

**[KEYERA PARTNERSHIP / 3-12-46-14W5] PLANT 2**

**Customer: PTRHTF30084**

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**System Information**

System Volume: 14000 ltr  
Bulk Operating Temp: 455F / 235C  
Heating Source:  
Blanket:  
Fluid: PETRO CANADA CALFLO AF  
Make: PETROTHERM ENG.

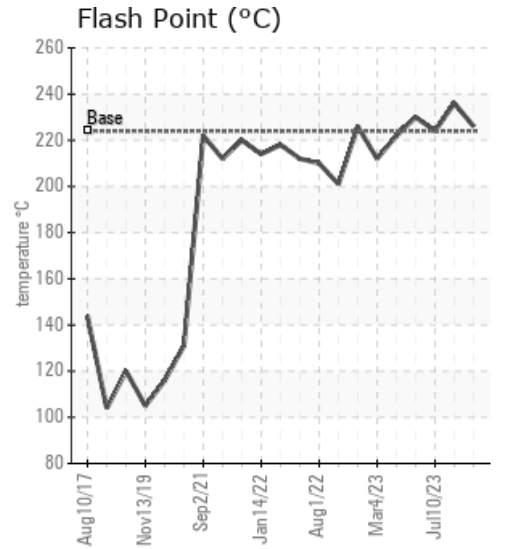
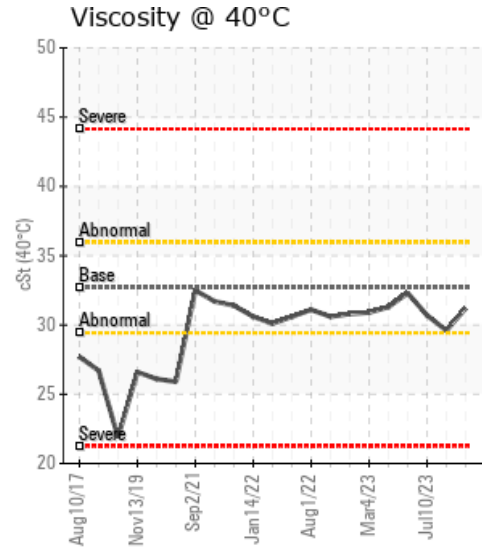
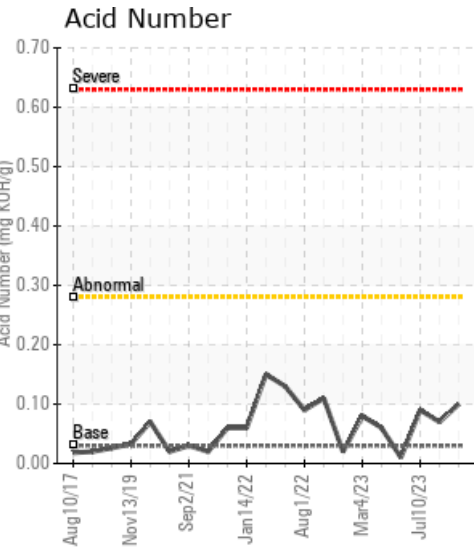
**Sample Information**

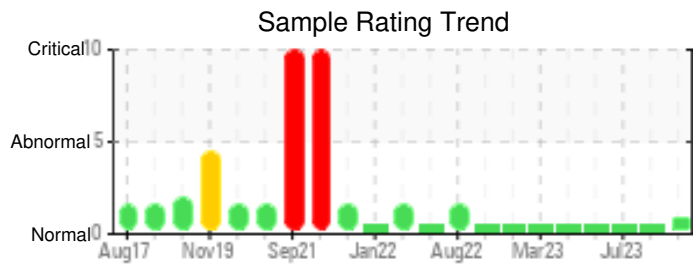
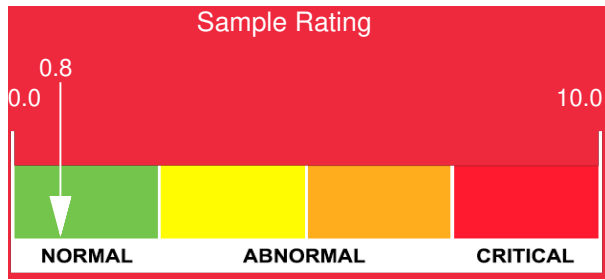
Lab No: 02602068  
Analyst: Lyle Dach  
Sample Date: 11/30/23  
Received Date: 12/08/23  
Completed: 12/13/23  
Lyle Dach  
lyle.dach@HFSinclair.com

Recommendation: Sample results indicate that the fluid is in suitable condition for continued service. 90% distillation point is slightly elevated, confirm blanket gas is functioning properly as fluid oxidizing could cause the increase. Resample in 12 months.

