

DPH FOCUS		AIR COOLED EXCHANGER SPECIFICATION (SI)				CLIENT NAME EnCana Integrated Oil Division	
		DPH Focus		JOB NO. 9971		LOCATION: Foster Creek	
REV	DESCRIPTION	DATE	BY	CHK'D	APPR'D	TAG NO. E-5862	PO NO.: 9971-4001C
A	ISSUE FOR BID	Jan. 25, 2008	SJ	TS		SERVICE: Amine Regen O/H Condenser	
B	REVISION OF TAG NO.	Feb. 27, 2008	SJ	TS			
0	ISSUED FOR PURCHASE	May 12, 2008	CA	DB			
1	RE-ISSUED FOR PURCHASE	Oct 10, 2008	SJ	TS			
	AS BUILT	Oct 15, 2009	SJ				
NO. UNITS: 1			TYPE: FORCED DRAFT			BAY WIDTH / LENGTH, m 5.11 / 9.45	
SQ. m PER UNIT (BARE/FIN 112.6 / 2204)			BAYS PER UNIT: ONE			BUNDLES PER BAY: TWO	
MANUFACTURER/MODEL: Exchanger Industries 1E16.75 32 12 22							
PERFORMANCE OF ONE (1) UNIT							
OPERATING CONDITIONS:		TUBE SIDE			AIR SIDE		
FLUID CIRCULATED:		Process Gas			FLOW, kg/h 544,311 ALT., m 673		
TOTAL FLOW - kg/h:		8,638		8,638		TEMP., deg C: IN 35.0 OUT 57.37	
		INLET		OUTLET		MIN. TEMP., deg C -40 STATIC P, kPa	
VAPOUR	- kg/h	8,638		4,312		MECHANICAL EQUIPMENT	
LIQUID	- kg/h					FAN MFR/MODEL MOORE 1036 73U0A	
STEAM	- kg/h					NO. PER BAY 2 (NOTE 3) DIAMETER, m 3.66	
FLUID COND.	- kg/h			4,326		NO. BLADES 4 MATERIAL AL	
WATER	- kg/h					KWFAN 10.88 HUB MATERIAL	
TOTAL	- kg/h	8,638		8,638		RPM 270 AUTO/MAN PITCH MANUAL	
DENSITY Vapour/Liquid	kg/m ³	1.49 / 981		2.38 / 1,103		PITCH MIN/MAX W/AIR FAIL	
MOLECULAR WEIGHT	- Liquid			18.07		DRIVER NO.	
	- Vapour	25.20		41.37		MFR TECO TYPE	
THERMAL COND. (V/L)	- W/m-K	0.030 / 0.613		0.018 / 0.642		KW EACH 18.64 RPM 1750	
LATENT HEAT	- kJ/kg	2,524		2,524		VOLTS/PH/Hz 600/3/60 ENCL. TEFC	
VISCOSITY	- Liquid - cP	0.342		0.679		VAR. SPEED YES	
	- Vapour - cP	0.016		0.016		SPEED REDUCER TYPE V-BELT	
SPEC. HEAT	Liquid kJ/kg-°C			4.221		MFR MODEL	
	Vapour kJ/kg-°C	1.424		0.919		AGMA RATING RATIO	
OPERATING TEMP.	- deg C	107.5		43.3		SUPPORT TYPE	
DEW POINT TEMP.	- deg C	107.5					
OPERATING PRESSURE	- kPa (ga)	89.6		76.0			
ATMOS. PRESSURE	- kPa (abs)	93.0		93.0			
PRESSURE DROP	- kPa	ALLOW: 13.8 (NOTE 11)		CALC: 7.19			
FLUID VELOCITY	- M/S	25.80 / 7.08					
FOUL. FACTOR (TEMA)	m ² C/W	0.000352				TRANS. RATE (W/m ² Deg C) (BARE/FINS) - / 20.7	
HEAT EXCHANGED DUTY	- kW	3,084.0				CLEAN 468.3	
LMTD (CORR./UNCORR.)	- deg C	- / 39.03				SERVICE 394.6	
HEAT RELEASE CURVE		LINEAR					
CONSTRUCTION							
TUBE DESIGN PRESS.	kPa(ga)	345/VAC @ -45 / 149 °C			TUBES (per bundle)		
TEST PRESSURE	kPa(ga)				PER CODE		
SOUR SERVICE	YES (NOTE 8)	CORR/EROS. DUE TO		WET CO₂/H₂S		MATERIAL SA-179 TYPE	
WIND LOAD, km/h	NOTE 4	MOUNTED (PR/GRADE)		GRADE		O.D. mm 31.75 THK. BWG 14 MIN	
CODE	ASME SEC VIII DIV1	PROV. OF		ALBERTA		No. 118 LENGTH, m 9.754	
