLE	1--001121	8" x 3/8" THK x 3'-9 1/8" LG	SA-36	105
5	2	SADDLE	1--001273	3/8" THK x 45 1/8" W x 62 7/8" LG (SEE DETAIL)	SA-36	325
6	1	NAMEPLATE	2--000219	8" x 8" NAMEPLATE BRACKET	SA-869	2
7	1	NAMEPLATE	1--001701	8" x 8" ALUMINUM NAMEPLATE	ALUMINUM	1
9	1	SKID	--	SKID ASSEMBLY (SEE DWG C973-3 FOR DETAIL)	--	1550
12	2	N1,N2	2--000278	3/8" THK x 10'-14" INLET DEFLECTOR	SA-518-70N	877
13	3	N1,N2,N7	1--000996	10" x CLASS 180 RFWN FLG SCH STD	SA-350-LF2 CL	168
14	3	N1,N2,N7	1--003441	10" PIPE SCH STD x 5 7/8" LG (BOE,ROE)	SA-333-GR8	60
15	2	N3,N10	1--000980	3" x CLASS 180 RFWN FLG SCH XH	SA-350-LF2 CL	10
16	1	N3	1--003423	3" PIPE SCH XH x 8 3/4" LG (BOE,ROE)	SA-333-GR8	10
17	1	N3	1--004298	3" STAINLESS STEEL WRENCH DRUM ASSEMBLY / 2-20HHS - W/2 W/2 CUT	SA-240-30AL	12
18	1	N3	--	TRUCK-OUT PIPING SPOOLS (SEE DWG C973-5)	--	--
19	5	N4,N8,N8,N8	1--000978	2" x CLASS 180 RFWN FLG SCH 180	SA-350-LF2 CL	30
20	2	N4,N8	1--000973	2" x CLASS 150 RF BLND FLG	SA-350-LF2 CL	10
21	2	N4,N8	1--001292	2" x CLASS 150 RF "CG" GRAPHOIL FLEX GASKET	316SS	--
22	2	N4,N8	1--003420	2" PIPE SCH 180 x 3 7/8" LG (BOE,COE)	SA-333-GR8	5
23	20	N4,N8,N10	1--002627	5/8" DIA x 3 1/2" LG STUD	SA-193-B7M	--
24	40	N4,N8,N10	1--001888	6/8" DIA NUT	SA-194-2HW	--
25	1	N5	1--000985	4" x CLASS 180 RFWN FLG SCH XH	SA-350-LF2 CL	15
26	1	N8	1--001300	4" x CLASS 150 RF "CG" GRAPHOIL FLEX GASKET	316SS	--
27	1	N8	1--003428	4" PIPE SCH XH x 8'-2 3/8" LG g/w HOLES (BOE,ROE)	SA-333-GR8	78
28	2	N8,N9B	1--003420	2" PIPE SCH 180 x 4 7/8" LG (BOE,ROE)	SA-333-GR8	6
29	1	N8	--	FUEL GAS PIPING SPOOLS (SEE DWG C973-5)	--	--
30	1	N7	1--005282	10" x CLASS 180 RF BLND FLG	SA-350-LF2 CL	70
31	1	N7	1--005283	10" x CLASS 150 RF "CG" GRAPHOIL FLEX GASKET	316SS	--
32	12	N7	1--002653	7/8" DIA x 4 1/2" LG STUD	SA-193-B7M	--
33	24	N7	1--001874	7/8" DIA NUT	SA-194-2HW	--
34	1	N9A	1--003420	2" PIPE SCH 180 x 9 1/4" LG (BOE,ROE)	SA-333-GR8	3
35	1	N9	--	LEVEL GAUGE PIPING SPOOLS (SEE DWG C973-5)	--	--
36	1	N10	1--004892	3" x CLASS 180 RF HUB BLIND, TAPPED TO 2" NPT	SA-350-LF2 CL	5
37	1	N10	1--001292	3" x CLASS 150 RF "CG" GRAPHOIL FLEX GASKET	316SS	--
38	1	N10	1--003423	3" PIPE SCH XH x 4 3/4" LG (BOE,ROE)	SA-333-GR8	6
39	1	M1	1--001001	24" x CLASS 150 RFWN FLG SCH STD	SA-350-LF2 CL	280
40	1	M1	1--001002	24" x CLASS 150 RF BLND FLG	SA-350-LF2 CL	41
41	1	M1	1--001309	24" x CLASS 150 RF "CG" FLEX GASKET	316SS	--
42	1	M1	1--004062	24" x CLASS 150 D/MT ARM ASSEMBLY	--	--
43	1	M1	1--003448	2" PIPE SCH XH x 4 7/8" LG (BOE,COE) (SCRF ONE END TO SCH STD)	SA-333-GR8	38
44	20	M1	1--002894	1 1/4" DIA x 6 3/4" LG STUD	SA-193-B7M	--
45	40	M1	1--001882	1 1/4" DIA NUT	SA-194-2HW	--
46	1	SUPPORT	1--003593	30657 x 1'-0" LG	SA-36	8
47	1	SUPPORT	N/A	REPAIR: 3/8" THK x 5" W x 6" LG (USE MAYWAY CUT-OUT)	SA-518-70N	3



