



MECHANICAL DATA SHEET

SHELL AND TUBE HEAT EXCHANGER

Plant Item No.
24590-PTF-ME-FEP-COND-00001B

Data Sheet No.
24590-PTF-MED-FEP-P0004

R10275203

Project:	RPP-WTP	Description:	Waste Feed Evaporator Primary Condenser
Project No:	24590	P&ID:	24590-PTF-M6-FEP-P0005
Site:	Hanford	Process Data Sht:	24590-PTF-MEC-FEP-00001
Process flow diagram:	24590-PTF-M5-V17T-P0004002	Manufacturer Name:	Framatome ANP INorthwest Copper Works, Inc.

General Data

Quality Level	QL-1 (note 2)	TEMA (Class/Type)	B
Seismic Category	SC-1	Flow Type (Counter current, etc)	*
Design Code	ASME VIII, Div 1	Heat Exchanger Duty Btu/hr	*
Code Stamp	Yes	Heat Exchanger Area ft ²	4270**
NB Registration	Yes	ΔT (LMTD/Corrected LMTD) °F	* * *

ISSUED BY
RPP WTP PDC
[Signature]
DATE

Thermal/Hydraulic Data

		Shell Side	Tube Side	
		Steam	Cooling Water	
Fluid Name				
Fluid Quantities: Total	lbm/hr	3968**	891,278*	
Condensable Vapor (In/Out)		*	*	*
Liquid		*	*	*
Noncondensable		*	*	*
Temperature (In/Out)	°F	*	75	93
Specific Gravity		*	*	*
Viscosity	cP	*	*	*
Molecular Weight, Vapor		*	*	*
Molecular Weight, Noncondensable		*	*	*
Specific Heat	Btu/lbm-°F	*	*	*
Thermal Conductivity	Btu/hr-ft-°F	*	*	*
Latent Heat	Btu/lbm @ °F	*	*	*
Inlet pressure	psia	1.3**	59.7	
Tube side Velocity	ft/s	*	*	
Pressure Drop (Actual)	psi	*	*	
Fouling Resistance (Min)	hr-ft ² -°F/Btu	0.0015**	0.0044 **	

Note: Please note that source, special nuclear and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated at the U.S. Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. DOE asserts, that pursuant to the AEA, it has sole and exclusive responsibility and authority to regulate source, special nuclear, and byproduct materials at DOE-owned nuclear facilities. Information contained herein on radionuclides is provided for process description purposes only.



EXPIRES 12/10/04

This Bound Document Contains a Total of 2 Pages.

Rev	Description	By	Checked	Approved	Date
0	Issued for Permitting Use	E. Le <i>[Signature]</i>	D. Reinemann <i>[Signature]</i>	J. Julyk <i>[Signature]</i>	3/17/04



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Mechanical Data

		Shell Side		Tube Side	
		50	Full vacuum	100	Full vacuum
Design Pressure (Max/Min)	psig	50	Full vacuum	100	Full vacuum
Design Temperature (Max/Min)	°F	250	49	250	49
Corrosion Allowance	inch	0.04		NIA	
Erosion Allowance	inch	NIA		NIA	
Shell OD / ID	inch	50**		Overall Dimensions (H x W x L) inch	50x50x276**
Total No. of Tubes		1020**		Tube OD inch	1**

Material Data

Shell	SA 240 316L SS	Shell Cover	SA 240 316L SS
Channel/Bonnet	SA 240 316L SS	Channel Cover	SA 240 316L SS
Tube	SA 269 316L SS (0.065" thick)	Floating Head Cover	NIA
Stationary Tube Sheet	316L SS	Floating Tube Sheet	NIA
Shell Side Gaskets	NIA	Tube Side Gaskets	316 SS spiral wound
Partition Seals	NIA	Baffles/Supports	SA 240 316L
Insulation	NIA	Forgings (Shell side)	SA 182 F316L
Bolting	SA193B8M	Forgings (Channel)	SA 182 F316L

Construction Data *(To be determined by the supplier when not specified by the buyer)*

Cross Baffle Type	*	% Baffle Cut (Dia.)	*	Spacing (c/c) inch	*
Bypass Seal Arrangement	*	Longitudinal Seal Type	*	Expansion Joint Type	*
Inlet Nozzle ρV^2	*	Bundle Entrance ρV^2	*	Bundle Exit ρV^2	*
Tube Support Type	*	U-bend Support Type	*	Weight of Bundle lbf	*
Operating Weight lbf	*	Full of Water lbf	*	Weight of Shell lbf	*

Notes

- * To be determined by Seller
- ** To be verified by Seller

Notes: (1) All welds are continuous to avoid crevices, weld surface finish is descaled as laid.
(2) All welded construction on process side only.
(3) Tube to tubesheet joint shall be strength welded.