CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 19, 94** **Time: 04:00** **Total Operation Time: 64 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	89	75.3	60.9	46.9	33.5	27.8	23.5
Outlet Temp. (deg. C)	112	89	75.3	60.9	46.9	32	27.8
Temp. Rise (deg. C)	23	13.7	14.4	14	13.4	4.2	4.3
Flashing Temp. (deg. C)	116.5	92.7	81.5	67.6	53.6	37.7	31.7
Heat Transfer Rate (kJ/S)	164.495	97.437	102.016	98.823	94.286	85.578	87.565
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.706	8.849	11.993	12.411	12.197	7.608	5.786
U (kW/sq.m/K)	2.771	5.684	4.392	4.111	3.991	2.270	3.054
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1045	0.0244	0.0316	0.0472	0.0545	0.2445	0.1314

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 19, 94** **Time: 08:00** **Total Operation Time: 68 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.938	3.924	3.910	3.897	3.965	3.963
Inlet Temp. (deg. C)	87	75.6	61.2	47.1	33.6	27.6	24
Outlet Temp. (deg. C)	112	87	75.6	61.2	47.1	32	27.6
Temp. Rise (deg. C)	25	11.4	14.4	14.1	13.5	4.4	3.6
Flashing Temp. (deg. C)	117.5	93.1	81.5	67.8	53.9	37.6	31.6
Heat Transfer Rate (kJ/S)	178.743	81.059	102.024	99.535	94.993	89.652	73.311
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.594	10.817	11.654	12.335	12.343	7.589	5.609
U (kW/sq.m/K)	2.621	3.869	4.520	4.166	3.973	2.384	2.638
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1251	0.1070	0.0252	0.0440	0.0556	0.2234	0.1831

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 19, 94** **Time: 12:00** **Total Operation Time: 72 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.938	3.924	3.910	3.898	3.965	3.963
Inlet Temp. (deg. C)	87.5	75.7	61.3	47.4	34.2	28.1	24
Outlet Temp. (deg. C)	112	87.5	75.7	61.3	47.4	32	28.1
Temp. Rise (deg. C)	24.5	11.8	14.4	13.9	13.2	3.9	4.1
Flashing Temp. (deg. C)	117.5	93.2	81.7	68	54.1	38	32.1
Heat Transfer Rate (kJ/S)	175.182	83.911	102.027	98.128	92.891	79.467	83.496
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.442	10.519	11.767	12.376	12.126	7.788	5.811
U (kW/sq.m/K)	2.596	4.118	4.476	4.094	3.955	2.059	2.900
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1288	0.0913	0.0273	0.0482	0.0568	0.2896	0.1488

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 19, 94** **Time: 16:00** **Total Operation Time: 76 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.938	3.924	3.910	3.897	3.965	3.963
Inlet Temp. (deg. C)	87	75.6	61.3	47.4	34.1	28.2	25
Outlet Temp. (deg. C)	112	87	75.6	61.3	47.4	32.5	28.2
Temp. Rise (deg. C)	25	11.4	14.3	13.9	13.3	4.3	3.2
Flashing Temp. (deg. C)	116.5	93.2	81.7	68	54.1	38	32.2
Heat Transfer Rate (kJ/S)	178.743	81.059	101.317	98.128	93.594	87.621	65.173
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	13.296	10.926	11.845	12.376	12.161	7.444	5.444
U (kW/sq.m/K)	2.877	3.830	4.416	4.094	3.973	2.375	2.416
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0911	0.1096	0.0304	0.0482	0.0556	0.2249	0.2179

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 19, 94** **Time: 20:00** **Total Operation Time: 80 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.939	3.924	3.910	3.898	3.965	3.963
Inlet Temp. (deg. C)	87.5	75.9	61.5	47.6	34.3	28.4	25
Outlet Temp. (deg. C)	112	87.5	75.9	61.5	47.6	33	28.4
Temp. Rise (deg. C)	24.5	11.6	14.4	13.9	13.3	4.6	3.4
Flashing Temp. (deg. C)	118	93.4	81.7	68	54.3	38.3	32.4
Heat Transfer Rate (kJ/S)	175.182	82.491	102.032	98.133	93.598	93.739	69.247
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	15.068	10.669	11.540	12.153	12.161	7.362	5.527
U (kW/sq.m/K)	2.488	3.992	4.565	4.169	3.973	2.569	2.528
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1455	0.0990	0.0230	0.0438	0.0556	0.1931	0.1994

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 20, 94** **Time: 00:00** **Total Operation Time: 84 hr.**

Variables	*Brine Heater*	*Evaporator Stages*				
		#1	*#2*	*#3*	*#4*	*#5*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.910	3.898	3.965
Inlet Temp. (deg. C)	89	75.9	61.5	47.6	34.4	28.4
Outlet Temp. (deg. C)	112	89	75.9	61.5	47.6	33
Temp. Rise (deg. C)	23	13.1	14.4	13.9	13.2	4.6
Flashing Temp. (deg. C)	117.8	92.8	81.5	67.9	54.3	38.2
Heat Transfer Rate (kJ/S)	164.495	93.178	102.032	98.133	92.895	93.739
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556
L.M.T.D. (deg. K)	14.352	8.778	11.312	12.042	12.126	7.259
U (kW/sq.m/K)	2.453	5.480	4.657	4.207	3.955	2.606
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1513	0.0310	0.0187	0.0416	0.0568	0.1877

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 20, 94** **Time: 04:00** **Total Operation Time: 88 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.910	3.897	3.965	3.963
Inlet Temp. (deg. C)	88.5	75.8	61.5	47.4	34.1	28.3	24.5
Outlet Temp. (deg. C)	112	88.5	75.8	61.5	47.4	32.5	28.3
Temp. Rise (deg. C)	23.5	12.7	14.3	14.1	13.3	4.2	3.8
Flashing Temp. (deg. C)	117	92.4	81.4	67.9	54.1	38	32.2
Heat Transfer Rate (kJ/S)	168.058	90.325	101.323	99.542	93.594	85.584	77.390
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	13.502	8.768	11.278	12.112	12.161	7.402	5.586
U (kW/sq.m/K)	2.664	5.318	4.638	4.243	3.973	2.333	2.796
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1190	0.0365	0.0195	0.0396	0.0556	0.2326	0.1616

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 20, 94** **Time: 08:00** **Total Operation Time: 92 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	75.9	61.6	47.7	34.5	28.5	26
Outlet Temp. (deg. C)	112	89	75.9	61.6	47.7	34	28.5
Temp. Rise (deg. C)	23	13.1	14.3	13.9	13.2	5.5	2.5
Flashing Temp. (deg. C)	118	92.6	81.6	68.2	54.4	38.3	32.4
Heat Transfer Rate (kJ/S)	164.495	93.178	101.325	98.135	92.898	112.088	50.921
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.598	8.537	11.392	12.264	12.126	6.677	5.047
U (kW/sq.m/K)	2.412	5.635	4.592	4.131	3.955	3.388	2.036
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1582	0.0260	0.0217	0.0460	0.0568	0.0991	0.2951

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 20, 94** **Time: 12:00** **Total Operation Time: 96 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.940	3.924	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	89.5	75.8	61.9	48.1	35.1	29	26
Outlet Temp. (deg. C)	112	89.5	75.8	61.9	48.1	34	29
Temp. Rise (deg. C)	22.5	13.7	13.9	13.8	13	5	3
Flashing Temp. (deg. C)	118	93.3	81.9	68.3	54.8	38.8	33
Heat Transfer Rate (kj/S)	160.932	97.451	98.494	97.437	91.500	101.901	61.107
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.440	8.971	11.706	12.006	12.054	7.005	5.361
U (kW/sq.m/K)	2.385	5.608	4.344	4.190	3.919	2.935	2.300
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1628	0.0268	0.0341	0.0426	0.0591	0.1446	0.2387

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 20, 94** **Time: 16:00** **Total Operation Time: 100 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	75.8	61.7	48	35	29.2	26
Outlet Temp. (deg. C)	112	89	75.8	61.7	48	33	29.2
Temp. Rise (deg. C)	23	13.2	14.1	13.7	13	3.8	3.2
Flashing Temp. (deg. C)	118	93.1	81.9	68.2	54.7	38.9	33.1
Heat Transfer Rate (kJ/S)	164.495	93.888	99.908	96.728	91.498	77.441	65.181
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.598	9.168	11.776	12.082	12.054	7.643	5.341
U (kW/sq.m/K)	2.412	5.287	4.380	4.133	3.919	2.045	2.463
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1582	0.0376	0.0322	0.0459	0.0591	0.2930	0.2100

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 20, 94** **Time: 20:00** **Total Operation Time: 104 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.940	3.924	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	89.5	75.8	61.6	47.8	34.7	29	25.5
Outlet Temp. (deg. C)	112	89.5	75.8	61.6	47.8	33	29
Temp. Rise (deg. C)	22.5	13.7	14.2	13.8	13.1	4	3.5
Flashing Temp. (deg. C)	118	92.6	81.6	67.9	54.6	38.8	32.9
Heat Transfer Rate (kJ/S)	160.932	97.451	100.615	97.430	92.197	81.515	71.289
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.440	8.107	11.471	11.895	12.200	7.626	5.464
U (kW/sq.m/K)	2.385	6.206	4.528	4.229	3.902	2.157	2.633
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1628	0.0096	0.0248	0.0404	0.0602	0.2675	0.1838

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 21, 94** **Time: 00:00** **Total Operation Time: 108 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.940	3.925	3.910	3.898	3.966	3.963
Inlet Temp. (deg. C)	89.5	76	61.9	48	35	29	25
Outlet Temp. (deg. C)	112	89.5	76	61.9	48	33.5	29
Temp. Rise (deg. C)	22.5	13.5	14.1	13.9	13	4.5	4
Flashing Temp. (deg. C)	118	93.3	82	68.3	54.8	38.9	33
Heat Transfer Rate (kJ/S)	160.932	96.031	99.913	98.142	91.498	91.708	81.470
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.440	8.907	11.663	12.042	12.164	7.424	5.771
U (kW/sq.m/K)	2.385	5.566	4.423	4.208	3.883	2.493	2.849
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1628	0.0281	0.0300	0.0416	0.0614	0.2051	0.1549

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 21, 94** **Time: 04:00** **Total Operation Time: 112 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.924	3.910	3.898	3.966	3.963
Inlet Temp. (deg. C)	89	75.9	61.8	47.9	34.7	29	25
Outlet Temp. (deg. C)	112	89	75.9	61.8	47.9	33	29
Temp. Rise (deg. C)	23	13.1	14.1	13.9	13.2	4	4
Flashing Temp. (deg. C)	118	92.6	81.6	68.2	54.7	38.7	32.7
Heat Transfer Rate (kj/S)	164.495	93.178	99.911	98.140	92.902	81.515	81.470
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.598	8.537	11.323	12.042	12.236	7.524	5.458
U (kW/sq.m/K)	2.412	5.635	4.555	4.208	3.920	2.186	3.012
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1582	0.0260	0.0235	0.0416	0.0590	0.2613	0.1359