WELD DETAIL NUMBER	REGISTERED WELDING PROCEDURE NUMBER			BACKWELD/GOUGE
	ROOT	HOT PASS	FILL & CAP	
1,2,3,6	BWM-16 (GMAW)	BWM-16 (SMAW)	BWM-16 (SMAW)	N/A
4	BWM-16 (GMAW)	BWM-10 (SAW)	BWM-10 (SAW)	N/A
5	BWU-20 (GMAW)	BWM-20 (SMAW)	BWM-20 (SMAW)	N/A

1 WELD NECK FLANGE		2 NOZZLE NECK		3 NOZZLE NECK		4 SHELL BRIMS		5 ATTACHMENTS		6 STAINLESS ATTACHMENT	
 $\alpha = 75^\circ (15^\circ)$ $a = 1/8 (1/16)$		 $\alpha = 40^\circ (15^\circ)$ $a = 1/8 (1/16)$ $d = 1/8 (1/16)$		 $\alpha = 40^\circ (15^\circ)$ $a = 1/8 (1/16)$ $d = 1/8 (1/16)$		 WITHOUT WACKEN $a = 1/8 (1/16)$ $d = 1/8 (1/16)$		 VESSEL WALL ATTACHMENT $1/4$ $1/4$ $1/4$		 $1/4$ VESSEL WALL	

[illegible]

31 March 2010

DESIGN & FABRICATE TO: 2007 ASME BOILER & PRESSURE VESSEL
CODE SEC VIII, DIV 1 2008 ADDENDA
DESIGN PRESSURE & TEMPERATURE: 50 PSI @ 200°F
MINIMUM DESIGN METAL TEMP: -45°F @ 50 PSI
IMPACT TESTS: REF NOTES 8.0, 10.11&12
RADIOGRAPHY: 100% AS PER UW-11(a)
POST WELD HEAT TREATMENT: AS PER UCS-50
HYDROSTATIC TEST PRESSURE: 75 PSIG PREHEAT: 50°F
CORROSION ALLOWANCE: 1/16" NAWP: 50 PSI @ 200°F
HEAD THK: MIN. 10.3130" VOLUME: 432 FT³ 12.2 m³
WEIGHT: MIN. 18,480 lbs WEIGHT FULL: 33,900 lbs

