HEAT EXCHANGER SPECIFICATION SHEET Page						
,					US Units	
Customer KP ENGINEERING / HOLLY FRONTIER			Refere	Reference No. PO#J1422-B-008		
Address Steeltek Job No.: 15S-3222						
Plant Location TULSA, OK Date 9/24/2015 Rev 0_ Service of Unit UNIFINER STRIPPER BTMS / PENEX FEED PREHEAT EXCHAN(Item No. 004-E-500 (CASE 3)						
Service of Unit		としたしょうしゃ ダイト・ファー・ファーティス・ピー・ティア・ファイ・ファイ・ファイ・ファイ・ファイ・ファイ・ファイ・ファイ・ファイ・ファイ				
Size Surf/Unit (Gross/Ef		ch Type AEU 9 ft2 Shell/Unit 1	CONTRACTOR AND ADDRESS OF THE PARTY OF THE P	ected in 1 Para		
Surf/Unit (Gross/Eff) 1256.6 / 1242.9 ft2 Shell/Unit 1 Surf/Shell (Gross/Eff) 1256.6 / 1242.9 ft2 PERFORMANCE OF ONE UNIT						
Fluid Allocation Shell Side Tube Side						
Fluid Name	والمرابعة والمرابعة والمتعاربة والمتعاربة والمتعاربة والمتعاربة والمتعاربة والمتعاربة والمتعاربة والمتعاربة والمتعاربة		PENEX FEED		UNIFINER STRIPPER BOTTOMS	
Fluid Quantity, Total lb/hr		179735		140689		
Vapor (In/Out)	and the file of the first of the first of the first of the file of the file of the first of the	Albania de la composición del composición de la composición de la composición de la composición del composición de la composición del composición del composición de la composición del composic	and the control of th	the following and the following in the following and the following	Francisco - Address (Arthurston, January and Bustiness and State S	
Liquid		179735	179735	140689	140689	
Steam	يتعاور موسوسا و المعاون و المعاون المع					
Water	aytestilana is A la still sargarie copianos is tima diaminina luginor la bidada darres malabares promos	transiel. Nood skale in two sons spreidring agrand at the start spilling i n your house amendatures was	atro (scarce manufactures of the control of the con	ter Gelderik de	Britannik dentak ministra ministra (da. materia proposition de materia en seu participa de seguino	
Noncondensables						
Temperature (In/O	ut) F	87.60	177.50 0.6098	280.00	177.50	
Specific Gravity Viscosity	cP	0.6609 0.2220	0,6098	0.5707 0.1660	0.6354 0.1660	
Molecular Weight,		TO CALL	U.ZZZU	0.1000	0,1000	
Molecular Weight, Noncondensables						
Specific Heat	Btu/lb-F	0.5400	0,5400	0.6070	0.6070	
Thermal Conductiv	ity Btu/hr-ft-F	0.0590	0.0590	0.0520	0.0520	
Latent Heat	Btu/lb	ethiciae — ti baind an formar d'hancarram platemprinip (in Liderry), tr'op de 2 m g c'hradelpas en manthai e anni p	pyratiatis menuntyksi suukkan kengemen kanteman yan sang kapa priseniyi			
Inlet Pressure	psia	364	4.70	114	1.70	
Velocity ft/sec			96		06	
Pressure Drop, Allow/Calc psi		15.000	5.506	15.000	14.44	
Fouling Resistance (min) ft2-hr-F/Btu		0.00200		0.00		
Heat Exchanged 8714093 Btu/hr MTD (Corrected) 75.0 F Transfer Rate, Service 93.43 Btu/ft2-hr-F Clean 180.86 Btu/ft2-hr-F Actual 92.25 Btu/ft2-hr-F						
Hansiel Rate, Serv		ON OF ONE SHELL	lean 100.00 Dtu/Ita	Sketch (Bundle/N		
	CONGINOCII	Shell Side	Tube Side	OKELCII (Dalidie/IV	OZZIG OTIGITIATION)	
Design/Test Pressure psig		400 / FV /	325 / FV /	1		
Design Temperature F		325 / 300 / -20	350 / 300 / -20	1 , .		
No Passes per Shell		1	6			
Corrosion Allowance inch		0.1250	0.1250			
Connections	In inch	1 @ 6"-300# RF	1 @ 6"-300# RF	'		
Size &	Out inch	1 @ 6"-300# RF	1 @ 6"-300# RF			
Rating	Intermediate	TIL () 0.44	00 to 1	00 000 "	D''. 1. 4.0500 ()	
Tube No. 120U OD 1,0000 inch Thk(min) 0.109 inch Length 20,000 ft Pitch 1.2500 inch Tube Type Plain Material SA-214 Tube pattern 45						
Shell SA-516-7	<u> </u>	ID 26,000 OD	inch Shell Cove	···	(Integ.)	
Channel or Bonnet	are ordered and annual residence of annual residence of the second state of the second			over Sa-516-70	manufacture transfer to the control of the control	
Tubesheet-Stationary SA-516-70 Tubesheet-Floating					المراجعة	
Floating Head Cover Impingement Plate Circular plate						
	4-36 (vert cut)	Type Single-Seg.	%Cut (Dlam) 17.03 S	pacing(c/c) 7.3133	Inlet 17.975 inch	
Baffles-Long		Seal 7	Type None			
Supports-Tube U-Bend Type Full support						
Bypass Seal Arrangement 1 pairs seal strips Tube-Tubesheet Joint Expanded (2 grooves)						
Expansion Joint Type						
Rho-V2-Inlet Nozzle 1844.6 lb/ft-sec2 Bundle Entrance 199.27 Bundle Exit 2922.1 lb/ft-sec2 Gaskets-Shell Side Tube Side						
-Floating Head						
Code Requirements ASME SECT VIII DIVI						
Veight/Shell 10528 lb Filled with Water 15032 lb Bundle 5597.6 lb						
1. REV 2 : FULL SUPPORT IN INCLUDED AT U-BENDS						
2, CASE-3 : UNIT IS THERMALLY & MECHANICALLY GUARANTEED						
3. FLOWS & DUTY INCREASED BY 15. PERC						
				Reprinted with Pe	ermission (v7 00 SP1)	

