

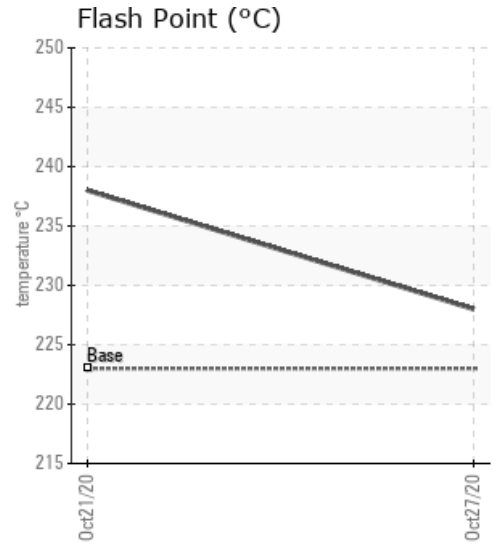
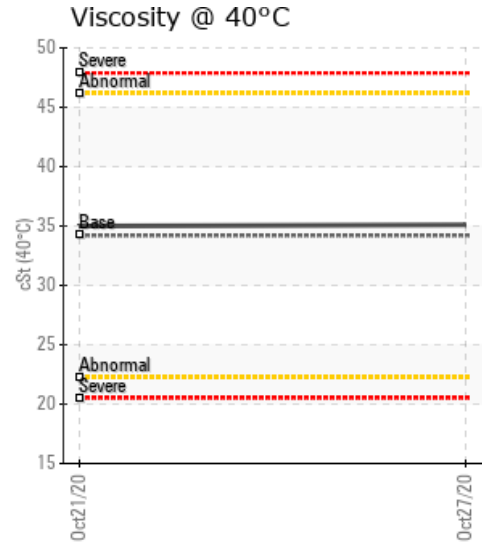
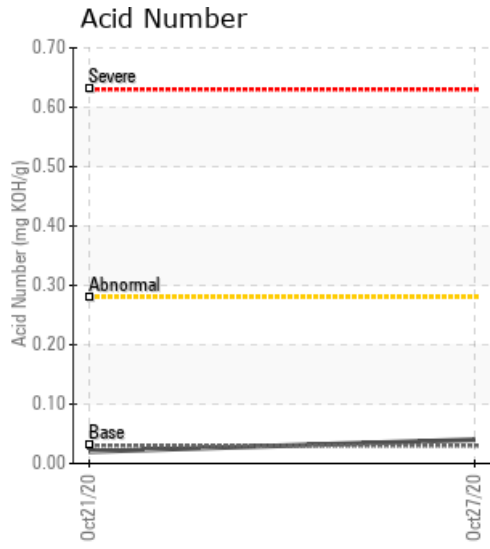
[16-28-71-9 W6M] PIPESTONE NORTH

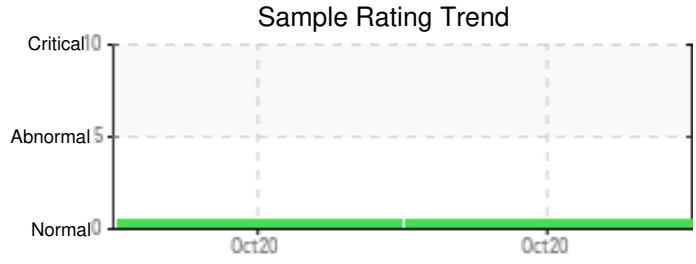
Customer: PTRHTF20245	System Information	Sample Information
NUVISTA ENERGY LTD RR 93 WEMBLY, AB T8W 0H6 Canada Attn: Eldon Weaver Tel: (780)831-5603 E-Mail: eweaver@nvaenergy.com	System Volume: 65000 ltr Bulk Operating Temp: 392F / 200C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: HEATECH	Lab No: 02385353 Analyst: Clinton Buhler Sample Date: 10/27/20 Received Date: 11/04/20 Completed: 11/10/20 Clinton Buhler Clinton.Buhler@PetroCanadaLSP.com

Recommendation: Sample is after filtering of the fluid has began. Filtering is improving cleanliness as ISO particle count has gone from 24/22/17 to 23/21/14; solids has gone from 0.104% to 0.069%. Please re-sample once system is operational at normal operating temperatures.

Comments:

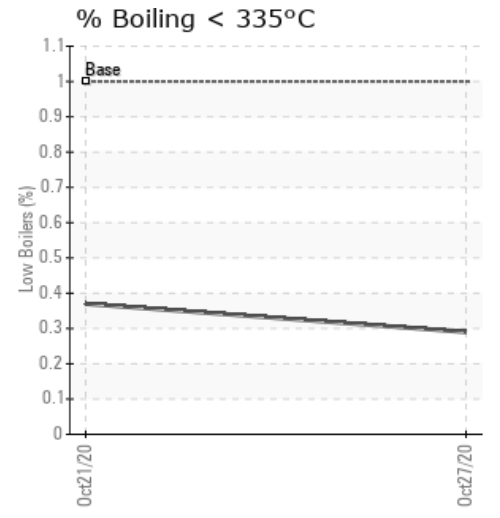
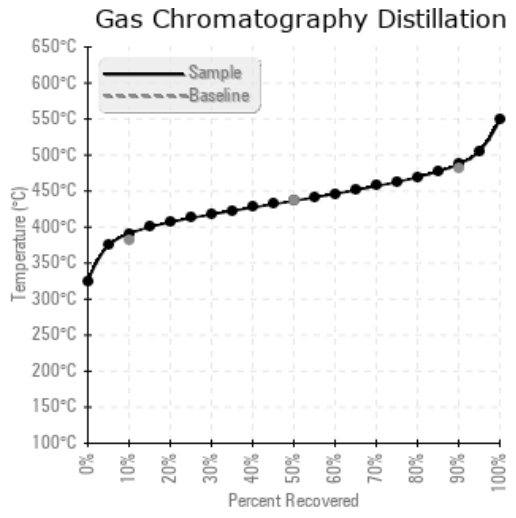
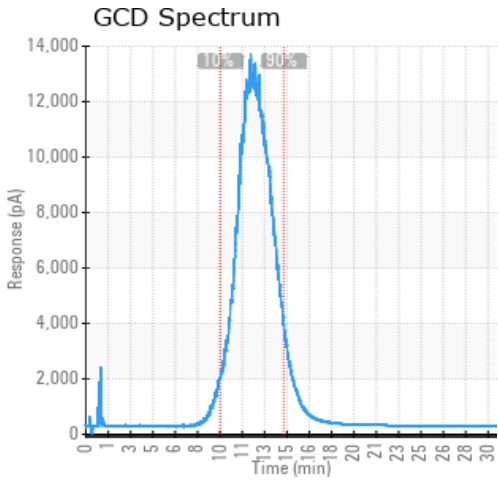
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
10/27/20	11/04/20	7d	Piping from heater	442 / 228	22.0	35.1	0.04	0.069	735 / 391	818 / 436	909 / 487	0.29
10/21/20	10/28/20	0d		460 / 238	39.0	35.0	0.02	0.104	735 / 390	814 / 435	901 / 483	0.37
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
10/27/20	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
10/21/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
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	
10/21/20	This sample is of new Petro-Therm in the Pipestone facility heater circulating without full system temperature. ISO particle count (Fluid Cleanliness) is at 24/22/17. All other parameters indicate fresh and healthy Petro-Therm. Please re-sample fluid after filtering is complete and after it has ran at operating temperature for at least 24 hours. For future samples, please indicate blanket gas pressure and time on oil.

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