

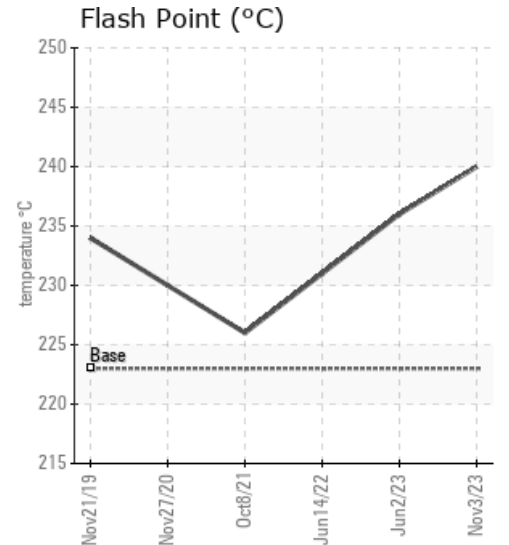
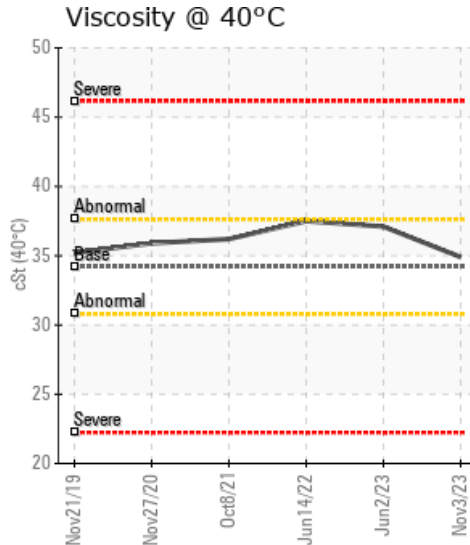
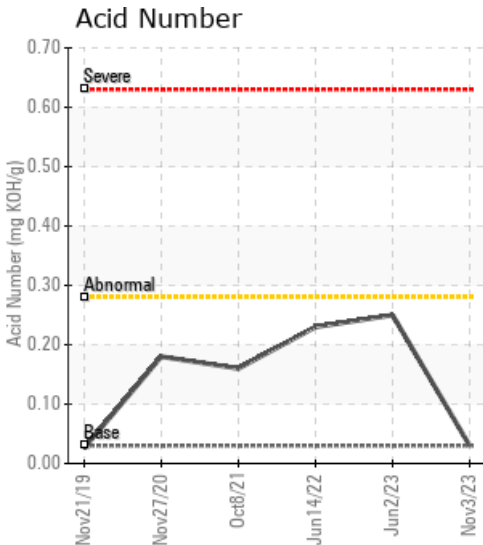
## [Cenovus / LSD 6-20-49-18W5] H55002

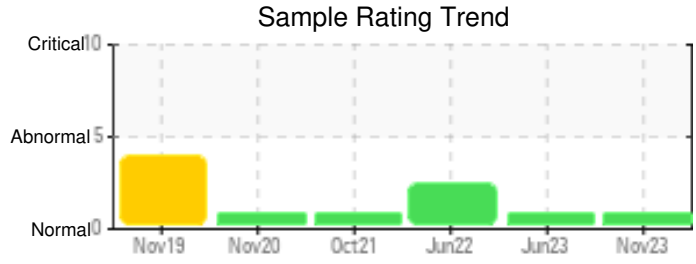
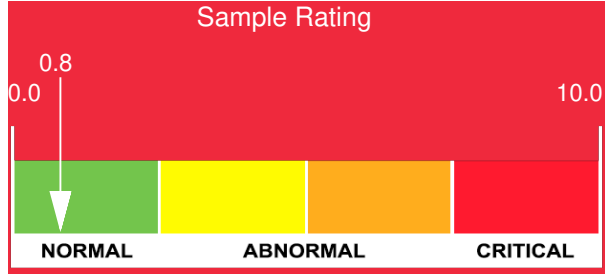
Customer: PTRHTF20039	System Information	Sample Information
BRENNTAG CANADA INC 3124-54TH AVENUE SE CALGARY, AB T2C 0A8 CA Attn: Matthew Kryska Tel: E-Mail: mkryska@brenntag.ca	System Volume: 23000 ltr Bulk Operating Temp: 417F / 214C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: ALCO	Lab No: 02598610 Analyst: Lyle Dach Sample Date: 11/03/23 Received Date: 11/23/23 Completed: 11/30/23 Lyle Dach lyle.dach@HFSinclair.com

Recommendation: Sample results indicate that the fluid is in suitable condition for continued service. Sulfur has climbed from the last samples, has there been any changes to the system or new fluid top ups? Resample in 12 months.

