

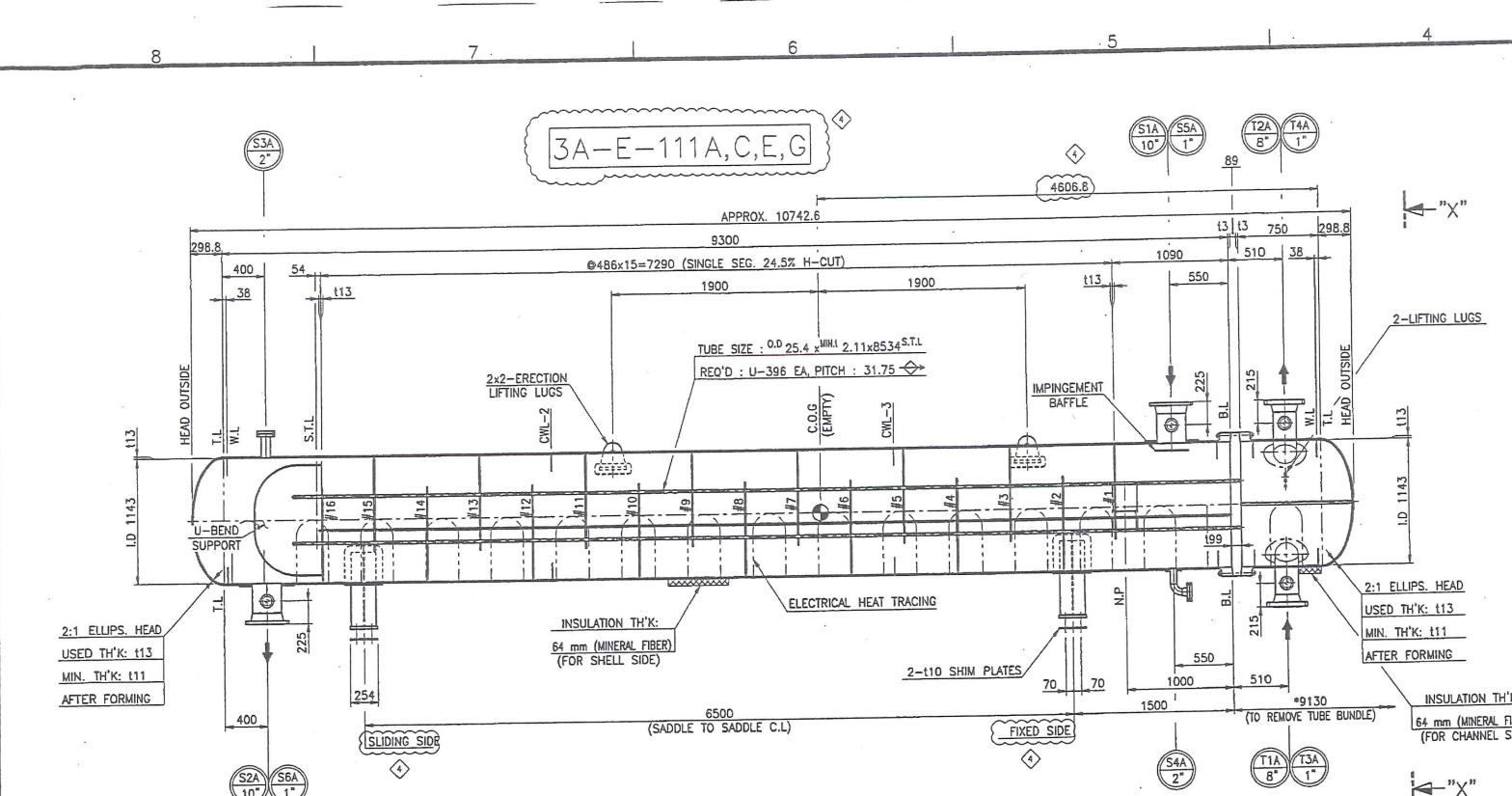
	<b>CHRISTINA LAKE REGIONAL PROJECT</b> <b>Phase 3A EPC for Central Plant Facilities</b>	
	<b>SLI Project No. 511036</b>	

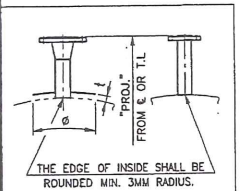
	<input type="checkbox"/> A1 Not suitable to initiate fabrication. modify as noted, resubmit for review
	<input type="checkbox"/> B1 Suitable to initiate fabrication as noted. modify as noted, resubmit for review
Vendor's drawing review for conformity with specifications and design drawing.	<input type="checkbox"/> C1 Suitable to fabricate to completion as noted. submit final documents including as-builts as required
This review does not relieve the vendor of his responsibility for errors in design and detailing as detailed in his contract.	<input checked="" type="checkbox"/> D1 Suitable to fabricate to completion. submit final documents including as-built documents as required
	<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)
	<input type="checkbox"/> VX Vendor document cancelled.