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 21, 94** **Time: 08:00** **Total Operation Time: 116 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	76	61.7	47.8	34.6	29	26
Outlet Temp. (deg. C)	112	89	76	61.7	47.8	34	29
Temp. Rise (deg. C)	23	13	14.3	13.9	13.2	5	3
Flashing Temp. (deg. C)	118.5	92.4	82	68.3	54.6	38.7	32.7
Heat Transfer Rate (kJ/S)	164.495	92.468	101.328	98.137	92.900	101.901	61.107
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	15.206	8.262	11.732	12.264	12.236	6.901	5.052
U (kW/sq.m/K)	2.315	5.778	4.459	4.131	3.920	2.980	2.441
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1755	0.0216	0.0282	0.0460	0.0590	0.1395	0.2137

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 21, 94** **Time: 12:00** **Total Operation Time: 120 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18800	18800
Specific Heat (kj/kg/K)	3.961	3.940	3.925	3.911	3.899	3.966	3.964
Inlet Temp. (deg. C)	89	76.3	62.4	48.5	35.4	29.3	27
Outlet Temp. (deg. C)	112	89	76.3	62.4	48.5	35	29.3
Temp. Rise (deg. C)	23	12.7	13.9	13.9	13.1	5.7	2.3
Flashing Temp. (deg. C)	119	92.9	82.1	68.8	55.3	39.1	32.9
Heat Transfer Rate (kJ/S)	164.495	90.338	98.507	98.154	92.211	118.063	47.612
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	15.804	8.768	11.368	12.042	12.200	6.541	4.656
U (kW/sq.m/K)	2.228	5.319	4.474	4.208	3.902	3.642	2.064
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1925	0.0365	0.0275	0.0416	0.0602	0.0785	0.2885

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 21, 94** **Time: 16:00** **Total Operation Time: 124 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.939	3.924	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	88	75.9	61.8	48.1	35	29.5	26
Outlet Temp. (deg. C)	112	88	75.9	61.8	48.1	34	29.5
Temp. Rise (deg. C)	24	12.1	14.1	13.7	13.1	4.5	3.5
Flashing Temp. (deg. C)	119	93.3	82.2	68.5	55	39.3	33.1
Heat Transfer Rate (kJ/S)	171.620	86.053	99.911	96.730	92.203	91.715	71.294
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.128	10.179	12.000	12.304	12.310	7.321	5.153
U (kW/sq.m/K)	2.277	4.365	4.298	4.059	3.867	2.528	2.792
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1827	0.0776	0.0366	0.0503	0.0625	0.1995	0.1621

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 21, 94** **Time: 20:00** **Total Operation Time: 128 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	75.9	61.7	47.8	34.6	29.3	26
Outlet Temp. (deg. C)	112	89	75.9	61.7	47.8	34	29.3
Temp. Rise (deg. C)	23	13.1	14.2	13.9	13.2	4.7	3.3
Flashing Temp. (deg. C)	118.5	92.6	81.8	68.1	54.7	39	32.8
Heat Transfer Rate (kJ/S)	164.495	93.178	100.618	98.137	92.900	95.789	67.219
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	15.206	8.537	11.585	12.042	12.346	7.092	4.969
U (kW/sq.m/K)	2.315	5.635	4.484	4.207	3.885	2.725	2.730
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1755	0.0260	0.0269	0.0416	0.0613	0.1708	0.1702

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 22, 94** **Time: 00:00** **Total Operation Time: 132 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.925	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	76	61.8	47.9	34.7	29.4	25.8
Outlet Temp. (deg. C)	112	89	76	61.8	47.9	33.8	29.4
Temp. Rise (deg. C)	23	13	14.2	13.9	13.2	4.4	3.6
Flashing Temp. (deg. C)	119	92.7	81.9	68.1	54.7	39	32.9
Heat Transfer Rate (kJ/S)	164.495	92.468	100.621	98.140	92.902	89.675	73.329
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	15.804	8.626	11.585	11.930	12.236	7.177	5.090
U (kW/sq.m/K)	2.228	5.534	4.484	4.247	3.920	2.521	2.907
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1925	0.0292	0.0269	0.0394	0.0590	0.2005	0.1479

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 22, 94** **Time: 04:00** **Total Operation Time: 136 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.924	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	75.7	61.7	47.8	34.8	29.3	25.5
Outlet Temp. (deg. C)	112	89	75.7	61.7	47.8	33.5	29.3
Temp. Rise (deg. C)	23	13.3	14	13.9	13	4.2	3.8
Flashing Temp. (deg. C)	119.5	92.9	82.2	68.3	54.7	39	32.9
Heat Transfer Rate (kJ/S)	164.495	94.598	99.198	98.137	91.494	85.596	77.401
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.396	8.963	12.189	12.264	12.273	7.402	5.274
U (kW/sq.m/K)	2.147	5.449	4.202	4.131	3.849	2.333	2.962
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2093	0.0320	0.0419	0.0460	0.0638	0.2325	0.1416

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 22, 94** **Time: 08:00** **Total Operation Time: 140 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.924	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	75.9	61.7	47.8	34.6	29.3	26
Outlet Temp. (deg. C)	112	89	75.9	61.7	47.8	34	29.3
Temp. Rise (deg. C)	23	13.1	14.2	13.9	13.2	4.7	3.3
Flashing Temp. (deg. C)	120	92.3	82	68.4	54.6	38.9	32.8
Heat Transfer Rate (kj/S)	164.495	93.178	100.618	98.137	92.900	95.789	67.219
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.980	8.170	11.810	12.376	12.236	6.989	4.969
U (kW/sq.m/K)	2.073	5.888	4.398	4.094	3.920	2.766	2.730
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2259	0.0183	0.0313	0.0482	0.0590	0.1655	0.1702

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 22, 96** **Time: 12:00** **Total Operation Time: 144 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.940	3.925	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	76.1	62.1	48.3	35.3	29.6	27
Outlet Temp. (deg. C)	112	89	76.1	62.1	48.3	35	29.6
Temp. Rise (deg. C)	23	12.9	14	13.8	13	5.4	2.6
Flashing Temp. (deg. C)	119.5	92	81.9	68.1	55	39.3	33.2
Heat Transfer Rate (kJ/S)	164.495	91.758	99.209	97.442	91.504	110.066	52.965
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.396	7.735	11.402	11.559	12.054	6.638	4.783
U (kW/sq.m/K)	2.147	6.124	4.492	4.352	3.919	3.346	2.235
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2093	0.0118	0.0265	0.0337	0.0591	0.1028	0.2514

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 22, 94** **Time: 16:00** **Total Operation Time: 148 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	75.9	61.8	48.2	35.2	29.3	26
Outlet Temp. (deg. C)	112	89	75.9	61.8	48.2	34	29.3
Temp. Rise (deg. C)	23	13.1	14.1	13.6	13	4.7	3.3
Flashing Temp. (deg. C)	119.5	93	81.6	68.5	55	39.4	33.3
Heat Transfer Rate (kJ/S)	164.495	93.178	99.911	96.025	91.502	95.789	67.219
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.396	9.017	11.323	12.269	12.164	7.506	5.486
U (kW/sq.m/K)	2.147	5.335	4.555	4.041	3.884	2.575	2.473
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2093	0.0359	0.0235	0.0514	0.0614	0.1923	0.2083

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 23, 94** **Time: 00:00** **Total Operation Time: 156 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.940	3.925	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	76.1	61.9	48.1	34.9	29.7	25.5
Outlet Temp. (deg. C)	112	89	76.1	61.9	48.1	34	29.7
Temp. Rise (deg. C)	23	12.9	14.2	13.8	13.2	4.3	4.2
Flashing Temp. (deg. C)	120	92.6	81.4	68.3	54.9	39.2	33.2
Heat Transfer Rate (kj/S)	164.495	91.758	100.623	97.437	92.906	87.640	85.551
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.980	8.473	10.900	12.006	12.236	7.135	5.327
U (kW/sq.m/K)	2.073	5.591	4.766	4.190	3.920	2.479	3.241
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2259	0.0274	0.0138	0.0426	0.0590	0.2074	0.1125

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 23, 94** **Time: 04:00** **Total Operation Time: 160 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.940	3.925	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	76.2	62	48.2	35.1	29.5	25
Outlet Temp. (deg. C)	112	89	76.2	62	48.2	34	29.5
Temp. Rise (deg. C)	23	12.8	14.2	13.8	13.1	4.5	4.5
Flashing Temp. (deg. C)	120	93.3	81.6	68.5	55.2	39.3	33.4
Heat Transfer Rate (kj/S)	164.495	91.048	100.626	97.440	92.205	91.715	91.657
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.980	9.272	11.015	12.118	12.419	7.321	5.865
U (kW/sq.m/K)	2.073	5.069	4.716	4.151	3.833	2.528	3.154
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2259	0.0457	0.0160	0.0448	0.0648	0.1995	0.1210

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 23, 94** **Time: 08:00** **Total Operation Time: 164 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.940	3.925	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	76.2	62	48.1	35	29.6	26
Outlet Temp. (deg. C)	112	89	76.2	62	48.1	34.5	29.6
Temp. Rise (deg. C)	23	12.8	14.2	13.9	13.1	4.9	3.6
Flashing Temp. (deg. C)	120	92.7	80.8	68.2	54.9	39.2	33.3
Heat Transfer Rate (kj/S)	164.495	91.048	100.626	98.145	92.203	99.871	73.331
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.980	8.562	10.087	11.818	12.200	6.861	5.298
U (kW/sq.m/K)	2.073	5.490	5.150	4.287	3.902	2.937	2.793
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2259	0.0306	-0.0019	0.0372	0.0602	0.1444	0.1619

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 23, 94** **Time: 12:00** **Total Operation Time: 168 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.940	3.925	3.911	3.899	3.967	3.964
Inlet Temp. (deg. C)	89	76.5	62.4	48.7	35.9	30.2	27
Outlet Temp. (deg. C)	112	89	76.5	62.4	48.7	35.5	30.2
Temp. Rise (deg. C)	23	12.5	14.1	13.7	12.8	5.3	3.2
Flashing Temp. (deg. C)	120.5	93	81.4	68.6	55.6	39.9	33.8
Heat Transfer Rate (kj/S)	164.495	88.918	99.927	96.744	90.107	108.037	65.190
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	17.558	8.821	10.404	11.748	12.201	6.704	5.032
U (kW/sq.m/K)	2.005	5.204	4.958	4.251	3.813	3.252	2.614
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2423	0.0406	0.0056	0.0391	0.0662	0.1115	0.1864

