

## [BONAVISTA PETROLEUM MARLBORO / 05-29-55-19W5] BONAVISTA

**Customer: PTRHTF20158**  
 BONAVISTA ENERGY  
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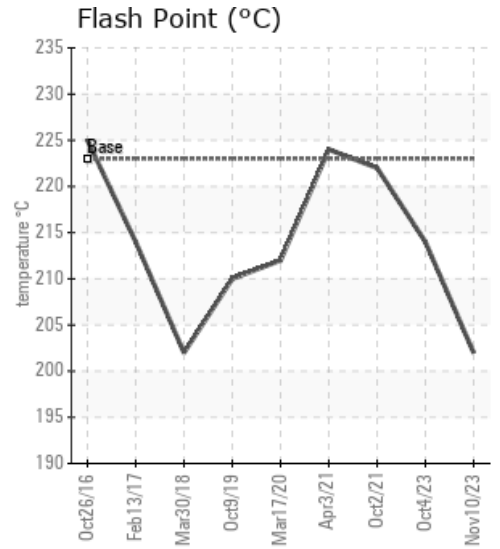
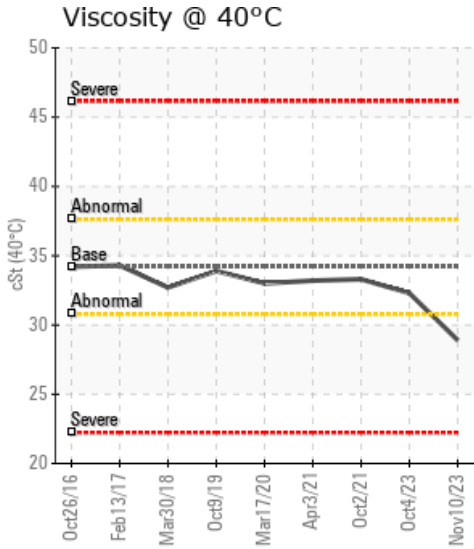
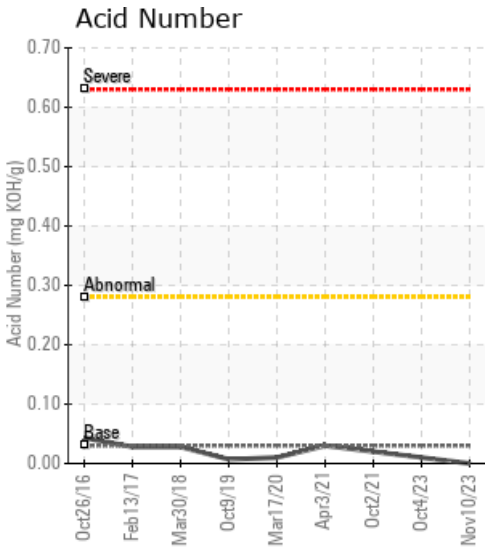
**System Information**  
 System Volume: 3500 gal  
 Bulk Operating Temp: 329F / 165C  
 Heating Source:  
 Blanket:  
 Fluid: PETRO CANADA PETRO-THERM  
 Make: POWERFLAME

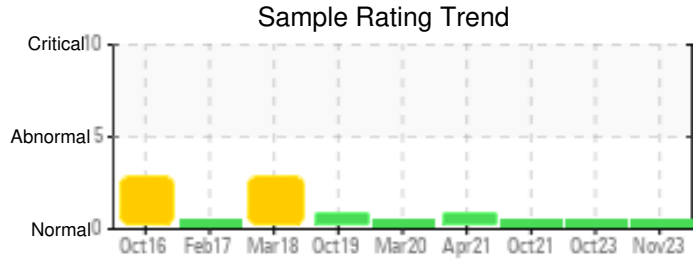
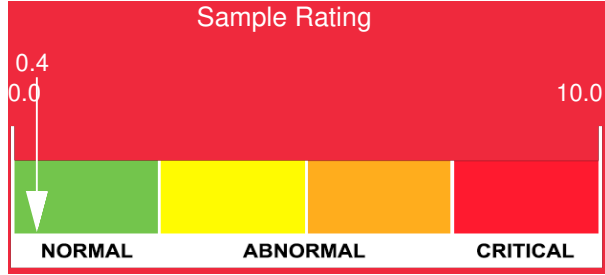
**Sample Information**  
 Lab No: 02597685  
 Analyst: Clinton Buhler  
 Sample Date: 11/10/23  
 Received Date: 11/20/23  
 Completed: 12/12/23  
 Clinton Buhler  
 Clinton.Buhler@HFSinclair.com

Recommendation: Sample results indicate the fluid is in suitable condition for continued service. It appears that this sample was taken merely a month after the previous sample. Fluid viscosity and flash point are slightly reduced and low boiler vapor content has increased to 5.85%. This may be associated with possible contamination with process hydrocarbon. Please perform regular venting of expansion tank to help restore fluid properties. Re-sample in 6-8 months.

