
 WorleyParsons resources & energy	
<u>Kim Tjenda</u>	<u>09/03/09</u>
REVIEWED BY	DATE
<small>Purchaser's review and/or release for fabrication shall not be construed as relieving seller of any obligation or responsibilities with respect to these documents of the kind to be furnished by seller pursuant thereto.</small>	
<input type="checkbox"/> VC RELEASED FOR FABRICATION - CORRECT AND RESUBMIT <input checked="" type="checkbox"/> VF FINAL - DO NOT RESUBMIT <input type="checkbox"/> VI FINAL - INFORMATION ONLY <input type="checkbox"/> VN NOT RELEASED FOR FABRICATION - CORRECT AND RESUBMIT <input type="checkbox"/> VM FINAL, MANUAL(S) - NOT RETURNED TO VENDOR <input type="checkbox"/> VEF FINAL - ELECTRONIC FILES <input type="checkbox"/> VV VOID - SEE COMMENTS ON DOCUMENTS <input type="checkbox"/> E0 DO NOT ISSUE THIS REVISION SUPERCEDED BY ANOTHER REVISION	

A01, A05, A02

	DISC	PROJ#	P.O.	SEQ	SHT	REV	TAG
VND -	VS	37305244-02	0019	00009	001	004	SP-26011
			*18				23.5.6

SHOP NOTES:

- WELDING PROCEDURE FOR THE CLAD PLATE - WITHOUT PEEL-BACK - WELD PROCEDURE RCT-258-2
STEP 1: ROOT PASS WITH FCAM, BUT DO NOT WELD INTO THE 316L CLADDING, BUT LEAVE A 3/8" ROOT FACE INCLUDING CLADDING. BACKGROUND WITH A GAP OF ABOUT 1/4" INTO THE CARBON STEEL BASE MATERIAL.
STEP 2: COMPLETE THE SECOND SIDE WITH 316L ENSURING THAT THE ROOT IS FULLY FUSED INTO THE BASE MATERIAL THEN OVERLAY WELD WITH THREE PASSES ON THE CLADDING TO PROVIDE A GOOD BARRIER AGAINST CONTAMINATION OF THE 316L WELD DEPOSIT MATERIAL.
- ALL WELD OVERLAY OR CLAD RESTORATION PROCEDURES AND PRODUCTION WELDS SHALL HAVE A MINIMUM OF TWO WELD LAYERS. CORROSION RESISTANT OVERLAY WELDING PROCEDURES SHALL BE USED ON THE PROCESS SIDE.
- WELD OVERLAY THICKNESS SHALL BE 1/8-INCH MINIMUM AND SHALL MEET THE CHEMICAL COMPOSITION REQUIREMENTS OF ASME SECTION II-C SPEC. SFA 5.4 TABLE 1 OR SFA 5.9 TABLE 1.
- PT IN ACCORDANCE WITH ASME SEC. VIII DIV. 1 APPENDIX 8 ALL COMPLETED WELD OVERLAYS INCLUDING MACHINED OR GROUND SURFACES AND AFTER PWHT. ALL INDICATIONS ARE RELEVANT INCLUDING LINEAR INDICATIONS AND NO ROUND INDICATIONS LARGER THAN 1/16 INCH ARE ALLOWED.
- CLADDING SHALL BE FLUSH ON THE INSIDE OF ADJOINING HEADS AND SHELL COURSES.
- WELDS WHOSE THICKNESS EXCEEDS 3/2" SHALL BE GIVEN AN INTERMEDIATE POSTWELD HEAT TREATMENT (IPWHT).
- THE PWHT SHALL BE 1,000°F WITH A 30-MINUTE MINIMUM HOLD. ALTERNATIVELY, A LOCAL DEHYDROGENATION HEAT TREATMENT (DHT) MAY BE USED. THE DHT SHALL BE 600°F TO 700°F WITH A 2-HOUR MINIMUM HOLD.
- WELD JOINTS SHALL BE PREPARED BY MACHINING, GRINDING, OR THERMAL CUTTING. IF THERMAL CUTTING IS PERFORMED, THE JOINT SURFACES SHALL BE GROUND TO SOUND METAL PRIOR TO WELDING. PREHEAT REQUIREMENTS FOR THERMAL CUTTING SHALL BE THE SAME AS THOSE SPECIFIED IN THE WELDING PROCEDURE SPECIFICATIONS (WPS).
- FABRICATION AIDS (E.G., CLIPS AND BRACKETS), SHALL NOT BE HAMMERED OFF BUT SHALL BE REMOVED WITHOUT DAMAGE TO BASE METAL. GAGES FROM CUTTING TOOLS SHALL BE WELDED WITH APPROVED PROCEDURE AND GROUND FLUSH AND SMOOTH.
- AREAS WHERE ATTACHMENTS HAVE BEEN REMOVED SHALL BE SUBJECTED TO EXAMINATION BY MT OR ET.
- TEMPORARY ATTACHMENT REMOVAL AND REPAIRS SHALL BE PERFORMED PRIOR TO PWHT AND HYDROTEST.