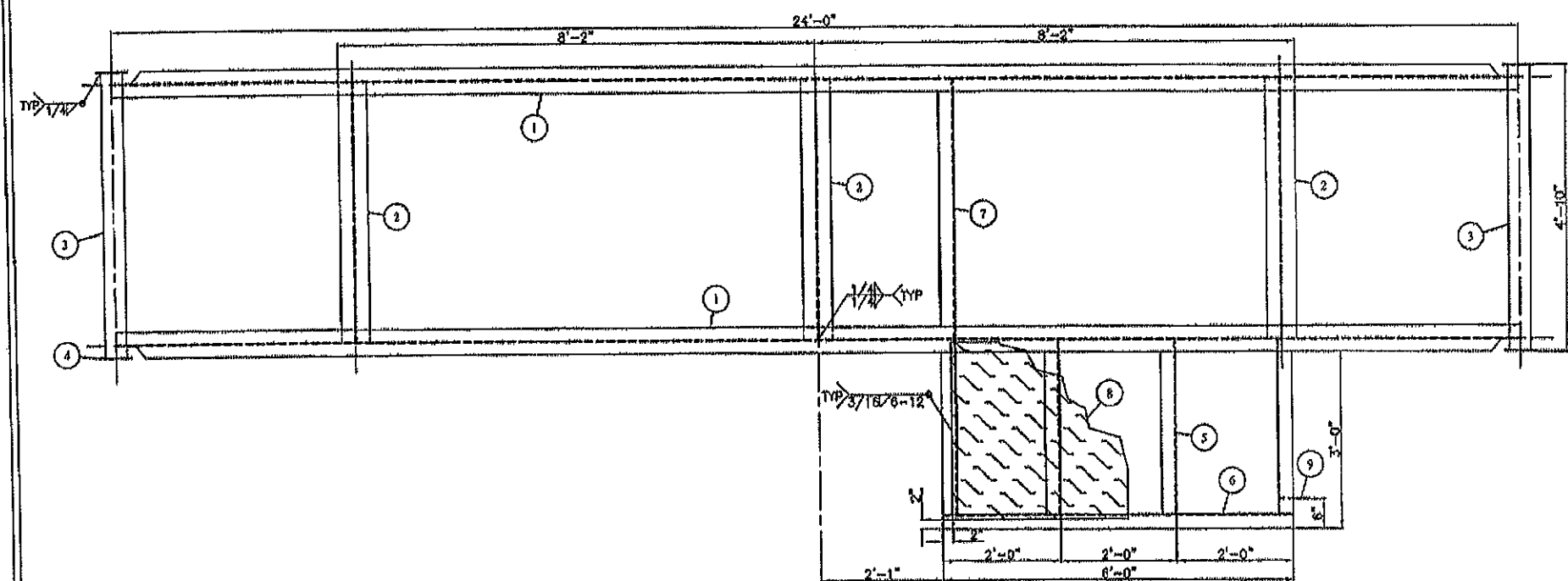
TUPPER WEST FLARE KNOCKOUT PACKAGE - TAG: 21-PK-000			
80 1/2" ID X 2'-0" S/S FLARE KNOCKOUT DRUM			
DATE: 11/30/09	SALE ORDER#01730		
SHEET: 2 OF 5	JOB ORDER:		SIZE
DRAWN BY: DSG	D1221		
PURCHASE ORDER: 54096129-204			
LOCATION: VARIOUS		DRAWING NO.:	
CRN DWG: BWN-295-09 R1	APP'D:	C973-2	REV.
CRN NUMBER: V0606-01			1

