



Exchanger Industries

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Manufacturer's Record Book

Air Cooled Heat Exchanger

CUSTOMER: DPH Focus Corp.
FOR: EnCana FCCL Oil Sands Ltd.
LOCATION: Foster Creek, AB
PURCHASE ORDER NO: FCSR-DPH-4001C
ITEM NO: E-5888
C.R.N. NO: U9115.2/OHO8720.2
E.I. JOB NO: 08-5062

C O N T E N T S

1. Inspection Release Report
2. General Operating Instructions
3. U-1A and AB-25
4. Nameplate Rubbing
5. Inspection and Test Plan
6. Thermal Data Specification Sheet
7. Stress Test Chart
8. Hydrostatic Test Chart and Report
9. Noise and Vibration Test Reports
10. N.D.T. Reports
11. Mill Test Report
12. Weld Procedure
13. Welder's Qualification Records
14. Weld Maps
15. Paint Logs
16. Mechanical Design Calculations
17. Boiler's Branch Registered Letter
18. Complete Set "CERTIFIED AS BUILT" Drawings
19. Information on Major Components:
 - a) TECO-Westinghouse Motor
 - b) Moore Fans Data
 - c) NTN Bearings
 - d) Belts
 - e) Fisher Actuator and Positioner
 - f) Vibration Transmitter
20. Spare Parts List

No	Date	By
0	Mar 4/08	PM
1	Aug 13/08	PM
2	18-Sep-08	PM
3	15-May-09	PM



CROSSFLOW HEAT EXCHANGER SPECIFICATION SHEET

08-5062 E5888 R3

V3.00n

Sheet No.	of
Date	May 15, 2009
Proposal No.	P08A-10619
Job No.	08-5062
Item No.	E-5888
Customer Ref	FSCR-DPH-4001C

2	Customer	DPH Focus Corporation	Forced Draft	No of Bays	1
3	Plant Location	EnCana FCCL Oil Sands Ltd, Foster Creek			
4	Service of Unit	Lean AGE Cooler			
5	Model	1E11.42 38 10 2			
6	Surface Area Bundle - Bare / Extended	1,896 / 40,132	ft²	Net Bare Area Total	1,896 ft²
7	Heat Exchanged	4,909,400	BTU/hr	MTD, Effective	31.87 °F
8	Transfer Rate - Fin Surface	3.96	Bare Tube, Service	81.25 (U),	Clean 100.91 BTU/hft²°F

PERFORMANCE DATA - TUBE SIDE					
10	Fluid Name	50% Lean Amine (HS-102)		Vapour Ref Temp	°F
11	Total Fluid Entering	Lb/Hr	86,374	Specific Heat	BTU/Lb °F
12	Vapour	Lb/Hr		Viscosity	cP
13	Liquid	Lb/Hr	86,374	Conductivity	BTU/hft °F
14	Non-condensable	Lb/Hr		Density	Lb/ft³
15	Water Substance	Lb/Hr		Molecular Weight Vapour	
16	Fluid Condensed	Lb/Hr		Liquid Ref Temp	°F
17	Temperature In/Out	°F	174.02	109.94	
18	Latent Heat	BTU/Lb		Specific Heat	BTU/Lb °F
19	Pressure	psia	25.09	Viscosity	cP
20	Velocity In/Out	ft/s	3.10	Conductivity	BTU/hft °F
21	Press Drop Allow/Calc	psi	10.15	Density	Lb/ft³
			9.98	Fouling at tube id / fin surface	hft²°F/BTU

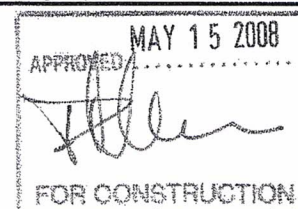
PERFORMANCE DATA - AIR SIDE					
23	Air Quantity, Total	1,031,000	Lb/Hr	Altitude above Sea Level	2,208 ft
24	Volume Flow per Fan	130,195	cuf/min	Temperature In (Dry Bulb)	95.00 °F
25	Bundle Static Pressure	0.4290	inWg	Temperature Outlet	114.84 °F
26	Face Velocity (act / std.)	702.6 / 616.6	ft/min	Min Design Ambient	-40.00 °F