SHOP NOTES:

- THE ATTACHMENT OF NOZZLES AND MANWAY NECK TO THE VESSEL (OR HEAD) SHALL BE FULL-PENETRATION GROOVE WELDS THROUGH THE THICKNESS OF THE SHELL OR HEAD, AND THE WELDS SHALL BE CONTOUR GROUND AND BLENDED TO A SMOOTH CONCAVE RADIUS.
- UPON COMPLETION OF WELDING, THE WELD & ADJACENT AREA MUST BE CLEANED OF SLAG, SPATTER, ARC STRIKES, ETC. DO NOT USE CARBON STEEL BRUSH ON STAINLESS STEEL AND GRINDING WHEELS AND DISCS MUST BE FREE FROM CARBON STEEL CONTAMINATION.
- MARKING MATERIAL USED FOR AUSTENITIC STAINLESS STEEL & OTHER ALLOYS MUST CONTAIN LESS THAN 250 PPM OF THE COMBINATION OF CHLORIDE, SULFUR, HALOGENS, LEAD OR ZINC.
- ALL PRESSURE-CONTAINING WELDMENTS ARE TO BE CHECKED FOR HARDNESS OF WELD AND HEAT AFFECTED ZONE (HAZ) AFTER PWHT. THE MAXIMUM BRINELL HARDNESS (BHN) OF THE WELD AND BASE METAL IN HAZ SHALL NOT EXCEED 200-BHN.
- THE WELDMENT OF LIFTING LUGS SHALL BE EXAMINED BY A SURFACE METHOD (DYE PENETRANT).
- VESSEL METAL TEMPERATURE AT HYDROTEST AND THE WATER TEMPERATURE SHALL BE BETWEEN 60°F & 120°F AND SHALL BE DONE WITH CLEAN WATER HAVING LESS THAN 50 PPM CHLORIDES. PRESSURE-TIME RECORDING SHALL BE MADE DURING THE FINAL HYDROSTATIC TEST.
- OR WRITTEN CERTIFICATION OF TEST PRESSURE, HYDROSTATIC TEST PRESSURE SHALL BE HELD FOR MINIMUM OF ONE HOUR.
- DO NOT USE HEAT TO DRY STAINLESS STEEL EQUIPMENT. STEAM AND HOT AIR ARE CONSIDERED AS HEAT.
- CABLES USED TO SECURE THE VESSEL FOR SHIPMENT MUST BE COVERED WITH A PROTECTIVE SHEATH WHERE THEY ARE IN DIRECT CONTACT WITH A COATED SURFACE.
- THE VESSEL SHALL BE IDENTIFIED BY PAINTING THE PURCHASE ORDER AND ITEM (TAG) NUMBER ON OPPOSITE SIDES IN CLEARLY VISIBLE POSITIONS AND VESSEL ORIENTATION (NORTH-0°) IN (BLACK LETTERS AT LEAST 3 INCHES HIGH) ALSO, PUT IN A SIMILAR MANNER: "POST WELD HEAT TREATED, DO NOT WELD".
- ALL STENCILED, PAINTED, AND INKED MARKINGS SHALL BE PROTECTED WITH CLEAR WEATHER-PROTECTIVE COATING.

BILL OF MATERIALS FOR DWG. #1:

ITEM	QTY.	DESCRIPTION:	MATERIAL
(1)	2	HEAD 2:1 ELLIP. HEAD ASME CODE 162" INSIDE CLADD. DIA. X 2.107" MIN. THK. BACKING PL. AND 2" S.F. HDS.(HEADS WITH 0.125" MIN. INSIDE 316L CLADDING)	SA-516 70N 316L
(2)	1	PL. 2.295" TOTAL THK. (2.170" NOM. BACKING PL. X 13 1/4" X 516 3/4" LG. W/0.125" CLAD)	SA-516 70N 316L
(3)	4	PL. 2.295" TOTAL THK. (2.170" NOM. BACKING PL. X 120 5/8" X 516 3/4" LG. W/0.125" CLAD)	SA-516 70N 316L
(4)	1	PL. 2.295" TOTAL THK. (2.170" NOM. BACKING PL. X 104 1/4" X 516 3/4" LG. W/0.125" CLAD)	SA-516 70N 316L
(5)	1	36"-300# RF-CIF SERIES 'A' FLANGE X DETAIL* (NOZZLE N1)	SA-350 LF2
(6)	1	24"-300# RF-CIF FLANGE X DETAIL* (NOZZLE N2)	SA-350 LF2
(7)	1	30"-300# RF-CIF SERIES 'A' FLANGE X DETAIL* (NOZZLE N3)	SA-350 LF2
(8)	1	4"-300# RF-HB FLANGE X 22 1/2" (NOZZLE N4)	SA-350 LF2
(9)	1	20"-300# RF-V3 FLANGE X DETAIL* (NOZZLE N5)	SA-350 LF2
(10)	8	2"-300# RF-LWN FLANGE X 24" (NOZZLES N6A-N6H)	SA-350 LF2
(11)	8	3"-300# RF-HB FLANGE X 15" (NOZZLES N7A-N7H)	SA-350 LF2
(12)	4	4"-300# RF-HB FLANGE X 30 1/4" (NOZZLES N8A-N8D)	SA-350 LF2
(13)	3	6"-300# RF-HB FLANGE X 33" (NOZZLES N8E-N8G)	SA-350 LF2
(14)	1	3"-300# RF-HB FLANGE X 24" (NOZZLE N9A)	SA-350 LF2
(15)	1	3"-300# RF-HB FLANGE X 12" (NOZZLE N9B)	SA-350 LF2
(16)	2	2"-300# RF-LWN FLANGE X 22 1/4" (NOZZLE N12D & N17)	SA-350 LF2
(17)	4	6"-300# RF-HB FLANGE X 12" (NOZZLES N13A-N13D)	SA-350 LF2
(18)	1	4"-300# RF-HB FLANGE X 13" (NOZZLE N14)	SA-350 LF2
(19)	1	24"-300# RF-V1 FLANGE X DETAIL* (MANWAY M1)	SA-350 LF2
(20)	1	30"-300# RF-CIF SERIES 'A' FLANGE X DETAIL* (MANWAY M2)	SA-350 LF2
(21)	1	30"-300# RF-CIF SERIES 'A' FLANGE X DETAIL* (MANWAY M3)	SA-350 LF2
(22)	1	24"-300# RF-HB FLANGE X DETAIL* (MANWAY M4)	SA-350 LF2
(23)	2	24"-300# RF BLIND FLANGE (MANWAY M1 & M4)	SA-350 LF2
(24)	2+4	GASKET FOR 24"-300# RF. FLANGE (MANWAY M1 & M4)	SEE MATERIALS
(25)	48	1 1/2" DIA. X LATER LG. STUDS W/(2) H.H.NUT EA. (M1 & M4)	SEE MATERIALS
(26)	2	30"-300# SERIES 'A' RF BLIND FLANGE (MANWAY M2 & M3)	SA-350 LF2
(27)	2+4	GASKET FOR 30"-300# SERIES 'A' RF. FLANGE (MANWAY M2 & M3)	SEE MATERIALS
(28)	56	1 3/4" DIA. X LATER LG. STUDS W/(2) H.H.NUT EA. (M2 & M3)	SEE MATERIALS
(29)	1+1	PL. 3/16" THK.(1) = 6 1/2" X 14" LG.+(1) = 5" X 14" LG.(NAME PLATE BRACKET)	SA-240 S.S.

PREPARATION FOR SHIPMENT

- VESSEL SHALL BE THOROUGHLY CLEANED INSIDE AND OUTSIDE AND SHALL BE FREE FROM RUST, SCALE, SLAG, WELD SPATTER AND ALL LOOSE FOREIGN MATTER FOR SHOP HYDROTEST AND SHALL BE THOROUGHLY DRIED BEFORE SHIPPING.
 - TEST HOLES ON ALL PADS SHALL BE PLUGGED WITH PLASTIC PLUGS AND HEAVY GREASE AFTER TESTING.
 - COAT (C.S.) FLANGE FACES & MACHINE SURFACES W/STANDARD RUST PREVENTIVE.
 - CLOSE ALL OPENINGS FOR SHIPMENT.
COVERS GASKETS
- PLYWOOD 1/2" THK.
 1/8" NEOPRENE RUBBER
 OTHER
- SECURE THE COVERS W/50-PERCENT (FOUR BOLT MINIMUM) BOLT-UP TO FLANGE (BOLTS SIZE BY SHOP). AFTER THE FLANGE COVERS ARE ATTACHED TO THE FLANGE FACES, THE FULL CIRCUMFERENTIAL OUTSIDE DIAMETER (O.D.) OF THE FLANGE COVER AND THE FLANGE SHOULD BE WRAPPED WITH PRESSURE-SENSITIVE TAPE TO OBTAIN A WATERPROOF SEAL BETWEEN THE FLANGE COVER AND THE FLANGE FACE.

