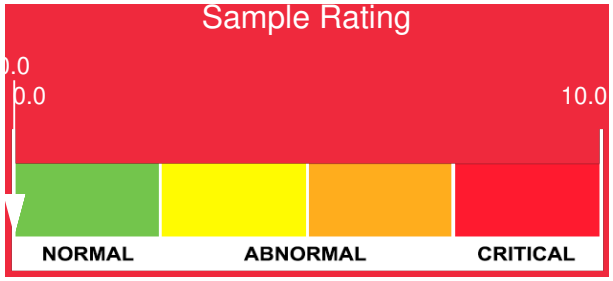
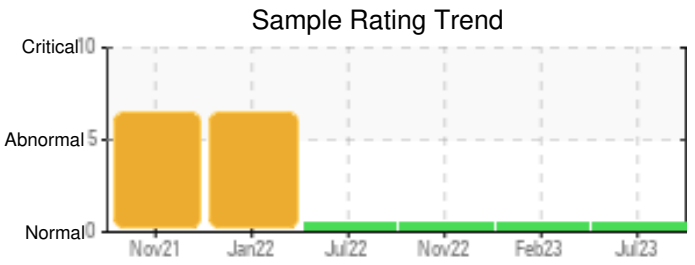




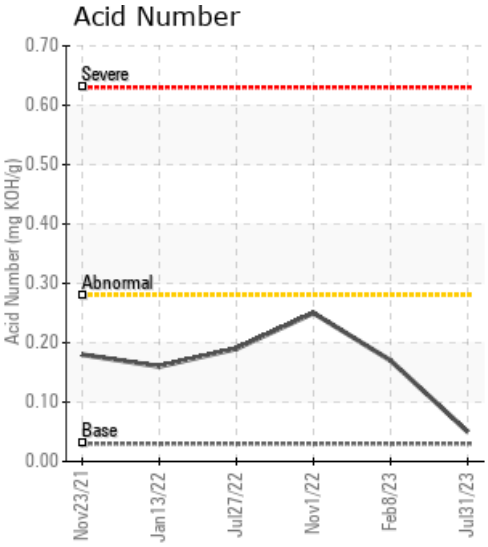
[VESTA SYLVAN LAKE] 6-20-37-1-W5 HEAT MEDIUM #1

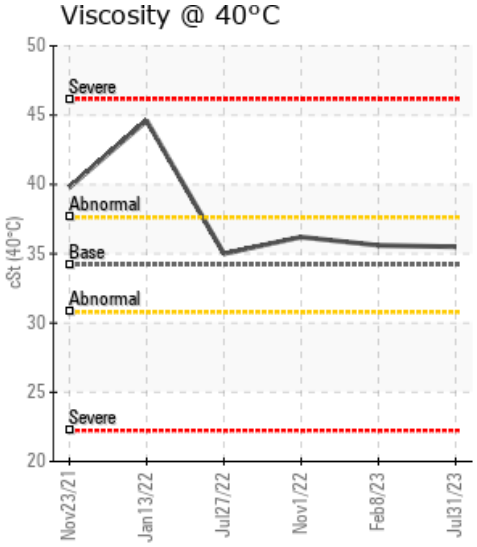
Customer: PTRHTF20261	System Information	Sample Information
VESTA ENERGY 6-20-37-1 W/5 SYLVON LAKE, AB CA Attn: JASON COFFIN Tel: (403)318-1291 E-Mail: jcoffin@vestaenergy.com	System Volume: 4700 ltr Bulk Operating Temp: 329F / 165C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make:	Lab No: 02573904 Analyst: Yutong Gao Sample Date: 07/31/23 Received Date: 08/02/23 Completed: 08/14/23 Yutong Gao yutong.gao@HFSinclair.com

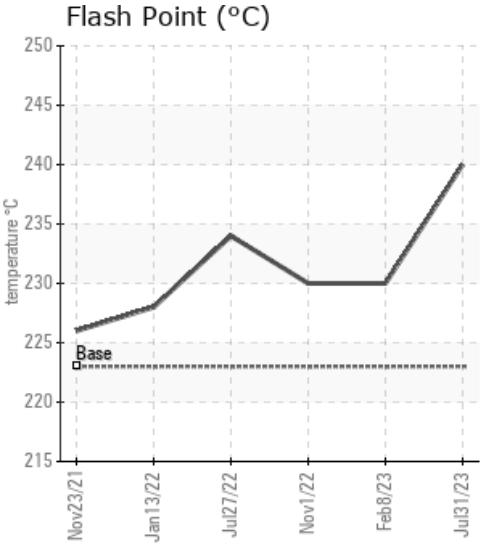
Recommendation: The current fluid has adequate viscosity, flash point and distillation points. There is minimum oxidation or water contents. It is suitable for operation. Please take one sample in Aug 2024 to monitor the conditions.

