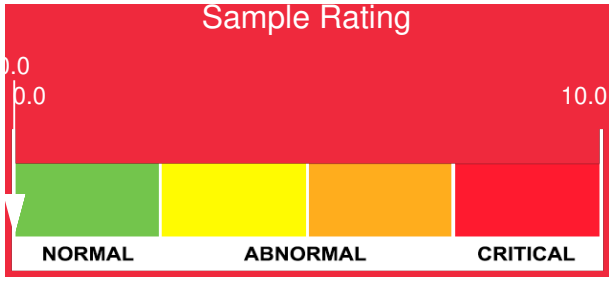
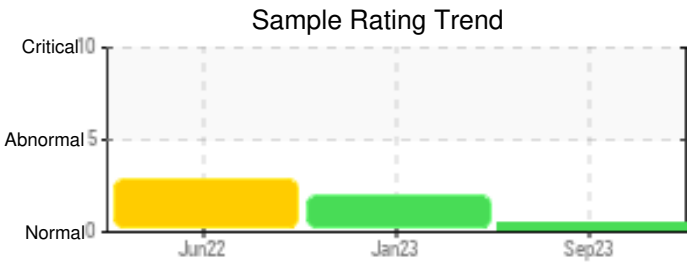




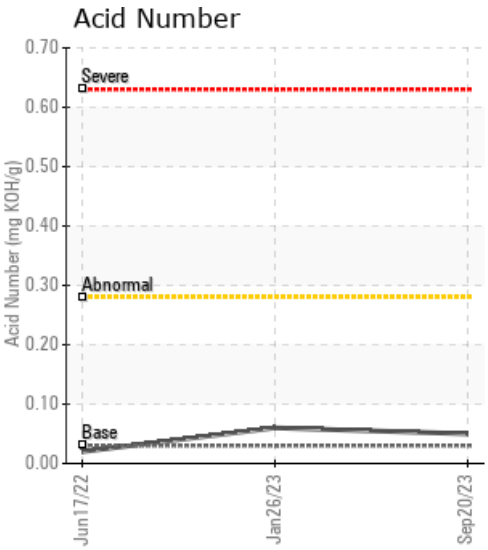
[Steelman Gas Plant / 12-21-4-5W2] HOT OIL SYSTEM

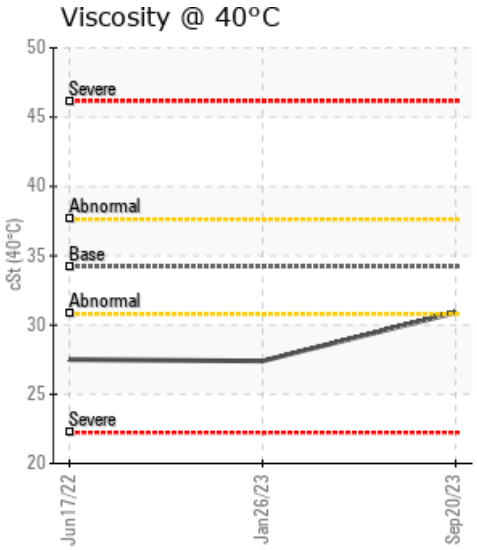
Customer: PTRHTF20185	System Information	Sample Information
STEEL REEF 16-08-04-03 W2 ALAMEDA, SK CA Attn: Carter Zander Tel: (306)577-5237 E-Mail: carter.zander@steelreef.ca	System Volume: 30000 ltr Bulk Operating Temp: 536F / 280C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make:	Lab No: 02586224 Analyst: Lyle Dach Sample Date: 09/20/23 Received Date: 10/02/23 Completed: 10/04/23 Lyle Dach lyle.dach@HFSinclair.com

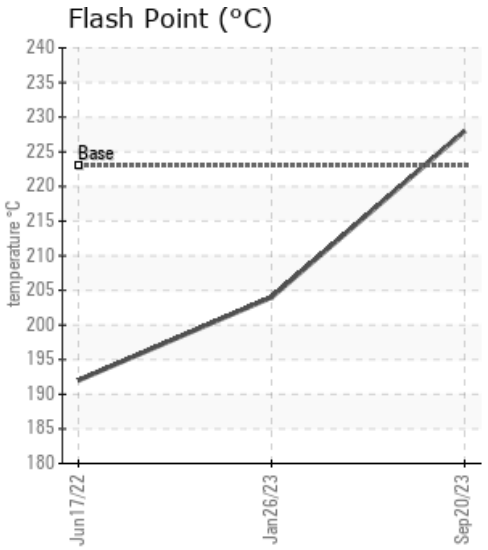
Recommendation: Fluids condition has improved since last sample, if venting was done it has improved the GCD % and the viscosity has also increased getting closer to Petro Therm's expected viscosity. Overall the fluids condition is suitable for continued use, continued venting could still improve the GCD % and viscosity. Resample in 12 months.