PAINT PER SPC-MA-00002

- SURFACES PREPARATION**
SURFACES TO BE COATED SHALL BE DRY ABRASIVE BLAST CLEANED, CLEANLINESS SHALL EQUAL:
NACE-2 - NEAR WHITE BLAST, SSPC-SP 10 - NEAR WHITE BLAST, ISO-8501-1 - Sa 2 1/2 VERY THOROUGH BLAST-CLEANING, ISO 12944 - Sa 2 1/2.
- ABRASIVE SELECTED FOR BLASTING SHALL CREATE A SHARP ANGULAR PROFILE (I. E. MINERAL GRIT); ABRASIVE WHICH PEEN THE SURFACE (I. E. STEEL SHOT) SHALL NOT BE USED.
SURFACE PROFILE RANGE 2.0 MILS (50 MICRONS) TO 3.0 MILS (75 MICRONS). SURFACE PROFILE MEASURED AS PER ASTM-4417, METHOD C, ISO-8503-1, OR DIN 4768 (RZ).
- PAINT (INSULATED SURFACES)**
(2) COATS CARBOLINE THERMOLINE 450 6.0 MILS DFT PER COAT FOR TOTAL DFT OF 12 MILS. FINAL PAINT COLOR (LATER).
- PAINT (UNINSULATED SURFACES) (3) COATS**
(1) COAT CARBOZINC 11 2.0-3.0 MILS. DFT
(1) COAT CARBOGUARD 893 S6 4.0-6.0 MILS. DFT
(1) COAT CARBOETHANE 134 HG, 2.0-2.5 MILS. DFT FOR TOTAL DFT OF 8.0-11.5 MILS. FINAL PAINT COLOR (LATER).

BILL OF MATERIALS FOR THIS DWG.:

ITEM	QTY.	DESCRIPTION:	MATERIAL
(1)	1	PL. 1 1/8" X 20" X 153" LG. (BASE PLATE W/HOLES) SEE DETAIL	SA-516 70N
(2)	1	PL. 1 1/8" X 20" X 153" LG. (BASE PLATE W/SLOT HOLES) SEE DETAIL	SA-516 70N
(3)	2	PL. 1" X 22" X 258 1/4" LG. (WEAR PLATE ROLL TO 166 3/4" I.D.) SEE DETAIL	SA-516 70N
(4)	2	PL. 1" X DETAIL" X 167 1/8" LG. (SADDLE PLATE) SEE DETAIL	SA-516 70N
(5)	4	PL. 1" X 18" X 85 9/16" LG. (SADDLE END PLATE) SEE DETAIL	SA-516 70N
(6)	8	PL. 1" X 8 1/2" X 25 15/16" LG. (SADDLE GUSSETS) SEE DETAIL	SA-516 70N
(7)	8	PL. 1" X 8 1/2" X 13 3/16" LG. (SADDLE GUSSETS) SEE DETAIL	SA-516 70N
(8)	4	PL. 1" X 8 1/2" X 9 1/2" LG. (SADDLE GUSSETS) SEE DETAIL	SA-516 70N
(9)	4	3/8"-16 UNC-2A HEX. CAP SCREW W/(1) HEX. NUT. EACH	SA 320-L7/SA 194-4

REV.	DESCRIPTION	DATE	BY	APPROVED
4	REV. SHOP NOTES NOTE #13 MAXIMUM BRINELL HARDNESS (BHN) FROM 237 TO 200 BHN	08/13/09	SG	FS
3	REV. BASE PLATES HOLES FROM 6 HOLES TO 12 AND SIZE PER CUSTOMER REQUEST	06/20/09	SG	FS
2	REV. GROUNDING LUG DETAIL, PAINT SPECIFICATIONS PER CUSTOMER REQUEST	04/07/09	SG	FS
1	ISSUED FOR FABRICATION	01/19/09	SG	FS/BN
A	ISSUED FOR APPROVAL-ON 06/20/08 AND REV. 0/R-ISSUED FOR APPROVAL ON 12/11/09	12/11/09	SG	FS

MFR. NAME: R.C. TECHNICAL WELDING & FABRICATION, INC.
STREET / P.O. BOX: 12814 MULANA LANE
CITY: STAFFORD STATE: TEXAS ZIP: 77477
TELEPHONE NO.: (281) 933-6004 FAX NO.: (281) 933-1548
ENGINEERING CONTACT: FERMIN SANDOVAL P.O.: 2597
MFR. SERIAL NO.: 11380 SHOP ORDER NO./S/O 11380
MFR. DWG. NO.: D-11380-2 REV.: 4

ProSep
TECHNOLOGIES, INC. Houston, Texas

PROJECT: BPXA ZPAD GAS PARTIAL PROCESSING (GPP)

TITLE: 162" I.D. X 50'-0" SM TO SM INLET SEPARATOR VSP-26011

JOB NO: 0801 DRAWING NO: 0801-1-302 REV: 4

