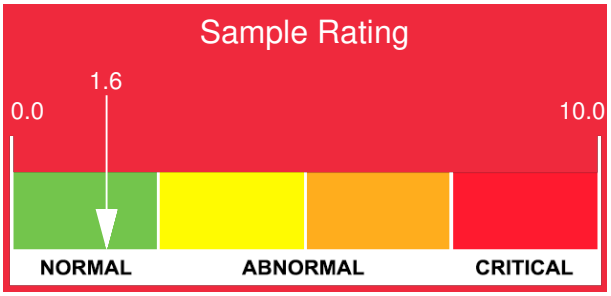
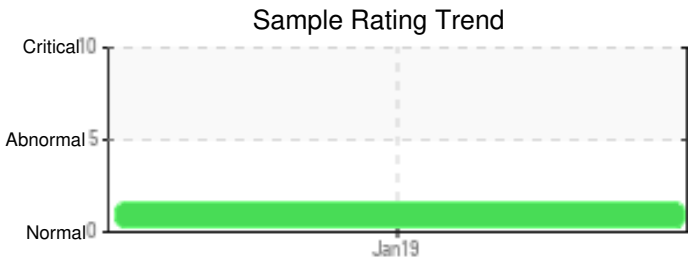




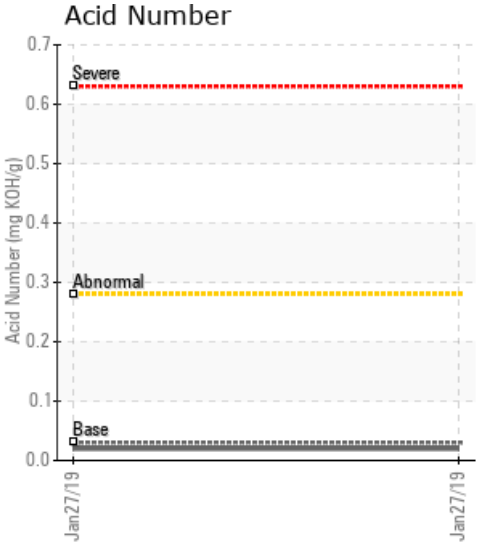
[LSD: B-88-J-94-G-1] J2 HOT OIL SYSTEM

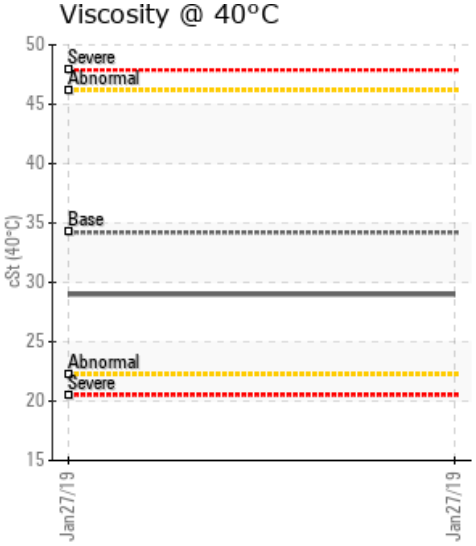
Customer: PTRHTF20209	System Information	Sample Information
NORTH RIVER MIDSTREAM CHARLIE LAKE OFFICE MILE 53 ALASKA HWY FORT ST. JOHN, BC V1N 4H7 Canada Attn: Lindsey Kessler Tel: (403)952-9999 E-Mail:	System Volume: 12000 ltr Bulk Operating Temp: 401F / 205C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: HEATECH	Lab No: 02265951 Analyst: Clinton Buhler Sample Date: 01/27/19 Received Date: 02/04/19 Completed: 03/04/19

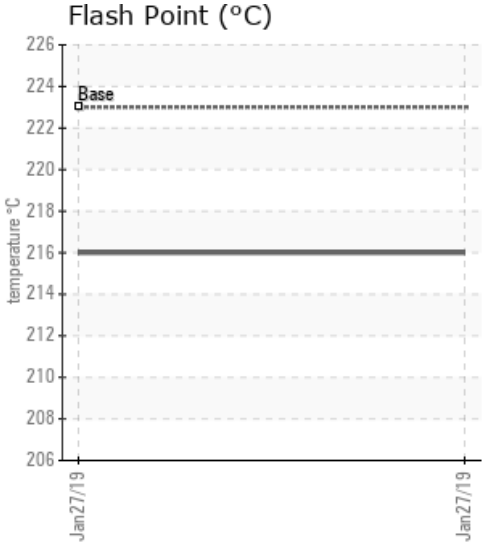
Recommendation: Sample results indicate that the heat transfer fluid is suitable for continued service. Slightly lower distillation values, 4.45% boil-off and reduced fluid viscosity can be an indication of either thermal degradation or high blanket gas pressure. It is optimal to vent low boiling vapors from expansion tank. Please note that blanket gas needs to be turned off during venting to allow vapors to escape. Investigate if this can be done or if pumps require the blanket gas for positive suction head. Once venting has been performed, please re-sample in 6 months.