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 23, 94** **Time: 16:00** **Total Operation Time: 172 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.925	3.911	3.899	3.966	3.964
Inlet Temp. (deg. C)	88.5	76.4	62.2	48.4	35.5	30	27
Outlet Temp. (deg. C)	112	88.5	76.4	62.2	48.4	35	30
Temp. Rise (deg. C)	23.5	12.1	14.2	13.8	12.9	5	3
Flashing Temp. (deg. C)	120.5	93.6	81.5	68.5	55.4	39.7	33.6
Heat Transfer Rate (kj/S)	168.058	86.065	100.632	97.445	90.804	101.916	61.115
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	17.727	9.953	10.670	11.895	12.347	6.901	4.949
U (kW/sq.m/K)	2.029	4.464	4.869	4.229	3.797	2.980	2.492
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2364	0.0725	0.0093	0.0404	0.0673	0.1395	0.2052

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 23, 94** **Time: 20:00** **Total Operation Time: 176 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18300	18300
Specific Heat (kJ/kg/K)	3.961	3.940	3.925	3.911	3.899	3.966	3.964
Inlet Temp. (deg. C)	89	76.3	62	48.2	36.2	29.9	26
Outlet Temp. (deg. C)	112	89	76.3	62	48.2	34	29.9
Temp. Rise (deg. C)	23	12.7	14.3	13.8	12	4.1	3.9
Flashing Temp. (deg. C)	121	93.7	81.5	68.4	55.3	39.6	33.5
Heat Transfer Rate (kJ/S)	164.495	90.338	101.336	97.440	84.473	82.661	78.585
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.131	9.703	10.819	12.006	12.126	7.463	5.314
U (kW/sq.m/K)	1.942	4.807	4.836	4.190	3.596	2.235	2.984
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2586	0.0565	0.0107	0.0426	0.0820	0.2513	0.1390

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 24, 94** **Time: 00:00** **Total Operation Time: 180 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.940	3.925	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	76.3	62.1	48.2	35.2	29.9	26
Outlet Temp. (deg. C)	112	89	76.3	62.1	48.2	34	29.9
Temp. Rise (deg. C)	23	12.7	14.2	13.9	13	4.1	3.9
Flashing Temp. (deg. C)	121	93.4	81.5	68.5	55.3	39.5	33.5
Heat Transfer Rate (kJ/S)	164.495	90.338	100.629	98.147	91.502	83.565	79.444
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.131	9.356	10.785	12.042	12.492	7.361	5.314
U (kW/sq.m/K)	1.942	4.985	4.817	4.208	3.781	2.291	3.017
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2586	0.0491	0.0115	0.0416	0.0684	0.2404	0.1354

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 24, 94** **Time: 04:00** **Total Operation Time: 184 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18300	18300
Specific Heat (kj/kg/K)	3.960	3.939	3.925	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	88	76.3	62	48.1	35	29.7	26
Outlet Temp. (deg. C)	112	88	76.3	62	48.1	34	29.7
Temp. Rise (deg. C)	24	11.7	14.3	13.9	13.1	4.3	3.7
Flashing Temp. (deg. C)	121	93.7	81.8	68.8	55.2	39.4	33.3
Heat Transfer Rate (kJ/S)	171.620	83.213	101.336	98.145	92.203	86.692	74.554
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.472	10.484	11.164	12.486	12.529	7.341	5.234
U (kW/sq.m/K)	1.989	4.098	4.686	4.058	3.799	2.383	2.874
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2465	0.0925	0.0173	0.0504	0.0671	0.2236	0.1518

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 24, 94** **Time: 08:00** **Total Operation Time: 188 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18300	18300
Specific Heat (kJ/kg/K)	3.961	3.940	3.925	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	89	76.2	62.1	48.2	35.1	29.6	26
Outlet Temp. (deg. C)	112	89	76.2	62.1	48.2	34.5	29.6
Temp. Rise (deg. C)	23	12.8	14.1	13.9	13.1	4.9	3.6
Flashing Temp. (deg. C)	121	93.6	81.8	68.8	55.3	39.5	33.3
Heat Transfer Rate (kJ/S)	164.495	91.048	99.919	98.147	92.205	98.792	72.538
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.131	9.621	11.210	12.376	12.529	7.173	5.298
U (kW/sq.m/K)	1.942	4.886	4.602	4.094	3.799	2.779	2.763
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2586	0.0532	0.0212	0.0482	0.0671	0.1637	0.1658

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 24, 94** **Time: 12:00** **Total Operation Time: 192 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.940	3.925	3.911	3.899	3.966	3.964
Inlet Temp. (deg. C)	89	76.5	62.4	48.6	35.7	29.8	26.5
Outlet Temp. (deg. C)	112	89	76.5	62.4	48.6	35	29.8
Temp. Rise (deg. C)	23	12.5	14.1	13.8	12.9	5.2	3.3
Flashing Temp. (deg. C)	121	93.3	81.3	68.7	55.6	39.8	33.5
Heat Transfer Rate (kJ/S)	164.495	88.918	99.927	97.449	90.808	105.991	67.223
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.131	9.173	10.288	11.895	12.347	7.085	5.176
U (kW/sq.m/K)	1.942	5.005	5.014	4.230	3.797	3.019	2.621
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2586	0.0483	0.0033	0.0404	0.0673	0.1352	0.1855

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 24, 94** **Time: 16:00** **Total Operation Time: 196 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.939	3.925	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	88	76.2	62.1	48.3	35.4	29.7	27
Outlet Temp. (deg. C)	112	88	76.2	62.1	48.3	35	29.7
Temp. Rise (deg. C)	24	11.8	14.1	13.8	12.9	5.3	2.7
Flashing Temp. (deg. C)	121	93.4	81.7	68.6	55.4	39.6	33.5
Heat Transfer Rate (kj/S)	171.620	83.923	99.919	97.442	90.801	108.029	55.002
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.472	10.185	11.096	12.118	12.456	6.915	5.030
U (kW/sq.m/K)	1.989	4.254	4.649	4.151	3.763	3.153	2.207
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2465	0.0836	0.0190	0.0448	0.0696	0.1211	0.2571

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 24, 94** **Time: 20:00** **Total Operation Time: 200 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.939	3.924	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	88	76	61.7	47.9	34.8	29.4	26.5
Outlet Temp. (deg. C)	112	88	76	61.7	47.9	34.5	29.4
Temp. Rise (deg. C)	24	12	14.3	13.8	13.1	5.1	2.9
Flashing Temp. (deg. C)	122	93.5	81.6	68.4	55.1	39.3	33.1
Heat Transfer Rate (kj/S)	171.620	85.343	101.328	97.433	92.199	103.946	59.073
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	19.611	10.368	11.278	12.340	12.638	7.045	5.011
U (kW/sq.m/K)	1.873	4.250	4.638	4.076	3.766	2.977	2.379
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2775	0.0838	0.0195	0.0492	0.0694	0.1398	0.2243

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 25, 94** **Time: 00:00** **Total Operation Time: 204 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.939	3.925	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	88	76.1	61.9	48.1	34.9	29.7	26
Outlet Temp. (deg. C)	112	88	76.1	61.9	48.1	34	29.7
Temp. Rise (deg. C)	24	11.9	14.2	13.8	13.2	4.3	3.7
Flashing Temp. (deg. C)	121.5	93.6	81.7	68.6	55.2	39.4	33.4
Heat Transfer Rate (kj/S)	171.620	84.633	100.623	97.437	92.906	87.640	75.368
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	19.044	10.444	11.244	12.340	12.565	7.341	5.338
U (kW/sq.m/K)	1.929	4.184	4.620	4.076	3.817	2.409	2.849
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2621	0.0875	0.0204	0.0492	0.0659	0.2190	0.1549

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 25, 94** **Time: 04:00** **Total Operation Time: 208 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18300	18300
Specific Heat (kJ/kg/K)	3.960	3.939	3.925	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	88	76.2	61.9	48	34.8	29.6	26
Outlet Temp. (deg. C)	112	88	76.2	61.9	48	34	29.6
Temp. Rise (deg. C)	24	11.8	14.3	13.9	13.2	4.4	3.6
Flashing Temp. (deg. C)	121.5	93.4	81.6	68.6	55.1	39.3	33.3
Heat Transfer Rate (kJ/S)	171.620	83.923	101.333	98.142	92.904	88.708	72.538
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	19.044	10.185	11.049	12.376	12.565	7.280	5.298
U (kW/sq.m/K)	1.929	4.254	4.735	4.094	3.817	2.459	2.763
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2621	0.0836	0.0151	0.0482	0.0659	0.2106	0.1658

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 25, 94** **Time: 08:00** **Total Operation Time: 212 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.925	3.911	3.898	3.966	3.964
Inlet Temp. (deg. C)	88.5	76	62	48	35	29.5	26.5
Outlet Temp. (deg. C)	112	88.5	76	62	48	34.5	29.5
Temp. Rise (deg. C)	23.5	12.5	14	14	13	5	3
Flashing Temp. (deg. C)	121.5	92.8	81	68.3	55.2	39.4	33.2
Heat Transfer Rate (kj/S)	168.058	88.905	99.206	98.850	91.498	101.909	61.111
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.872	9.173	10.487	11.965	12.602	7.109	5.052
U (kW/sq.m/K)	1.906	5.004	4.884	4.265	3.748	2.893	2.441
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2683	0.0483	0.0087	0.0384	0.0707	0.1496	0.2136

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 25, 94** **Time: 12:00** **Total Operation Time: 216 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.925	3.911	3.899	3.966	3.964
Inlet Temp. (deg. C)	88.5	76.2	62.2	48.4	35.5	29.8	27
Outlet Temp. (deg. C)	112	88.5	76.2	62.2	48.4	35	29.8
Temp. Rise (deg. C)	23.5	12.3	14	13.8	12.9	5.2	2.8
Flashing Temp. (deg. C)	121.5	92.6	80.8	68.2	55.4	39.6	33.5
Heat Transfer Rate (kJ/S)	168.058	87.485	99.212	97.445	90.804	105.991	57.040
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.872	8.873	10.021	11.559	12.347	6.875	4.969
U (kW/sq.m/K)	1.906	5.090	5.111	4.352	3.797	3.111	2.316
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2683	0.0449	-0.0004	0.0337	0.0673	0.1254	0.2356

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 25, 94** **Time: 16:00** **Total Operation Time: 220 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.925	3.911	3.899	3.966	3.964
Inlet Temp. (deg. C)	88.5	76.5	62.4	48.6	35.7	30	27
Outlet Temp. (deg. C)	112	88.5	76.5	62.4	48.6	35	30
Temp. Rise (deg. C)	23.5	12	14.1	13.8	12.9	5	3
Flashing Temp. (deg. C)	121.5	93.3	81.6	68.8	55.7	39.9	33.7
Heat Transfer Rate (kJ/S)	168.058	85.355	99.927	97.449	90.808	101.916	61.115
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.872	9.579	10.636	12.006	12.456	7.109	5.052
U (kW/sq.m/K)	1.906	4.600	4.850	4.190	3.764	2.893	2.441
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2683	0.0659	0.0101	0.0426	0.0696	0.1496	0.2136