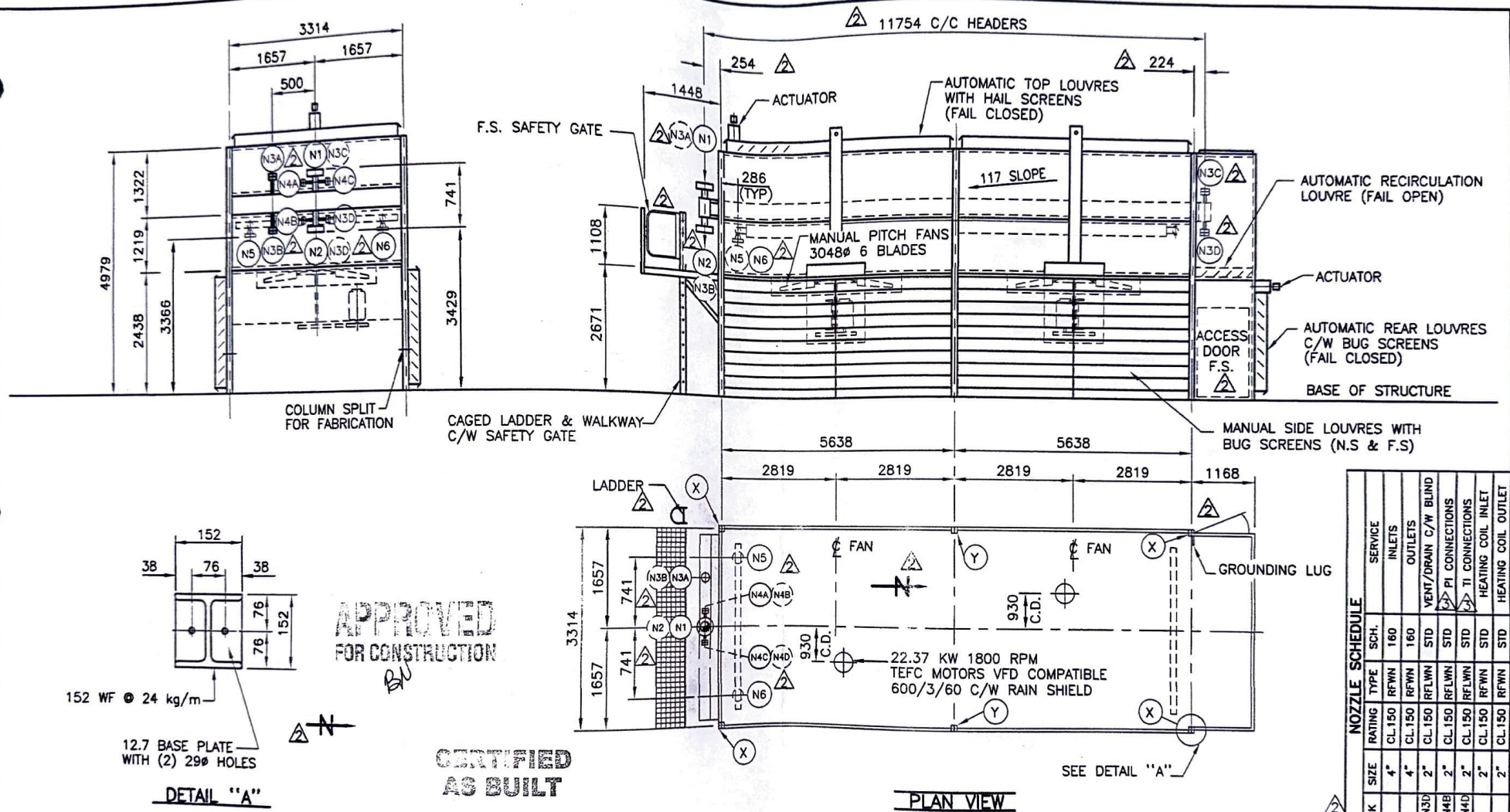
DESIGN - MATERIALS - CONSTRUCTION					
29	Design Pressure	100 psig	Vacuum	FV @ 300 °F	Test Pressure
30	TUBE BUNDLE	10.2 x 39	ft	Header Type	Fabricated Box
31	Model	194BL4 38 6		Materials	SA-516-70 N SA-350-LF2-CL1 SA-333-6
32	Tube to Tubesheet Joint	Rolled 2 RG		No of Rows	4
33	1 Bundle	Steel Frame		No Passes	6
34	1 Bundle per Bay	In Parallel		Slope	1% Entire bundle to outlet end
35	1 Bays Per Unit	In Parallel		Plug Material	SA-350-LF2-CL1
36	Ladder & Walkway	One End		Gasket Material	C1010 / C1020
37	Structure Mount	Grade		Corrosion Allow.	0.252 in
38	Surface Preparation	Customer Spec (TDS)		Inlet Nozzles	1 - 4 in
39	Bugscreens	Yes		Outlet Nozzles	1 - 4 in
40	Hail Guards	Yes		Special Nozzles	(4) 2" RFWN w Blind
41	Louvers	Inlet - Outlet - Recirc (Manual Sides)		Rating & Facing	C150 RFWN
42	Vibration Switch	Metrix ST 5484E-123-020-00		TI	1" RFWN

