

 MEG ENERGY	CHRISTINA LAKE REGIONAL PROJECT Phase 3A EPC for Central Plant Facilities SLI Project No. 511036	 SNC-LAVALIN

 SNC-LAVALIN	<input type="checkbox"/> A1 Not suitable to initiate fabrication. modify as noted. resubmit for review								
	<input type="checkbox"/> B1 Suitable to initiate fabrication as noted. modify as noted. resubmit for review								
Vendor's drawing review for conformity with specifications and design drawing.	<input type="checkbox"/> C1 Suitable to fabricate to completion as noted. submit final documents including as-builts as required								
	<input checked="" type="checkbox"/> D1 Suitable to fabricate to completion. submit final documents including as-built documents as required								
This review does not relieve the vendor of his responsibility for errors in design and detailing as detailed in his contract.	<input type="checkbox"/> E1 Not suitable as final documents as noted. modify as noted and resubmit.								
	<input type="checkbox"/> F1 Suitable as final documents. no further resubmittal required (unless revised by vendor)								
<table border="1" style="width:100%"> <tr> <td>Vendor: Sewon Cellontech Co. Ltd. - P00007</td> <td>No.: D0644-3AV145-D-01-1</td> <td>Rev: 3</td> <td>Date Rec'd 2013/11/05</td> </tr> <tr> <td colspan="4">Doc. Title: H00.01, H00.04 - General Assembly - Tag: 3A-V-145</td> </tr> </table>		Vendor: Sewon Cellontech Co. Ltd. - P00007	No.: D0644-3AV145-D-01-1	Rev: 3	Date Rec'd 2013/11/05	Doc. Title: H00.01, H00.04 - General Assembly - Tag: 3A-V-145			
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Client Code:	Project: MEG Phase 3A EPC								
Reviewed by: <i>W</i> Date: <i>Nov 08, 2013</i>	<table border="1" style="width:100%"> <tr> <td>Document No P-5120-01-0069</td> <td>Submittal 04</td> </tr> </table>	Document No P-5120-01-0069	Submittal 04						
Document No P-5120-01-0069	Submittal 04								

GENERAL NOTES

- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
- ALL BOLT HOLES ARE TO STRADDLE THE NORTH/SOUTH AND VERTICAL CENTER LINES.
- NOZZLE PROJECTIONS ARE FROM OUTSIDE OF VESSEL OR WELD SEAM LINE TO GASKET CONTACT SURFACE OF FLANGE.
- ALL WELDS TO BE CONTINUOUS EXCEPT NOTED.
- FLANGE SHALL BE AS PER ASME B16.5(2003) UNLESS OTHERWISE STATED.
- FLANGES SURFACE FINISH SHALL BE R_a 3.2 TO 6.3 μm (AARH 125 TO 250).
- FOLLOWING DOCUMENTS ARE APPLIED TO FABRICATION & INSPECTION
 - WPS AND POR WITH WELDING MAP REFER TO D0644-COM-P-21
 - ALL CUSTOMER SPEC. LISTED IN MATERIAL REQUISITION (MR).
- ALL INTERNAL AND EXTERNAL ATTACHMENT WELDS SHALL BE WELDED WITH FULL PENETRATION ON THE BASE METAL OF THE PRESSURE ENVELOPE.
- ALL MATERIALS AND WELDER IDENTIFICATION SHALL BE WITH LOW STRESS STAMPS.
- NOZZLE REPADS 10" NPS AND SMALLER SHALL HAVE ONE 1 1/4" WEEP HOLE. NOZZLE REPADS, GREATER THAN 10" NPS SHALL HAVE TWO 1 1/4" WEEP HOLES, 180° APART. ALL WEEP HOLES SHALL BE EQUIPPED WITH 1/4" NIPPLES THAT PROTRUDE 1" BEYOND THE INSULATION.
- DIMENSIONED TOLERANCES SHALL CONFORM TO ASME CODE REQUIREMENTS AND MEG ENERGY STD. DRAWING 085354-3010-PY-24
- THE REQUIREMENTS OF IMPACT TEST FOR MATERIALS SHALL BE FOLLOWED IN ACCORDANCE WITH SPEC. 085354-3010-EW-20. TEST SPECIMENS SHALL BE PROVIDED IN COMPLETE HEAT-TREATED CONDITION.
 - TEST TEMPERATURE : a) -20°F [-29°C] FOR VESSEL BODY
b) -49°F [-45°C] FOR SADDLE LIFTING LUG
c) -49°F [-45°C] FOR EXTERNAL SUPPORT CLIPS SUCH AS PLATFORM & LADDER, PIPING.
 - TEST SPECIMENS : AS PER ASTM A370 MINIMUM 3 SETS PER HEAT.
 - IMPACT ENERGY : PER ASME SECTION VIII DIV.1 SG-84.
- APPLICABLE MATERIALS :
 - FOR SHELL & HEADS, SA516-70N : THE MATERIAL SHALL BE USED WITH NORMALIZED SA516-70 MARKED AS "N" TO EXEMPT FROM IMPACT TEST (NORMALIZED SA516-70 PLATES CLASSIFIED AS CURVE D ARE EXEMPTED AS PER FIG UCS-66)
 - FOR STANDARD FLANGE, SA105N : THE MATERIAL IS EXEMPTED AS PER UCS-66
 - FOR PIPE, SA106-B : THE MATERIAL IS EXEMPTED AS PER UG-20(F)
 - SADDLE IMPACT TEST CAN NOT BE EXEMPTED PER ASME
 - FOR EXTERNAL SUPPORT CLIPS : THE MATERIAL SHALL BE USED WITH NORMALIZED SA516-70 SUCH AS PLATFORM & LADDERS MARKED AS "N" TO EXEMPT FROM IMPACT TEST (NORMALIZED SA516-70 PLATES CLASSIFIED AS CURVE D ARE EXEMPTED AS PER FIG UCS-66)
- HARDNESS REQUIREMENTS FOR ALL PRESSURE PARTS AND ATTACHMENTS. PRODUCTION HARDNESS TESTING SHALL BE PERFORMED FOR CARBON STEEL WELDS, HAZ, AND BASE METAL AS PER ASTM E-10 & SPEC. 085354-3010-EW-20. MAX. HARDNESS SHALL NOT BE EXCEED 200 HBW.
- POSTWELD HEAT TREATMENT CONDITIONS. (ASTM E-10)