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 25, 94** **Time: 20:00** **Total Operation Time: 224 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.939	3.924	3.910	3.898	3.966	3.964
Inlet Temp. (deg. C)	88	75.5	61.4	47.7	34.6	29.3	26.5
Outlet Temp. (deg. C)	112	88	75.5	61.4	47.7	33	29.3
Temp. Rise (deg. C)	24	12.5	14.1	13.7	13.1	3.7	2.8
Flashing Temp. (deg. C)	121.5	92.6	80.8	68	55	39.1	33
Heat Transfer Rate (kj/S)	171.620	88.892	99.900	96.721	92.195	75.403	57.036
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	19.044	9.520	10.866	12.193	12.747	7.804	4.969
U (kW/sq.m/K)	1.929	4.821	4.746	4.095	3.734	1.950	2.316
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2621	0.0559	0.0146	0.0481	0.0717	0.3168	0.2357

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 26, 94** **Time: 00:00** **Total Operation Time: 228 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.924	3.910	3.897	3.965	3.963
Inlet Temp. (deg. C)	88.5	75.2	61	47.2	34	28.8	25
Outlet Temp. (deg. C)	112	88.5	75.2	61	47.2	32	28.8
Temp. Rise (deg. C)	23.5	13.3	14.2	13.8	13.2	3.2	3.8
Flashing Temp. (deg. C)	122	92.6	81.4	68.4	54.7	38.7	32.7
Heat Transfer Rate (kj/S)	168.058	94.584	100.599	97.416	92.887	65.207	77.396
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	19.438	9.201	11.923	13.111	13.002	8.196	5.586
U (kW/sq.m/K)	1.850	5.307	4.356	3.836	3.688	1.605	2.796
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2840	0.0369	0.0335	0.0646	0.0751	0.4268	0.1616

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 26, 94** **Time: 04:00** **Total Operation Time: 252 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.938	3.924	3.910	3.897	3.965	3.963
Inlet Temp. (deg. C)	88	75.1	60.8	47.2	34	28.8	24.5
Outlet Temp. (deg. C)	112	88	75.1	60.8	47.2	32	28.8
Temp. Rise (deg. C)	24	12.9	14.3	13.6	13.2	3.2	4.3
Flashing Temp. (deg. C)	123	92.8	81.3	68.5	54.4	38.3	32.1
Heat Transfer Rate (kJ/S)	171.620	91.731	101.304	96.002	92.887	65.207	87.576
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	20.735	9.885	11.958	13.366	12.675	7.791	5.154
U (KW/sq.m/K)	1.771	4.791	4.374	3.708	3.783	1.689	3.429
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3081	0.0572	0.0326	0.0736	0.0682	0.3960	0.0956

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 26, 94** **Time: 08:00** **Total Operation Time: 256 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	88	75	60.8	46.7	33.3	28	25
Outlet Temp. (deg. C)	112	88	75	60.8	46.7	32	28
Temp. Rise (deg. C)	24	13	14.2	14.1	13.4	4	3
Flashing Temp. (deg. C)	123.8	92.1	80.4	68.1	54	37.9	31.8
Heat Transfer Rate (kJ/S)	171.620	92.441	100.594	99.525	94.282	81.504	61.098
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	21.625	9.103	11.015	13.110	12.857	7.728	5.155
U (kW/sq.m/K)	1.699	5.243	4.715	3.919	3.786	2.128	2.392
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3323	0.0392	0.0160	0.0591	0.0681	0.2738	0.2221

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 26, 94** **Time: 12:00** **Total Operation Time: 240 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.938	3.924	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	88.2	75.1	60.9	46.9	33.6	27.9	24
Outlet Temp. (deg. C)	112	88.2	75.1	60.9	46.9	32	27.9
Temp. Rise (deg. C)	23.8	13.1	14.2	14	13.3	4.1	3.9
Flashing Temp. (deg. C)	123	93.6	81.8	68.4	54.7	38.3	31.9
Heat Transfer Rate (kj/S)	170.195	93.156	100.596	98.823	93.584	83.541	79.422
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	20.665	10.639	12.482	13.293	13.365	8.179	5.731
U (kW/sq.m/K)	1.763	4.521	4.161	3.838	3.615	2.061	2.797
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3109	0.0697	0.0443	0.0645	0.0805	0.2891	0.1615

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 26, 94** **Time: 16:00** **Total Operation Time: 244 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	88	74.9	60.6	46.6	33.2	27.7	23
Outlet Temp. (deg. C)	112	88	74.9	60.6	46.6	31	27.7
Temp. Rise (deg. C)	24	13.1	14.3	14	13.4	3.3	4.7
Flashing Temp. (deg. C)	124	93.6	81.8	68.1	54.5	38.1	31.7
Heat Transfer Rate (kJ/S)	171.620	93.151	101.298	98.816	94.280	67.234	95.706
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	21.846	10.865	12.740	13.293	13.510	8.645	6.049
U (kW/sq.m/K)	1.681	4.426	4.105	3.838	3.603	1.569	3.193
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3383	0.0744	0.0475	0.0645	0.0815	0.4411	0.1171

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 26, 94** **Time: 20:00** **Total Operation Time: 248 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.909	3.897	3.965	3.962
Inlet Temp. (deg. C)	88	74.9	60.6	46.4	33	27.3	23
Outlet Temp. (deg. C)	112	88	74.9	60.6	46.4	31	27.3
Temp. Rise (deg. C)	24	13.1	14.3	14.2	13.4	3.7	4.3
Flashing Temp. (deg. C)	124	92.9	81.4	68.2	54.4	37.7	31.3
Heat Transfer Rate (kJ/S)	171.620	93.151	101.298	100.225	94.276	75.382	87.559
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	21.846	10.068	12.294	13.476	13.619	8.415	5.891
U (kW/sq.m/K)	1.681	4.776	4.254	3.840	3.574	1.808	2.999
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3383	0.0578	0.0390	0.0644	0.0837	0.3571	0.1373

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 27, 94** **Time: 00:00** **Total Operation Time: 252 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.8	60.3	45.9	32.3	26.7	23
Outlet Temp. (deg. C)	112	88	74.8	60.3	45.9	30	26.7
Temp. Rise (deg. C)	24	13.2	14.5	14.4	13.6	3.3	3.7
Flashing Temp. (deg. C)	124	93	81.3	68	53.9	37.1	30.7
Heat Transfer Rate (kJ/S)	171.620	93.861	102.709	101.627	95.670	67.225	75.338
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	21.846	10.217	12.364	13.658	13.692	8.645	5.649
U (kW/sq.m/K)	1.681	4.743	4.289	3.842	3.607	1.569	2.691
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3383	0.0593	0.0371	0.0642	0.0811	0.4412	0.1755

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 27, 94** **Time: 04:00** **Total Operation Time: 256 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.8	60.3	45.9	32.3	26.7	23
Outlet Temp. (deg. C)	112	88	74.8	60.3	45.9	30	26.7
Temp. Rise (deg. C)	24	13.2	14.5	14.4	13.6	3.3	3.7
Flashing Temp. (deg. C)	124	93	81.3	68	53.9	37.1	30.7
Heat Transfer Rate (kj/S)	171.620	93.861	102.709	101.627	95.670	67.225	75.338
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	21.846	10.217	12.364	13.658	13.692	8.645	5.649
U (kW/sq.m/K)	1.681	4.743	4.289	3.842	3.607	1.569	2.691
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3383	0.0593	0.0371	0.0642	0.0811	0.4412	0.1755

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 27, 94** **Time: 08:00** **Total Operation Time: 260 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.8	60.3	45.9	32.3	26.7	23
Outlet Temp. (deg. C)	112	88	74.8	60.3	45.9	30	26.7
Temp. Rise (deg. C)	24	13.2	14.5	14.4	13.6	3.3	3.7
Flashing Temp. (deg. C)	124	93	81.3	68	53.9	37.1	30.7
Heat Transfer Rate (kj/S)	171.620	93.861	102.709	101.627	95.670	67.225	75.338
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	21.846	10.217	12.364	13.658	13.692	8.645	5.649
U (kW/sq.m/K)	1.681	4.743	4.289	3.842	3.607	1.569	2.691
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3383	0.0593	0.0371	0.0642	0.0811	0.4412	0.1755

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 27, 94** **Time: 12:00** **Total Operation Time: 264 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.8	60.3	45.9	32.3	26.7	23
Outlet Temp. (deg. C)	112	88	74.8	60.3	45.9	30	26.7
Temp. Rise (deg. C)	24	13.2	14.5	14.4	13.6	3.3	3.7
Flashing Temp. (deg. C)	124	93	81.3	68	53.9	37.1	30.7
Heat Transfer Rate (kj/S)	171.620	93.861	102.709	101.627	95.670	67.225	75.338
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	21.846	10.217	12.364	13.658	13.692	8.645	5.649
U (kW/sq.m/K)	1.681	4.743	4.289	3.842	3.607	1.569	2.691
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3383	0.0593	0.0371	0.0642	0.0811	0.4412	0.1755

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 27, 94** **Time: 16:00** **Total Operation Time: 268 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.938	3.924	3.909	3.897	3.965	3.962
Inlet Temp. (deg. C)	88	75.2	60.8	46.5	33.1	27.1	23
Outlet Temp. (deg. C)	112	88	75.2	60.8	46.5	31.5	27.1
Temp. Rise (deg. C)	24	12.8	14.4	14.3	13.4	4.4	4.1
Flashing Temp. (deg. C)	124.5	94.1	82.3	68.3	54.2	37.9	31.2
Heat Transfer Rate (kJ/S)	171.620	91.022	102.013	100.934	94.278	89.645	83.485
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	22.397	11.319	12.997	13.402	13.293	8.409	5.915
U (kW/sq.m/K)	1.640	4.152	4.052	3.888	3.661	2.151	2.848
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3533	0.0894	0.0507	0.0611	0.0770	0.2688	0.1550

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 27, 94** **Time: 20:00** **Total Operation Time: 272 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.7	60.1	45.7	32.2	26.6	22
Outlet Temp. (deg. C)	112	88	74.7	60.1	45.7	31	26.6
Temp. Rise (deg. C)	24	13.3	14.6	14.4	13.5	4.4	4.6
Flashing Temp. (deg. C)	125.5	93.8	81.6	67.7	53.6	36.9	30.6
Heat Transfer Rate (kJ/S)	171.620	94.570	103.414	101.622	94.964	89.639	93.657
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	23.491	11.159	12.846	13.548	13.547	7.897	6.009
U (kW/sq.m/K)	1.564	4.375	4.156	3.872	3.619	2.291	3.145
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3831	0.0771	0.0445	0.0622	0.0802	0.2405	0.1219

