

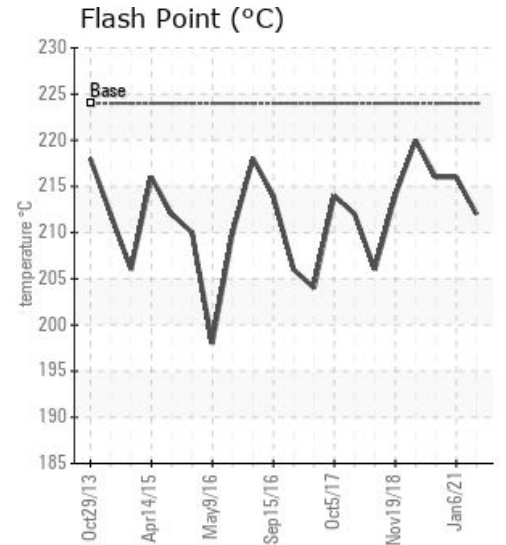
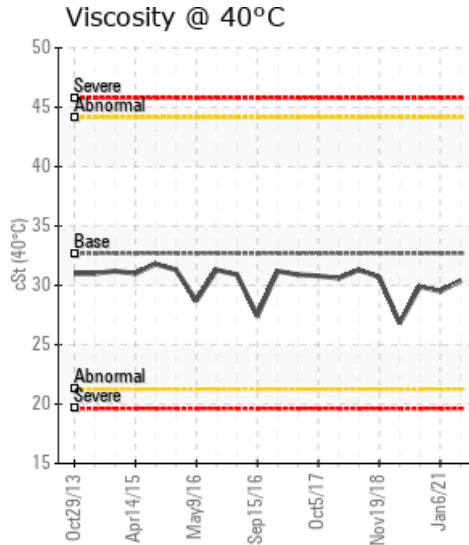
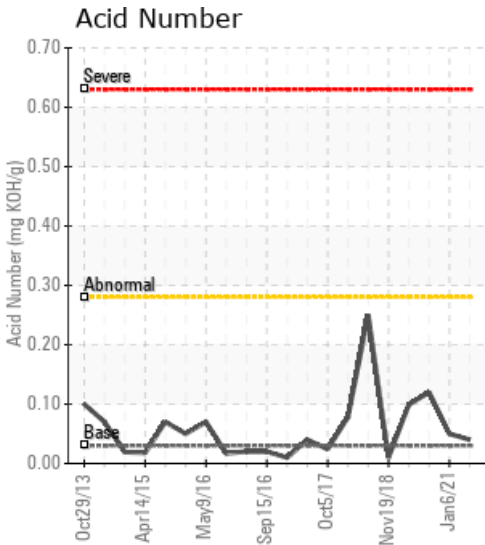
## [CENOVUS / LSD 1-8-70-11W6M] WHRU HOT OIL

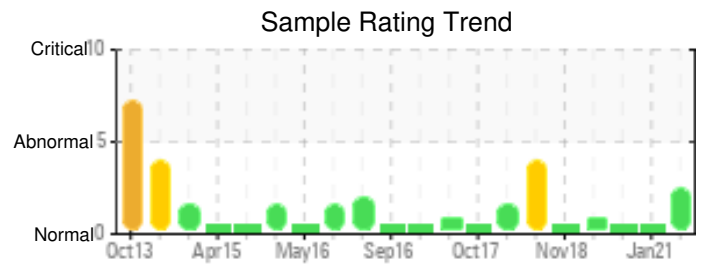
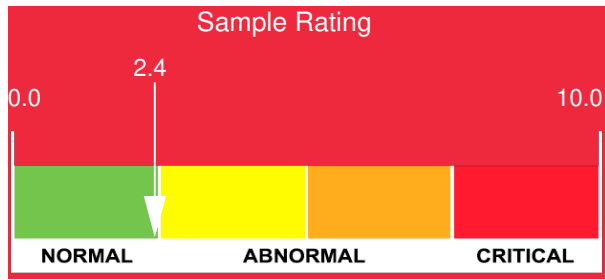
Customer: PTRHTF20131	System Information	Sample Information
CENOVUS 9701 - 116ST 1-8-70-11W6 ELMWORTH, AB T8W 6H6 Canada Attn: Bruce Hawryluk Tel: E-Mail: bruce.hawryluk@cenovus.com	System Volume: 75000 ltr Bulk Operating Temp: 424F / 218C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: OPTIMIZED PROCESS	Lab No: 02465033 Analyst: Clinton Buhler Sample Date: 12/15/21 Received Date: 01/06/22 Completed: 01/26/22 Clinton Buhler Clinton.Buhler@hollyfrontier.com

Recommendation: Sample results indicate that the fluid is in suitable condition for continued service. Please re-sample in 12 months

Comments: (GCD) 90% Distillation Point is marginally low.

