

## [ATHABASCA OIL CORP / 08-28-078-10W4M] L4 (PAD D) 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

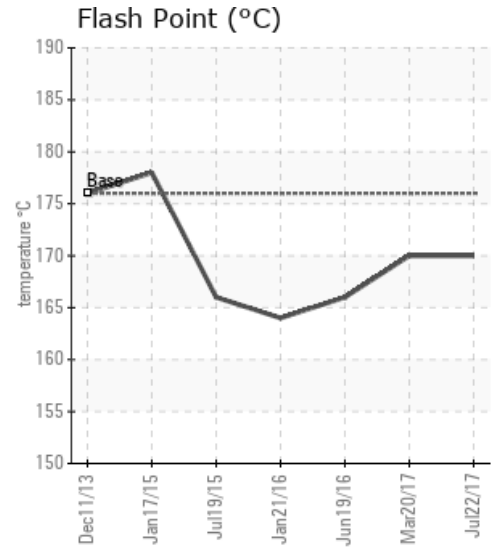
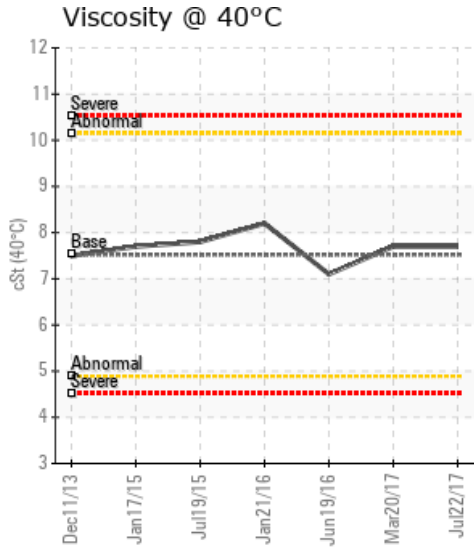
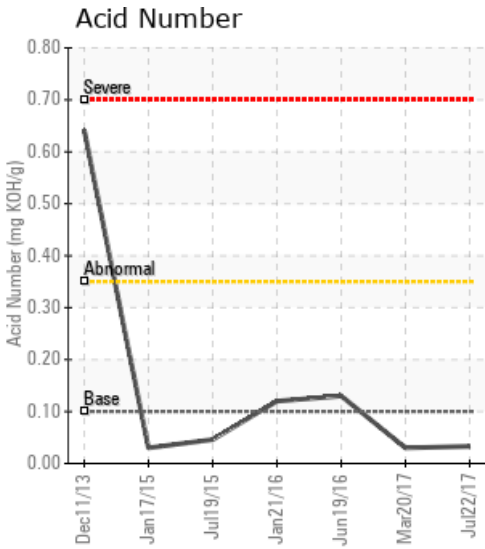
**System Information**  
 System Volume: 8000 ltr  
 Bulk Operating Temp: 212F / 100C  
 Heating Source:  
 Blanket:  
 Fluid: PETRO CANADA CALFLO LT  
 Make: TORNADO TECHNOLOGIES

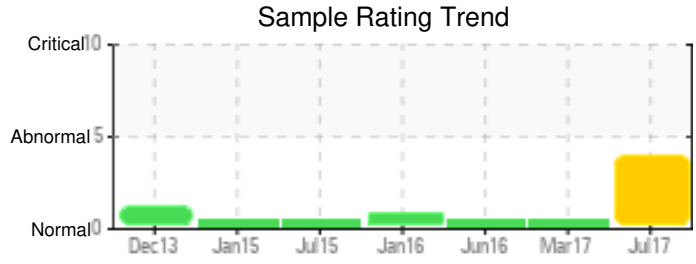
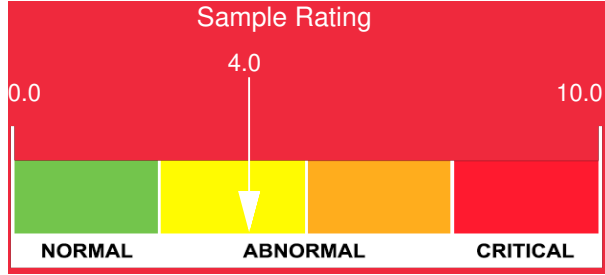
**Sample Information**  
 Lab No: 02162067  
 Analyst: Peter Hartevelde  
 Sample Date: 07/22/17  
 Received Date: 08/08/17  
 Completed: 08/16/17  
 Peter Hartevelde  
 peter.hartevelde@HFSinclair.com

Recommendation: The fluid is in a good condition and suitable for further use. The analysis does show indications of degradation. The % boil-off <335C is elevated and the 90% GCD temperature is high. It is recommended to vent off low boiler vapors to atmosphere on a regular basis. (once per month) Please re-sample in 12 months and list fluid service life when sending in the sample.

