

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

Customer: PTRHTF30084
 Keyera Partnership Brazeau River Ga...
 Box 7318
 Drayton Valley, AB T7A 1S5 Canada
 Attn: Gareth Buchanan
 Tel: (780)913-1176
 E-Mail: gareth_buchanan@keyera.com

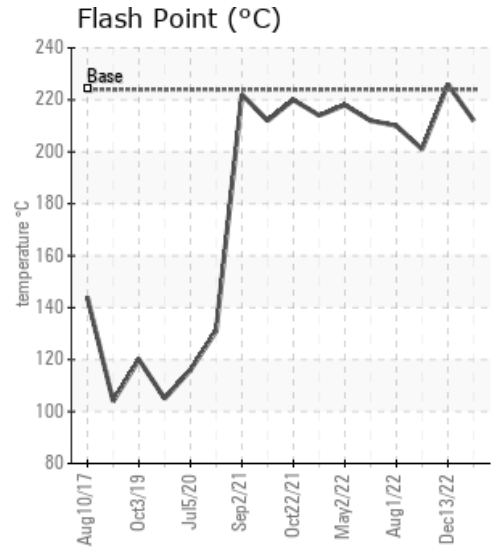
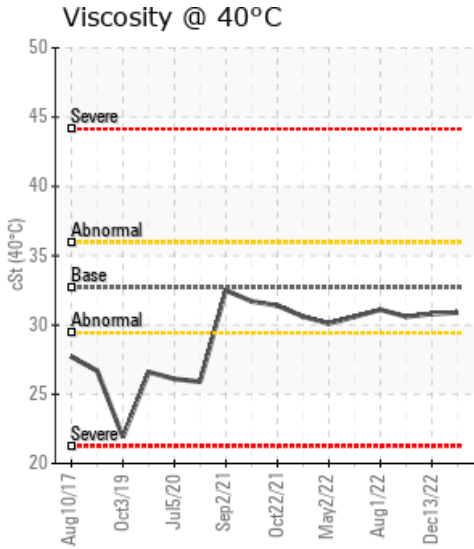
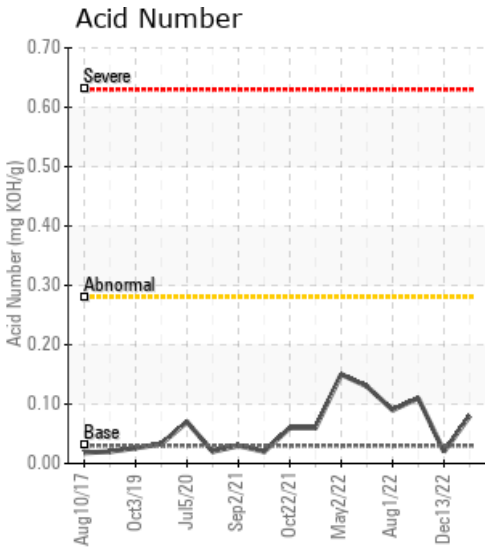
System Information
 System Volume: 14000 ltr
 Bulk Operating Temp: 455F / 235C
 Heating Source:
 Blanket:
 Fluid: PETRO CANADA CALFLO AF
 Make: PETROTHERM ENG.

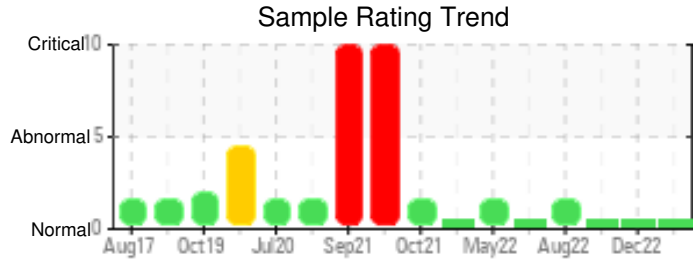
Sample Information
 Lab No: 02544894
 Analyst: Lyle Dach
 Sample Date: 03/04/23
 Received Date: 03/13/23
 Completed: 03/16/23
 Lyle Dach
 lyle.dach@HFSinclair.com

Recommendation: 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.

