

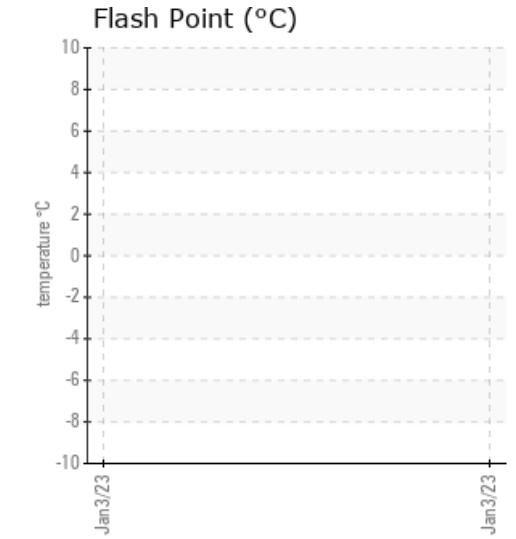
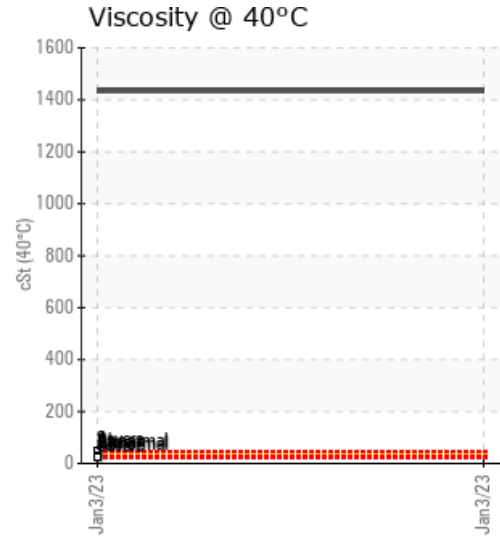
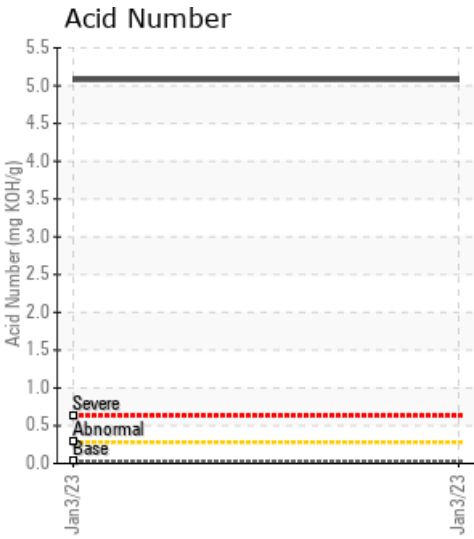
HOH

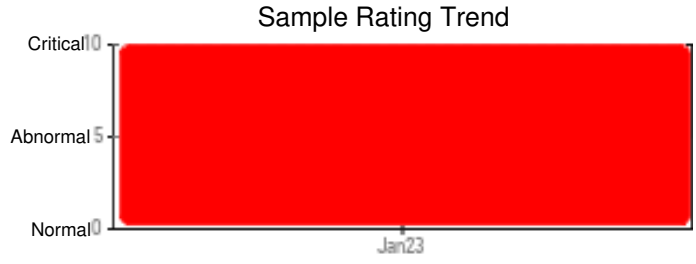
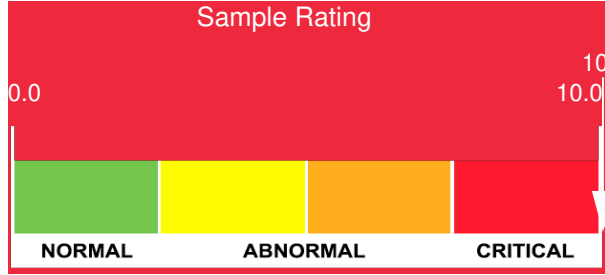
Customer: PTRHTF10213	System Information	Sample Information
HOLLY FRONTIER ASPHALT 4949 EDITH BLVD N.E. ALBUQUERQUE, NM 87107 USA Attn: Luis A Contreras Tel: (316)323-4680 E-Mail: luis.contreras@HFSinclair.com	System Volume: 3000 gal Bulk Operating Temp: 425F / 218C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make:	Lab No: 02533277 Analyst: LYLE HOFFMAN Sample Date: 01/03/23 Received Date: 01/13/23 Completed: 01/30/23 LYLE HOFFMAN lyle.hoffman@HFSinclair.com