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 28, 94** **Time: 00:00** **Total Operation Time: 276 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18000	18000
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	75.1	60.7	46.3	32.8	26.8	23
Outlet Temp. (deg. C)	112	88	75.1	60.7	46.3	31	26.8
Temp. Rise (deg. C)	24	12.9	14.4	14.4	13.5	4.2	3.8
Flashing Temp. (deg. C)	125.5	93.6	81.7	68.1	54	37.4	30.9
Heat Transfer Rate (kj/S)	171.620	91.731	102.011	101.637	94.976	83.253	75.284
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	23.491	10.795	12.441	13.328	13.330	8.324	5.794
U (kW/sq.m/K)	1.564	4.387	4.233	3.937	3.678	2.018	2.622
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3831	0.0764	0.0402	0.0579	0.0758	0.2994	0.1853

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 28, 94** **Time: 04:00** **Total Operation Time: 280 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kj/kg/K)	3.960	3.938	3.924	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	75.2	60.7	46.3	32.8	26.8	22
Outlet Temp. (deg. C)	112	88	75.2	60.7	46.3	31	26.8
Temp. Rise (deg. C)	24	12.8	14.5	14.4	13.5	4.2	4.8
Flashing Temp. (deg. C)	125	93.9	81.9	68.3	54.1	37.4	30.8
Heat Transfer Rate (kJ/S)	171.620	91.022	102.720	101.637	94.976	84.178	96.146
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	22.945	11.096	12.588	13.548	13.438	8.324	6.088
U (kW/sq.m/K)	1.601	4.235	4.213	3.873	3.649	2.041	3.187
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3683	0.0846	0.0413	0.0621	0.0780	0.2940	0.1177

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 28, 94** **Time: 08:00** **Total Operation Time: 284 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18300	18300
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.909	3.896	3.965	3.963
Inlet Temp. (deg. C)	89	75.3	60.7	46.2	32	28	24
Outlet Temp. (deg. C)	112	89	75.3	60.7	46.2	32.5	28
Temp. Rise (deg. C)	23	13.7	14.6	14.5	14.2	4.5	4
Flashing Temp. (deg. C)	115	92.3	81.3	67.1	53	36.8	30.4
Heat Transfer Rate (kJ/S)	164.495	97.437	103.430	102.341	99.891	90.704	80.579
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	10.651	8.357	11.836	12.252	12.593	6.284	4.078
U (kW/sq.m/K)	3.306	6.019	4.511	4.312	4.095	2.913	3.987
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0461	0.0146	0.0256	0.0358	0.0481	0.1472	0.0547

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 28, 94** **Time: 12:00** **Total Operation Time: 288 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	89.5	75.4	60.9	46.6	33.2	27.2	24
Outlet Temp. (deg. C)	112	89.5	75.4	60.9	46.6	32.5	27.2
Temp. Rise (deg. C)	22.5	14.1	14.5	14.3	13.4	5.3	3.2
Flashing Temp. (deg. C)	115	92	80.9	66.9	53.2	37.2	30.9
Heat Transfer Rate (kJ/S)	160.932	100.291	102.726	100.937	94.280	106.239	64.107
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	10.514	7.448	11.232	11.732	12.087	7.020	5.135
U (kW/sq.m/K)	3.276	6.952	4.722	4.442	4.027	3.054	2.519
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0488	-0.0077	0.0157	0.0291	0.0522	0.1314	0.2009

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 28, 94** **Time: 16:00** **Total Operation Time: 292 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.923	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	89	75	60.5	46.4	33	27.4	24
Outlet Temp. (deg. C)	112	89	75	60.5	46.4	32	27.4
Temp. Rise (deg. C)	23	14	14.5	14.1	13.4	4.6	3.4
Flashing Temp. (deg. C)	116	92.2	81.1	67.2	53.1	37.3	31
Heat Transfer Rate (Kj/S)	164.495	99.567	102.715	99.518	94.276	93.725	69.238
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.045	8.325	11.915	12.447	12.197	7.362	5.113
U (kW/sq.m/K)	2.923	6.175	4.451	4.128	3.990	2.569	2.733
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0857	0.0104	0.0286	0.0462	0.0545	0.1932	0.1699

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 28, 94** **Time: 20:00** **Total Operation Time:296 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.923	3.909	3.896	3.965	3.963
Inlet Temp. (deg. C)	88.5	75	60.5	46.2	32.7	27.1	23.5
Outlet Temp. (deg. C)	112	88.5	75	60.5	46.2	31.8	27.1
Temp. Rise (deg. C)	23.5	13.5	14.5	14.3	13.5	4.7	3.6
Flashing Temp. (deg. C)	116	91.9	80.7	66.8	52.9	36.9	30.8
Heat Transfer Rate (kj/S)	168.058	96.004	102.715	100.927	94.974	95.759	73.307
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.189	8.419	11.460	12.070	12.233	7.196	5.298
U (kW/sq.m/K)	2.951	5.887	4.627	4.317	4.008	2.685	2.792
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0825	0.0183	0.0200	0.0356	0.0534	0.1763	0.1621

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 29, 94** **Time: 00:00** **Total Operation Time:500 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.923	3.909	3.896	3.965	3.963
Inlet Temp. (deg. C)	88.8	75.1	60.5	46	32.5	27.1	23.5
Outlet Temp. (deg. C)	112	88.8	75.1	60.5	46	31.5	27.1
Temp. Rise (deg. C)	23.2	13.7	14.6	14.5	13.5	4.4	3.6
Flashing Temp. (deg. C)	116	91.9	80.7	66.7	52.8	36.8	30.8
Heat Transfer Rate (kJ/S)	165.921	97.432	103.425	102.336	94.970	89.645	73.307
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.103	8.107	11.380	12.027	12.343	7.280	5.298
U (kW/sq.m/K)	2.934	6.205	4.692	4.393	3.972	2.485	2.792
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0844	0.0096	0.0171	0.0316	0.0557	0.2063	0.1621

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 29, 94** **Time: 04:00** **Total Operation Time: 304 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kj/kg/K)	3.961	3.939	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	89	75.1	60.5	46.1	32.4	27	23
Outlet Temp. (deg. C)	112	89	75.1	60.5	46.1	31	27
Temp. Rise (deg. C)	23	13.9	14.6	14.4	13.7	4	4
Flashing Temp. (deg. C)	116	92	80.9	67	52.8	36.9	30.7
Heat Transfer Rate (kJ/S)	164.495	98.857	103.425	101.632	96.377	80.171	80.128
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.045	8.041	11.609	12.329	12.304	7.728	5.458
U (kW/sq.m/K)	2.923	6.347	4.600	4.256	4.044	2.093	2.963
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0857	0.0060	0.0213	0.0389	0.0512	0.2816	0.1415

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 29, 94** **Time: 08:00** **Total Operation Time: 308 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.924	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	89	75.4	60.9	46.7	33.2	27.4	24
Outlet Temp. (deg. C)	112	89	75.4	60.9	46.7	32	27.4
Temp. Rise (deg. C)	23	13.6	14.5	14.2	13.5	4.6	3.4
Flashing Temp. (deg. C)	116	92.7	81.4	67.5	53.4	37.6	31.1
Heat Transfer Rate (kj/S)	164.495	96.727	102.726	100.232	94.985	93.725	69.238
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.045	8.818	11.801	12.371	12.233	7.672	5.217
U (kW/sq.m/K)	2.923	5.663	4.494	4.183	4.009	2.465	2.678
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0857	0.0251	0.0264	0.0430	0.0534	0.2095	0.1773

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 29, 94** **Time: 12:00** **Total Operation Time: 512 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.940	3.924	3.910	3.897	3.965	3.963
Inlet Temp. (deg. C)	89.5	75.6	61.3	47	33.8	27.7	24.5
Outlet Temp. (deg. C)	112	89.5	75.6	61.3	47	33	27.7
Temp. Rise (deg. C)	22.5	13.9	14.3	14.3	13.2	5.3	3.2
Flashing Temp. (deg. C)	117	92.8	81.5	67.5	53.7	37.7	31.4
Heat Transfer Rate (kJ/S)	160.932	98.871	101.317	100.947	92.883	107.998	65.168
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	13.198	8.419	11.619	11.958	12.126	7.020	5.135
U (kW/sq.m/K)	2.610	6.063	4.502	4.358	3.955	3.105	2.561
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1268	0.0134	0.0261	0.0334	0.0568	0.1260	0.1944

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 29, 94** **Time: 16:00** **Total Operation Time: 316 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.924	3.910	3.897	3.965	3.963
Inlet Temp. (deg. C)	89	75.7	61.2	47.2	33.9	28.2	25
Outlet Temp. (deg. C)	112	89	75.7	61.2	47.2	33	28.2
Temp. Rise (deg. C)	23	13.3	14.5	14	13.3	4.8	3.2
Flashing Temp. (deg. C)	116.5	93.5	81.9	67.8	54	38.2	31.9
Heat Transfer Rate (kj/S)	164.495	94.598	102.734	98.830	93.590	97.813	65.173
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.706	9.672	12.027	12.300	12.272	7.340	5.135
U (kW/sq.m/K)	2.771	5.049	4.410	4.148	3.937	2.689	2.561
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1045	0.0465	0.0307	0.0450	0.0579	0.1758	0.1944

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 29, 94** **Time: 20:00** **Total Operation Time: 320 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	89	75.3	60.9	46.8	33.5	28	24.5
Outlet Temp. (deg. C)	112	89	75.3	60.9	46.8	32.8	28
Temp. Rise (deg. C)	23	13.7	14.4	14.1	13.3	4.8	3.5
Flashing Temp. (deg. C)	117	92.8	81.5	67.3	53.6	37.8	31.7
Heat Transfer Rate (kJ/S)	164.495	97.437	102.016	99.528	93.582	97.810	71.279
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	13.351	8.971	11.993	12.112	12.272	7.133	5.257
U (kW/sq.m/K)	2.637	5.608	4.392	4.242	3.937	2.767	2.736
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1228	0.0268	0.0316	0.0396	0.0579	0.1653	0.1694

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 30, 94** **Time: 00:00** **Total Operation Time: 524 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.924	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	89	75.4	61	46.8	33.3	27.9	24
Outlet Temp. (deg. C)	112	89	75.4	61	46.8	32	27.9
Temp. Rise (deg. C)	23	13.6	14.4	14.2	13.5	4.1	3.9
Flashing Temp. (deg. C)	118.5	92.7	81.3	67.1	53.5	37.7	31.6
Heat Transfer Rate (kj/S)	164.495	96.727	102.019	100.235	94.987	83.541	79.422
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	15.206	8.818	11.654	11.810	12.233	7.566	5.418
U (KW/sq.m/K)	2.315	5.663	4.519	4.382	4.009	2.228	2.958
Clean-U Value (KW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1755	0.0251	0.0252	0.0322	0.0534	0.2527	0.1420