Comments:

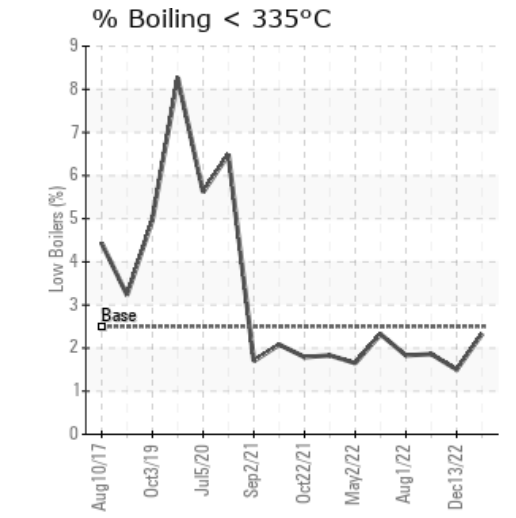
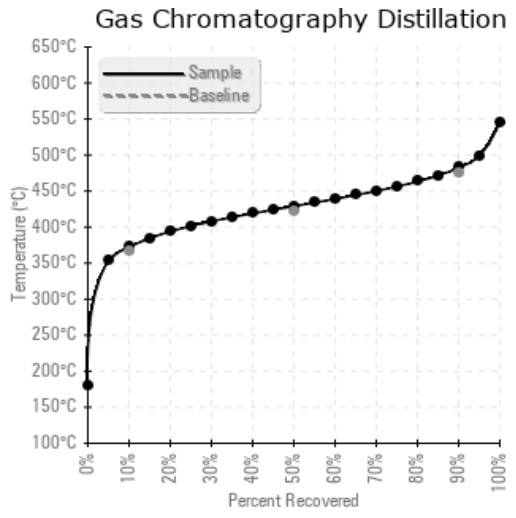
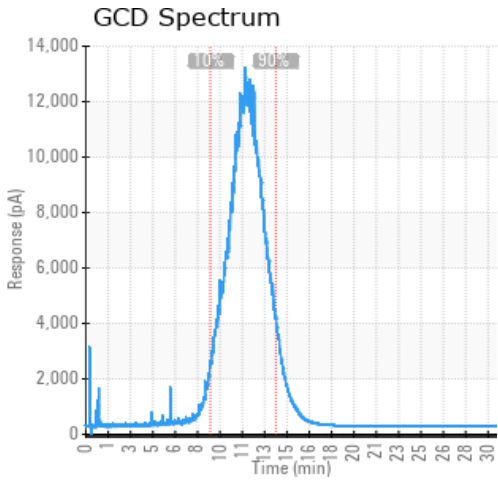
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/04/23	03/13/23	20.0m		414 / 212	37.7	30.9	0.08	0.049	702 / 372	804 / 429	900 / 482	2.33
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
10/08/22	10/17/22	0.0m	PUMP	394 / 201	137.0	30.6	0.11	0.333	706 / 374	805 / 429	899 / 482	1.86
08/01/22	08/18/22	1.3m	PUMP DISCHARGE	410 / 210	474.1	31.1	0.09	0.116	705 / 374	805 / 429	898 / 481	1.83
05/18/22	05/26/22	1.0m		414 / 212	173.5	30.6	0.13	0.080	702 / 372	804 / 429	899 / 481	2.32
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
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
10/08/22	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	44	0
08/01/22	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	41	0
05/18/22	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	33	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	
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.
10/08/22	Sample results indicate that the fluid is in good condition and is suitable for continued service. Pentane insolubles are up slightly from the last sample. Resample in 12 months.
08/01/22	Fluid is in good condition, water is up slightly and should be boiled off. vent steam to ensure there are no unwanted boil overs. Fluid iPH is 6.26 with acid number being very low at 0.09. Fluid is suitable for continued service. Resample in 12 months. Water contamination levels are marginally high. Water contamination levels are marginally high.. ppm Water contamination levels are marginally high.
05/18/22	Sample results indicate that the fluid is in suitable condition for continued service. Resample in 12 months.

Petro-Canada makes no representation or warranty of any kind, either express or implied, as to the accuracy or completeness of the analysis and assumes no responsibility and shall have no liability whatsoever with respect to such analysis, or a party's use of it. Petro-Canada is a division of HollyFrontier Corporation.