

[TOURMALINE / 1-34-51-18W5] H900

Customer: PTRHTF20039
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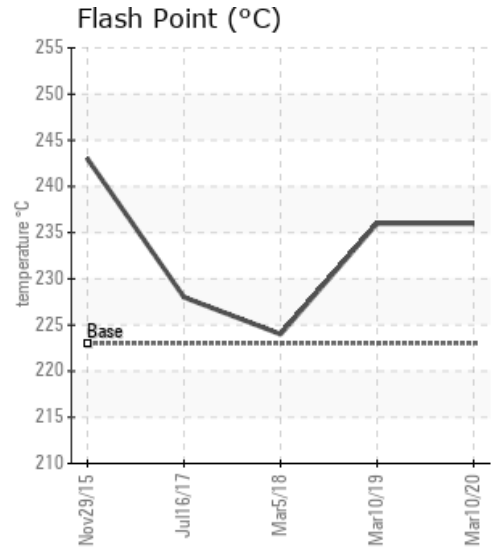
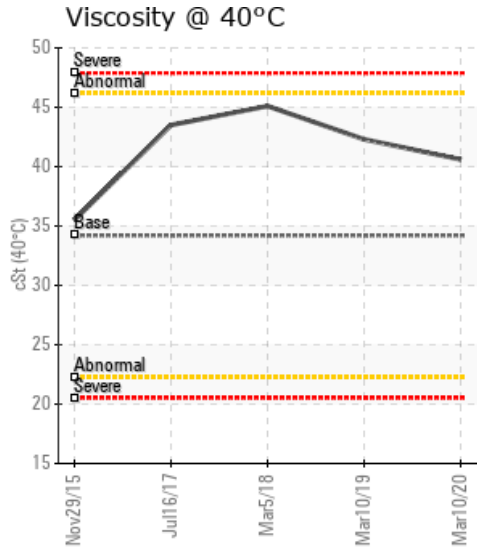
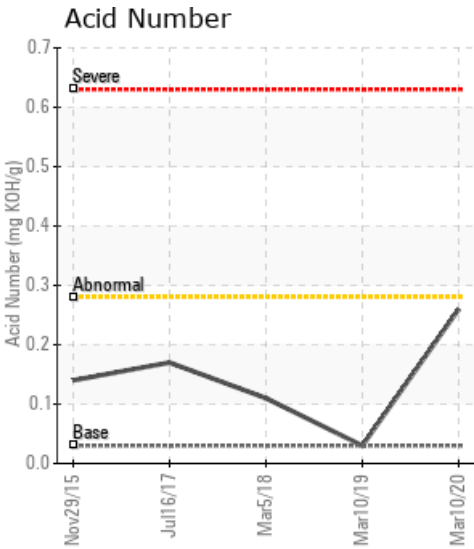
System Information
 System Volume: 10000 ltr
 Bulk Operating Temp: 175F / 79C
 Heating Source:
 Blanket:
 Fluid: PETRO CANADA PETRO-THERM
 Make:

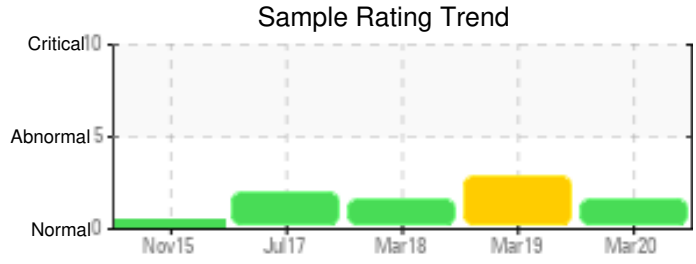
Sample Information
 Lab No: 02348705
 Analyst: Terry Veenstra
 Sample Date: 03/10/20
 Received Date: 04/14/20
 Completed: 04/24/20
 Terry Veenstra
 terry.veenstra@petrocanadalsp.com

Recommendation: Pentane insolubles are higher then normal is Acid number indicating some oxidation of fluid. Ensure gas blanket is in place and functioning. Resample in 6 months.

Comments: Pentane Insolubles levels are severely high.

