

FIGURE G-5.1

## HEAT EXCHANGER SPECIFICATION SHEET

1			JOB NO. 5005.
2	CUSTOMER YPFB, McKEE CO		REFERENCE NO.
3	ADDRESS		PROPOSAL NO.
4	PLANT LOCATION COCHABAMBA		DATE 31-05-76
5	SERVICE OF UNIT OVER HEAD COOLER		ITEM NO. 2-E-301
6	SIZE 35" x 15'0"	TYPE A.J.S	CONNECTED IN
7	SQ. FT. SURF./UNIT (GROSS) (LFF.) 2.210	SHELLS/UNIT ONE	SQ. FT. SURF./SHELL (GROSS) (LFF.) 2.210.
8	PERFORMANCE OF ONE UNIT "CASE A"		
9	SHELL SIDE		TUBE SIDE
10	FLUID CIRCULATED VAC TWR. OVHD'S		COOLING WATER
11	TOTAL FLUID ENTERING 27.992 #/HR		106.045 #/HR
12	VAPOR		
13	LIQUID 27.447 #/HR		106.045 #/HR
14	STEAM 472		
15	NON-CONDENSABLES 73 (MW=479) "		
16	FLUID VAPORIZED OR CONDENSED		
17	STEAM CONDENSED		
18	GRAVITY 0.81 LIQ 35.0		
19	VISCOSITY 0.82 @ 419°F 7.0 @ 120°F		
20	MOLE WT. VAPORS 19.52		
21	SPECIFIC HEAT BTU/LB.°F		BTU/LB.°F
22	THERMAL CONDUCTIVITY LIQ IN 0.0705, OUT 0.035 BTU/HR-FT.°F		BTU/HR-FT.°F
23	LATENT HEAT BTU/LB		BTU/LB
24	TEMPERATURE IN 419 °F		75 °F
25	TEMPERATURE OUT 120 °F		120 °F
26	OPERATING PRESSURE 20 MM HG ABS PSIG		45 PSIG
27	NO. PASSES PER SHELL DIVIDED FLOW		EIGHT
28	VELOCITY FT/SEC		3.18 FT/SEC
29	PRESSURE DROP ALLOW. CALC'D 5MMHG=0.1# 0.03# PSI		10# 8.28# PSI
30	FRICTION RESISTANCE (MIN.) 0.002		0.002
31	HEAT EXCHANGED BTU/HR -4.772.035		MTD CORRECTED °F 107.34
32	TUBE RATE—SERVICE 20.11		CLEAN
33	CONSTRUCTION OF ONE SHELL		
34	DESIGN PRESSURE 75 # FULL VACUUM	PSI	75 PSI
35	TEST PRESSURE PER CODE	PSI	PER CODE PSI
36	DESIGN TEMPERATURE 490	°F	170 °F
37	TUBES C-STL NO.766 O.D. 3/4" BWG 12 LENGTH 15'0" PITCH 1" -D		
38	SHELL KILLED-STEEL I.D. 35" O.D.		SHELL COVER KILLED-STEEL (REMOV)
39	CHANNEL OR BONNET C-STL		CHANNEL COVER C-STL
40	TUBESHEET—STATIONARY KILLED-STEEL		TUBESHEET—FLOATING KLD-STL
41	BAFFLES—CROSS KLD-STL TYPE DBL, SEGM. ③		FLOATING HEAD COVER KLD-STL
42	BAFFLES—LONG TYPE		IMPINGEMENT PROTECTION ①
43	TUBE SUPPORTS		
44	TUBE TO TUBESHEET JOINT		
45	GASKETS		
46	CONNECTIONS—SHELL SIDE IN 18" V.B OUT 2-14"	RATING 150# RF	
47	CHANNEL SIDE IN 4" OUT 4"	RATING 150# RF	
48	CORROSION ALLOWANCE—SHELL SIDE 1/4" TUBE SIDE 1/4"		
49	CODE REQUIREMENTS ASME VIII DIV I 12570-21A1 TEMA CLASS R		
50	REMARKS ① INLET IS 18" CENTRAL VAPOR BELT		
51	② BAROMETRIC CONDITIONS : 8.400 FT @ 10.9 PSIA		
52	③ BAFFLES SEPARATION = 9", BAFFLE OUT : 25%.		
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