

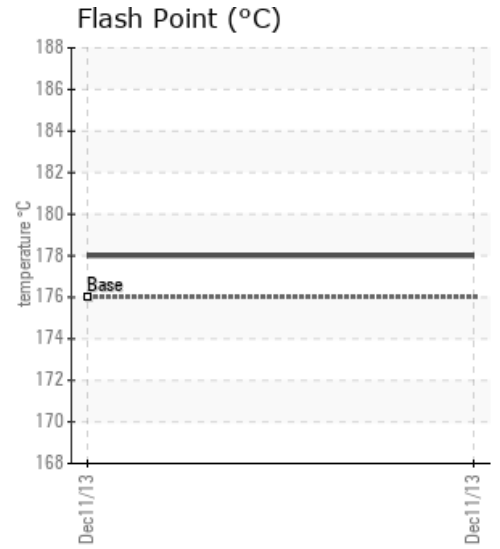
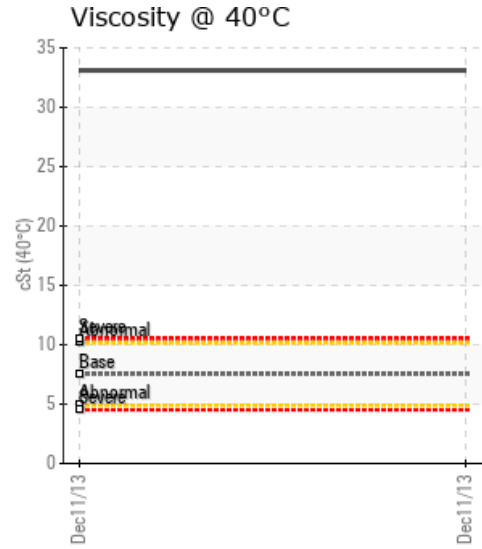
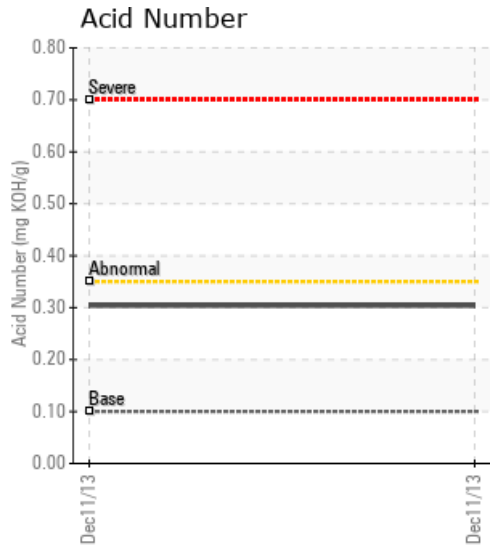
[ATHABASCA OIL CORP / 05-27-078-10W4M] L3 (PAD C) LIESMER

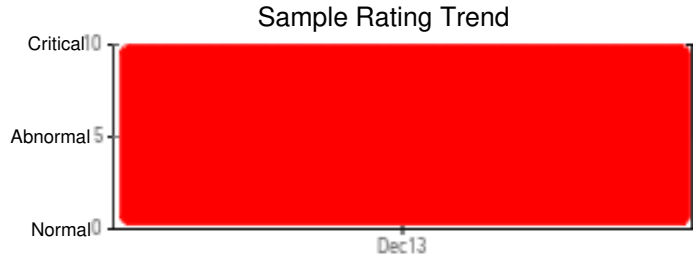
Customer: PTRHTF20133	System Information	Sample Information
ATHABASCA OIL CORP. LEISMER DEMONSTRATION PLANT LSD2-79-10-W4M NEAR CONKLIN, AB Canada Attn: George Ball Tel: (587)233-1312 E-Mail: gball@atha.com	System Volume: 8000 ltr Bulk Operating Temp: 212F / 100C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO LT Make: TORNADO TECHNOLOGIES	Lab No: 01889717 Analyst: Peter Harteveld Sample Date: 12/11/13 Received Date: 01/15/14 Completed: 01/22/14 Peter Harteveld peter.harteveld@HFSinclair.com

