Revisions	No	Date	By
	0	Jan 29/08	JJM
	1	Feb 22/08	JJM

EXCHANGER INDUSTRIES

SHELL & TUBE HEAT EXCHANGER SPECIFICATION SHEET

(Imperial Units)

V3.00.I

Sheet No.	1 of 1
	P08S-10569
	08-2905A/B
Job No.	08-2905A/B
Referemce No.	Z06380-MAT1340-001
Proposal No.	P08S-10569
Date	Feb 25 2008 7:21 AM
Item No.	01-E-100C/D

Customer	Petro-Canada Oil and Gas (IMV Projects acting as agents for)
Address	Calgary Alberta
Plant Location	MacKay River, Alberta
Service of Unit	Production Heater

Size	41 - 293	Type	BEU	Shells per Unit	1	Connected	1	in Parallel	1 in Series
Surface / Unit (gross)	5,235.3	ft²	Surface / Shell (eff)	5,128.0	ft²				

PERFORMANCE OF ONE UNIT

Fluid Allocation			(in) SHELL SIDE	(out)	(in) TUBE SIDE	(out)
Fluid Name			Production Fluids		Steam	
Fluid Quantity,	Total	lb / hr	930,253		47,714	
	Vapour	lb / hr			47,714	
	Liquid	lb / hr	930,253	930,253		47,714
	Steam / Water	lb / hr			47,714	
	Noncondensable	lb / hr				
Temperature - In / Out		°F	387.5	428.0	527.1	437.0
Density - Liq / Vap		lb / ft³	54.750	53.280	1.906	52.242
Viscosity - Liq / Vap		cP	3.198	2.349	0.018	0.119
Molecular Weight - Liq / Vap					18.020	18.020
Specific Heat		BTU / lb·°F	0.964	1.019	1.090	1.104
Thermal Conductivity		BTU / hr·ft·°F	0.271	0.268	0.024	0.372
Latent Heat		BTU / lb			677	677
Inlet Pressure		psi a	372.60	364.50	863.40	861.54
Velocity (highest)		ft / s	3.20		13.70	
Pressure Drop (Allow / Calc.)		psi	24.660	8.100	10.000	1.855
Fouling Resistance		hr·ft²·°F / BTU	0.0102		0.0005	

Heat Exchanged	37,349,567	BTU / hr	MTD (Corrected)	99.8	°F	
Heat Transfer Rate	Service (U)	72.98	Clean	332.44	BTU / hr·ft²·°F	

APPROVED Feb. 25/08

FOR CONSTRUCTION

DESIGN			Shell			Tube		
Design / Test / Vacuum Pressure		psi g	600.0	900.1	15.0	902.0	1,353.0	15.0
Design Temperature / MDMT		°F	500.0	-20.0		572.0	-20.0	
Number of Passes Per Shell			1			4		
Corrosion Allowance		in	0.125			0.125		
CONNECTIONS	Inlet		1 - 12 C300 RFWN			1 - 6 C600 RFWN		
Size &	Intermediate							
Rating	Outlet		1 - 12 C300 RFWN			1 - 4 C600 RFWN		

MATERIALS OF CONSTRUCTION

(1,092) U-Tube Legs	0.75	in OD	0.083	in Thickness	(14)	BWG	24.42	ft Long	Pattern	90 ° Pitch 1 in
Tube Material	SA-179				Tube Type	PLAIN				
Shell	SA-516-70N		41.0	in	Shell Cover	SA-516-70N				
Channel	SA-516-70N				Channel Cover	SA-516-70N				
Tubesheet - Stationary	SA-266-4N				Tubesheet - Floating	n/a				
Floating Head Cover	n/a				Impingement Protection	SA-36				
Baffles - Cross	SA-36		Type	Vertical Segmental		Spacing	16.250	in	Cut (%dia)	31.40
Baffles - Long	n/a				Seal Type	n/a				
Supports - Tube	n/a				U-Bend	yes	TYPE	full		
Bypass Seal Arrangement	2 seal strips				Tubesheet Joint	Rolled 2 RG				
Expansion Joint	n/a				Type	n/a				
ρV² lb / s²·ft	Inlet Nozzle	2,151			Bundle Entrance	2,236			Bundle Exit	
Gaskets	Shell Side	SI DJ Nonasbestos			Tube Side	0				
	Floating Head									
Code Requirements	ASME Sec VIII Div 1								TEMA Class	R
Weight lb	Shell			Filled with water				Bundle		

Notes:

Performance shown is for 1 shell.

Flows and duties shown are 110% of normal.

Steam leaves subcooled.