MAX. THK (mm)	HOLDING TIME (HOURS)	MAX. HEAT RATE °F/°C/HR	MAX. COOL RATE °F/°C/HR	HOLDING TEMP. °F/°C	APPLICATION PART
16	1 HR (MIN.)	431.6 [222]	532.4 [278]	1148±68 [620±20]	ALL PART ON THE PRESSURE BOUNDARY WELDS
- THE PLATE SHALL BE ULTRASONICALLY EXAMINED FOR LAMINATIONS AND DEFECTS. THE INSPECTION SHALL BE PERFORMED IN ACCORDANCE WITH ASME SECTION V, SA-435 SPECIFYING A 75mm GRID. ACCEPTANCE CRITERIA SHALL BE IN ACCORDANCE WITH LEVEL C.
- THE MATERIAL AND FABRICATION OF VESSEL SHALL COMPLY WITH THE REQUIREMENTS OF NACE MR0175-2002
- ALL PRESSURE PARTS AND ATTACHMENTS SHALL COMPLY WITH THE FOLLOWING RESTRICTED PROPERTIES. THE CARBON EQUIVALENT SHALL NOT BE GREATER THAN 0.44 AND SHALL BE CALCULATED BASED ON THE FOLLOWING FORMULA $CE = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15$
 - MATERIAL HARDNESS NOT TO EXCEED 200 HBW.
- WPS/POR TO HAVE QUALIFICATION MATERIAL WITH SAME P NO.
- DESIGN LIQUID LEVEL IS FULL WITH SG=1.
- VESSEL SHALL BE "ASME" STAMPED AND NATIONAL BOARD REGISTRATION. ABSA REGISTRATION.
- NDE INSPECTION REQUIREMENTS
 - 100%RT FOR ALL BUTT WELD IN ACCORDANCE WITH ASME SEC. V AND ASME SEC. VIII DIV.1 UW-51 BEFORE AND AFTER PWHT
 - 100%UT FOR ALL CUT "D" IN ACCORDING WITH ASME SEC. V AND ASME SEC. VIII DIV.1 UW-53 BEFORE AND AFTER PWHT
 - 100%MT FOR ALL ATTACHMENT WELDS (INTERNAL & EXTERNAL) IN ACCORDANCE ASME SEC. V AND WITH ASME SEC. VIII DIV.1 APPENDIX 6. BEFORE AND AFTER PWHT
 - 100%MT FOR ALL EDGES PREPARED FOR WELDING INCLUDING BACK GOUGES. IN ACCORDANCE WITH ASME SEC. VIII DIV.1 APPENDIX 6. AND ASME SEC. V
- HYDROTEST WATER SHALL BE CLEAN WATER WITH LESS THAN 250ppm CHLORIDE CONTENT. HYDROTEST PRESSURE SHALL BE MAINTAINED FOR A MINIMUM OF 60MINUTES A/W CHART AT A MINIMUM OF 5°C
- UPON COMPLETION OF HYDROTEST, VESSEL SHALL BE COMPLETELY DRAINE OF ALL WATER, AIR DRIED, AND CLEANED
- ALL WELDED ATTACHMENTS PROVIDE WITH WEEP HOLES, SHALL BE SOAP TESTED AT 175Kpag PRIOR TO HYDROSTATIC TEST.
- VESSEL SHALL HAVE CP INSTALLATION.
- VESSEL EXTERNAL SURFACE PREPARATION AND PAINTING SHALL BE AS PER SPEC. 085354-3010-PC-50 TABLE 3. SYSTEM A1/D1
- VESSEL SHALL BE INSULATED AS PER 085354-3010-IN-00 INSULATION THICKNESS SHALL BE 50mm THICK MINERAL FIBER WITH 0.5mm THICK STUCCO EMBOSSED ALUMINUM CLADDING.

FOR APPROVAL ASME-U

2013 10.22	FOR APPROVAL	B.C.CHIN				
2013 08.23	FOR APPROVAL	B.C.CHIN	G.S.KIM	B.J.KIM	H.H.CHO	
2013 08.10	FOR APPROVAL	B.C.CHIN	G.S.KIM	B.J.KIM	H.H.CHO	
2013 04.18	FOR APPROVAL	B.C.CHIN	W.H.LEE	B.J.KIM	H.H.CHO	
REV.	DATE	DESCRIPTIONS FOR REVISION	DRWN	CHK'D	CHK'D	REV'D APP'D
PROJECT MEG ENERGY CHRISTINA LAKE REGIONAL PROJECT PHASE 3A						
CUSTOMER MEG ENERGY CORP.						
CLIENT SNC-LAVALIN						
TITLE DILUENT RECOVERY SEPARATION						
3A-V-145 GENERAL ASSEMBLY (2)						
SEWON CELLONTECH CHANGWON, KOREA						
OWNER JOB NO.	PROJECTION METHOD	THIRD ANGLE PROJECTION	OWNER DWG. NO.			
508298			-			
P/O NO.	P-5120-01		-			
SEWON JOB NO.	SEWON DWG. NO.	D0644		D0644-3AV145-D-01-1		WORKS