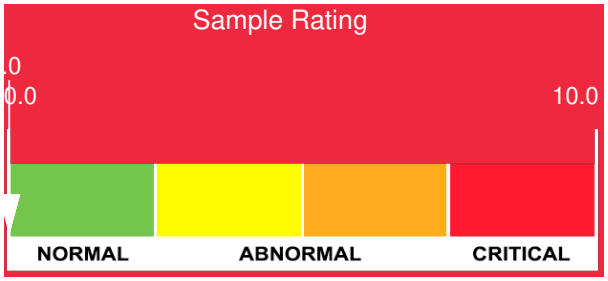
Comments:

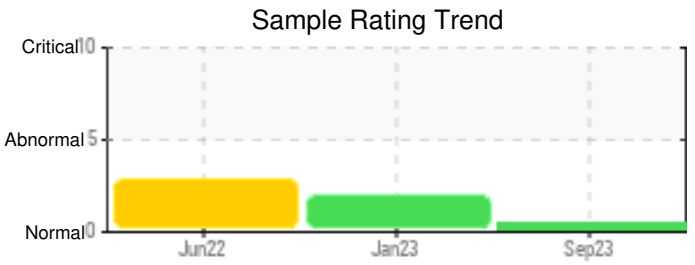
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
09/20/23	10/02/23	1.5y		442 / 228	9.6	30.9	0.05	0.021	721 / 383	813 / 434	906 / 486	2.75
01/26/23	01/31/23	8.0y		399 / 204	18.1	27.4	0.06	0.029	666 / 352	806 / 430	902 / 483	8.04
06/17/22	06/27/22	0.1y	pump discharge	378 / 192	23.8	27.5	0.02	0.033	678 / 359	807 / 431	902 / 484	7.34
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





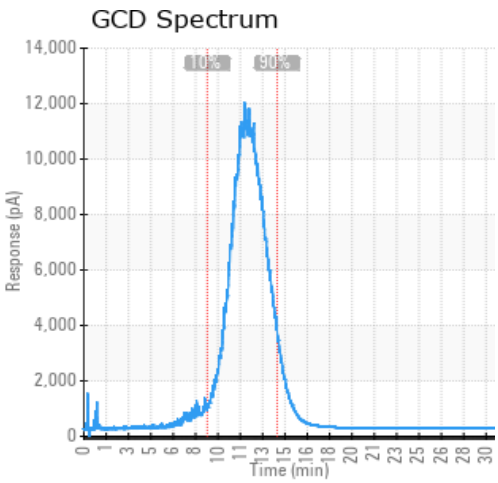


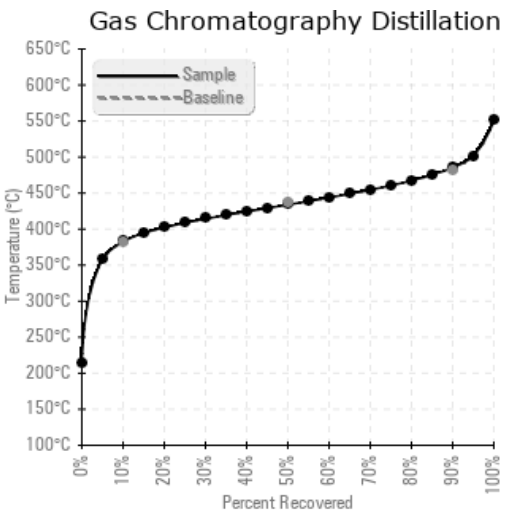


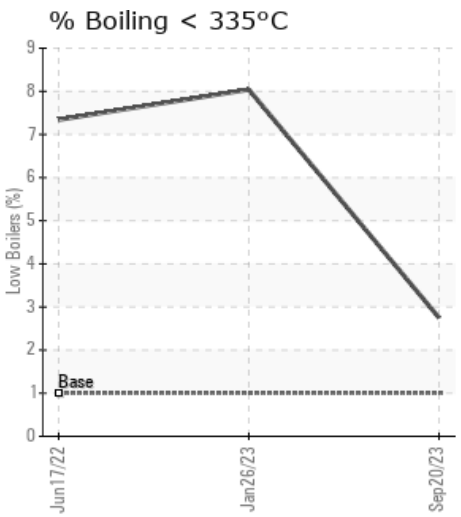


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
09/20/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01/26/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/17/22	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

01/26/23	Unit previously had Teresstic 32 which was drained but system was not flushed. Natural gas blanket is present and is set at 19 psi. Blanket pressure should be reviewed and lowered if possible, gas entrainment in the oil is possible above 15 psi and could cause the 8.04 % <335°C GCD. Flash point and GCD %<335C reflect low boilers volume being up, viscosity is low for Petro Therm which could be partially the low boiler volumes and some residual Teresstic. Vent low boilers and resample in 6 months. (GCD) % < 335°C is marginally high.
06/17/22	Unit previously had Teresstic 32 which was drained but system was not flushed. Natural gas blanket is present and is set at 19 psi. Flash point and GCD %<335C reflect low boilers volume being up, viscosity is low for Petro Therm which could be partially the low boiler volumes and some residual Teresstic. Vent low boilers and resample in 6 months. (GCD) % < 335°C is marginally high. COC Flash Point is marginally low.