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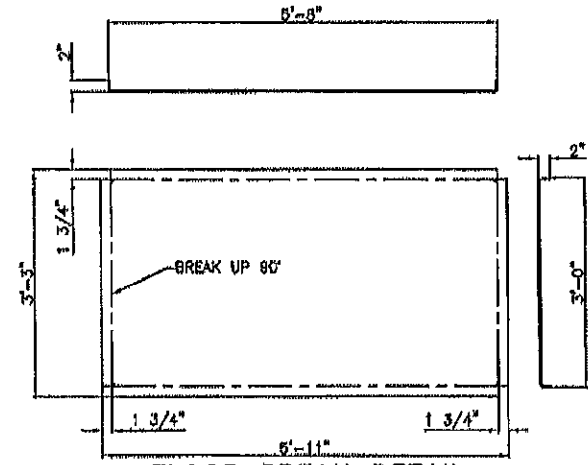
BILL OF MATERIALS						
ITEM	QTY	REF.	PART No.	DESCRIPTION	MATERIAL	WEIGHT
1	2		1-003664	W8x18 x 24'-0" LG (ROUGH CUT TO 24'-1")	SA-36	865
2	3		1-003669	W8x15 x 4'-4 1/2" LG (CBE - SEE BEAM COPE DETAIL)	SA-36	195
3	2		1-004812	4" PIPE SCH 40 x 4'-9 1/2" LG	SA-36	144
4	4		2-000028	1/4" THK x 6 1/2" OD (TEMPLATE #12)	SA-36	5
5	4		1-000033	3" x 3/8" ANGLE x 2'-11 1/2" LG (CBE - SEE BEAM COPE DETAIL)	SA-36	82
6	1		1-000033	3" x 3/8" ANGLE x 6'-0" LG	SA-36	38
7	1		1-000033	3" x 3/8" ANGLE x 4'-4 1/2" LG	SA-36	28
8	1		2-001444	3/16" THK CHECKERPLATE x 3'-3" W x 5'-11" LG (SEE BREAK DETAIL)	SA-36	185
9	1		2-000228	2" x 1/4" THK x 6" LG GROUND LUG (TEMPLATE #18)	SA-36	1

GENERAL NOTES

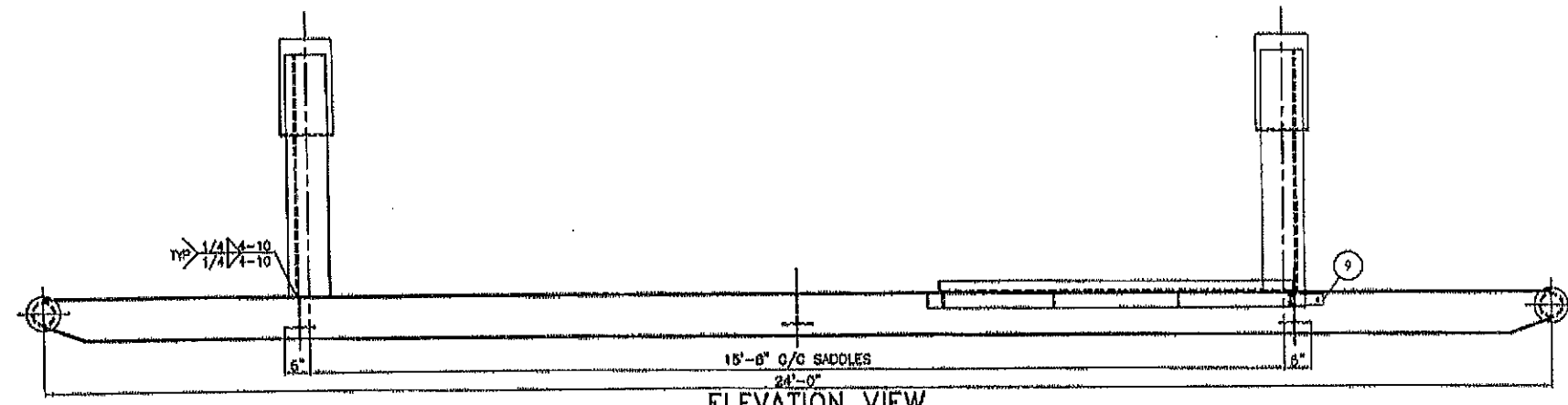
1. WELD PROCEDURE: GM-1/AIC-1
2. SANDBLAST: SSPC-SP6 (COMMERCIAL)
3. PRIMER: ONE (1) COAT CLOVAGUARD 83150 EPOXY PRIMER (6-8mils)
4. PAINT: TWO (2) COATS CLOVATHANE 83400 (BLACK)
5. INSULATION: 1 1/2" THK SPRAY FOAM U/S OF CHECKER-PLATE
6. APPROXIMATE WEIGHT: 1,560 LBS



