

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

**Customer: PTRHTF30084**  
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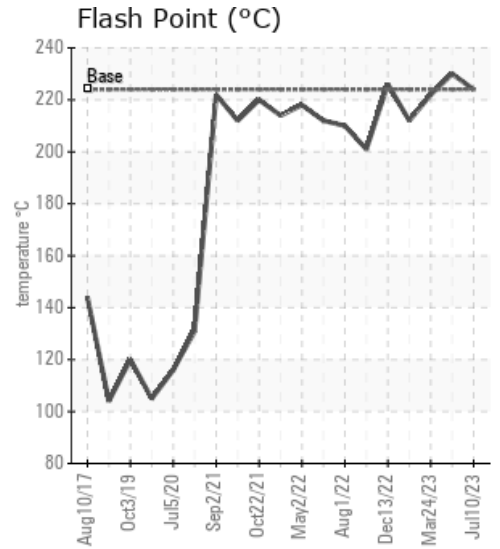
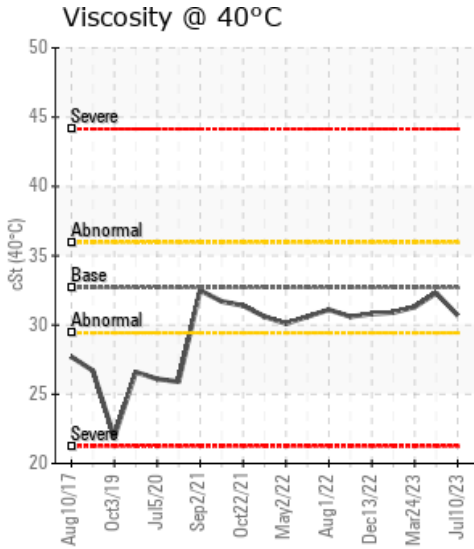
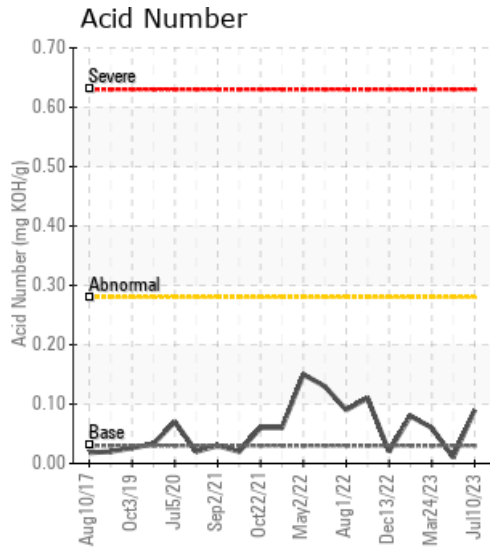
**System Information**  
 System Volume: 14000 ltr  
 Bulk Operating Temp: 455F / 235C  
 Heating Source:  
 Blanket:  
 Fluid: PETRO CANADA CALFLO AF  
 Make: PETROTHERM ENG.

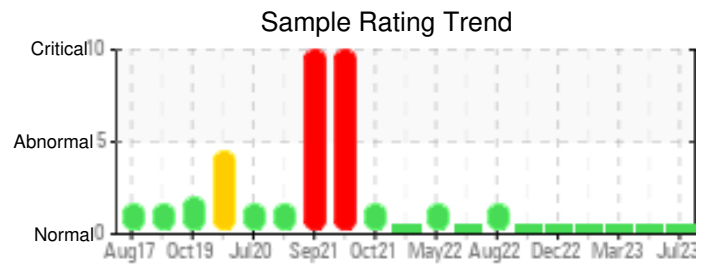
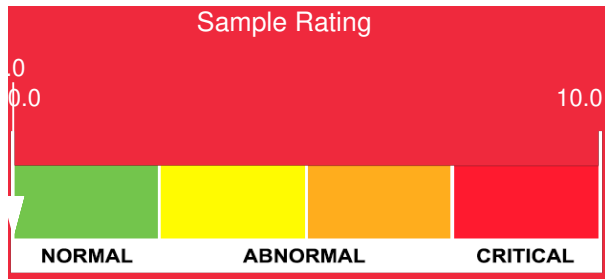
**Sample Information**  
 Lab No: 02571007  
 Analyst: Lyle Dach  
 Sample Date: 07/10/23  
 Received Date: 07/19/23  
 Completed: 07/24/23  
 Lyle Dach  
 lyle.dach@HFSinclair.com

Recommendation: Sample results indicate that the fluid is in suitable condition for continued service. Resample in 12 months.