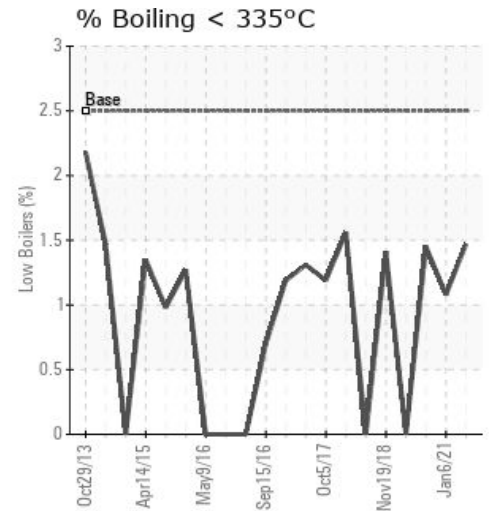
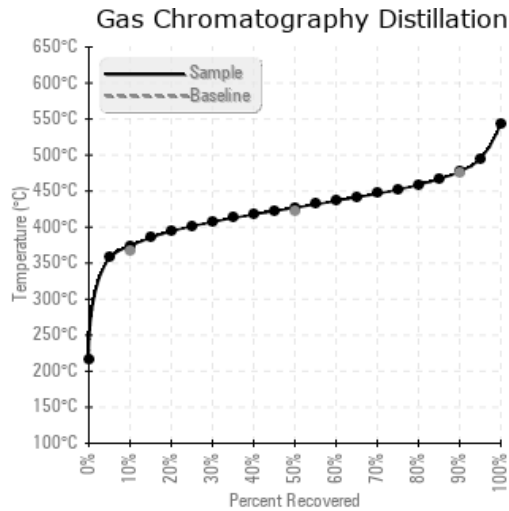
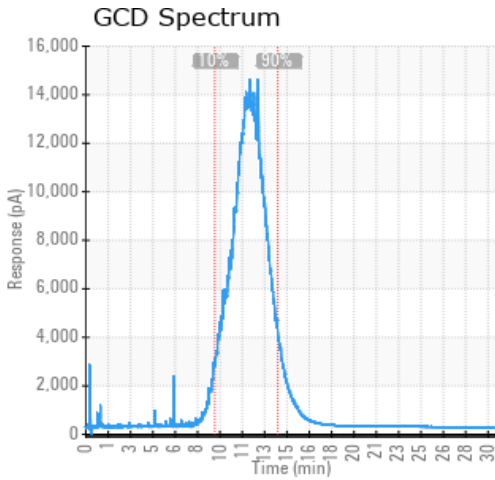
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
12/15/21	01/06/22	0.0y		414 / 212	238.2	30.4	0.04	0.076	704 / 374	800 / 427	891 / 477	1.47
01/06/21	01/25/21	10.0y		421 / 216	112.8	29.5	0.05	0.094	706 / 375	800 / 427	890 / 477	1.08
08/24/20	09/23/20	9.3y	MAIN INLET TO DRUM	421 / 216	245.2	29.9	0.12	0.163	706 / 374	801 / 427	890 / 477	1.45
12/19/19	02/04/20	9.0y	SURGE TANK	428 / 220	243.1	26.8	0.099	0.088	734 / 390	797 / 425	874 / 468	0.00
11/19/18	11/27/18	7.5y		417 / 214	116.4	30.7	0.01	0.025	700 / 371	797 / 425	887 / 475	1.41
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5





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
12/15/21	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	8	0	0	0	9	0
01/06/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	4	0
08/24/20	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	4	0
12/19/19	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	3	0
11/19/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	4	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%]



**Historical Comments**

01/06/21	Fluid analysis results indicate that the fluid is in very good condition and suitable for continued service. Please re-sample in one year.
08/24/20	Sample results indicate that the heat transfer fluid is suitable for continued service. Please re-sample in 12 months and please ensure sample valve and piping is thoroughly purged prior to taking the sample
12/19/19	Sample results indicate that the fluid is suitable for continued service. (GCD) 10% Distillation Point is marginally high but within acceptable range. Please re-sample within 12 months.
11/19/18	Sample results indicate that the fluid is suitable for continued service. please re-sample in 12 months

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