

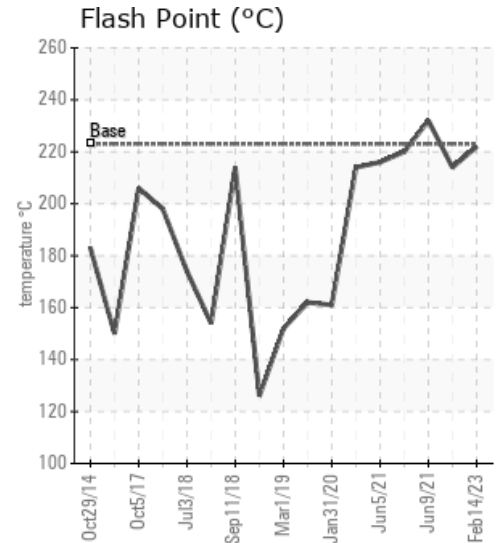
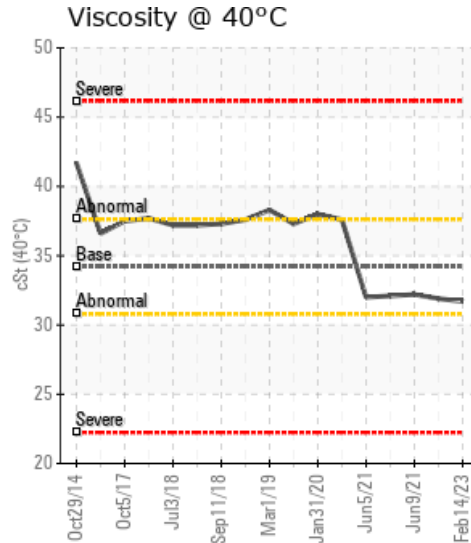
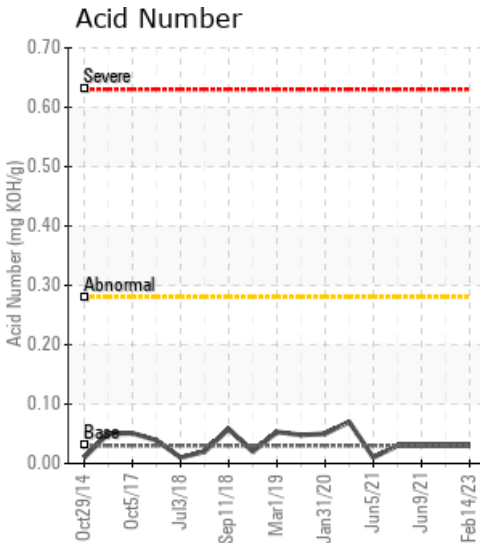
[LSD / 6-25-45-10W5] H-704

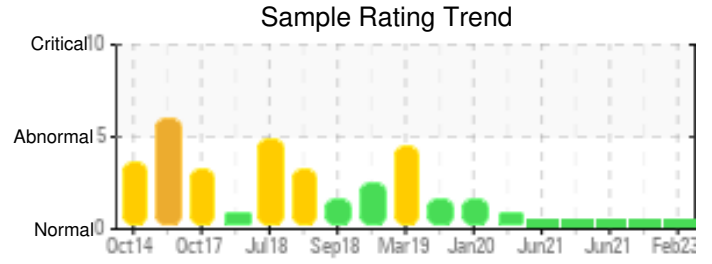
Customer: PTRHTF20190	System Information	Sample Information
Cenovus Sand Creek 5023 54A Ave Eckville, AB T0M 0X0 Canada Attn: Brendon Emmett Tel: (780)898-7136 E-Mail: brendon.emmett@cenovus.com	System Volume: 43000 ltr Bulk Operating Temp: 455F / 235C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: BORN	Lab No: 02544413 Analyst: Lyle Dach Sample Date: 02/14/23 Received Date: 03/10/23 Completed: 03/16/23 Lyle Dach lyle.dach@HFSinclair.com

Recommendation: Fluid looks to be in good condition, viscosity is trending down slightly. If possible venting the system may help the viscosity as blanket gas entrainment could be causing the downward trend. I would also review the blanket gas pressure, if 12 psi is not required for pump NPSH lowering the gas pressure may also help the viscosity. Petro Canada recommends 2-3 psi blanket pressure if pump NPSH does not require more pressure. Resample in 12 months.