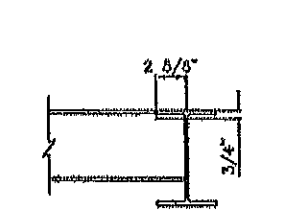
PLAN VIEW



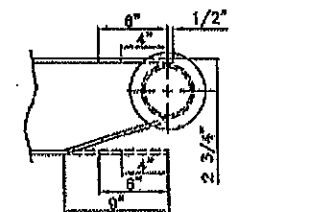
FLOOR BREAK DETAIL



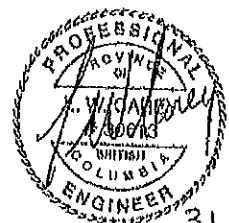
ELEVATION VIEW



BEAM COPE DETAIL



PULL COPE DETAIL



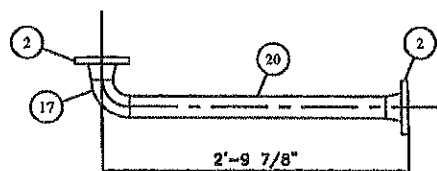
31 MARCH 2010

REV. NO.	DATE	REVISION	BY	APP'D
0	02/17/10	ISSUED FOR FABRICATION	DSG	

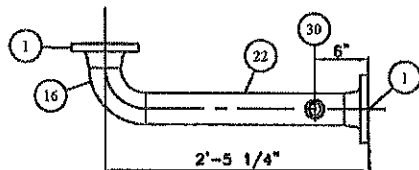
BILTON
BOX 6106
3815 37 Street
INNISRAH, AB
CANADA
403-427-7799
1-888-227-4923
Welding & Manufacturing Ltd. FAX 227-7796

MURPHY OIL COMPANY LTD
TUPPER WEST FLARE KNOCKOUT PACKAGE - TAG# 21-PK-900
SKID DETAILS
DATE: 12/02/09
SHEET: 3 OF 5
DRAWN BY: DSG
PURCHASE ORDER: 14098123-204
LOCATION: VARIOUS
APP'D BY:

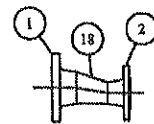
SALE ORDER: 001730
JOB ORDER:
D1221 D
DRAWING NO.:
C973-3 0



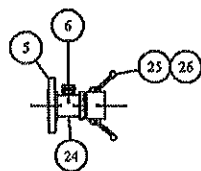
PIPE SPOOL 1A
GRIND ROOTS FLUSH (INT. COATED)



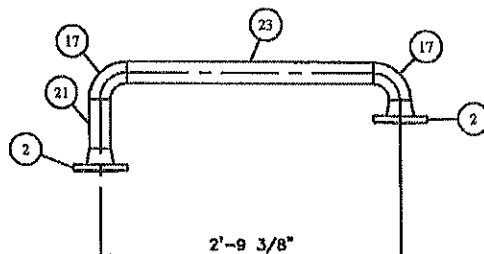
PIPE SPOOL 2A
GRIND ROOTS FLUSH (INT. COATED)



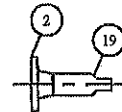
PIPE SPOOL 2B
GRIND ROOTS FLUSH (INT. COATED)



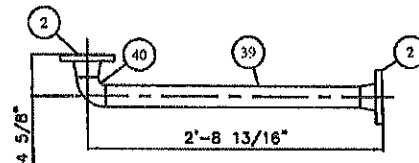
PIPE SPOOL 3A



PIPE SPOOL 4A



PIPE SPOOL 5A



PIPE SPOOL 6A
GRIND ROOTS FLUSH (INT. COATED)

