

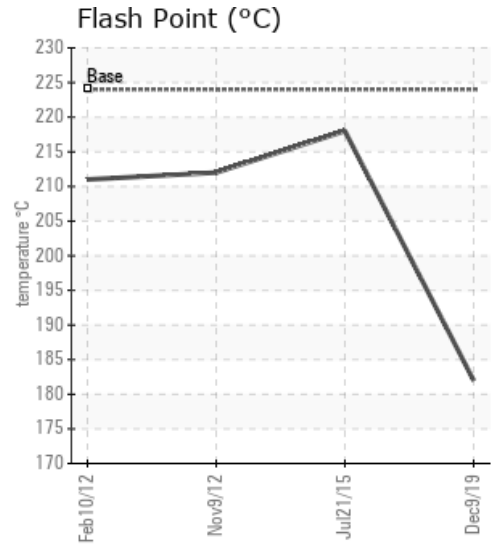
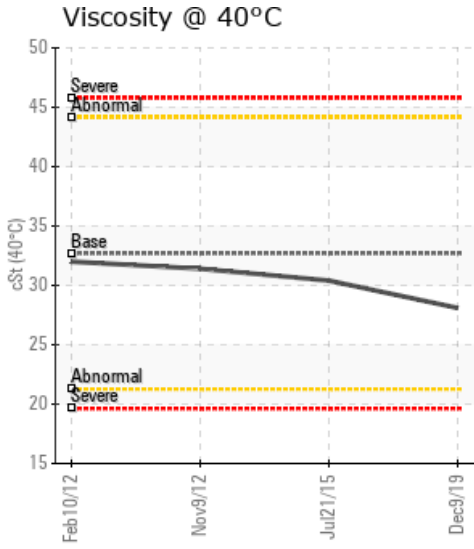
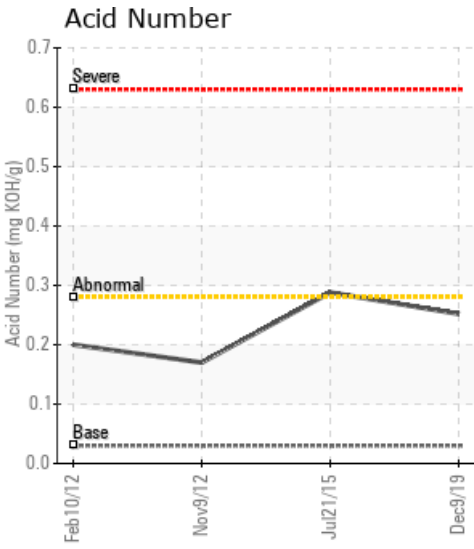
LINE 1 HOT OIL BOILER

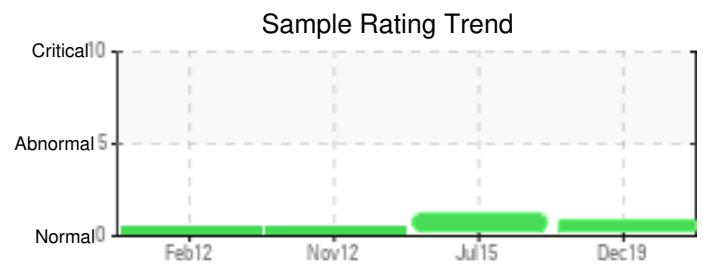
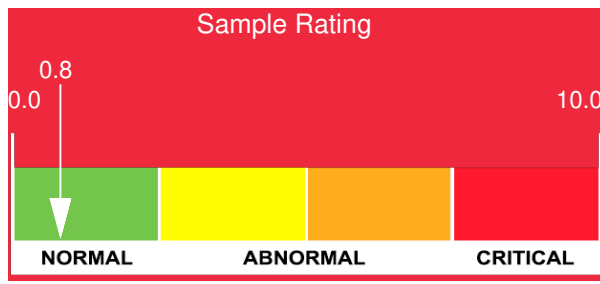
Customer: PTRHTF10057	System Information	Sample Information
PROPEX RINGGOLD PLANT 428 ROLLINS INDUSTRIAL BLVD RINGGOLD, GA 30736 USA Attn: STEWART DOMAINGUE Tel: (423)553-3843 E-Mail: stewart.domaingue@propexglobal.com	System Volume: 100 gal Bulk Operating Temp: 380F / 193C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make:	Lab No: 02327897 Analyst: Jake Finn Sample Date: 12/09/19 Received Date: 12/18/19 Completed: 12/24/19 Jake Finn jake.finn@petrocanadalsp.com

Recommendation: System venting may improve flash point. Oil is suitable for continued use. Please resubmit sample in one year.