Comments: Visc @ 40°C is abnormally low.

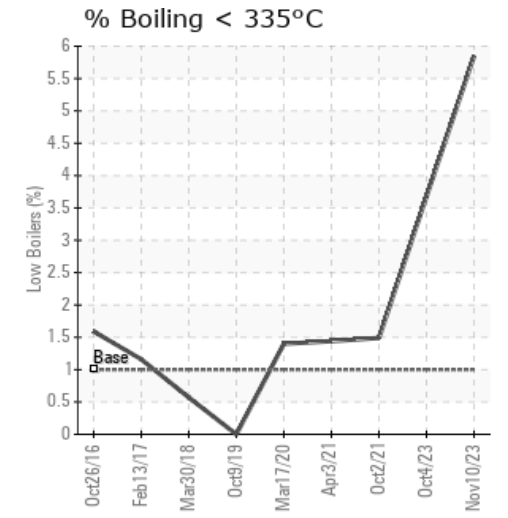
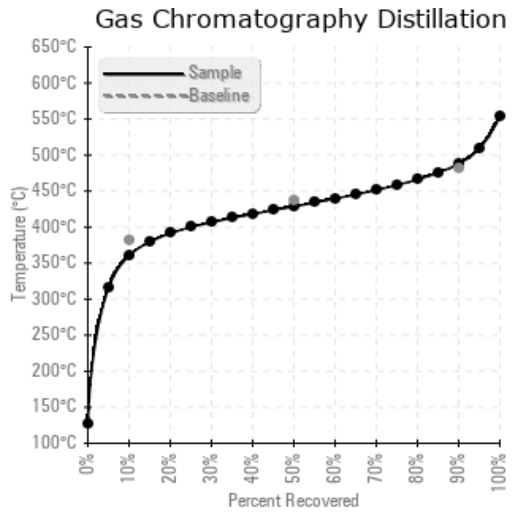
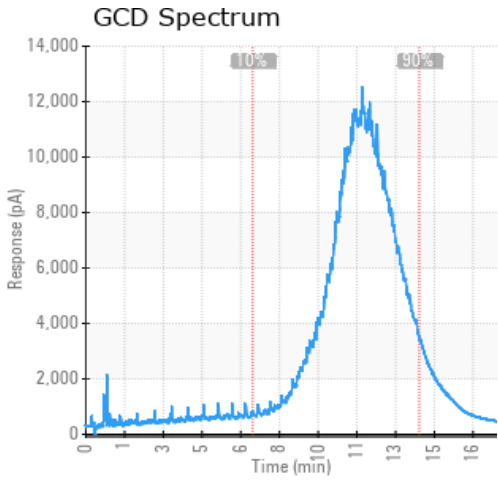
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
11/10/23	11/20/23	0.0y		396 / 202	15	28.9	0.00	0.031	681 / 361	803 / 429	910 / 488	5.85
10/04/23	11/08/23	3.0y		417 / 214	24.8	32.3	0.01	0.076	689 / 365	806 / 430	913 / 489	3.68
10/02/21	10/21/21	0.0y	filter system	432 / 222	52.8	33.3	0.02	0.039	707 / 375	812 / 433	916 / 491	1.49
04/03/21	04/15/21	0.0y	top of filter	435 / 224	25.3	33.2	0.03	0.156	700 / 371	805 / 430	921 / 494	1.44
03/17/20	03/31/20	8.5y	FILTER	414 / 212	116.8	33.0	0.01	0.105	708 / 376	812 / 433	915 / 491	1.40
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
11/10/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/04/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	2	3
10/02/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04/03/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/17/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
<b>Baseline Data</b>			0	0						0			0	0				0					0	

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



### Historical Comments

10/04/23	Sample results indicate the fluid is in suitable condition for continued service. Low boiler vapor content is at 3.68%. This is not excessive, but venting of the expansion tank can help bring this value back down. Please re-sample in 12 months
10/02/21	Sample results indicate the fluid is in suitable condition for continued service. Please re-sample after 12 months.
04/03/21	Sample results indicate that the fluid is in suitable condition for continued service. 90% distillation is slightly elevated as is solids content which can be associated to small amounts of fluid oxidation. Please ensure that blanket gas is being used in the expansion tank head space (2-3 psi ideal). Please re-sample in 12 months (GCD) 90% Distillation Point is marginally high.
03/17/20	The fluid is in good condition and suitable for further use. Please re-sample in 6 months.

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