Vendor: Sewon Cellontech Co. Ltd. - P00007		No.: E0351-3AE111-D-01	Rev: 4
Doc. Title:	H00.01 - GENERAL ASSEMBLY (1/3) - Tag:3A-E-111A-H		
Client Code:	Project No: 511036	Date Rec'd: 2014/05/30	
Reviewed by: <i>SS</i>	Document No: P-5310-01-0011	Submittal: 05	
Date: <i>5-June-2014</i>			

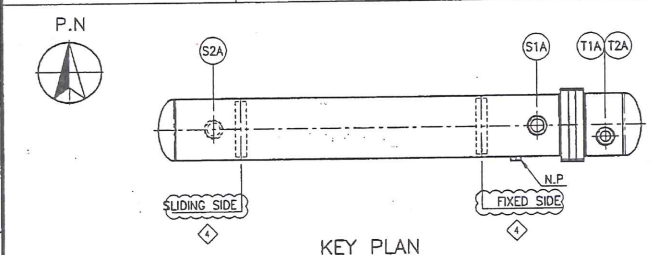




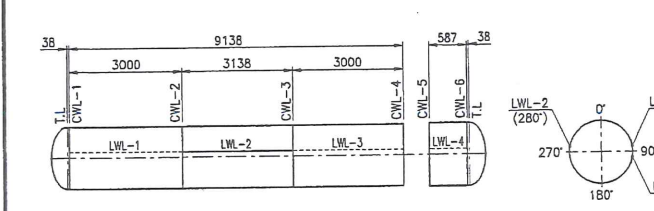
SIDE ELEVATION  
(SCALE = 1 : 30)



TYPICAL NOZZLE ASSEMBLY

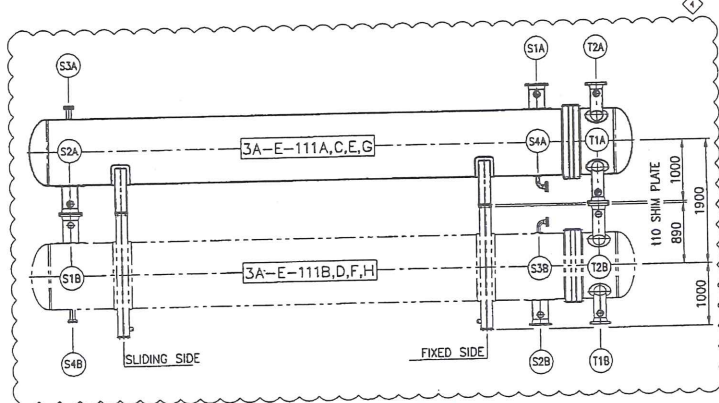


KEY PLAN



SEAM PLAN

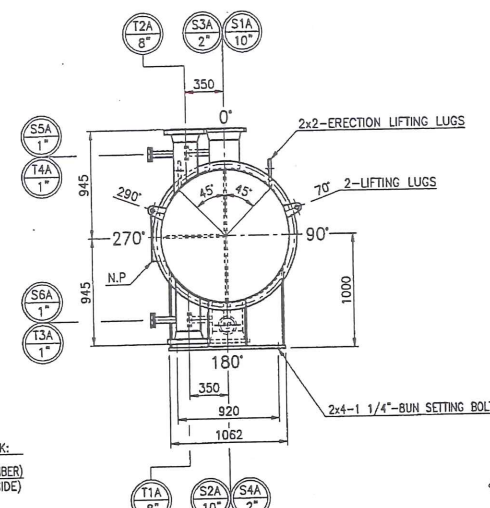
OUTSIDE	OUTSIDE	OUTSIDE	OUTSIDE
JOINT NO. CWL-1	JOINT NO. LWL-1~3 CWL-2,3	JOINT NO. CWL-4	JOINT NO. CWL-5



STACKING ARRANGEMENT

MARK	NOM SIZE	NO.	RATING TYPE	FACING	THICK	PROJ.	TX#ORD	SERVICE & REMARKS
T3A,T4A	1"	2	ASME 3001	L.W.N	R.F	-	315	FIELD HYDROTEST (W/B.F)
S5A,S6A	1"	2	ASME 3001	L.W.N	R.F	-	340	FIELD HYDROTEST (W/B.F)
T2A	8"	1	ASME 3001	W.N	R.F	SCH 80	113x400	TUBE SIDE OUTLET
T1A	8"	1	ASME 3001	W.N	R.F	SCH 80	113x400	TUBE SIDE INLET
S4A	2"	1	ASME 3001	W.N	R.F	SCH 160	790	DRAIN (W/B.F)
S3A	2"	1	ASME 3001	L.W.N	R.F	-	790	VENT (W/B.F)
S2A	10"	1	ASME 3001	W.N	R.F	SCH 80	945	113x510 SHELL SIDE OUTLET
S1A	10"	1	ASME 3001	W.N	R.F	SCH 80	945	113x510 SHELL SIDE INLET

