



MEG ENERGY

CHRISTINA LAKE REGIONAL PROJECT
Phase 3A EPC for Central Plant Facilities

SLI Project No. 511036



SNC-LAVALIN



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Vendor's drawing review for
conformity with specifications
and design drawing.This review does not relieve
the vendor of his responsibility
for errors in design and detailing
as detailed in his contract.☐ A1

Not suitable to initiate fabrication. modify as noted, resubmit for review.

☐ B1

Suitable to initiate fabrication as noted. modify as noted, resubmit for review.

☐ C1

Suitable to fabricate to completion as noted. submit final documents including as-builts as required.

☐ D1

Suitable to fabricate to completion. submit final documents including as-built documents as required.

☐ E1

Not suitable as final documents as noted. modify as noted and resubmit.

☒ F1

Suitable as final documents, no further resubmittal required (unless revised by vendor).

Vendor: Heat Exchanger Design, Inc. - 12427

No.: TSS4565A (Case 2)

Rev: 1

Date Rec'd

2013/10/30

Doc. Title: D00.01 - Thermal Data Sheet - Tag: 3A-E-144

Client Code:

Project: MEG Phase 3A EPC

Reviewed by: *Aus de*

Document No

Submittal

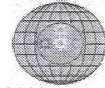
Date:

Nov. 13, 2013

P-5330-01-0012

03

Heat Exchanger Design, Inc.



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HEAT EXCHANGER SPECIFICATION SHEET										Page 1
Customer MEG Energy Corp.					Job No. 4565A					
Address					Reference No. PO# P-5330-01					
Plant Location Christina Lake, AB					Proposal No. 111-13					
Service of Unit DILUENT RECOVERY / GLYCOL EXCHANGER					Date 8/19/2013 Rev 3					
Size 460 x 19 x 7620mm Type SH18B230-25-02-SS-6B8A					Item No. 3A-E-144 (Minimum Duty Case)					
Surf/Unit (Gross/Eff) 448.14 / 446.75 m ²					Surf/Shell (Gross/Eff) 224.07 / 223.38 m ²					
PERFORMANCE OF ONE UNIT										
Fluid Allocation		Shell Side			Tube Side					
Fluid Name		TEG / H2O (60/40 wt%)			Diluent Vapour					
Fluid Quantity, Total kg/hr		46041.9			14238.2					
Vapor (In/Out)					14237.7					
Liquid		46041.9			0.4362					
Steam					14238.2					
Water										
Noncondensables										
Temperature (In/Out) C		40.00			117.20					
Specific Gravity		1.0789			0.9410					
Viscosity mN-s/m ²		4.6610			0.0097 V/L 0.255					
Molecular Weight, Vapor										
Molecular Weight, Noncondensables										
Specific Heat kJ/kg-C		3.2230			2.1179 V/L 4.419					
Thermal Conductivity W/m-C		0.3276			0.0238 V/L 0.684					
Latent Heat kJ/kg					2261.41					
Inlet Pressure kPa		994.002			534.000					
Velocity m/s		0.31			3.97					
Pressure Drop, Allow/Calc kPa		70.000			46.987					
Fouling Resistance (min) m ² -K/W		0.000180			75.000					
Heat Exchanged MegaWatts 2.5397		MTD (Corrected)			15.5 C					
Transfer Rate, Service 366.66 W/m ² -K		Clean			632.87 W/m ² -K					
					Actual 451.81 W/m ² -K					
CONSTRUCTION OF ONE SHELL										
		Shell Side			Tube Side					
Design/Test Pressure kPaG		1500/FV / Code			1155/FV / Code					
Design Temperature C		-28.9 / 178			-28.9 / 178					
No Passes per Shell		1			1					
Corrosion Allowance mm		3.2			6.4 (CS components)					
Connections		In inch 6" 300# RFWN			8" 150# RFWN					
Size & Rating		Out inch 6" 300# RFWN			8" 150# RFWN					
		Intermediate								
Tube No. 230		OD 19.050 mm			Thk(Avg) 1.651 mm			Length 7.620 m		
Tube Type Plain					Material			SA-213-316L		
Shell SA-106 B		457.2mm OD			Shell Cover			SA-516-70N		
Channel or Bonnet SA-240-316L (Note 6)					Channel Cover			N/A		
Tubesheet-Stationary SA-240-316L					Tubesheet-Floating			N/A		
Floating Head Cover N/A					Impingement Plate			None		
Baffles-Cross SS304		Type SINGLE-SEG. (Vert.)			%Cut (Diam) 36.00			Spacing(c/c) 304.801		
Baffles-Long N/A					Seal Type					
Supports-Tube SS304					U-Bend			Type		
Bypass Seal Arrangement					Tube-Tubesheet Joint			Seal Welded & Expanded (two grooves)		
Expansion Joint					Type					
Rho-V2-Inlet Nozzle kg/m-s ²					Bundle Entrance			Bundle Exit kg/m-s ²		
Gaskets-Shell Side Kammpro Type					Tube Side			Kammpro Type		
-Floating Head N/A										
Code Requirements ASME Section VIII, Div. I					TEMA Class					
Weight/Shell 5760.4		Filled with Water 7950.25			Bundle 2889.14			kg		
Remarks: 1. This is HED's standard separated head Hairpin Exchanger with independent bolting. 2. 50mm thick mineral wool insulation is included. 3. Glycol heat tracing for 10°C hold temperature is included. 4. 10% overdesign in surface has been provided. 5. Tube-to-tubesheet welding procedures shall be qualified and tested in accordance with ASME Section IX, QW-193. 6. Tubeside is in sour service, and 100% RT and NACE materials are required. 7. Channel changed to 316L SS to avoid PWHT requirements. 8. U-bends are solution annealed.										
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