Comments: (GCD) 90% Distillation Point is severely high. (GCD) % < 335°C is marginally 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	%
07/22/17	08/08/17	0.0y		338 / 170	1.3	7.7	0.033	0.010	608 / 320	654 / 346	789 / 421	41.87
03/20/17	04/05/17	24.0y		338 / 170	0.00	7.7	0.03	0.042	611 / 322	645 / 340	737 / 392	38.61
06/19/16	07/05/16	18.0y	FLOW LINE	331 / 166	0.00	7.1	0.13	0.010	612 / 322	646 / 341	739 / 393	35.71
01/21/16	02/11/16	0.0y		327 / 164	5.6	8.2	0.12	0.050	614 / 324	657 / 347	753 / 400	31.56
07/19/15	07/31/15	10.0y		331 / 166	0.3	7.8	0.046	0.030	621 / 327	664 / 351	749 / 398	25.46
<b>Baseline Data</b>				349 / 176		7.52	0.1		604 / 318	640 / 338	734 / 390	35.0

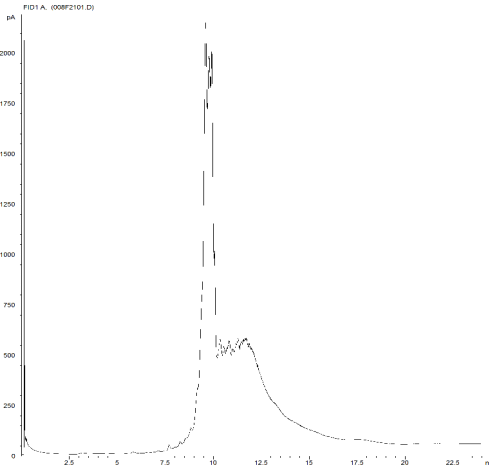




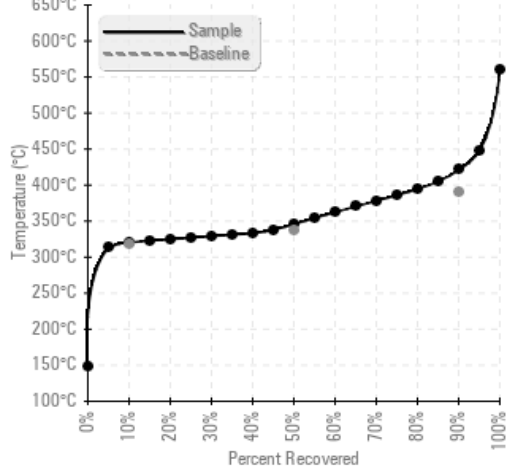
Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc	
07/22/17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83	0
03/20/17	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	0
06/19/16	9	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	104	0
01/21/16	11	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	124	0
07/19/15	14	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	155	0
<b>Baseline Data</b>			0	0						0			0	0					0					270	

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

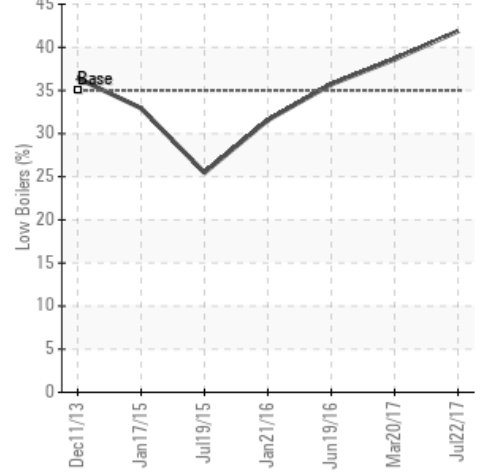
GCD Spectrum



Gas Chromatography Distillation



% Boiling < 335°C



Historical Comments	
03/20/17	The fluid is in good condition and suitable for further use. Please resample in 12 months.
06/19/16	The fluid is in good condition and suitable for further use. Please re-sample in 12 months.
01/21/16	The distillation curve of the fluid shows normal oxidation. The fluid is suitable for further use. Please re-sample in 12 months. Indicate fluid service life at next sample. (GCD) 90% Distillation Point is marginally high.
07/19/15	The fluid is in good condition and suitable for further use. Please re-sample in 6 months.

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