

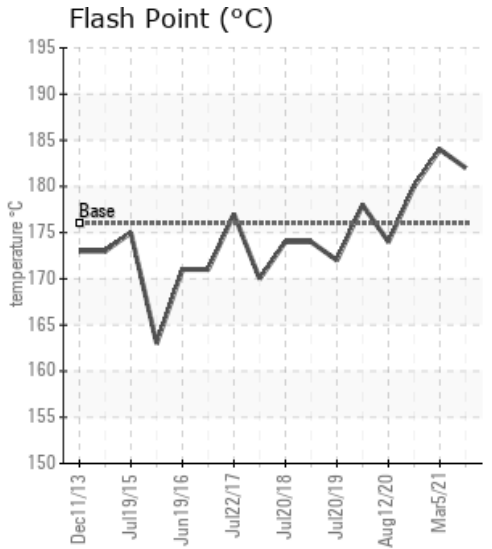
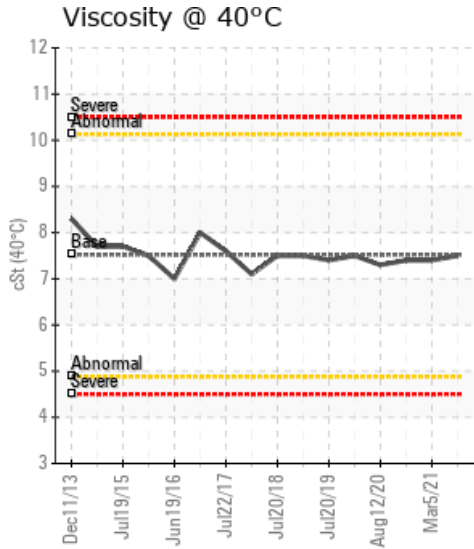
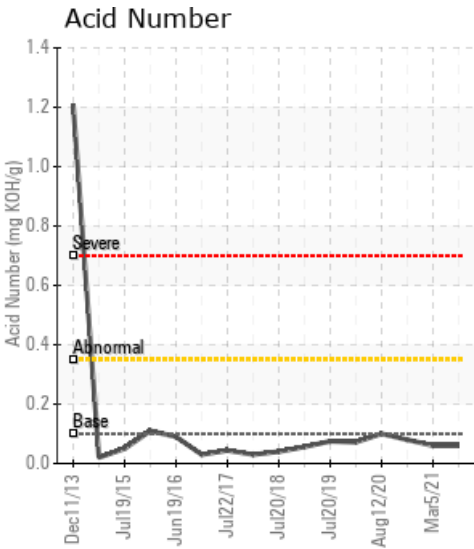
[ATHABASCA OIL CORP / 16-21-078-10W4M] L1 (PAD A) LIESMER

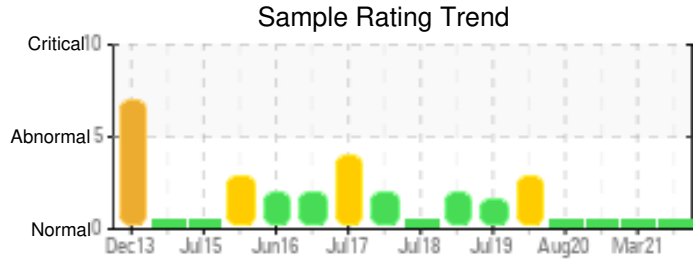
Customer: PTRHTF20133	System Information	Sample Information
ATHABASCA OIL CORP. LEISMER DEMONSTRATION PLANT LSD2-79-10-W4M NEAR CONKLIN, AB Canada Attn: George Ball Tel: (587)233-1312 E-Mail: gball@atha.com	System Volume: 8000 ltr Bulk Operating Temp: 212F / 100C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO LT Make: TORNADO TECHNOLOGIES	Lab No: 02437748 Analyst: Terry Veenstra Sample Date: 07/29/21 Received Date: 08/10/21 Completed: 08/16/21 Terry Veenstra terry.veenstra@hollyfrontier.com

Recommendation: Fluid is in good condition and suitable for continued use. Resample in 6 months.