NOZZLE SCHEDULE



NOZZLE ORIENTATION  
(VIEW "X"-"X")  
(SCALE = 1 : 30)

ASME STAMP

DESIGN & TEST DATA			
QTY TO BE MANUFACTURED	4 (FOUR)		
CODE	ASME SEC. VIII DIV. 1 2010 ED. + 2011 ADD. & TEMA CLASS "W" 9TH ED. - 2007 + ASME 8TH ED.		
ASME CODE STAMP	YES		
CRN. NO.	TBD		
NATIONAL BOARD REGISTRATION	YES		
TYPE	H-BEU		
EFFECTIVE SURFACE AREA (PER SHELL) (m <sup>2</sup> )	556.4		
	SHELL SIDE	TUBE SIDE	
SPECIAL SERVICE	NO	NO	
FLUID CIRCULATED	BP FRAC DIBIT	TG/MTR (60X/60X 11)	
DENSITY (LIQ./VAP.) kg/m <sup>3</sup> (lb/ft <sup>3</sup> )	875/- / 921/-	1078/- / 1052/-	
NO. OF PASS	1 (ONE)	4 (FOUR)	
PRESSURE (Kpa/g)	DESIGN (INT./EXT.) 1450/F.V.	1500/F.V.	
OPERATING	890	900	
TEMPERATURE (°C)	DESIGN 178	178	
OPERATING (IN/OUT)	117.9/49.7	40/75	
TEST PRESS. (Kpa/g)	HYDRO. 1989	2072	
PNEUM. (SHOP F&I)	-	-	
M.A.W.P. (HOT&CORRODED) (Kpa/g)	1530	1594	
M.A.W.P. LIMITING COMPONENT	SHELL GIRTH FLANGE	CHANNEL GIRTH FLANGE	
M.A.P. (NEW&COLD) (Kpa/g)	1757	1757	
M.A.E.W.P. (Kpa/g)	F.V.	F.V.	
P.W.H.T	NO	NO	
STRESS RELIEVE AFTER FORMING	NO	NO	
RADIOGRAPHY (S/H)	SPOT/FULL	SPOT/FULL	
JOINT EFFICIENCY	SHELL 0.85	HEAD 1.0	
CORR. ALLOW. (MM)	3.2	3.2	
M.D.M.T (°C)	-29	-29	
IMPACT TEST	SEE NOTE 14.	SEE NOTE 14.	
INSULATION (MM)	64	64	
FIRE PROOFING (MM)	NONE	NONE	
PAINTING SPECIFICATION	SEE NOTE 26.	SEE NOTE 13.	
TOLERANCE	SEE NOTE 13.	SEE NOTE 13.	
TUBE TO TUBE SHEET JOINT	ROLLED (TWO GROOVES) AND EXPANDED	NBC 2005, IMPORTANCE FACTOR = 1.15	
WIND CODE	NBC 2005, IMPORTANCE FACTOR = 1.15	WIND SPEED = 113km/H	
SEISMIC CODE	NBC 2005, IMPORTANCE FACTOR = 1.3	SITE CLASS = 0, S <sub>0</sub> (0.2) = 0.12, S <sub>0</sub> (0.5) = 0.05, S <sub>0</sub> (1.0) = 0.02, S <sub>0</sub> (2.0) = 0.005	
FABRICATION	17050		
ERECTION	17610		
EMPTY OPERATING	24760		
TEST (SHOP/FIELD) BUNDLE	26730/26330		
	10950		