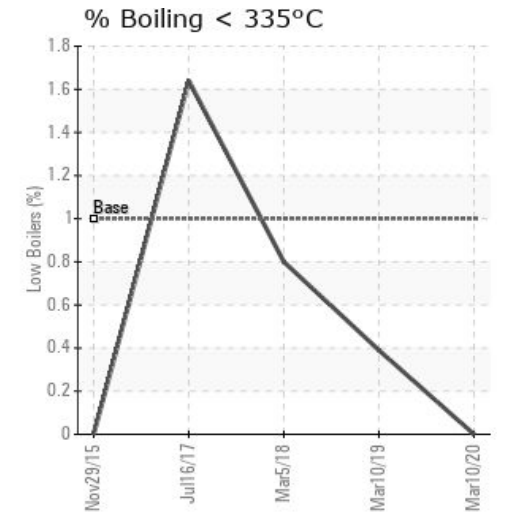
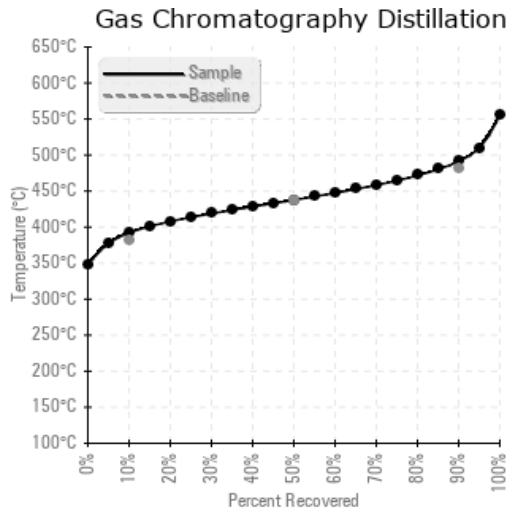
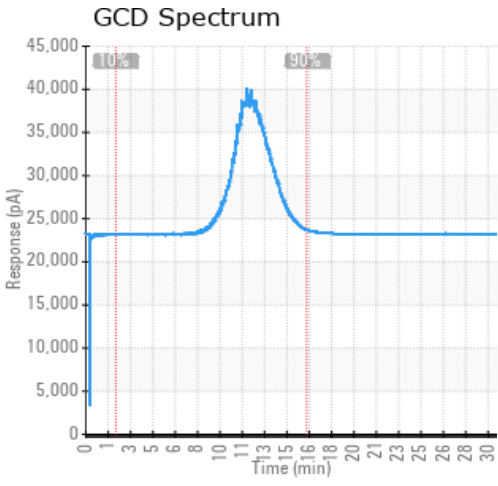
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/10/20	04/14/20	4y	PUMP	457 / 236	12.2	40.6	0.26	0.755	738 / 392	820 / 438	916 / 491	0.00
03/10/19	03/20/19	0y		457 / 236	4.3	42.3	0.03	1.08	726 / 386	815 / 435	910 / 488	0.39
03/05/18	03/06/18	3y		435 / 224	48.3	45.1	0.11	1.15	724 / 385	808 / 431	912 / 489	0.80
07/16/17	07/17/17	2y		442 / 228	69.3	43.5	0.17	1.23	719 / 382	814 / 435	912 / 489	1.64
11/29/15	12/07/15	2y		469 / 243	6.1	35.5	0.14	0.128	720 / 382	803 / 428	898 / 481	0.00
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
03/10/20	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/10/19	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/05/18	16	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
07/16/17	15	0	0	2	0	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0	0	0	0	0
11/29/15	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseline Data			0	0						0			0	0				0					0	

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



Historical Comments	
03/10/19	The fluid is in a good condition and suitable for further use but the solids content is high. Please consider filtration of the fluid. Re-sample after filtration has taken place. Pentane Insolubles levels are severely high.
03/05/18	The fluid is in good condition and suitable for further use. Pentane Insoluble (solids) content is high. Filtration of the fluid is required. Please re-sample in 6 months. Pentane Insolubles levels are severely high.
07/16/17	The fluid is in a good condition and suitable for further use. Viscosity is slightly high and Pentane Insolubles (solids content) is high. It is recommended to start filtration of the oil to lower the solids content to a more acceptable level. Other parameters do not indicate that the solids content is the result of fluid degradation which means that the high solids content could be a result of one of the following: Airborne contamination via open expansion tank, Internal contamination from the process, External contamination from top-up practices. Please investigate and re-sample in 6 months. Pentane Insolubles levels are severely high.
11/29/15	The fluid is in excellent condition. Please re-sample in 6 months.

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