

[ATHABASCA OIL CORP / 05-27-078-10W4M] L3 (PAD C) LIESMER

Customer: PTRHTF20133
 ATHABASCA OIL CORP.
 LEISMER DEMONSTRATION PLANT
 LSD2-79-10-W4M
 NEAR CONKLIN, AB Canada
 Attn: George Ball
 Tel: (587)233-1312
 E-Mail: gball@atha.com

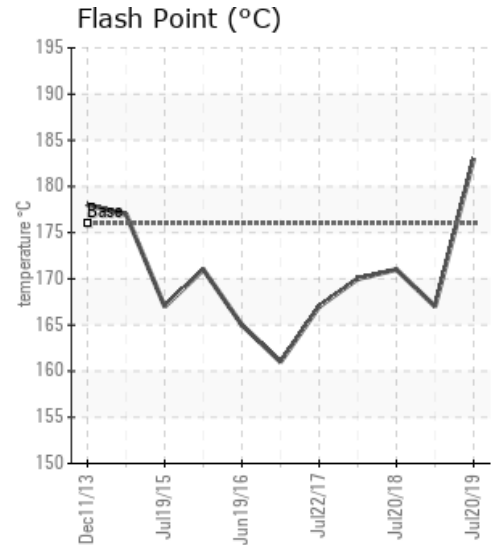
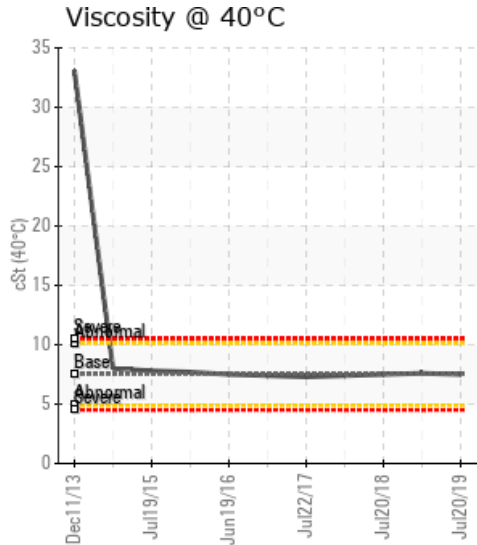
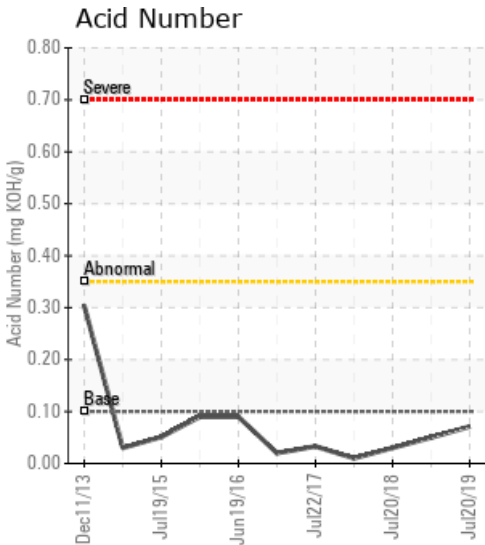
System Information
 System Volume: 8000 ltr
 Bulk Operating Temp: 212F / 100C
 Heating Source:
 Blanket:
 Fluid: PETRO CANADA CALFLO LT
 Make: TORNADO TECHNOLOGIES

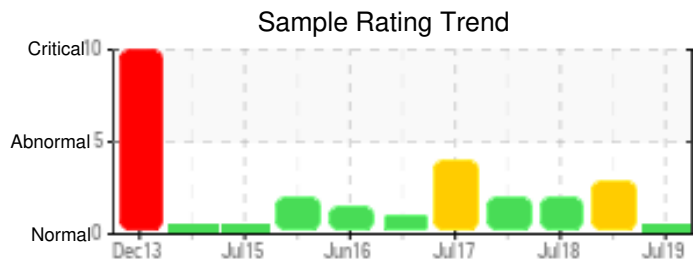
Sample Information
 Lab No: 02301901
 Analyst: Benjamin Latorre
 Sample Date: 07/20/19
 Received Date: 08/09/19
 Completed: 08/19/19
 Benjamin Latorre
 benjamin.latorre@HFSinclair.com

Recommendation: Test results are normal. No immediate action required. Resample at the next interval.