Recommendation: The viscosity of the fluid is extremely high. This may be caused by the 0.25% of water present. If sample was taken from a low point in the system and the sample port was not flushed out properly, the water content and high viscosity may not be representative for the fluid in the system. In that case it is recommended to re-sample. If the water content is representative for the fluid in use, there should be an audible indication of this in the form of a knocking sound within the system and/or a gargling sound from the expansion tank. TAN can be skewed because of the high water content. When water is present it has to be vented off via the expansion tank. The reported temperature of 120 degrees C in the expansion tank is too high and causes the fluid to oxidize in contact with air. It is recommended to lower the temperature and apply N2 blanket gas.

Comments: Water contamination levels are severely high. ppm Water contamination levels are severely high. Visc @ 40°C is severely 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	%
12/11/13	01/15/14	2.0y	DISCHARGE PIPING	352 / 178	2555.6	83.1	0.304	0.289	611 / 321	653 / 345	743 / 395	36.01
Baseline Data				349 / 176		7.52	0.1		604 / 318		734 / 390	58

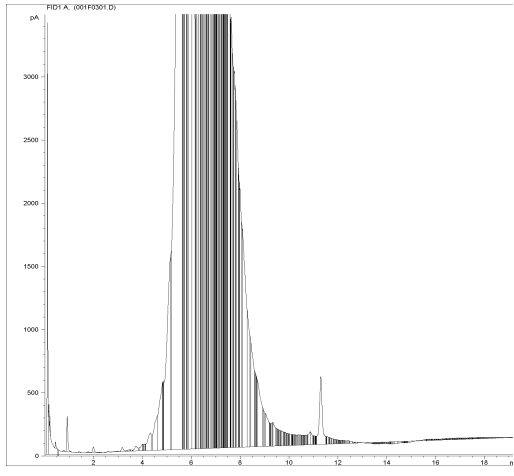




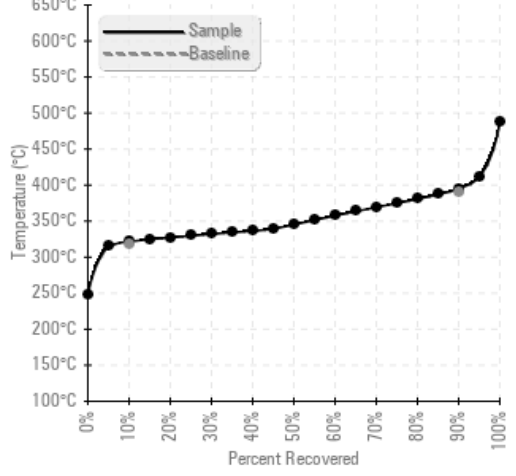
Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
12/11/13	149	0	0	0	0	0	0	0	0	0	8	7	0	0	0	0	2	0	2	0	1	0	230	0
Baseline Data			0	0						0		0	0					0					270	

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

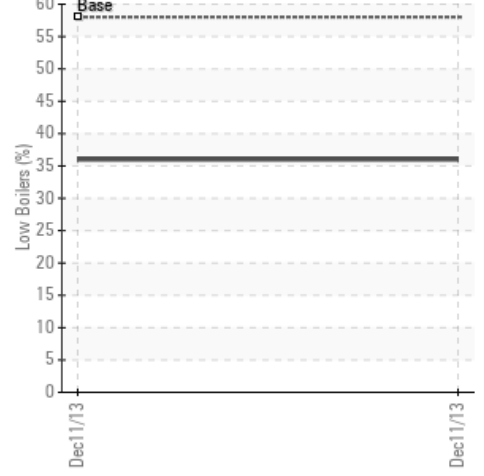
GCD Spectrum



Gas Chromatography Distillation



% Boiling < 335°C



Historical Comments

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