

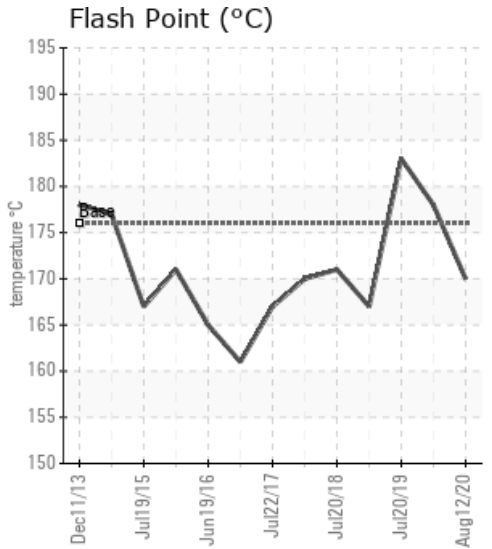
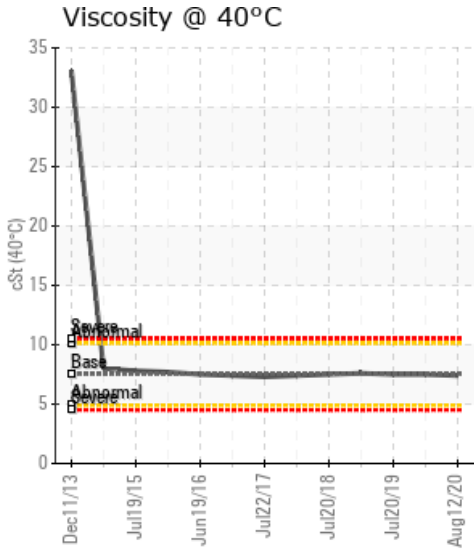
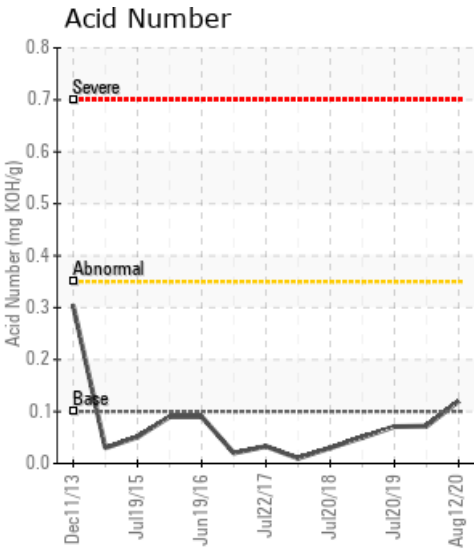
[ATHABASCA OIL CORP / 05-27-078-10W4M] L3 (PAD C) LIESMER

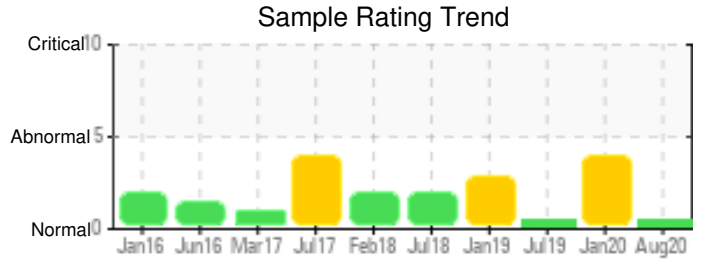
Customer: PTRHTF20133	System Information	Sample Information
ATHABASCA OIL CORP. LEISMER DEMONSTRATION PLANT LSD2-79-10-W4M NEAR CONKLIN, AB Canada Attn: George Ball Tel: (587)233-1312 E-Mail: gball@atha.com	System Volume: 8000 ltr Bulk Operating Temp: 212F / 100C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO LT Make: TORNADO TECHNOLOGIES	Lab No: 02373239 Analyst: Benjamin Latorre Sample Date: 08/12/20 Received Date: 08/31/20 Completed: 09/16/20 Benjamin Latorre benjamin.latorre@petrocanadalsp.com

Recommendation: Results Normal. No action needed at this time. Resample at next scheduled date.

