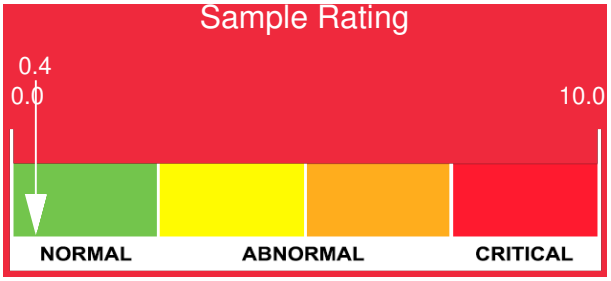
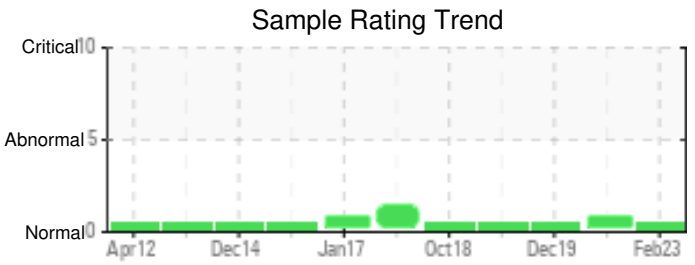




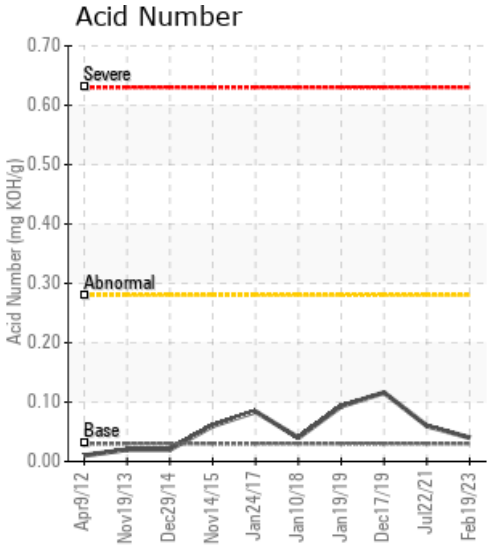
ENNIS HOT OIL SYSTEM

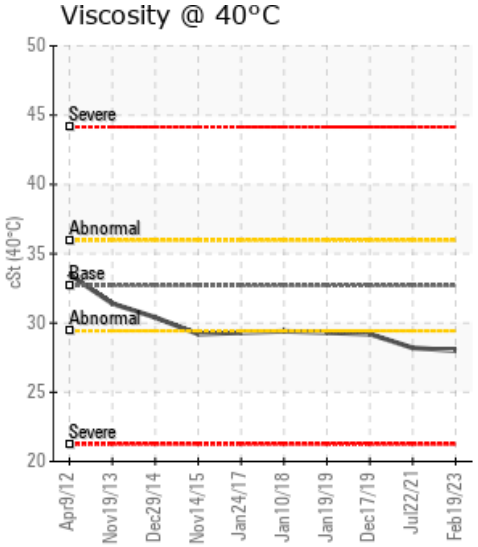
Customer: PTRHTF10112	System Information	Sample Information
CERTAINTEED - SAINT GOBAIN 2901 N KAUFMAN ST ENNIS, TX 75119 USA Attn: David Sundstrom Tel: (214)301-1844 E-Mail: david.sundstrom@saint-gobain.com	System Volume: 2000 gal Bulk Operating Temp: 525F / 274C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: ENNIS	Lab No: 02543069 Analyst: Garrett Bapp Sample Date: 02/19/23 Received Date: 03/03/23 Completed: 03/10/23 Garrett Bapp Garrett.Bapp@HFSinclair.com

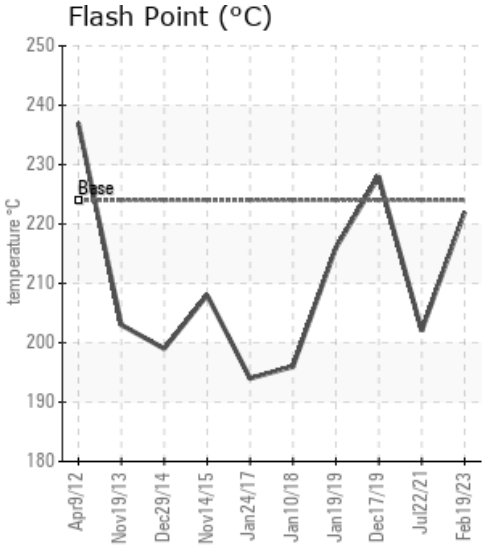
Recommendation: Fluid has come back into specification from previous year analysis. Viscosity remains lower than new fluid reference but COC flash point is on spec, GCD 10% is right where it should be and GCD 90% is within specification. System appears in a healthy state. Continue operation and resample at normal interval.

Comments: No wear is present. No contamination is present. Visc @ 40°C is lower than reference baseline. Not a concerning factor as the fluid has trended with lower than baseline numbers for several years. All other parameters are right on baseline data.