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

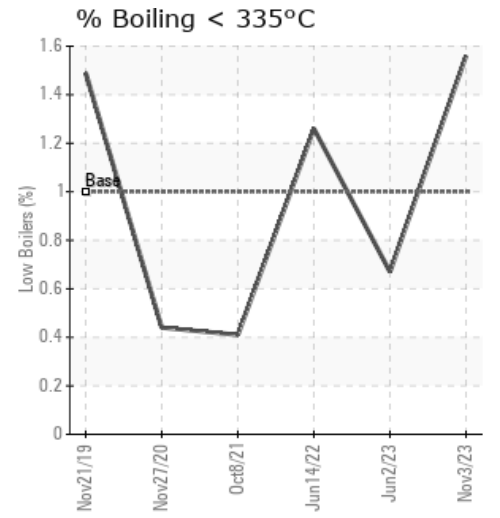
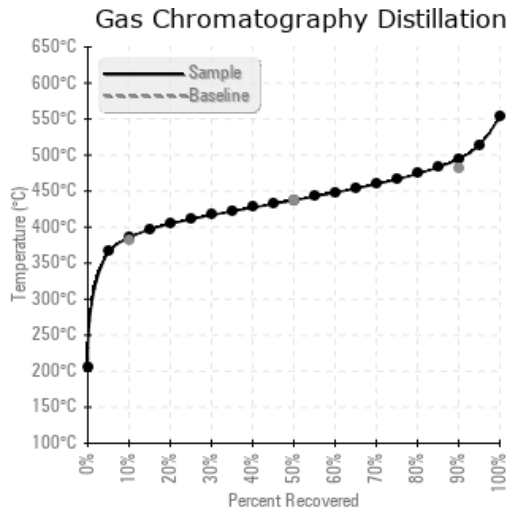
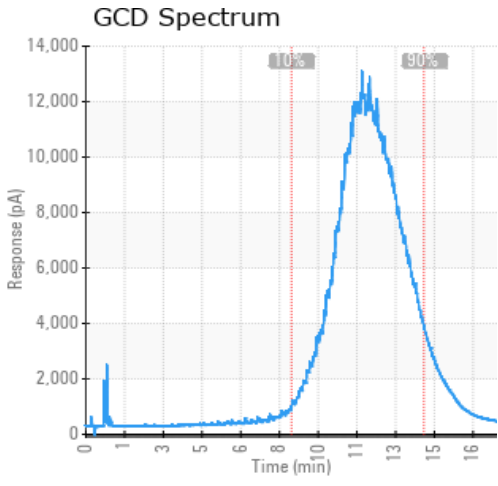
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
11/03/23	11/23/23	1.0m		464 / 240	11	34.9	0.03	0.049	726 / 385	819 / 437	922 / 495	1.56
06/02/23	07/18/23	48.0m	bef.slip stream fltr	457 / 236	21.9	37.1	0.25	0.189	729 / 387	819 / 437	929 / 498	0.67
06/14/22	07/12/22	60.0m	Pump discharge	448 / 231	15.7	37.5	0.23	0.780	724 / 384	815 / 435	923 / 495	1.26
10/08/21	11/12/21	24.0m	F-5530-2	439 / 226	7.2	36.2	0.16	0.170	730 / 388	819 / 437	928 / 498	0.41
11/27/20	12/18/20	14.0m	Heat medium return	446 / 230	31.6	35.9	0.18	0.302	729 / 387	819 / 437	929 / 499	0.44
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





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
11/03/23	3	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	1	0	0	2
06/02/23	16	0	0	0	0	0	2	0	0	0	8	7	0	0	0	0	0	0	0	0	0	0	0	0
06/14/22	6	0	0	0	0	0	0	0	0	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0
10/08/21	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/27/20	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Baseline Data</b>			0	0						0		0	0					0				0		

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



Historical Comments	
06/02/23	Sample results indicate that the fluid is in suitable condition for continued service. Resample in 12 months. (GCD) 90% Distillation Point is abnormally high.
06/14/22	Pentane insolubles are beyond recommended limit, all other parameters are at safe levels. Resample to confirm this test levels. Please ensure the sample lines are purged properly and watch for external contamination when collecting samples. Pentane Insolubles levels are severely high. (GCD) 90% Distillation Point is marginally high.
10/08/21	Sample results indicate that the fluid is in suitable condition for continued service. 90% distillation point is slightly high ensure blanket gas is on and functioning properly. Resample in 12 months. (GCD) 90% Distillation Point is abnormally high.
11/27/20	Fluid is in very good condition overall. The GCD 90% is a little higher than normal which is likely caused by some oxidation that has taken place - not severe. Continue to submit annual samples to proactively monitor fluid condition.

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