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 30, 94** **Time: 04:00** **Total Operation Time: 528 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.924	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	88.5	75.4	60.9	46.7	33.1	27.8	24
Outlet Temp. (deg. C)	112	88.5	75.4	60.9	46.7	32	27.8
Temp. Rise (deg. C)	23.5	13.1	14.5	14.2	13.6	4.2	3.8
Flashing Temp. (deg. C)	116.5	92.3	81.2	67	53.4	37.6	31.5
Heat Transfer Rate (kj/S)	168.058	93.164	102.726	100.232	95.687	85.578	77.385
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.855	8.778	11.574	11.810	12.269	7.505	5.378
U (kW/sq.m/K)	2.798	5.479	4.582	4.381	4.026	2.301	2.904
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1010	0.0310	0.0222	0.0322	0.0523	0.2385	0.1483

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 30, 94** **Time: 08:00** **Total Operation Time: 332 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.924	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	89	75.5	61.1	46.7	33.1	27.7	24
Outlet Temp. (deg. C)	112	89	75.5	61.1	46.7	32	27.7
Temp. Rise (deg. C)	23	13.5	14.4	14.4	13.6	4.3	3.7
Flashing Temp. (deg. C)	117	91.8	81	67.5	53.4	37.6	31.3
Heat Transfer Rate (kj/S)	164.495	96.018	102.022	101.646	95.687	87.615	75.348
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	13.351	7.664	11.198	12.217	12.269	7.547	5.234
U (kW/sq.m/K)	2.637	6.468	4.704	4.295	4.026	2.343	2.905
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1228	0.0031	0.0165	0.0367	0.0523	0.2308	0.1481

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 30, 94** **Time: 12:00** **Total Operation Time: 336 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.910	3.898	3.966	3.963
Inlet Temp. (deg. C)	89	75.9	61.5	47.5	34.3	28.2	26
Outlet Temp. (deg. C)	112	89	75.9	61.5	47.5	34	28.2
Temp. Rise (deg. C)	23	13.1	14.4	14	13.2	5.8	2.2
Flashing Temp. (deg. C)	118	92.7	81.6	67.7	54.2	38.3	32
Heat Transfer Rate (kJ/S)	164.495	93.178	102.032	98.837	92.893	118.199	44.809
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.598	8.658	11.426	11.853	12.126	6.792	4.817
U (kW/sq.m/K)	2.412	5.556	4.610	4.305	3.955	3.512	1.877
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1582	0.0285	0.0208	0.0362	0.0568	0.0887	0.3366

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 30, 94** **Time: 16:00** **Total Operation Time: 340 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.924	3.910	3.898	3.966	3.963
Inlet Temp. (deg. C)	89	75.9	61.6	47.5	34.4	28.2	25
Outlet Temp. (deg. C)	112	89	75.9	61.6	47.5	34	28.2
Temp. Rise (deg. C)	23	13.1	14.3	14.1	13.1	5.8	3.2
Flashing Temp. (deg. C)	117	93.2	82	67.9	54.2	38.5	32
Heat Transfer Rate (kj/S)	164.495	93.178	101.325	99.545	92.191	118.199	65.173
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	13.351	9.254	11.845	12.000	12.090	7.004	5.238
U (kW/sq.m/K)	2.637	5.198	4.416	4.283	3.937	3.405	2.511
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1228	0.0409	0.0304	0.0374	0.0579	0.0976	0.2022

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: November 30, 94** **Time: 20:00** **Total Operation Time: 344 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18400	18400
Specific Heat (kJ/kg/K	3.961	3.939	3.924	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	89	75.5	61	46.8	33.5	27.9	25
Outlet Temp. (deg. C)	112	89	75.5	61	46.8	33	27.9
Temp. Rise (deg. C)	23	13.5	14.5	14.2	13.3	5.1	2.9
Flashing Temp. (deg. C)	118	92.7	81.3	67.1	53.6	37.8	31.7
Heat Transfer Rate (kJ/S)	164.495	96.018	102.729	100.235	93.582	103.362	58.742
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.598	8.786	11.574	11.810	12.272	7.045	5.114
U (kW/sq.m/K)	2.412	5.642	4.582	4.382	3.937	2.961	2.318
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1582	0.0257	0.0222	0.0322	0.0579	0.1417	0.2353

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 01, 94** **Time: 00:00** **Total Operation Time: 348 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.924	3.910	3.897	3.965	3.963
Inlet Temp. (deg. C)	89	75.5	61	46.9	33.5	27.8	24.5
Outlet Temp. (deg. C)	112	89	75.5	61	46.9	32.5	27.8
Temp. Rise (deg. C)	23	13.5	14.5	14.1	13.4	4.7	3.3
Flashing Temp. (deg. C)	118	93.2	81.7	67.5	53.7	37.9	31.7
Heat Transfer Rate (kJ/S)	164.495	96.018	102.729	99.530	94.286	95.769	67.205
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.598	9.385	12.027	12.224	12.308	7.506	5.382
U (kW/sq.m/K)	2.412	5.282	4.410	4.204	3.955	2.575	2.520
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m.K/kW)	0.1582	0.0378	0.0307	0.0418	0.0568	0.1923	0.2008

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 01, 94** **Time: 04:00** **Total Operation Time: 352 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.961	3.939	3.923	3.909	3.897	3.965	3.962
Inlet Temp. (deg. C)	88.5	74.9	60.5	46.4	32.9	27.5	23
Outlet Temp. (deg. C)	112	88.5	74.9	60.5	46.4	31	27.5
Temp. Rise (deg. C)	23.5	13.6	14.4	14.1	13.5	3.5	4.5
Flashing Temp. (deg. C)	118	92.1	81	66.9	53.3	37.5	31.3
Heat Transfer Rate (kj/S)	168.058	96.713	102.005	99.518	94.978	71.308	91.633
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.755	8.696	11.880	12.112	12.454	8.125	5.760
U (kW/sq.m/K)	2.438	5.742	4.433	4.242	3.937	1.771	3.210
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1538	0.0226	0.0295	0.0397	0.0579	0.3686	0.1154

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 01, 94** **Time: 08:00** **Total Operation Time: 356 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	88.5	75.2	60.7	46.6	33	27.5	23.5
Outlet Temp. (deg. C)	112	88.5	75.2	60.7	46.6	32	27.5
Temp. Rise (deg. C)	23.5	13.3	14.5	14.1	13.6	4.5	4
Flashing Temp. (deg. C)	118	91.9	81.1	67.2	53.4	37.4	31.3
Heat Transfer Rate (kJ/S)	168.058	94.584	102.720	99.523	95.685	91.688	81.454
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.755	8.356	11.688	12.224	12.379	7.424	5.562
U (kW/sq.m/K)	2.438	5.844	4.537	4.203	3.990	2.492	2.955
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1538	0.0196	0.0243	0.0418	0.0545	0.2052	0.1423

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 01, 94** **Time: 12:00** **Total Operation Time: 360 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.961	3.939	3.924	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	89	75.4	60.9	46.9	33.6	27.7	24
Outlet Temp. (deg. C)	112	89	75.4	60.9	46.9	32	27.7
Temp. Rise (deg. C)	23	13.6	14.5	14	13.3	4.3	3.7
Flashing Temp. (deg. C)	118.2	93.1	81.7	67.5	53.9	38	31.6
Heat Transfer Rate (kJ/S)	164.495	96.727	102.726	98.823	93.584	87.615	75.348
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	14.842	9.299	12.140	12.300	12.492	7.957	5.546
U (kW/sq.m/K)	2.372	5.370	4.369	4.148	3.868	2.222	2.742
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1652	0.0347	0.0328	0.0450	0.0625	0.2540	0.1687

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 01, 94** **Time: 16:00** **Total Operation Time: 384 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18400	18400
Specific Heat (kJ/kg/K)	3.961	3.939	3.923	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	88.5	75	60.5	46.5	33	27.6	23.5
Outlet Temp. (deg. C)	112	88.5	75	60.5	46.5	31.5	27.6
Temp. Rise (deg. C)	23.5	13.5	14.5	14	13.5	3.9	4.1
Flashing Temp. (deg. C)	119	92.9	81.4	67.3	53.5	37.8	31.5
Heat Transfer Rate (kJ/S)	168.058	96.004	102.715	98.813	94.980	79.032	83.039
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	15.967	9.621	12.252	12.522	12.564	8.094	5.707
U (kW/sq.m/K)	2.253	5.152	4.328	4.074	3.903	1.970	2.936
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1875	0.0426	0.0350	0.0494	0.0601	0.3114	0.1445

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 01, 94** **Time: 20:00** **Total Operation Time: 368 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.909	3.897	3.965	3.963
Inlet Temp. (deg. C)	88	74.9	60.4	46.3	33	27.3	23.5
Outlet Temp. (deg. C)	112	88	74.9	60.4	46.3	31.5	27.3
Temp. Rise (deg. C)	24	13.1	14.5	14.1	13.3	4.2	3.8
Flashing Temp. (deg. C)	118.5	92.7	81.7	67.2	53.4	37.6	31.3
Heat Transfer Rate (kJ/S)	171.620	93.151	102.712	99.515	93.571	84.184	76.125
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	15.525	9.838	12.699	12.558	12.601	8.017	5.690
U (kW/sq.m/K)	2.366	4.888	4.175	4.091	3.833	2.119	2.700
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1662	0.0530	0.0434	0.0483	0.0648	0.2759	0.1743

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 02, 94** **Time: 00:00** **Total Operation Time: 372 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.8	60.2	46	32.5	26.9	23
Outlet Temp. (deg. C)	112	88	74.8	60.2	46	31	26.9
Temp. Rise (deg. C)	24	13.2	14.6	14.2	13.5	4.1	3.9
Flashing Temp. (deg. C)	119	92.6	81.2	67.1	53.2	37.2	30.9
Heat Transfer Rate (kJ/S)	171.620	93.861	103.416	100.215	94.970	83.529	79.412
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.128	9.755	12.287	12.704	12.783	8.077	5.731
U (kW/sq.m/K)	2.277	4.967	4.345	4.072	3.835	2.087	2.796
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m.K/kW)	0.1827	0.0498	0.0341	0.0495	0.0647	0.2831	0.1615

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 02, 94** **Time: 04:00** **Total Operation Time: 376 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.6	60.2	45.7	32.1	26.6	22
Outlet Temp. (deg. C)	112	88	74.6	60.2	45.7	31	26.6
Temp. Rise (deg. C)	24	13.4	14.4	14.5	13.6	4.4	4.6
Flashing Temp. (deg. C)	119.5	91.8	80.7	66.8	52.8	36.8	30.5
Heat Transfer Rate (kJ/S)	171.620	95.280	101.997	102.329	95.666	89.639	93.657
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.724	8.875	11.880	12.476	12.710	7.794	5.904
U (kW/sq.m/K)	2.196	5.543	4.432	4.234	3.886	2.321	3.201
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1989	0.0289	0.0295	0.0401	0.0613	0.2348	0.1163