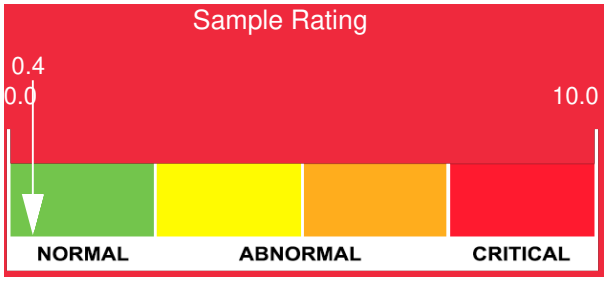
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
02/19/23	03/03/23	12.0y		432 / 222	9.3	28.0	0.04	0.151	686 / 364	797 / 425	903 / 484	4.38
07/22/21	08/13/21	11.0y	MAIN LOOP PUMP	396 / 202	20.4	28.2	0.06	0.035	649 / 343	767 / 408	921 / 494	7.95
12/17/19	12/30/19	9.0y	MAIN PUMP	442 / 228	12.5	29.2	0.116	0.117	661 / 349	769 / 409	870 / 465	5.53
01/19/19	02/04/19	8.0y	MAIN PUMPS	421 / 216	22.1	29.3	0.093	0.015	668 / 354	775 / 413	879 / 470	4.44
10/25/18	11/13/18	0.0y										
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5

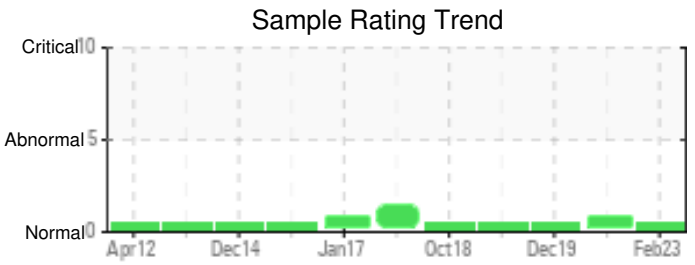






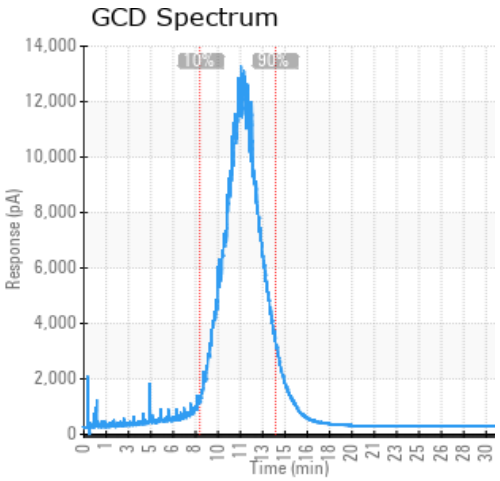
PETRO-CANADA LUBRICANTS

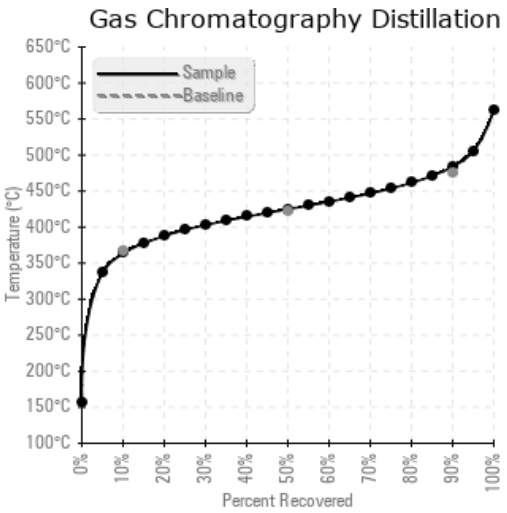


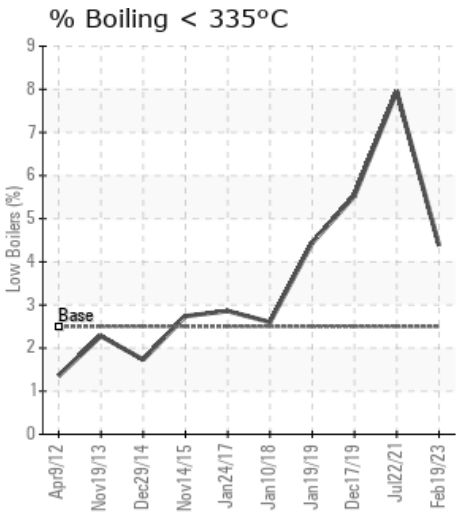


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
02/19/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0
07/22/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0
12/17/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	0
01/19/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	0
10/25/18	352	1	3	9	5	0	3	0	0	0	24	6	0	1	1	0	5		0	1	112	0	45	8
Baseline Data			0	0						0			0	0					0				270	

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







Historical Comments

07/22/21	Fluid is showing signs of thermal cracking. Is is evident in the reduction in GCD 10%, rise in GCD 90%, reduction in COC Flash Point and decrease in viscosity. Recommendation to vent light ends from the system and resample at normal interval. (GCD) 90% Distillation Point is abnormally high.
12/17/19	Nothing changed since the last sample. The oil condition looks acceptable and no action appears to be needed at this time. Viscosity is normal, flash point is high, other properties are normal. Re-sample at next scheduled interval.
01/19/19	The oil condition looks acceptable and no action appears to be needed at this time. Viscosity is normal, flash point is high, other properties are normal. Re-sample at next scheduled interval.
10/25/18	This is a baseline read-out on the submitted sample. Additive levels indicate a type of oil.