Comments:

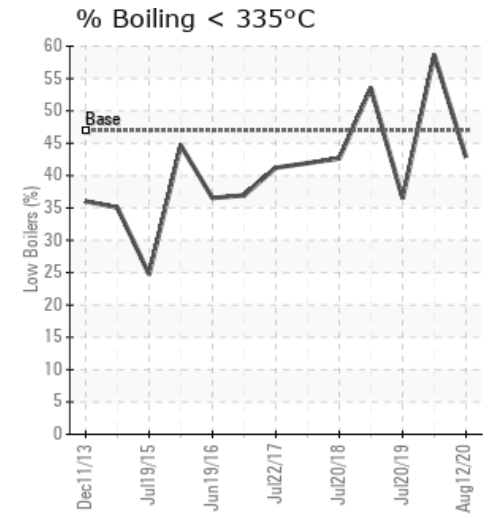
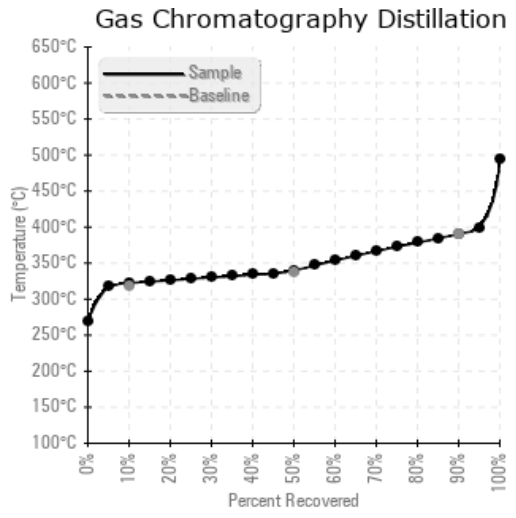
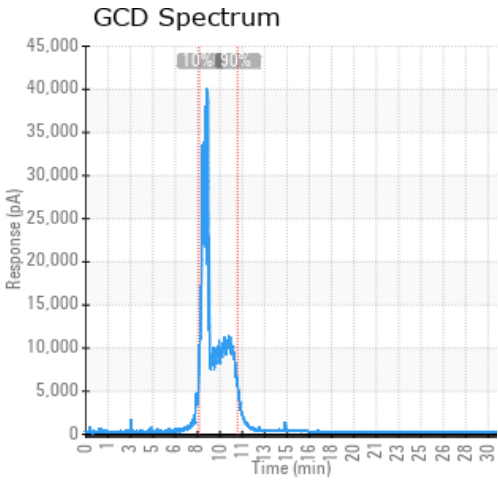
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
08/12/20	08/31/20	0y	OT0285	338 / 170	6.3	7.4	0.12	0.043	612 / 322	643 / 340	735 / 391	42.84
01/16/20	02/10/20	0y	HORM-12C-0001-001	352 / 178	6.6	7.5	0.072	0.092	582 / 306	616 / 324	700 / 371	58.64
07/20/19	08/09/19	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	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	3y	+/- 100M FROM HEATER	340 / 171	5.4	7.5	0.03	0.007	610 / 321	642 / 339	731 / 389	42.64
Baseline Data				349 / 176		7.52	0.1		604 / 318	640 / 338	734 / 390	47.0





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
08/12/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	87	0
01/16/20	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83	0
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
Baseline Data			0	0						0			0	0				0	0				270	

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



Historical Comments	
01/16/20	Consider venting of expansion tank to reduce low boilers. Resample after venting of expansion tank. Wear metals low. Contaminants, water, insolubles are low. (GCD) % < 335°C is severely high. (GCD) 90% Distillation Point is abnormally low. - 67% increase in (GCD) % <335 deg. C. (from new fluid 35% to 58.4%), & - 5% decrease in 90% Distillation Point, (from new fluid 390 C. to 371.1 C.), indicate presence of low boilers.
07/20/19	Test results are normal. No immediate action required. Resample at the next interval.
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.

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