Comments:

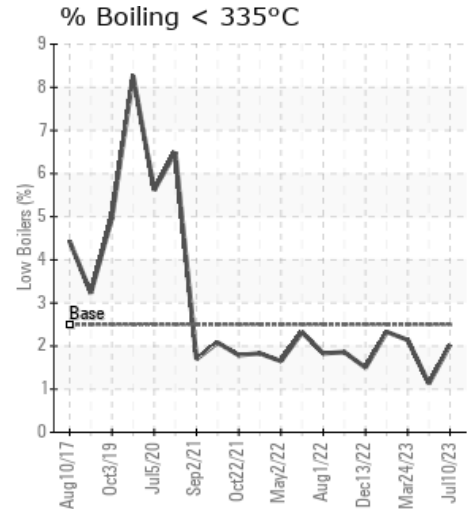
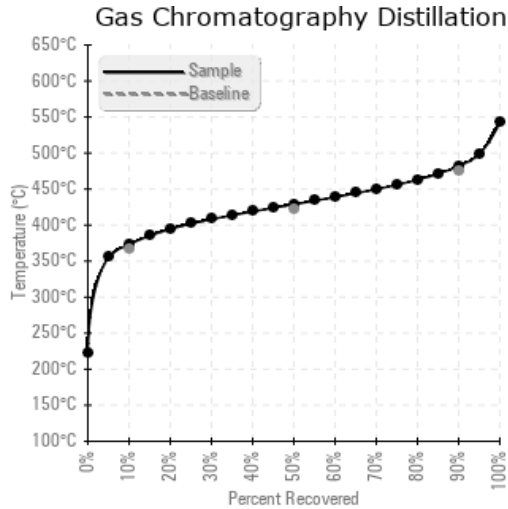
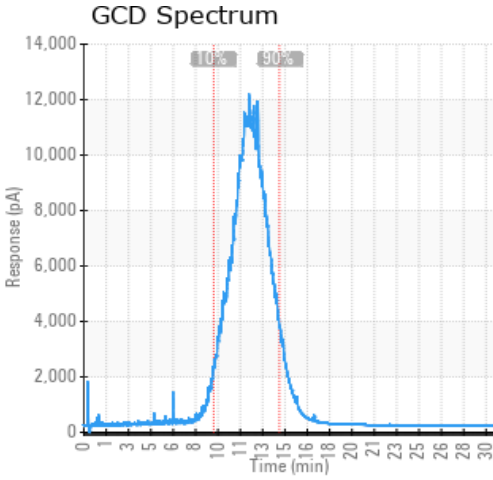
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/10/23	07/19/23	24.0m	after main pump	435 / 224	28.9	30.7	0.09	0.044	704 / 373	804 / 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
03/04/23	03/13/23	20.0m		414 / 212	37.7	30.9	0.08	0.049	702 / 372	804 / 429	900 / 482	2.33
12/13/22	12/22/22	18.0m	after pump discharge	439 / 226	26.0	30.8	0.02	0.020	708 / 376	807 / 430	902 / 484	1.50
Baseline Data				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
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
03/04/23	7	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	8	0	0	0	54	0
12/13/22	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	50	0
Baseline Data			0	0						0			0	0					0				270	

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



### Historical Comments

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.
03/04/23	Fluid looks to be in very good condition and is suitable for continued use. Water content is very low, venting program appears to be working well. Resample in 6 months.
12/13/22	Units are being sampled at very short intervals recommended sampling for heat transfer systems with no issues is 12 months. Sample results indicate that the fluid is in suitable condition for continued service.

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