Recommendation: Fluid is at end of life. Very high viscosity, AN, water content, and Iron. Continued operation with current fluid poses an elevated risk to fire and or explosion due to increased skin film temperature in order to get the desired bulk oil temperature. Recommend drain, clean, and refill with PetroTherm.

Comments: Iron ppm levels are severe. PQ levels are severe. Water contamination levels are severely high. Water contamination levels are severely high.. ppm Water contamination levels are severely high. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. Calcium ppm levels are severely high. Visc @ 40°C is severely high. (GCD) 90% Distillation Point is marginally high.

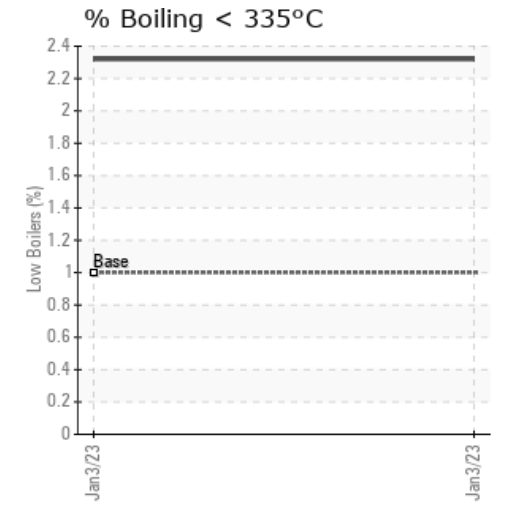
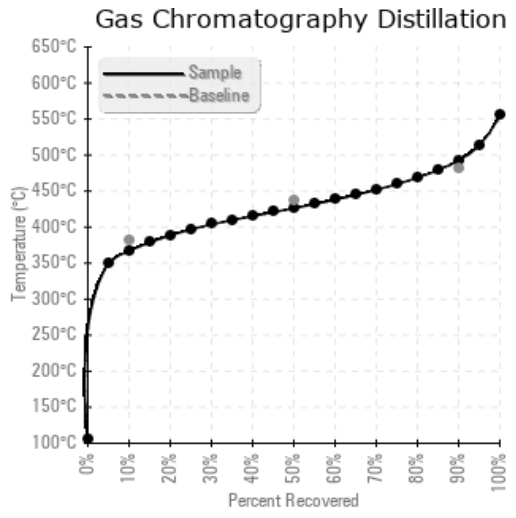
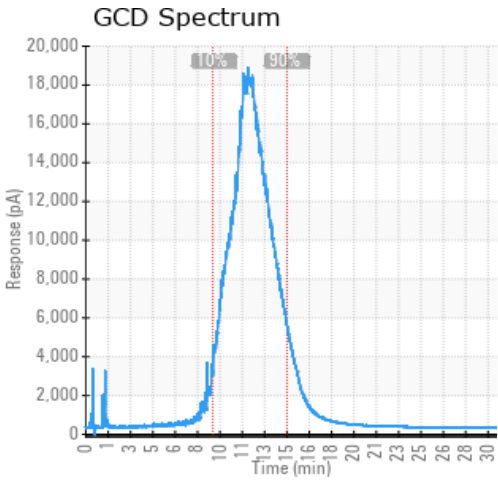
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
01/03/23	01/13/23	10.0y			2268.1	1434	5.08	11.1	692 / 367	799 / 426	919 / 493	2.32
Baseline 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
01/03/23	411	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	4	0	1	0	76	0	1	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

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