Comments:

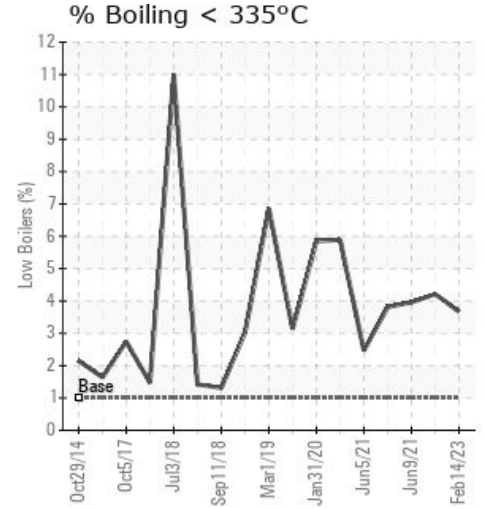
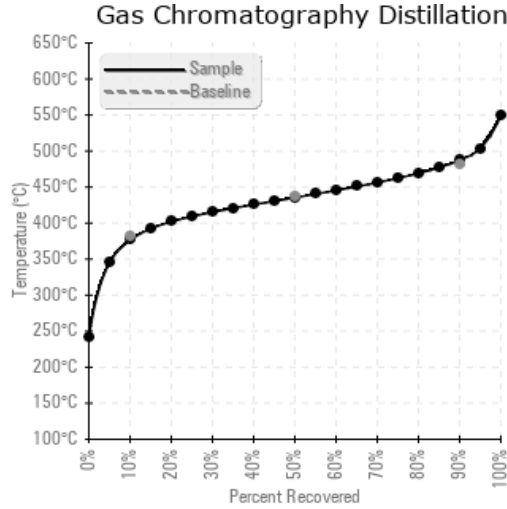
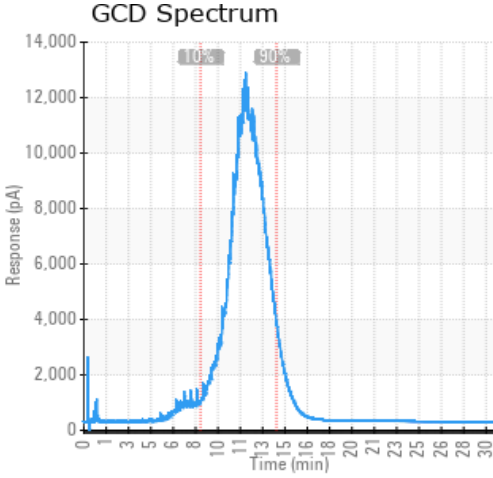
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
02/14/23	03/10/23	21.0m	pump discharge	432 / 222	64.0	31.7	0.03	0.070	710 / 376	816 / 435	909 / 487	3.67
12/22/21	12/30/21	6.0m	pump discharge	417 / 214	74.3	31.9	0.03	0.046	705 / 374	814 / 435	907 / 486	4.21
06/09/21	06/14/21	4.0m	PUMP DISCHARGE	428 / 220	17.7	32.1	0.03	0.033	697 / 370	799 / 426	908 / 487	3.81
06/09/21	06/14/21	4.0m	PUMP DISCHARGE	450 / 232	21.2	32.2	0.03	0.039	695 / 369	799 / 426	916 / 491	3.96
06/05/21	06/14/21	4.0m	PUMP SAMPLE PUMP	421 / 216	29.1	32.0	0.01	0.030	719 / 382	818 / 437	911 / 488	2.47
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
02/14/23	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/22/21	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/09/21	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	2
06/09/21	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	2
06/05/21	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	3
Baseline Data			0	0						0			0	0					0				0	

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



Historical Comments

12/22/21	Sample results indicate that the fluid is in suitable condition for continued service. Resample in 12 months.
06/09/21	Fluid is in excellent condition.
06/09/21	Fluid is in excellent condition.
06/05/21	Fluid is in excellent condition.

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