Comments:

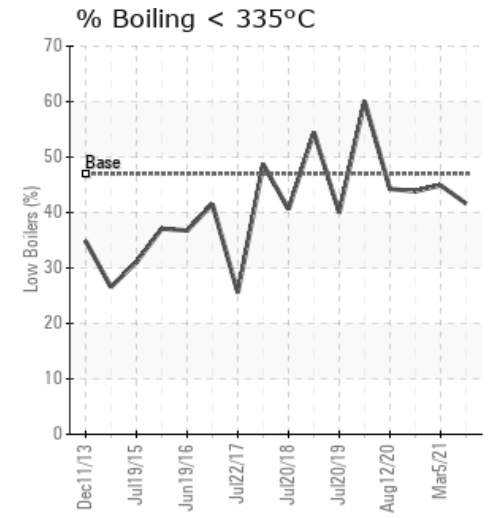
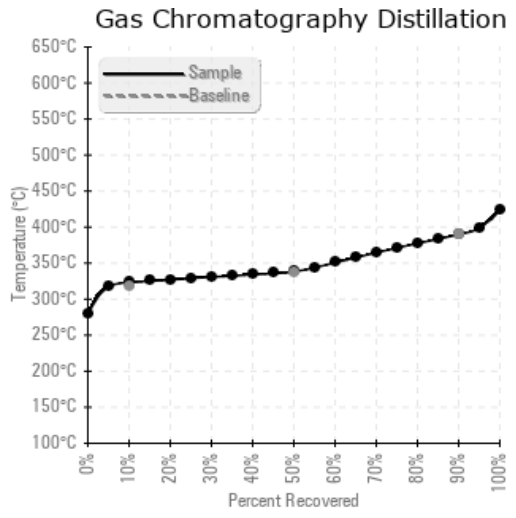
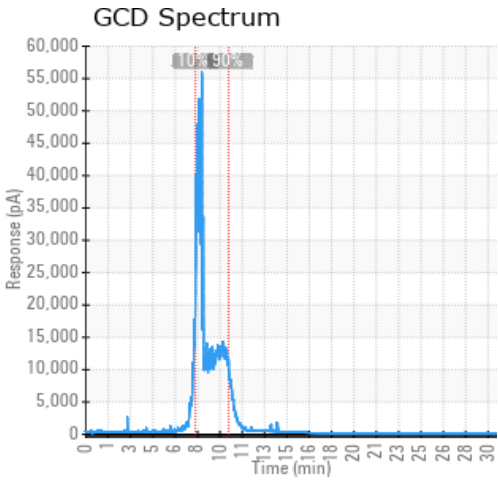
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/29/21	08/10/21	0.0y	pit 0285	360 / 182	6.1	7.5	0.06	0.032	613 / 323	641 / 338	734 / 390	41.64
03/05/21	03/16/21	0.0y		363 / 184	0.00	7.4	0.06	0.055	611 / 322	641 / 338	746 / 397	44.90
02/03/21	02/24/21	0.0y	Bott. of tracer tree	356 / 180	28.9	7.4	0.08	0.120	612 / 322	640 / 338	737 / 392	43.83
08/12/20	08/31/20	0.0y	PIT0285	345 / 174	50.5	7.3	0.10	0.048	612 / 322	640 / 338	737 / 392	44.26
01/16/20	02/10/20	0.0y	HORM-12A-0008-001	352 / 178	4.3	7.5	0.072	0.067	582 / 306	613 / 323	702 / 372	60.06
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
07/29/21	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	174	0
03/05/21	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	159	0
02/03/21	3	0	0	0	0	0	0	0	0	0	3	0	4	0	0	0	0	0	0	0	0	0	161	0
08/12/20	6	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	166	0
01/16/20	5	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	169	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	
03/05/21	GCD tests look good and within specifications although there is quite a spike between 8.5 and 9.5 minutes indicating the presence of light ends in sample likely from thermal cracking, however this appears to be improving from sample to sample. Flash point is at 184°C which is above new oil specification of 176°C. Pentane Insoluble is 0.055 which is low. Fluid appears to be in good condition.
02/03/21	Fluid is in good condition and good for continued use. Resample in 6 months
08/12/20	Results Normal. No action needed at this time. Resample at next scheduled date.
01/16/20	Consider venting of expansion tank to reduce low boilers. Resample after venting of expansion tank. Wear metals are low. Water contamination is low. (GCD) 90% Distillation Point is abnormally low. (GCD) % < 335°C is marginally high.

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