Comments: Acid number has improved since last sampling. COC Flash Point is marginally low.

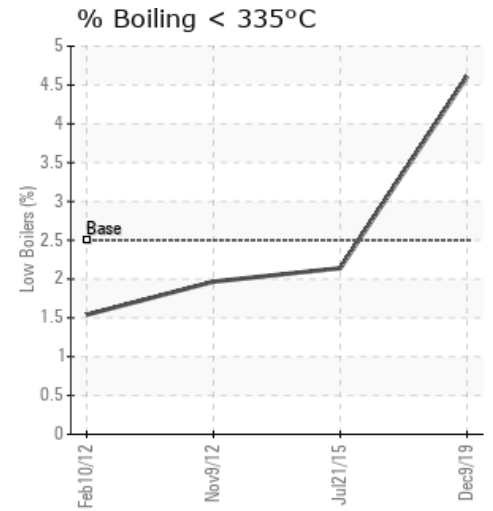
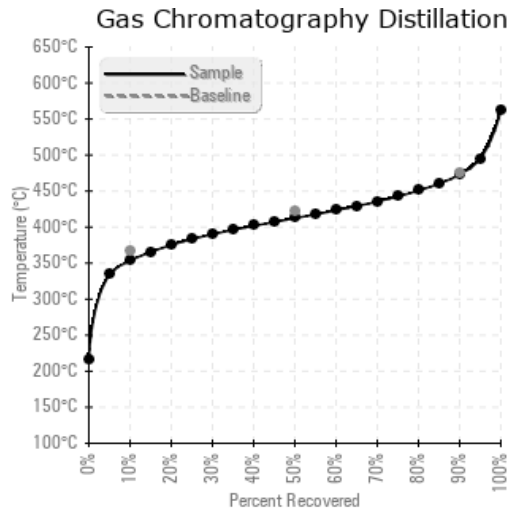
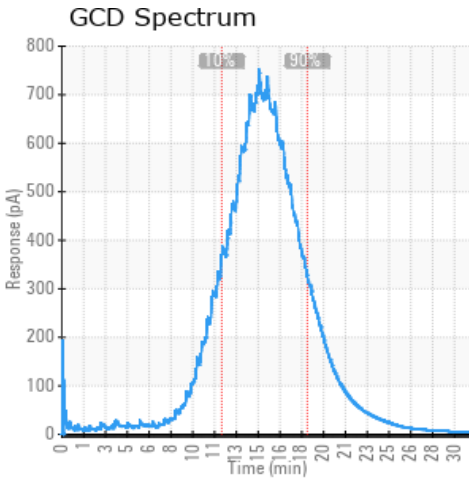
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
12/09/19	12/18/19	0h		360 / 182	20.6	28.1	0.252	0.024	668 / 353	774 / 412	883 / 473	4.61
07/21/15	07/21/15	0h	FILL LINE	424 / 218	8.1	30.4	0.288	0.047	696 / 369	800 / 427	897 / 481	2.14
11/09/12	11/16/12		RETURN LINE	414 / 212	44	31.4	0.17	0.028	697 / 370	792 / 422	888 / 476	1.967
02/10/12	02/17/12		NA	412 / 211	41	32	0.2	0.009	701 / 372	795 / 424	887 / 475	1.54
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
12/09/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0
07/21/15	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0	0	1	2	0	37	2
11/09/12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	0
02/10/12	1	0	0	0	0	0	2	0	0	0	5	0	0	0	0	0	0	0	3	0	0	1	64	0
Baseline Data			0	0						0		0	0						0				270	

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



Historical Comments	
07/21/15	Wear metals are low - contaminant levels are low - additive levels are good - low water - acid number is slightly elevated but satisfactory (monitor) - Good viscosity of oil - Flash point is good - Pentane solids are low - oil is suitable for continued use. Please include the System temperature and the age of the oil in this heat transfer system
11/09/12	The oil condition is virtually unchanged since the Feb sample. It appears to be in good condition and suitable for further service. Re-sample in about 6-9 months to monitor the fluid condition.
02/10/12	The oil is showing moderate signs of oxidation with a TAN number of 0.20. This means the oil is approximately at 60% of its useful life, with a more rapid decline towards the end as oxidation is an exponential reaction. No other properties seem abnormal, flash point is still strong so the Calflo AF is thermally stable. Please re-sample in 6 months to monitor its condition.

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