STAMP	YES	TEMA CLASS		R API 661		PITCH 76.2 mm (Transverse)	
OTHER SPECS: NOTE 5						FIN TYPE L-FINNED MATERIAL AL	
TUBE BUNDLE (PER BAY)				FIN O.D., mm 63.5 THK., mm 0.41			
SIZE, m	2.30 / 10.06	NO. TWO		FIN PITCH, NO./cm 3.94			
NO. TUBE ROW:	4	FRAME		ACCESSORIES			
ARRT:	2 PARALLEL BUNDLES	IN SERIES		BUG SCREEN YES HAIL SCREEN YES			
	1 PARALLEL BAYS	IN SERIES		AUTO LOUVRES NOTE 6 FAIL NOTE 6			
HEADER				MANUAL LOUVRES FRONT/SIDES WINTERIZE YES			
TYPE	BOX	CORR. ALLOW., mm 6.4		TEMP. CONTROLLERS NOTE 10 GALVANIZE NO			
MATERIAL:	HEADER SA-516-70N	PLUGS SA-350-LF2 CL 1		CIRCULATION TYPE OVER END			
PIPE	SA-333-6 FLANGES SA-350-LF2 CL 1	GASKETS C1010 / C1020		VIBRATION TRANSMITTER YES FAN GUARD YES			
NO. OF PASSES	2	SLOPE YES 1%		HEAT COIL YES (NOTE 7)			
PG / TG	YES	SR YES		HANDRAIL YES			
CONN.	NO.	SIZE	RATING	SELF DRAINING YES LADDER YES			
INLET	2	8"	150# RF	TOP/BTM ACCESS BTM WALKWAY YES			
OUTLET	2	8"	150# RF	PREP SP-6 PRIME NOTE 13 FINISH NOTE 13			
PG/TG	4	2"	150# RF	WT. kg: SHIP/HYDRO BUNDLE			
HEATING COIL IN	2	2"	150# RF				
HEATING COIL OUT	2	2"	150# RF				
NOTES:							
1. Deleted.							
2. Provide 15% excess area, calculated by increasing the tubeside flow and overall duty by 15%. Incremental area should be based on increasing tube length.							
3. Fans should be capable of providing 120% of required air flow for normal operation. A minimum of two (2) fans shall be installed.							
4. 1/100, 0.44 kPa, 26 m/s.							
5. The following specs shall apply:							
TR-43-SPC-00-002-01							
TR-50-SPC-00-003-01							
TR-43-SPC-00-032-01							
TR-46-SPC-00-004-01							
TR-43-SPC-00-019-01							
6. Manual louvres on front and sides. Auto (FC) on top, end (FC) and recirc (FO). Actuators fail to keep plenum hot.							
7. Glycol/Water Heat Coil Design Pressure = 1379 kPag at 177°C. Operating Temperature = 149°C. Design Pressure Drop = 69 kPa.							
8. NDE per Table 2, Class 2, TR-43-SPC-00-032-01. Wetted material shall comply with NACE MR0175 (latest edition) and have a carbon equivalence less than or equal to 0.45%.							
9. Vendor to provide optional pricing for a horizontal cooler.							
10. Vendor to provide cooler plenum temperature transmitter (Rosemount). Louvres (top, side and rear) shall be Fisher actuated c/w Fisher I/P transducers.							
11. Allowable pressure drop is for fouled condition.							
12. Fan deck height (height from grade to underside of fan) shall be 80% of fan diameter or 2132 mm, whichever is greater.							
13. Primer shall be Epoxy Zinc Rich; Finish shall be 2 Coats Urethane substitute.							