MECHANICAL EQUIPMENT					
44	Fan Make	Moore Fan c/w VT Seal	DRIVER	Electric Motor VFD Compatible	SPEED REDUCER
45	Model	1036 73U0A 36RVE3-10-6 HD EC	Manufacturer		V-Belts
46	Fans per Bay	2 No Blades 6 Fan RPM 290.0	No. per Bay	2	Sheaves
47	Diameter	10 ft	Angle	7.13 °	5.60 / 33.50 in
48	Blade Pitch Adjusts	Manually	Driver Power	30.00 Hp	Manufacturer
49	Material Bode / Hub	Aluminum	Motor RPM	1,750	Model
50	Fan Design Draw	16.51 Hp	Enclosure	TEFC VFD compatible	3VX1400
51	Fan Draw Min Ambient	24.63 Hp	Volt / Phase / Cycle	600/3/60	Drives per Bay
52	Plot Area	11.42 x 37.00	Area Class		2 Belts per Drive
53	Air Failure Action:	Louvers Fail to Recirculation.	Bundle Weight, Dry	16,100 Lb	6
54	Control of Process:	VFD motors - Process outlet Louvers - Air Temperature	Bundle Weight, Full of Water	18,100 Lb	AGMA Rating
55	Inspection	Full UT & MPT	Recirculation:	Over one End.	47.40 Hp
56	NOTES:		Heating	Glycol Coil 4.5" Pitch 2 Pass	Ratio

57	Flows and duties are 110% of normal
58	Fans are capable of moving 120% of design air at summer conditions.
59	8' 0" (2.44m) fandeck to grade.
60	Fan speed controlled by VFD (by others).
61	Wetted materials in sour service, see Customer TDS Note 8 for details.
62	Manual louvers on both sides. Automatic louvers top and recirc end only.
63	See Drawing 08-5062 for additional mechanical, paint and inspection details.
64	Rev 1 - Po - Editorial
65	Rev 2 - Change Ambient from 30°C to 35°C.
66	Rev 3 - Metrix Model # - Weights - Process Name
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69	
70	

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MARK	SIZE	RATING	TYPE	NOZZLE SCHEDULE					
				SCH.	SERVICE	INLETS	OUTLETS	VENT/DRAIN C/W BLIND	PI CONNECTIONS
N1	4"	CL150	RFWN	160	160			STD	STD
N2	4"	CL150	RFWN	160	160			STD	STD
N3A-N3D	2"	CL150	REFLN	2"	CL150	REFLN		STD	STD
N4A/N4B	2"	CL150	REFLN	2"	CL150	REFLN		STD	STD
N4C/N4D	2"	CL150	REFLN	2"	CL150	REFLN		STD	STD
N5	2"	CL150	RFWN	2"	CL150	RFWN		STD	STD
N6	2"	CL150	RFWN	2"	CL150	RFWN		STD	STD

REVISION CONTROL BOX

⊙ Denotes DCR & Rev. Added to This Sheet Only

△ PER CUST REQUEST (REDESIGN) OCT 7/2008 (BG)

△ PER CUST REQUEST DEC 4/2008 (RL)

△ PER CUST REQUEST APRIL 13/2009 (RL)

△ PER CUST/EI JUN 2/2009 DCR NI-014829 (RL) ⊙

△ PER EI JUN 11/2009 DCR A-014860 (RL) ⊙

△ PER E.I. AUG 25/09 (RL) DCR-C-014941 ⊙

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DIMENSIONAL OUTLINE & ANCHOR BOLT PLAN

CUSTOMER: DPH FOCUS CORP

P.O. : FCSR-DPH-4001C

FOR: ENCANA FCCL OIL SANDS LTD.

PLANT: FOSTER CREEK

SERVICE: LEAN AGE COOLER

ITEM: E-5888 NO. REQ'D (1) BAY

DWN SF CKD BG

EXCHANGER INDUSTRIES

CALGARY, ALBERTA

DWG NO. 08-5062

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