Comments: (GCD) 90% Distillation Point is abnormally high.

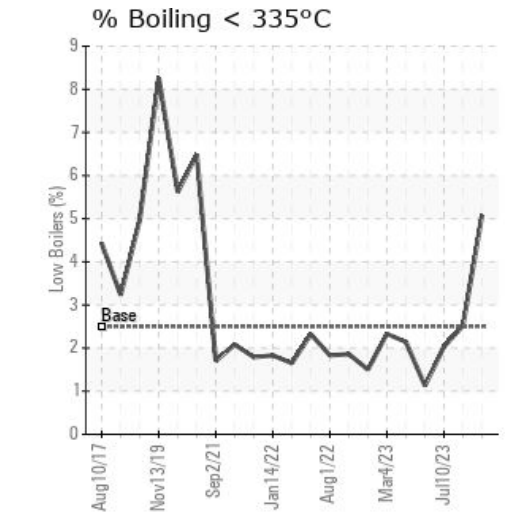
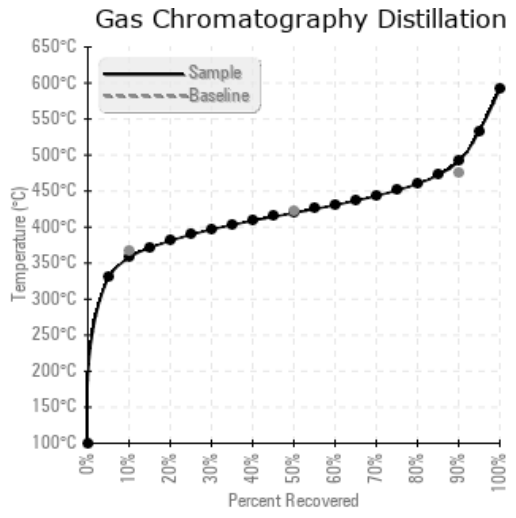
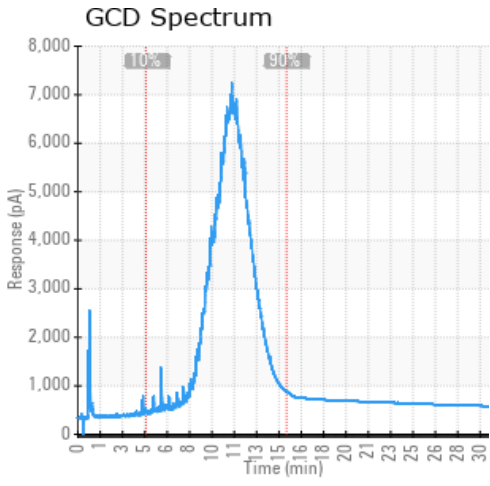
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
11/30/23	12/08/23	0.0m	HOH #2 pump	439 / 226	21	31.2	0.10	0.026	676 / 358	787 / 420	915 / 491	5.08
10/01/23	10/11/23	40.0m	AFTER PUMP	457 / 236	27.7	29.6	0.07	0.061	697 / 370	799 / 426	899 / 482	2.52
07/10/23	07/19/23	24.0m	after main pump	435 / 224	28.9	30.7	0.09	0.044	704 / 373	804 / 429	899 / 482	2.03
03/24/23	04/05/23	24.0m	hoh2 18-60	446 / 230	5.4	32.3	0.01	0.080	701 / 372	798 / 425	901 / 483	1.13
03/24/23	04/05/23	24.0m	hoh2 18-59	432 / 222	19.0	31.3	0.06	0.103	703 / 373	803 / 429	900 / 482	2.14
<b>Baseline Data</b>				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5





Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc	
11/30/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	46	0	
10/01/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	49	0	
07/10/23	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	58	1	
03/24/23	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	296	1	
03/24/23	13	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	0	0	88	0	
<b>Baseline Data</b>			0	0						0			0	0					0					270	

Elemental analysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]



### Historical Comments

10/01/23	Sample results indicate that the fluid is in suitable condition for continued service. Resample in 12 months.
07/10/23	Sample results indicate that the fluid is in suitable condition for continued service. Resample in 12 months.
03/24/23	Sample results indicate the fluid is in good condition, the color on this sample is brighter and clear it almost appears to be new fluid vs the other recent samples. This sample was collected from the seal pot tank. Water content is very low.
03/24/23	From the sample results fluid condition is very good, the sample color looks similar to the last sample collected on March 4 2023. This sample was collected from the seal pot. Water content is very low.

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