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 02, 94** **Time: 08:00** **Total Operation Time: 380 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.908	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.5	60	45.7	32	26.4	22
Outlet Temp. (deg. C)	112	88	74.5	60	45.7	30	26.4
Temp. Rise (deg. C)	24	13.5	14.5	14.3	13.7	3.6	4.4
Flashing Temp. (deg. C)	120	93.1	81.3	67.1	53	36.8	30.4
Heat Transfer Rate (kj/S)	171.620	95.990	102.701	100.915	96.368	72.146	88.131
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	17.312	10.433	12.699	12.961	12.966	8.473	5.930
U (kW/sq.m/K)	2.122	4.750	4.175	4.020	3.837	1.718	2.999
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2149	0.0590	0.0434	0.0527	0.0645	0.3859	0.1374

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 02, 94** **Time: 12:00** **Total Operation Time: 384 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.7	60.2	45.9	32.3	26.6	22.5
Outlet Temp. (deg. C)	112	88	74.7	60.2	45.9	30.5	26.6
Temp. Rise (deg. C)	24	13.3	14.5	14.3	13.6	3.9	4.1
Flashing Temp. (deg. C)	119.5	93	81.2	67.1	53.2	37.1	30.7
Heat Transfer Rate (kJ/S)	171.620	94.570	102.707	100.920	95.670	78.162	82.126
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.724	10.251	12.364	12.740	12.929	8.400	5.915
U (kW/sq.m/K)	2.196	4.763	4.288	4.090	3.820	1.878	2.802
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1989	0.0584	0.0371	0.0484	0.0657	0.3365	0.1608

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 02, 94** **Time: 16:00** **Total Operation Time: 388 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.8	60.2	45.9	32.2	26.6	22
Outlet Temp. (deg. C)	112	88	74.8	60.2	45.9	30.5	26.6
Temp. Rise (deg. C)	24	13.2	14.6	14.3	13.7	3.9	4.6
Flashing Temp. (deg. C)	120	93.5	81.6	67.3	53.2	37.1	30.7
Heat Transfer Rate (kj/S)	171.620	93.861	103.416	100.920	96.373	78.162	92.139
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	17.312	10.786	12.735	12.961	12.966	8.400	6.114
U (kW/sq.m/K)	2.122	4.492	4.192	4.020	3.837	1.878	3.041
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2149	0.0711	0.0424	0.0527	0.0645	0.3365	0.1328

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 02, 84** **Time: 20:00** **Total Operation Time: 392 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	75.1	60.5	46.1	32.4	26.6	22
Outlet Temp. (deg. C)	112	88	75.1	60.5	46.1	30.5	26.6
Temp. Rise (deg. C)	24	12.9	14.6	14.4	13.7	3.9	4.6
Flashing Temp. (deg. C)	119.5	93.4	81.7	67.7	53.4	37.2	30.6
Heat Transfer Rate (kJ/S)	171.620	91.731	103.425	101.632	96.377	78.162	92.139
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	16.724	10.569	12.511	13.107	12.966	8.501	6.009
U (kW/sq.m/K)	2.196	4.481	4.268	4.003	3.838	1.855	3.094
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.1989	0.0717	0.0382	0.0537	0.0645	0.3429	0.1271

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 03, 94** **Time: 00:00** **Total Operation Time: 396 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.9	60.5	46.2	32.6	26.6	22
Outlet Temp. (deg. C)	112	88	74.9	60.5	46.2	31	26.6
Temp. Rise (deg. C)	24	13.1	14.4	14.3	13.6	4.4	4.6
Flashing Temp. (deg. C)	121	93.1	81.5	67.5	53.5	37.2	30.7
Heat Transfer Rate (kJ/S)	171.620	93.151	102.005	100.927	95.677	88.185	92.139
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.472	10.297	12.441	12.851	12.929	8.204	6.114
U (kW/sq.m/K)	1.989	4.670	4.233	4.055	3.820	2.169	3.041
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2465	0.0626	0.0402	0.0505	0.0657	0.2650	0.1328

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 03, 94** **Time: 04:00** **Total Operation Time: 400 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	75	60.4	45.8	32.1	26.4	22
Outlet Temp. (deg. C)	112	88	75	60.4	45.8	31	26.4
Temp. Rise (deg. C)	24	13	14.6	14.6	13.7	4.6	4.4
Flashing Temp. (deg. C)	121	92.7	81.6	67.6	53.2	36.9	30.5
Heat Transfer Rate (kj/S)	171.620	92.441	103.422	103.038	96.370	93.712	89.584
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.472	9.804	12.511	13.179	13.075	7.980	6.035
U (kW/sq.m/K)	1.989	4.868	4.268	4.036	3.805	2.370	2.995
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2465	0.0539	0.0382	0.0517	0.0667	0.2259	0.1378

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 03, 94** **Time: 08:00** **Total Operation Time: 404 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.8	60.3	45.8	32	26.3	23
Outlet Temp. (deg. C)	112	88	74.8	60.3	45.8	31	26.3
Temp. Rise (deg. C)	24	13.2	14.5	14.5	13.8	4.7	3.3
Flashing Temp. (deg. C)	121	92	81.2	67.2	53.1	36.8	30.4
Heat Transfer Rate (kJ/S)	171.620	93.861	102.709	102.331	97.073	95.749	67.192
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	18.472	9.050	12.252	12.811	13.002	7.919	5.589
U (kW/sq.m/K)	1.989	5.355	4.328	4.124	3.854	2.440	2.426
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2465	0.0352	0.0350	0.0464	0.0634	0.2138	0.2161

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 03, 94** **Time: 12:00** **Total Operation Time: 408 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.938	3.924	3.909	3.896	3.965	3.962
Inlet Temp. (deg. C)	88	75.2	60.8	46.3	32.8	26.7	23
Outlet Temp. (deg. C)	112	88	75.2	60.8	46.3	31.5	26.7
Temp. Rise (deg. C)	24	12.8	14.4	14.5	13.5	4.8	3.7
Flashing Temp. (deg. C)	122	92.4	81.7	67.4	53.5	37.3	30.8
Heat Transfer Rate (kJ/S)	171.620	91.022	102.013	102.344	94.976	97.792	75.338
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	19.611	9.389	12.329	12.476	12.783	7.960	5.753
U (kW/sq.m/K)	1.873	5.005	4.272	4.235	3.836	2.479	2.643
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2775	0.0483	0.0380	0.0401	0.0646	0.2073	0.1823

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 03, 94** **Time: 16:00** **Total Operation Time: 412 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.939	3.924	3.909	3.897	3.965	3.962
Inlet Temp. (deg. C)	88	75.4	61.1	46.6	33.2	26.9	23.5
Outlet Temp. (deg. C)	112	88	75.4	61.1	46.6	32	26.9
Temp. Rise (deg. C)	24	12.6	14.3	14.5	13.4	5.1	3.4
Flashing Temp. (deg. C)	120	93.5	82.1	67.9	54	37.7	31
Heat Transfer Rate (kJ/S)	171.620	89.602	101.312	102.351	94.280	103.909	69.233
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	17.312	10.578	12.517	12.699	12.966	7.980	5.630
U (kW/sq.m/K)	2.122	4.373	4.178	4.161	3.754	2.628	2.482
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2149	0.0772	0.0432	0.0443	0.0703	0.1845	0.2069

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 03, 94** **Time: 20:00** **Total Operation Time: 416 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.9	60.4	46.1	32.5	26.7	23
Outlet Temp. (deg. C)	112	88	74.9	60.4	46.1	30.5	26.7
Temp. Rise (deg. C)	24	13.1	14.5	14.3	13.6	3.8	3.7
Flashing Temp. (deg. C)	120	92.9	81.1	67.6	53.5	37.2	30.8
Heat Transfer Rate (kj/S)	171.620	93.151	102.712	100.925	95.674	76.158	74.117
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	17.312	10.068	12.027	13.072	13.039	8.458	5.753
U (kW/sq.m/K)	2.122	4.776	4.409	3.986	3.788	1.817	2.600
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/KW)	0.2149	0.0578	0.0307	0.0548	0.0679	0.3543	0.1886

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 04, 94** **Time: 00:00** **Total Operation Time: 420 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.6	60.1	45.8	32.1	26.5	22.5
Outlet Temp. (deg. C)	112	88	74.6	60.1	45.8	30	26.5
Temp. Rise (deg. C)	24	13.4	14.5	14.3	13.7	3.5	4
Flashing Temp. (deg. C)	123	92.8	81.6	67.5	53.4	37.1	30.7
Heat Transfer Rate (kJ/S)	171.620	95.280	102.704	100.917	96.370	70.142	80.123
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	20.735	10.054	12.922	13.292	13.294	8.733	5.979
U (kW/sq.m/K)	1.771	4.893	4.103	3.920	3.743	1.621	2.704
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3081	0.0529	0.0476	0.0590	0.0711	0.4209	0.1737

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 04, 94** **Time: 04:00** **Total Operation Time: 424 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.909	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.6	60.1	45.7	31.9	26.3	22.5
Outlet Temp. (deg. C)	112	88	74.6	60.1	45.7	30	26.3
Temp. Rise (deg. C)	24	13.4	14.5	14.4	13.8	3.7	3.8
Flashing Temp. (deg. C)	124	93.2	82.1	67.9	53.4	37	30.6
Heat Transfer Rate (kJ/S)	171.620	95.280	102.704	101.622	97.071	74.149	76.115
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	21.846	10.514	13.474	13.767	13.439	8.720	6.001
U (kW/sq.m/K)	1.681	4.679	3.935	3.811	3.729	1.716	2.560
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3383	0.0622	0.0580	0.0663	0.0721	0.3867	0.1946

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 04, 94** **Time: 08:00** **Total Operation Time: 428 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.908	3.896	3.964	3.962
Inlet Temp. (deg. C)	88	74.7	60.1	45.5	31.6	26	21
Outlet Temp. (deg. C)	112	88	74.7	60.1	45.5	29.5	26
Temp. Rise (deg. C)	24	13.3	14.6	14.6	13.9	3.5	5
Flashing Temp. (deg. C)	123.5	92.2	81.4	67.4	52.9	36.4	30
Heat Transfer Rate (kJ/S)	171.620	94.570	103.414	103.031	97.769	70.137	100.140
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	21.292	9.319	12.623	13.289	13.148	8.531	6.166
U (kW/sq.m/K)	1.725	5.239	4.229	4.002	3.839	1.659	3.277
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3233	0.0394	0.0404	0.0538	0.0644	0.4067	0.1090

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 04, 94** **Time: 12:00** **Total Operation Time: 432 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18300	18300
Specific Heat (kJ/kg/K)	3.960	3.938	3.923	3.908	3.896	3.964	3.962
Inlet Temp. (deg. C)	87.5	74.4	59.9	45.5	31.8	25.9	21
Outlet Temp. (deg. C)	112	87.5	74.4	59.9	45.5	29.5	25.9
Temp. Rise (deg. C)	24.5	13.1	14.5	14.4	13.7	3.6	4.9
Flashing Temp. (deg. C)	123.5	93	81.9	67.6	53.3	36.8	30.2
Heat Transfer Rate (kJ/S)	175.182	93.138	102.699	101.617	96.364	72.537	98.676
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	21.469	10.752	13.474	13.658	13.512	8.980	6.442
U (kW/sq.m/K)	1.746	4.472	3.935	3.841	3.682	1.630	3.091
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3162	0.0721	0.0581	0.0643	0.0755	0.4174	0.1275

