

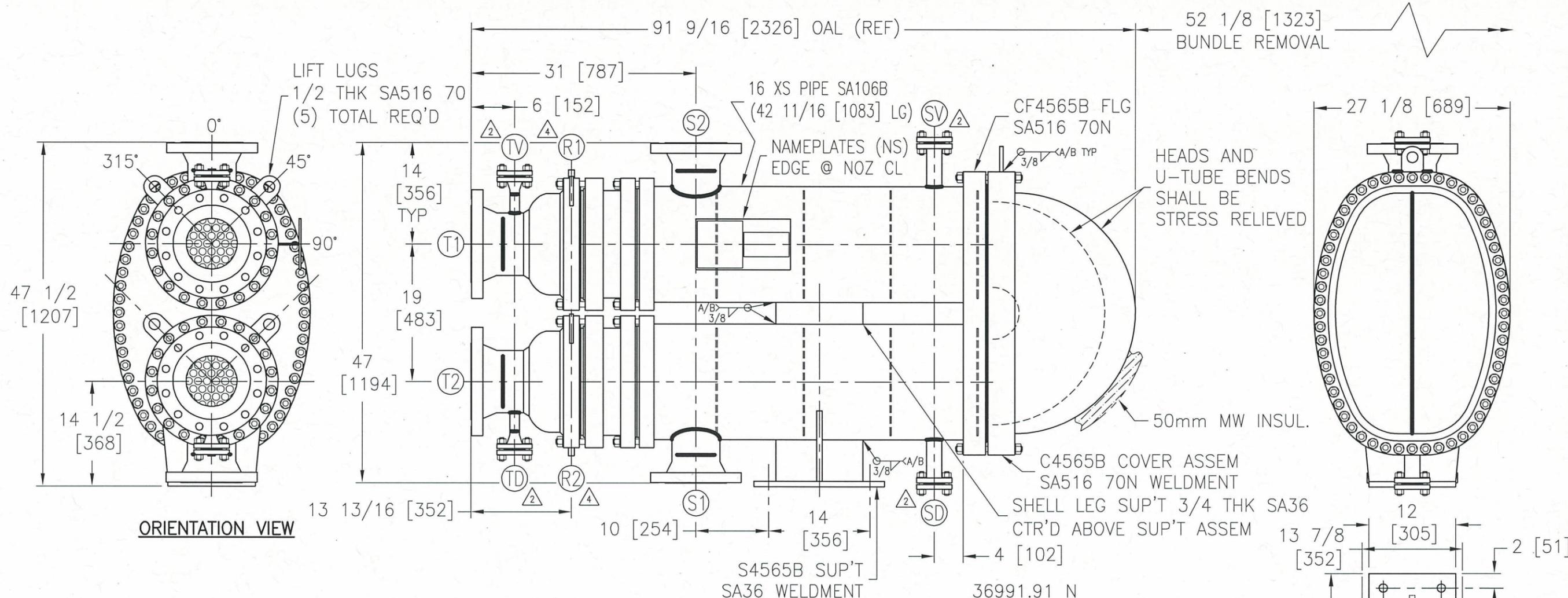


**CHRISTINA LAKE REGIONAL PROJECT
Phase 3A EPC for Central Plant Facilities**



SLI Project No. 511036

 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		
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)		
Vendor: Heat Exchanger Design, Inc. - 12427	No.: 4565B Sht 1	Rev: 4	Date Rec'd 2014/03/04
Doc. Title: B00.03,H00.01,H00.03,J00.01,J00.08 - General Arrangement Drawing - Tag: 3A-E-397			
Client Code:	Project: MEG Phase 3A EPC		
Reviewed by: <i>Aside</i>	Document No P-5330-01-0004		Submittal 05
Date: <i>March 6, 2014</i>			



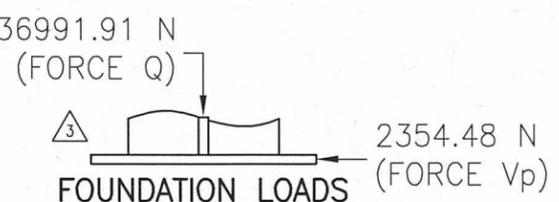
ORIENTATION VIEW

ELEVATION VIEW

(3) IDENTICAL UNITS REQ'D

- MISC CONSTRUCTION NOTATION**
- 1) FOR MECHANICAL CALCULATIONS SEE CC4565B (& RELATED)
 - 2) DIMENSIONS ARE IN INCHES [mm] & SYMM UNLESS NOTED OTHERWISE
 - 3) BOLTING: SA193 B7/194 2H
 - 4) GASKETS: SI & KAMMPROFILE TYPE CS/GRAPHITE w/ OD GAGE RING
 - 5) TUBES SHALL BE DOUBLE GROOVED, STRENGTH WELDED & ROLL EXPANDED (60° TRI-PITCH)
 - 6) CORROSION ALLOWANCE SHALL NOT BE APPLIED TO TUBES
 - 7) 50mm MINERAL WOOL INSULATION REQ'D PER SPEC
 - 8) NITROGEN FILLED REQ'D FOR SHIPMENT
 - 9) HEADS & U-TUBE BENDS SHALL BE STRESS RELIEVED

FOUNDATION LOADS



NOZZLE LOADINGS: MAX. CALCULATED
TAKEN @ SHELL NOZZLE JUNCTURE

NOZ.	P, VC, VL (N)	Mt, Mc, MI (N-m)
S1/S2	4600, 5630, 5630	4860, 3440, 3440
T1/T2	6050, 7430, 7430	8070, 5710, 5710

US NAMEPLATE FACSIMILE (SS316)

MTD ON 4" SA36 STAND OFF BKT

Manufactured & Certified by
HEAT EXCHANGER DESIGN, INC.