Comments: (GCD) 10% Distillation Point is marginally low. (GCD) 50% Distillation Point is marginally low.

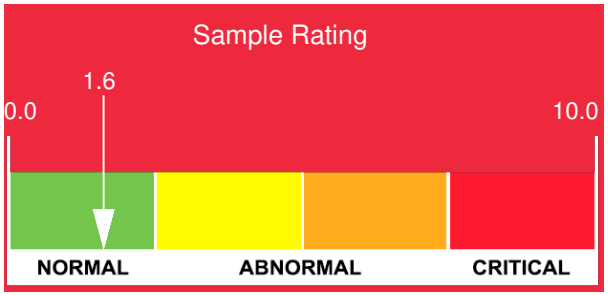
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
01/27/19	02/04/19	22y	PUMP DISCHARG	421 / 216	30.4	29.0	0.020	0.047	652 / 345	755 / 402	887 / 475	4.45
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00

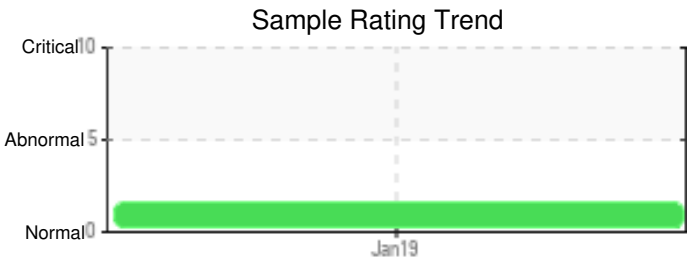






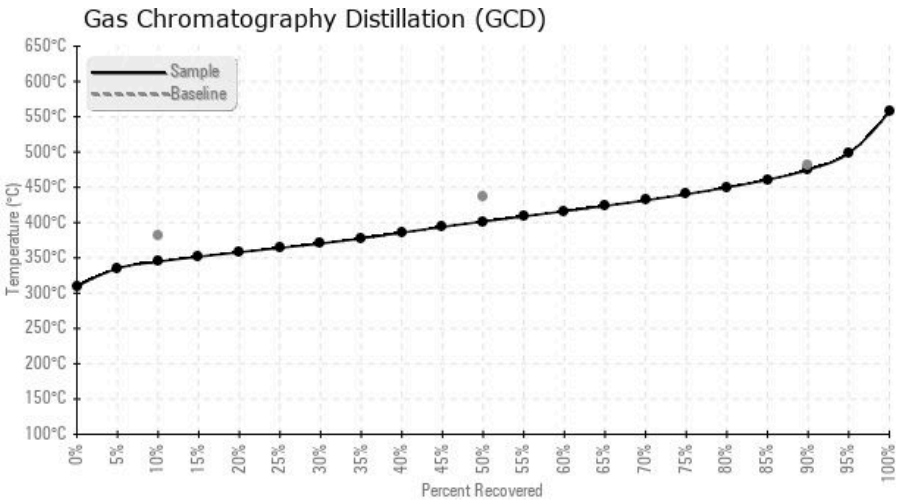
PETRO-CANADA LUBRICANTS

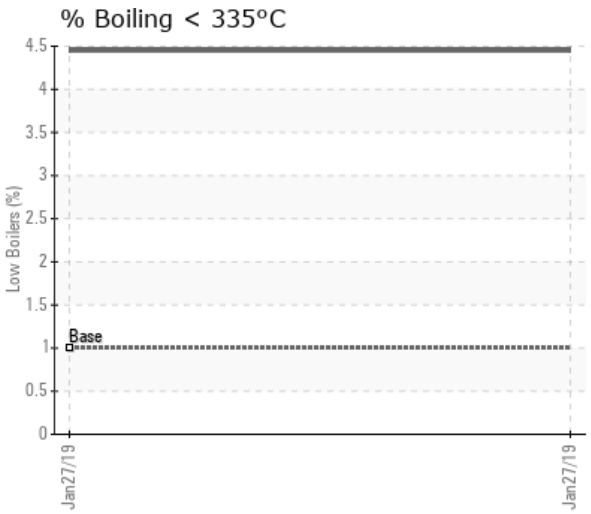




Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
01/27/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseline Data			0	0						0			0	0					0				0	

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





Historical Comments