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 04, 94** **Time: 16:00** **Total Operation Time: 436 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.938	3.923	3.908	3.895	3.964	3.961
Inlet Temp. (deg. C)	88	74.3	59.7	45.1	31.3	25.6	21
Outlet Temp. (deg. C)	112	88	74.3	59.7	45.1	29	25.6
Temp. Rise (deg. C)	24	13.7	14.6	14.6	13.8	3.4	4.6
Flashing Temp. (deg. C)	123	92.5	81.1	67.3	52.9	36.3	29.8
Heat Transfer Rate (kj/S)	171.620	97.409	103.403	103.021	97.058	69.252	93.645
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	20.735	9.804	12.735	13.620	13.548	8.892	6.219
U (kW/sq.m/K)	1.771	5.129	4.192	3.905	3.698	1.572	3.039
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3081	0.0434	0.0425	0.0600	0.0743	0.4402	0.1330

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 04, 94** **Time: 20:00** **Total Operation Time: 440 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.937	3.922	3.908	3.895	3.963	3.961
Inlet Temp. (deg. C)	87	74	59.3	44.6	30.7	24.9	20
Outlet Temp. (deg. C)	112	87	74	59.3	44.6	28	24.9
Temp. Rise (deg. C)	25	13	14.7	14.7	13.9	3.1	4.9
Flashing Temp. (deg. C)	123.5	91.6	81.2	66.2	52.1	35.6	29.2
Heat Transfer Rate (kJ/S)	178.743	92.415	104.101	103.715	97.750	63.135	99.742
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	21.646	9.688	13.215	12.881	13.257	9.062	6.442
U (kW/sq.m/K)	1.767	4.925	4.067	4.157	3.807	1.406	3.124
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3094	0.0515	0.0498	0.0445	0.0666	0.5152	0.1240

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 05, 94** **Time: 00:00** **Total Operation Time: 444 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18200	18200
Specific Heat (kj/kg/K)	3.958	3.936	3.922	3.908	3.895	3.963	3.961
Inlet Temp. (deg. C)	84	74.1	59.4	44.5	30.5	24.5	20
Outlet Temp. (deg. C)	112	84	74.1	59.4	44.5	28	24.5
Temp. Rise (deg. C)	28	9.9	14.7	14.9	14	3.5	4.5
Flashing Temp. (deg. C)	124	92.3	81.3	67	52.5	35.5	28.8
Heat Transfer Rate (kj/S)	200.097	70.348	104.104	105.126	98.450	70.123	90.112
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	23.256	12.609	13.215	13.728	13.839	9.139	6.284
U (kW/sq.m/K)	1.841	2.880	4.067	3.953	3.673	1.548	2.894
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2866	0.1957	0.0498	0.0569	0.0762	0.4497	0.1495

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 05, 94** **Time: 04:00** **Total Operation Time: 448 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.958	3.935	3.922	3.907	3.894	3.963	3.961
Inlet Temp. (deg. C)	84	73.9	59.1	44.2	30.1	24.2	19
Outlet Temp. (deg. C)	112	84	73.9	59.1	44.2	28	24.2
Temp. Rise (deg. C)	28	10.1	14.8	14.9	14.1	3.8	5.2
Flashing Temp. (deg. C)	124.5	92.3	81.3	67	52.2	35.1	28.5
Heat Transfer Rate (kj/S)	200.097	71.767	104.805	105.118	99.145	77.387	105.838
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	23.818	12.687	13.472	14.058	13.876	8.865	6.560
U (kW/sq.m/K)	1.798	2.920	4.016	3.860	3.689	1.762	3.256
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2997	0.1909	0.0529	0.0630	0.0750	0.3716	0.1111

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 05, 94** **Time: 08:00** **Total Operation Time: 452 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.937	3.922	3.907	3.894	3.963	3.961
Inlet Temp. (deg. C)	86.5	73.7	59	44	29.9	23.9	20
Outlet Temp. (deg. C)	112	86.5	73.7	59	44	28	23.9
Temp. Rise (deg. C)	25.5	12.8	14.7	15	14.1	4.1	3.9
Flashing Temp. (deg. C)	124.2	91.8	81	66.7	52.1	35	28.3
Heat Transfer Rate (kJ/S)	182.303	90.982	104.093	105.820	99.141	83.495	79.382
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	22.602	10.422	13.325	13.874	13.985	8.893	6.145
U (kW/sq.m/K)	1.726	4.507	4.033	3.938	3.660	1.895	2.607
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3229	0.0704	0.0519	0.0579	0.0772	0.3317	0.1875

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 05, 94** **Time: 12:00** **Total Operation Time: 456 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.937	3.922	3.907	3.894	3.963	3.961
Inlet Temp. (deg. C)	86.5	73.7	59	44	29.9	23.9	20
Outlet Temp. (deg. C)	112	86.5	73.7	59	44	28	23.9
Temp. Rise (deg. C)	25.5	12.8	14.7	15	14.1	4.1	3.9
Flashing Temp. (deg. C)	124.2	91.8	81	66.7	52.1	35	28.3
Heat Transfer Rate (kj/S)	182.303	90.982	104.093	105.820	99.141	83.495	79.382
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	22.602	10.422	13.325	13.874	13.985	8.893	6.145
U (kW/sq.m/K)	1.726	4.507	4.033	3.938	3.660	1.895	2.607
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.3229	0.0704	0.0519	0.0579	0.0772	0.3317	0.1875

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 05, 94** **Time: 16:00** **Total Operation Time: 480 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18300	18300
Specific Heat (kj/kg/K)	3.959	3.937	3.922	3.907	3.894	3.963	3.961
Inlet Temp. (deg. C)	86.3	73.5	58.6	43.7	30	23.5	19.2
Outlet Temp. (deg. C)	112	86.3	73.5	58.6	43.7	29	23.5
Temp. Rise (deg. C)	25.7	12.8	14.9	14.9	13.7	5.5	4.3
Flashing Temp. (deg. C)	122.3	91.6	80.9	66.8	52.5	35	28.4
Heat Transfer Rate (kJ/S)	183.727	90.977	105.501	105.106	96.326	110.799	86.571
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	20.537	10.422	13.507	14.386	14.594	8.454	6.826
U (kW/sq.m/K)	1.915	4.507	4.032	3.772	3.408	2.645	2.559
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.2659	0.0704	0.0519	0.0690	0.0974	0.1820	0.1946

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 05, 94** **Time: 20:00** **Total Operation Time: 464 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.937	3.921	3.907	3.894	3.962	3.960
Inlet Temp. (deg. C)	88	73.4	58.3	43.4	29.4	23.5	19
Outlet Temp. (deg. C)	112	88	73.4	58.3	43.4	27	23.5
Temp. Rise (deg. C)	24	14.6	15.1	14.9	14	3.5	4.5
Flashing Temp. (deg. C)	116	90.9	80.1	65.3	51.1	33.9	27.6
Heat Transfer Rate (kJ/S)	171.620	103.795	106.911	105.098	98.426	71.270	91.586
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.334	8.122	12.799	13.064	13.512	8.531	6.075
U (kW/sq.m/K)	2.978	6.597	4.312	4.153	3.761	1.686	3.042
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0794	0.0001	0.0358	0.0447	0.0698	0.3971	0.1326

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 06, 94** **Time: 00:00** **Total Operation Time: 468 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kj/kg/K)	3.960	3.937	3.921	3.906	3.893	3.962	3.960
Inlet Temp. (deg. C)	87	72.9	57.9	42.9	28.8	23.1	19
Outlet Temp. (deg. C)	112	87	72.9	57.9	42.9	27	23.1
Temp. Rise (deg. C)	25	14.1	15	15	14.1	3.9	4.1
Flashing Temp. (deg. C)	115.8	90.2	79.3	65	50.3	33.4	27.3
Heat Transfer Rate (kj/S)	178.743	100.219	106.191	105.792	99.117	79.413	83.443
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.343	8.355	12.427	13.210	13.220	8.196	6.019
U (kW/sq.m/K)	3.099	6.192	4.412	4.134	3.871	1.955	2.797
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0662	0.0100	0.0306	0.0458	0.0623	0.3154	0.1614

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 06, 94** **Time: 04:00** **Total Operation Time: 472 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		#1	*#2*	*#3*	*#4*	*#5*	*#6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.937	3.921	3.906	3.893	3.962	3.960
Inlet Temp. (deg. C)	87	73.2	58.1	43.1	28.8	22.9	18.5
Outlet Temp. (deg. C)	112	87	73.2	58.1	43.1	27	22.9
Temp. Rise (deg. C)	25	13.8	15.1	15	14.3	4.1	4.4
Flashing Temp. (deg. C)	116	90.4	79.4	65.2	50.5	33.4	27.2
Heat Transfer Rate (kJ/S)	178.743	98.090	106.906	105.797	100.526	83.484	89.545
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.620	8.513	12.235	13.210	13.292	8.282	6.244
U (kW/sq.m/K)	3.031	5.949	4.511	4.135	3.904	2.034	2.894
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0735	0.0166	0.0256	0.0458	0.0600	0.2955	0.1495

CALCULATIONS OF OVERALL HEAT TRANSFER COEFFICIENT AND FOULING FACTOR

Run No. 8 **Date: December 06, 94** **Time: 04:00** **Total Operation Time: 472 hr.**

Variables	*Brine Heater*	*Evaporator Stages*					
		# 1	*# 2*	*# 3*	*# 4*	*# 5*	*# 6*
Flowrate (kg/h)	6500	6500	6500	6500	6500	18500	18500
Specific Heat (kJ/kg/K)	3.960	3.937	3.921	3.906	3.893	3.962	3.960
Inlet Temp. (deg. C)	87	75.2	58.1	43.1	28.8	22.9	18.5
Outlet Temp. (deg. C)	112	87	73.2	58.1	43.1	27	22.9
Temp. Rise (deg. C)	25	13.8	15.1	15	14.3	4.1	4.4
Flashing Temp. (deg. C)	116	90.4	79.4	65.2	50.5	33.4	27.2
Heat Transfer Rate (kJ/S)	178.743	98.090	106.906	105.797	100.526	83.484	89.545
Heat Transfer Area (Sq.m)	4.6723	1.937	1.937	1.937	1.937	4.9556	4.9556
L.M.T.D. (deg. K)	12.620	8.513	12.235	13.210	13.292	8.282	6.244
U (kW/sq.m/K)	3.031	5.949	4.511	4.135	3.904	2.034	2.894
Clean-U Value (kW/sq.m/K)	3.9	6.6	5.1	5.1	5.1	5.1	5.1
f (sq.m K/kW)	0.0735	0.0166	0.0256	0.0458	0.0600	0.2955	0.1495