W-RT1

Serial Number: 4565B1, 2 or 3

Hydro Test Pressure: 631 / 819

Shell Side / Tube Side: -20 *F @ 485/FV PSI

Shell Side: 485 PSI @ 410 *F

Tube Side: 630 PSI @ 410 *F

Maximum Allowable Working Pressure

Shell Side: FV PSI @ 410 *F

Tube Side: FV PSI @ 410 *F

Maximum Allowable External Working Pressure

Shell Side: -20 *F @ 485/FV PSI

Tube Side: -20 *F @ 630/FV PSI

Minimum Design Metal Temperature

CUSTOMER: MEG ENERGY CORP.

P.O.#: P-5330-01

CRN#: TBD

SERVICE: HP BFW MIN FLOW RECYCLE COOLER(S)

ITEM: 3A-E-397A, B or C

Year Built: 2014

SI NAMEPLATE FACSIMILE (SS316)

Manufactured & Certified by
HEAT EXCHANGER DESIGN, INC.

Shell Side: 3344/FV kPa @ 210 °C

Tube Side: 4344/FV kPa @ 210 °C

Maximum Allowable Working Pressure

Shell Side: -29 °C @ 3344/FV kPa

Tube Side: -29 °C @ 4344/FV kPa

Minimum Design Metal Temperature

Serial Number: 4565B1, 2 or 3

Hydro Test Pressure: 4351 / 5647

Shell Side / Tube Side

NOZZLE SCHEDULE		TUBE DATA		DESIGN CONDITIONS			SPECIAL DATA		CUSTOMER DATA	
NOZ.	SIZE / RATING	SERVICE	(#) SIZE	(92) 1 OD x 14 BWG U-TUBES	PSI DESIGN PRESSURE (kPa)	SHELLSIDE	TUBESIDE	ASME SECTION VIII, DIV 1, 2010 ED., A11	CUSTOMER: MEG ENERGY CORP.	P.O.#: P-5330-01
S1	6" 300# RFWN (S160)	SHELL IN (SA105/106B)	54 [1372]	ST LEGS	485 (3344)/FV	630 (4344)/FV	TEMA CLASS	NA	PROJECT: CLRP PHASE 3A CENTRAL PLANT FACILITY: EPC	ITEM: 3A-E-397A, B or C
S2	6" 300# RFWN (S160)	SHELL OUT (SA105/106B)	MATERIAL	SA179	*F DESIGN TEMPERATURE (°C)	410 (210)	410 (210)	CLIENT INSP.	AS REQUIRED	SERVICE: HP BFW MIN FLOW RECYCLE COOLER(S)
T1	8" 300# RFWN (S140)	TUBE IN (SA105/106B)	BAFFLES	33% V CUT, 12 [305] PITCH	CORROSION ALLOWANCE (mm)	1/8 (3.2)	1/8 (3.2)	WEIGHT (Kg)	3585# (1626)	SIZE: (3) SH16D92-04-00-TV-688B
T2	8" 300# RFWN (S140)	TUBE OUT (SA105/106B)		3/16 C STL	PSI HYDROTEST (kPa)	631 (4351)	819 (5647)	SQ' AREA (M ²)	259 (24)	
TV	1" 300# RFWN (S160) w/BLIND	TUBE VENT (SA105/106B)	TUBESHEET	SA516 70/106B WELDMENT	RADIOGRAPHY	FULL	SPOT	PREP/PAINT SPEC	MEG-ENG-MEC-SP-1101*	TOLERANCES
TD	1" 300# RFWN (S160) w/BLIND	TUBE DRAIN (SA105/106B)			*F MINIMUM TEMPERATURE (°C)	-20 (-29)	-20 (-29)	INSULATION SPEC	MEG-ENG-MEC-SP-1102	EXCEPT AS NOTED OTHERWISE
SV	1" 300# RFLWN w/BLIND	SHELL VENT (SA105)			POST WELD HEAT TREAT	NO	YES			HEAT EXCHANGER DESIGN, INC.
SD	1" 300# RFLWN w/BLIND	SHELL DRAIN (SA105)			IMPACT TEST EXEMPTION	JG-20(f), UCS-66JG-20(f), UCS-66				UNIT IS A MULTITUBE HAIRPIN HEAT EXCHANGER
R	ø1/2 NPT TAPPED w/PLUG	VENT/DRAIN (DRILLED/TAPPED)								(3) IDENTICAL UNITS REQ'D

REVISION LOG

NO.	DATE	COMMENT
4	27-FEB	ADDED DRILLED/TAPPED VENT & DRAIN
3	4-FEB	ADDED FOUNDATION LOADS

GENERAL ARRANGEMENT

DATE	DRAWING NUMBER	REV
29-AUG-13	4565B	4