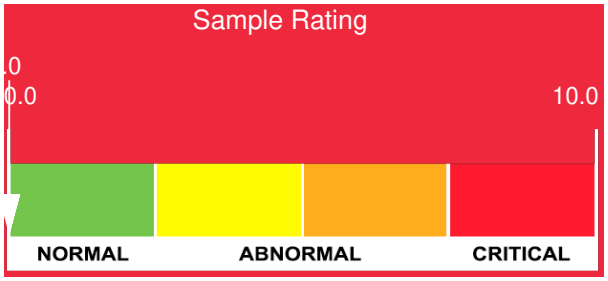
Comments:

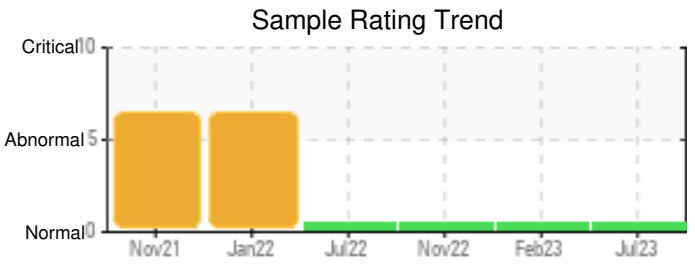
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/31/23	08/02/23	12.0m		464 / 240	13.7	35.5	0.05	0.221	720 / 382	813 / 434	908 / 487	1.53
02/08/23	02/09/23	9.0m		446 / 230	40.2	35.6	0.17	0.292	727 / 386	814 / 435	909 / 487	0.49
11/01/22	11/14/22	6.0m	HM VESSEL	446 / 230	31.5	36.2	0.25	0.346	724 / 385	813 / 434	905 / 485	0.97
07/27/22	07/29/22	2.0m		453 / 234	0.00	35.0	0.19	0.161	718 / 381	811 / 433	906 / 485	1.67
01/13/22	01/14/22	2.0m	disch off vessel	442 / 228	9.1	44.6	0.16	2.09	726 / 385	817 / 436	916 / 491	1.31
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





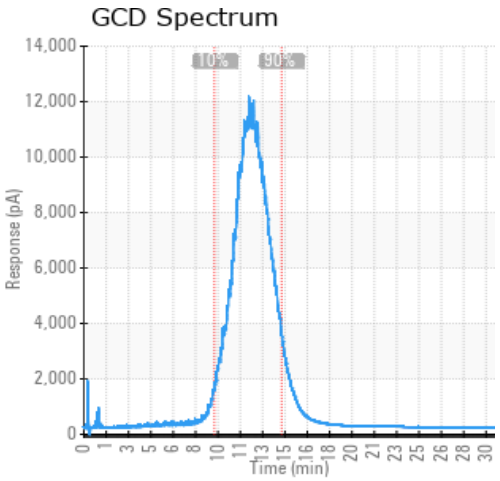


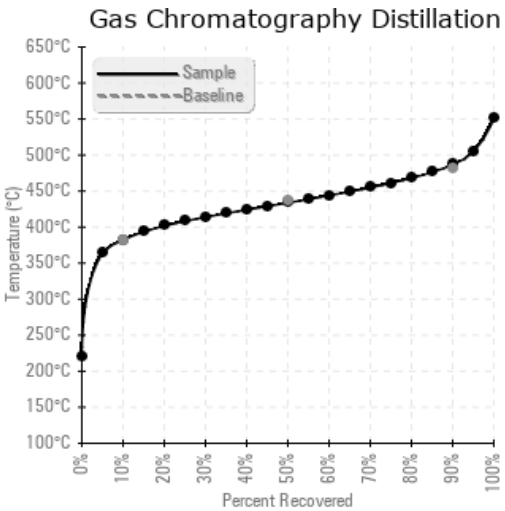


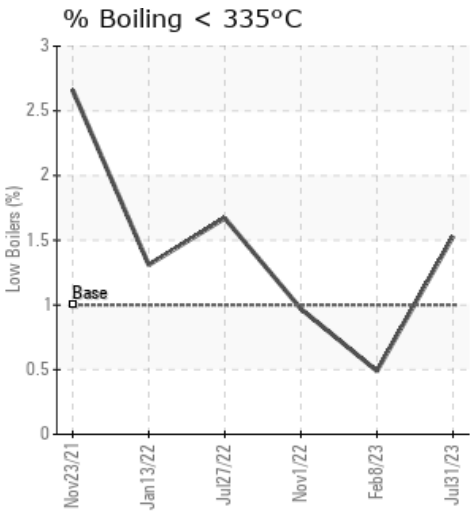


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
07/31/23	31	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	1
02/08/23	40	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
11/01/22	53	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
07/27/22	36	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
01/13/22	309	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	4	0	0	0	1	0	1	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

02/08/23	The current fluid has correct viscosity and decent distillation points. There is minimum oxidation, and minimum water / dirt contaminations. The overall solid content is very low. Please continue to run this fluid and take one sample in Jan 2024 to monitor the conditions.
11/01/22	The current fluid has normal viscosity, flash point and distillation points. The acid number is low meaning the minimum fluid oxidation. The water level is also considered normal. Please continue to run the fluid and take one sample in Nov 2023 to monitor the conditions.
07/27/22	Sample results indicate that the fluid is in very good condition and is suitable for continued service. Resample in 12 months.
01/13/22	PQ, iron, and viscosity are high and pentane insolubles are very high. Confirm gas blanket is in place and operating correctly, improper gas blanketing can cause fluid oxidation. High iron and pentane insolubles could be filtered out, high temperatures do make this difficult ensure filtration system is rated for the temperature. Resample in 6 months or after filtration has been attempted.PQ levels are severe. Iron ppm levels are abnormal. Pentane Insolubles levels are severely high.