BILL OF MATERIALS

ITEM	QTY	REF.	PART No.	DESCRIPTION	MATERIAL	WEIGHT
1	3	-	1-000898	3" x CLASS 150 RFWN FLG SCH XH	SA-105-N	30#
2	8	-	1-000877	2" x CLASS 150 RFWN FLG SCH XH	SA-105-N	36#
3	2	-	1-003984	2" x CLASS 150 RF BLND FLG, 3/4" NPT TAP	SA-105-N	10#
5	1	-	1-005931	2" x CLASS 150 RFTO FLG	SA-182-304/L	5#
6	1	-	1-009721	1/2" x 2" x CLASS 3000 TOL	SA-182-304/L	1#
7	5	-	1-000744	1" NPT x 90° x CLASS 3000 ELBOW	SA-105-N	1#
8	1	-	1-000733	1/2" NPT x 90° x CLASS 3000 ELBOW	SA-105-N	1#
9	3	-	1-003005	1" NPT x CLASS 3000 TEE	SA-105-N	1#
10	4	-	1-003483	1" NPT x CLASS 3000 UNION	SA-105-N	1#
12	3	-	1-001297	3" x CLASS 150 RF "CG" GRAPHOIL FLEX GASKET	316SS	-
13	12	-	1-001292	2" x CLASS 150 RF "CG" GRAPHOIL FLEX GASKET	316SS	-
14	52	-	1-002627	5/8" DIA x 3 1/2" LG STUD	SA-193-B7M	-
15	112	-	1-001868	5/8" DIA NUT	SA-194-2HM	-
16	1	-	1-000689	3" x 90° LR ELBOW SCH XH	SA-234-WPB	9#
17	3	-	1-000676	2" x 90° LR ELBOW SCH XH	SA-234-WPB	9#
18	1	-	1-008310	3" x 2" BW ECC RED SCH XH	SA-234-WPB	4#
19	1	-	1-005709	2" x 1" SWAGE NIPPLE SCH XH (BLE.TSC)	SA-234-WPB	4#
20	1	-	1-003358	2" PIPE SCH XH x 2'-4 1/8" LG (BBE)	SA-106-B	12#
21	1	-	1-003358	2" PIPE SCH XH x 5 1/4" LG (BBE)	SA-106-B	3#
22	1	-	1-003364	3" PIPE SCH XH x 1'-9 3/4" LG (BBE)	SA-106-B	19#
23	1	-	1-003358	2" PIPE SCH XH x 2'-3 1/8" LG (BBE)	SA-106-B	11#
24	1	-	1-009722	2" x 4" LG NIPPLE SCH XH	SA-312-304/L	2#
25	1	-	1-000310	2" MALE x FNPT CAMLOCK	ALUMINUM	3#
26	1	-	1-000303	2" CAMLOCK CAP	ALUMINUM	3#
27	1	-	1-004231	12 GAUGE X 12" x 18" x 3" HIGH CONTAINMENT TRAY	A-569	20#
28	1	-	1-004230	MECHANICAL LINK ASSEMBLY	-	-
29	4	-	1-005764	5/8" DIA x 6 1/4" LG STUD	SA-193-B7M	-
30	1	-	1-009773	1" x 3" x CLASS 3000 TOL	SA-182-304/L	1#
33	2	-	1-001738	1/2" x 1 1/2" LG NIPPLE SCH 160	SA-106-B	2#
34	11	-	1-001777	1" x 3" LG NIPPLE SCH XH	SA-106-B	2#
35	3	-	1-001788	1" x 6" LG NIPPLE SCH XH	SA-106-B	2#
36	1	-	1-003341	1/2" PIPE SCH 160 x 1'-3" LG (TBE)	SA-106-B	2#
37	AR	-	1-003347	1" PIPE SCH XH (CUT TO SUIT)	SA-106-B	-
38	AR	-	1-003348	1" PIPE SCH 160 (CUT TO SUIT)	SA-106-B	-
39	1	-	1-003358	2" PIPE SCH XH x 2'-4 1/16" LG (BBE)	SA-106-B	78#
40	1	-	1-000677	2" x 90° SR ELBOW SCH XH	SA-234-WPB	12#