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CERTIFIED FOR CONSTRUCTION

S0.FT. 2/26/10 STR. LGTH. YES, INCL U-BENDS HOLLY SPECS: EP7-1-1; EP7-1-4; EP7-1-5; EP7-1-7; EP8-1-1; EP8-1-1; CHANNEL - NONE ASSEMBLY AND SPECIFICATIONS FOR TUBE 325 FV AT 300°F SEE MAWP 350 -20 18500 1312 004-E-500 UNIFINER STRIPPER BTMS/PENEX FEED PREHEAT DATE: TULSA, OK. 0.109" (M.W.) x 20'-0" SURFACE ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES. MAWP (HIJT AND CURRIDED): WET: 15S-3222-A SHELLSIDE: 401 PSIG LIMITED BY BODY FLANGE
TUBESIDE: 325 PSIG LIMITED BY BODY FLANGE
MAWP (NEW AND COLD):
SHELLSIDE: 459 PSIG LIMITED BY BODY FLANGE
TUBESIDE: 390 PSIG LIMITED BY BODY FLANGE
SHOP HYDROTEST PRESSURE: SHELLSIDE: 597 PSIG
FIELD HYDROTEST PRESSURE: SHELLSIDE: 522 PSIG
TUBESIDE: 423 PSIG ASME CODE SECT. VIII DIV.1, 2013 ED. (STAMP YES) 26-240 N INSULATION THK. (BY OTHERS): SHELL - NONE ESTIMATED WEIGHTS, LBS. KP ENGINEERING/HOLLY FRONTIER GENERAL NOTES SPECIFICATIONS MATERIAL TEMA CLASS R and API-660 APPLIES NATIONAL BOARD REGISTRATION REQUIRED 13500 SHELL 2 SETS OF SPARE GASKETS REQUIRED PAINT: SEE PAINT MAP DRAWING PM BY: SNE ONE DVG.NO. GASKETS: .1570" THK. 316 GMGC 0.0.× BUNDLE: SPOT 6-15 SA-516-70 SA-516-70 SA-516-70N SA-36 J1422-B-008 DATE 11- 6 CKD. BY DD SA-214 DWN. BY SK 1/4" DESIGN PRESSURE P.S.I.G VACUUM PRESSURE P.S.I.G. TEST PRESSURE P.S.I.G. DESIGN TEMP. Deg.F. DATA CORROSION ALLOWANCE heat treat required NUMBER OF PASSES 01/00 13000 DESIGN Tubesheets: Baffles: MDMT Deg. F 120) TUBE PITCH P,0. NO.: ITEM NO.: SERVICE: CHANNEL: SHELL: TUBES: CUST: REVISIONS REVD. PER CUST. COMMENTS "-300# RFWN "-300# RFWN "-300# RFWN -300# RFWN REVISED / CUSTOMER "T-"IS AC2) 1 1/8° ROUND HOLES. FOR 7/8° BOLTS. (ಜ) 18,-5 1/4,, гле —— екопиріие 2-26-16 12/18 DATE NOZZLE 300#RF WN 300#RF WN 300#RF WN DESCRIPTION വ 힏 .a.o <u>,,,ZZ</u> _,-Շ ♠ 10'-2" "8 (971 23'-8 15/16" 0.A.L. SECTION B-B E 180 2'-0" 7,-6 (2) 1 1/8" x 2 1/4" LG. SLOTS FOR 7/8" BOLTS. 2'-3" 7,-3,, NAME PLATE. гле ——— скопиріис "8 (9灯) <u>"+\2 01-10</u> ∑ 4.20 VIEW A-A REF. ,,0,, 3 3/4"-1,-1, 3 3/4".

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