

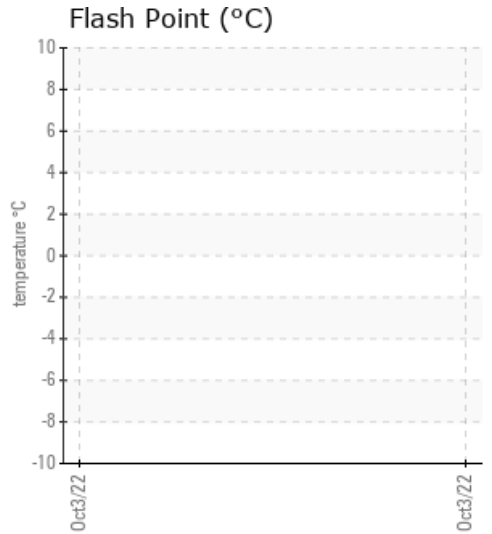
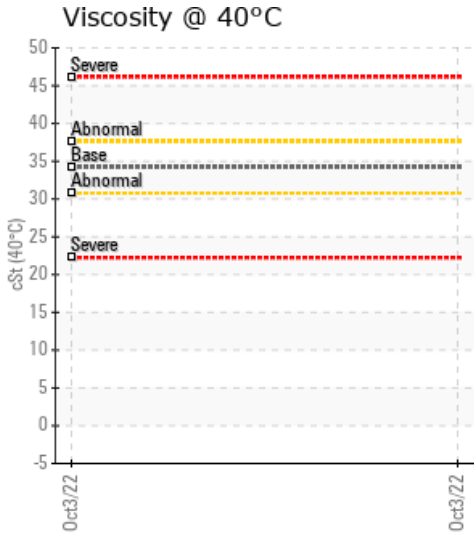
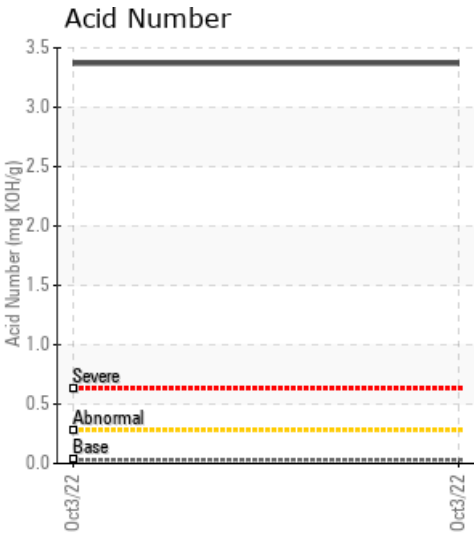
[16-11-88-13W6M] CLEARHILLS

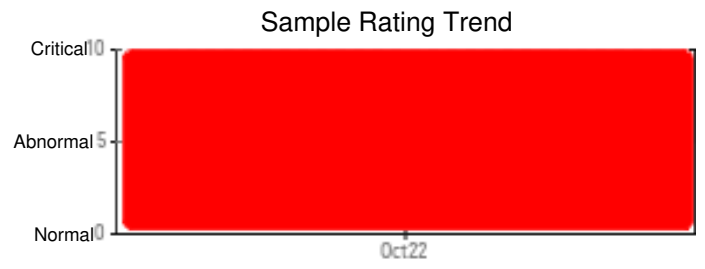
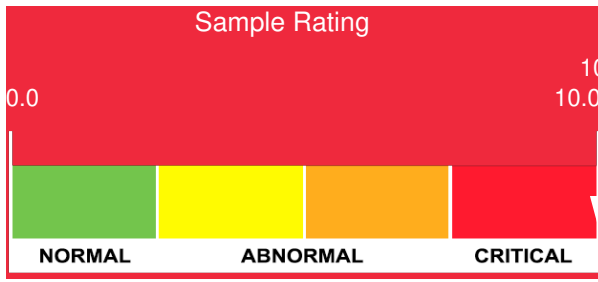
Customer: PTRHTF20268	System Information	Sample Information
CANADIAN NATURAL RESOURCES (CNRL) CLEARHILL PLANT 16-11-88-13W6M WORSLEY, AB T0H 3W0 Canada Attn: Robert Irwin Tel: (778)220-1184	System Volume: 3700 ltr Bulk Operating Temp: 356F / 180C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make:	Lab No: 02515093 Analyst: Clinton Buhler Sample Date: 10/03/22 Received Date: 10/06/22 Completed: 10/20/22 Clinton Buhler Clinton.Buhler@HFSinclair.com

Recommendation: *** Sample has the consistency of sludge so viscosity cannot be tested. The sample has too much water for flashpoint testing. ***Sample results indicate extremely contaminated fluid: Acid Number is at 3.37, indicating advanced fluid oxidation and is >3x the condemning limit. Solids content and sludge indicate system fouling. There are also elements (Ca, Na, K, Si, etc) that are contaminants. If this is representative of system condition, a system cleaning, flush and re-fill with fresh fluid is required. Please contact Petro-Canada Lubricants Technical Services to discuss further

Comments: Iron ppm levels are severe. Water contamination levels are 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	%
10/03/22	10/06/22	0.0m			34609.0		3.37	1.59				
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





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
10/03/22	689	0	0	14	3	0	0	0	0	0	37	73	15	6	0	0	16	0	38	15	223	2	65	98
Baseline Data			0	0						0			0	0					0				0	

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

GCD Spectrum

Historical Comments	

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