Comments:

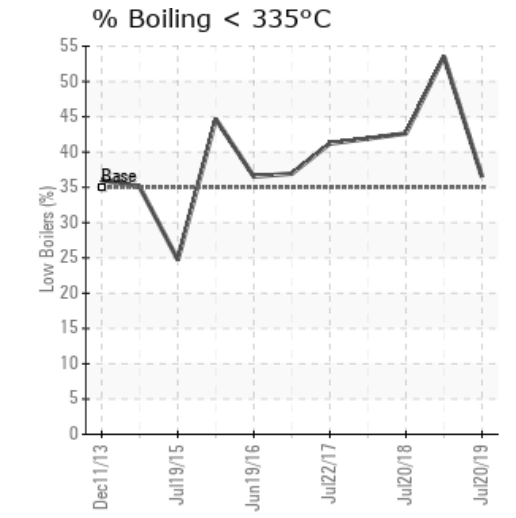
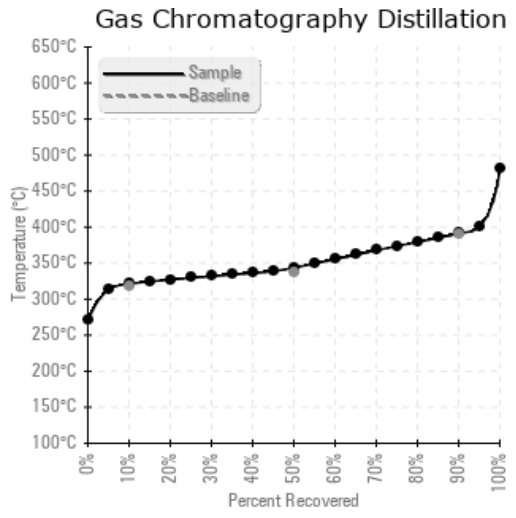
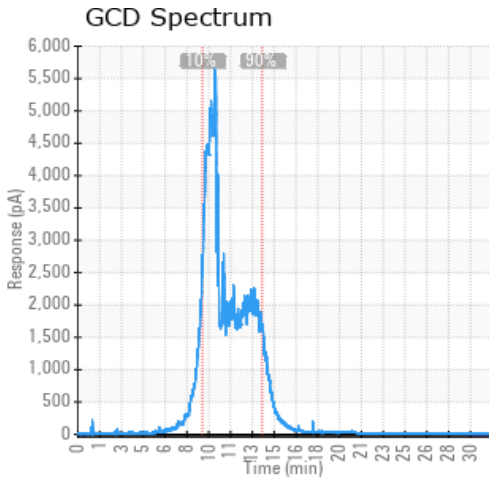
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/20/19	08/09/19	0.0y		361 / 183	7.5	7.5	0.071	0.082	610 / 321	650 / 344	736 / 391	36.50
01/20/19	02/08/19	0.0y		333 / 167	14.6	7.6	0.050	0.011	591 / 311	626 / 330	716 / 380	53.55
07/20/18	08/10/18	3.0y	+/- 100M FROM HEATER	340 / 171	5.4	7.5	0.03	0.007	610 / 321	642 / 339	731 / 389	42.64
02/01/18	02/21/18	2.5y		338 / 170	1.9	7.4	0.01	0.008	609 / 321	642 / 339	732 / 389	41.92
07/22/17	08/08/17	0.0y		333 / 167	36.3	7.3	0.033	0.017	608 / 320	655 / 346	772 / 411	41.20
Baseline Data				349 / 176		7.52	0.1		604 / 318	640 / 338	734 / 390	35.0





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
07/20/19	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	0
01/20/19	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	0
07/20/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	0
02/01/18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	0
07/22/17	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	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	
01/20/19	Results normal. Resample at next interval. Wear levels low/normal. Contaminant levels low/normal. (GCD) % < 335°C is marginally high. (GCD) 90% Distillation Point is marginally low.
07/20/18	The fluid is in good condition and suitable for further use. The low boiler vapor content is slightly high but has remained approximately the same as in the previous sample. Continuation of venting on a regular basis is recommended. Please re-sample in 6 months. (GCD) % < 335°C is marginally high.
02/01/18	The fluid is in good condition and suitable for further use. The low boiler vapor content in the fluid is slightly high (GCD% <335 = 41.92%). For the fresh fluid this is 35%. Please start venting low boiler vapor to atmosphere. Re-sample in 6 months. (GCD) % < 335°C is marginally high.
07/22/17	The fluid is in a good condition and suitable for further use. It does show some degradation indicated by a higher percentage of boil-off <335C and an elevated 90% GCD temperature. It is recommended to vent-off low boiler vapors to atmosphere at a regular interval. (suggestion is once a month) Please re-sample in 12 months. (GCD) 90% Distillation Point is severely high. (GCD) % < 335°C is marginally high.

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