LINE DESIGNATION CHART

LINE	PIPING SPEC	PROCESS	DESIGN PRESS. (kPa)	DESIGN TEMP. (°C)	TEST PRESS. (kPa)	MATERIAL & GRADE	DIAMETER & SCHEDULE	FLANGE RATING	RT (%)	TEST MEDIUM	CORROSION ALLOWANCE	PWHT REQ'D
1A	ASB	LEVEL GAUGE	1379	-29/93	2948	SA-106-B SA-105-N SA-234-WPB	2" SCH XH	150	100%	WATER	1/8"	NO
2A,2B	ASB	TRUCK-OUT	1379	-29/93	2948	SA-106-B SA-105-N SA-234-WPB	3" SCH XH 2" SCH XH	150	100%	WATER	1/8"	NO
3A	N/A	TRUCK-OUT	ATMOSPHERIC	-29/93	N/A	SA-312-304/L SA-182-304/L	2" SCH XH 1/2" SCH 160	150	N/L	N/A	N/A	NO
4A	ASB	FUEL GAS INLET	1379	-29/93	2948	SA-106-B SA-105-N SA-234-WPB	2" SCH XH	150	100%	WATER	1/8"	NO
5A	AAA	FUEL GAS INLET	1379	-29/93	2948	SA-106-B SA-105-N SA-234-WPB	2" SCH XH 1" SCH XH	150	100%	WATER	1/16"	NO
6A	ASB	DRAIN INLET	1379	-29/93	2948	SA-106-B SA-105-N SA-234-WPB	2" SCH XH	150	100%	WATER	1/8"	YES

GENERAL NOTES

- BUILT AS PER ASME B31.3 2008 EDITION & EQUINOX PIPING SPEC'S AAA & ASB
- DESIGN SPECIFICATIONS:
 - SEE LINE DESIGNATION CHARTS
- IMPACT TESTS EXEMPT AS PER FIG.323.2.2A
- WELD PROCEDURES:
 - ROOT: BWM-1 (GMAW)
 - FILL & CAP: BWM-1 (SMAW)
- INTERNAL FINISH: PIPE SPOOLS 1A, 2A & 2B ONLY
DEVOC 253 AS PER MANUFACTURER'S SPECIFICATIONS
- EXTERNAL SANDBLAST: SSPC-SP6 (COMMERCIAL)
- EXTERNAL FINISH:
 - ONE (1) COAT CLOVAGUARD 83150 EPOXY PRIMER (6-8mils)
 - TWO (2) COATS CLOVATHANE 83400 (TAN QC-8315)
- ALL BOLT HOLES TO STRADDLE CENTERLINE
- FABRICATION TOLERANCES AS PER BILTON DWG#: TOL2002

REV. NO.	DATE	REVISION	BY	APP'D
0	02/17/10	ISSUED FOR FABRICATION	DSG	JAM
1	04/01/10	AS BUILT	JAM	
2	04/16/10	ADDED 2" DRAIN INLET SPOOL	JMB	

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INNISRAIL, AB
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403-227-7799
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MURPHY OIL COMPANY LTD
TUPPER WEST FLARE KNOCKOUT PACKAGE - TAG: 21-PK-800
PIPE SPOOLS

DATE: 12/11/09
SHEET: 5 OF 5
DRAWN BY: DSG
PURCHASE ORDER: 54096129-204
LOCATION: VARIOUS
APP'D BY: JAM

SALE ORDER: 001730
JOB ORDER:
D1221
C973-5

SIZE: D
REV: 2