REFERENCE DRAWINGS	
1. GENERAL ASSEMBLY (2/3) [FOR 3A-E-111A,C,E,G]	E0351-3AE111-D-02
= BLANK =	E0351-3AE111-D-03
= BLANK =	E0351-3AE111-D-04
4. GENERAL ASSEMBLY (3/3)	E0351-3AE111-D-05
5. DETAIL OF BODY (1/2)	E0351-3AE111-D-06
6. DETAIL OF BODY (2/2)	E0351-3AE111-D-07
7. DETAIL OF TUBE BUNDLE (1/2)	E0351-3AE111-D-08
8. DETAIL OF TUBE BUNDLE (2/2)	E0351-3AE111-D-09
9. DETAIL OF U-BEND SUP'T	E0351-3AE111-D-10
10. DETAIL OF SUPT SADDLE (1/2) [FOR 3A-E-111A,C,E,G]	E0351-3AE111-D-11
= BLANK =	E0351-3AE111-D-12
12. DETAIL OF SUPT SADDLE (2/2) [FOR 3A-E-111B,D,F,H]	E0351-3AE111-D-13
= BLANK =	E0351-3AE111-D-14
14. DETAIL OF INSUL. SUP'T (1/2)	E0351-3AE111-D-15
15. NOZZLE DETAIL "S1A,S2A,S2B"	E0351-3AE111-D-16
16. NOZZLE DETAIL "S1B"	E0351-3AE111-D-17
17. NOZZLE DETAIL "S3A,S4B"	E0351-3AE111-D-18
18. NOZZLE DETAIL "S4A,S3B"	E0351-3AE111-D-19
19. NOZZLE DETAIL "T1A,T2A,T1B"	E0351-3AE111-D-20
20. NOZZLE DETAIL "T2B"	E0351-3AE111-D-21
21. NOZZLE DETAIL "S5A,B,S6A,B & T3A,B,T4A,B"	E0351-3AE111-D-22
22. DETAIL OF EHT GENERAL ASSEMBLY (1/2)	E0351-3AE111-D-23
23. DETAIL OF NAME PLATE	E0351-3AE111-D-24
24. DETAIL OF EHT GENERAL ASSEMBLY (2/2)	E0351-3AE111-D-25
= BLANK =	E0351-3AE111-D-26
= BLANK =	E0351-3AE111-D-27
27. DETAIL OF EHT WIRING (1/8) ~ WIRING (8/8)	E0351-3AE111-D-28~35
28. DETAIL OF INSUL. SUP'T (2/2)	E0351-3AE111-D-36

MATERIAL SPECIFICATION

		STUD BOLTS AND NUTS	
SHELL HEAD	SA516-70N	-SHELL COVER	-
CHANNEL HEAD	SA516-70N	-STATIONARY	SA193-B7/SA194-2H
SHELL FLANGE	SA266-2N	-CHANNEL COVER	-
CHANNEL FLANGE	SA266-2N	-FLOATING	-
TUBE SHEET	SA266-2N	-SHELL SIDE NOZZ.	SA193-B7/SA194-2H
FLOATING HEAD COVER	-	-TUBE SIDE NOZZ.	SA193-B7/SA194-2H
FLOATING HEAD FLANGE	-	GASKETS	-
BACKING DEVICE	-	-SHELL COVER	-
TUBES	SA179 (SEAMLESS)	-SHELL CHANNEL END	SEE *1)
BAFFLES or SUPPORT	SA516-70	-CHANNEL SHELL END	SEE *1)
IMPINGEMENT BAFFLE	SA516-70	-CHANNEL COVER	-
TIE ROD / SPACER	SA36 / SA53-B	-FLOATING	-
PASS PARTITION PLATE	SA516-70N	-SHELL SIDE NOZZ.	SEE *2)
SHELL NOZZLE -NECK	SA106-B	-TUBE SIDE NOZZ.	SEE *2)
-FLANGE	SA105N	SUPPORT SADDLES / PAD	SA516-70N/SA516-70N
CHANNEL NOZZLE -NECK	SA106-B	EARTH LUG & NAME PLATE	SA240-304
-FLANGE	SA105N	SETTING BOLT/NUT	SA 325

APPROVAL ASME-U			
*1) GASKET MATERIAL : OIL RESISTANT GRAPHITE GASKET			
*2) SPIRAL WOUND (14.5) : FILLER : GRAPHITE INNER RING : 316 S.S. OUTER RING : C.S.			
REV.	DATE	DESCRIPTIONS FOR REVISION	DRWN
2014 02 26	REVISED AS MARKED	B.C.CHIN	H.U.KOO
2013 11 08	REVISED AS MARKED	B.C.CHIN	H.U.KOO
2013 10 17	REVISED AS MARKED	B.C.CHIN	H.U.KOO
2013 08 21	REVISED AS MARKED	B.C.CHIN	H.U.KOO
2013 07 08	FOR APPROVAL	B.C.CHIN	H.U.KOO

CLRP PHASE 3A CENTRAL PLANT FACILITY: EPC

MEG ENERGY CORP.

SNC • LAVALIN INC

SALES OIL/GLYCOL EXCHANGE

3A-E-111A~H GENERAL ASSEMBLY (1/3) [FOR 3A-E-111A,C,E,G]

SEWON CELLONTECH CO., LTD.

CHANGWON, KOREA

OWNER JOB NO. 511036 PROJECT METHOD THIRD ANGLE SCALE SEE DWG.

P/O NO. P-5310-01 OWNER DWG. NO. -

SEWON JOB NO. E-0351 SEWON DWG. NO. E0351-3AE111-D-01 WORKS 4