

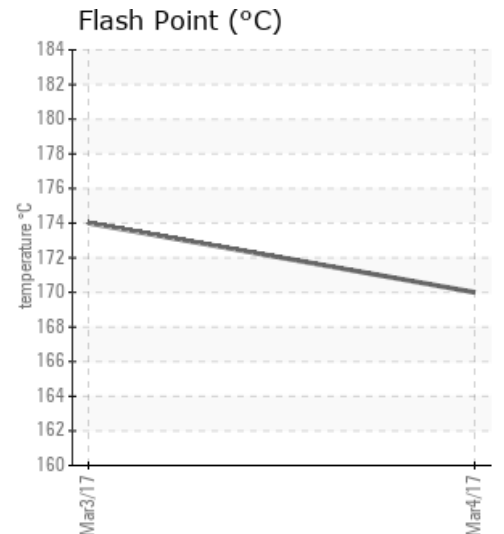
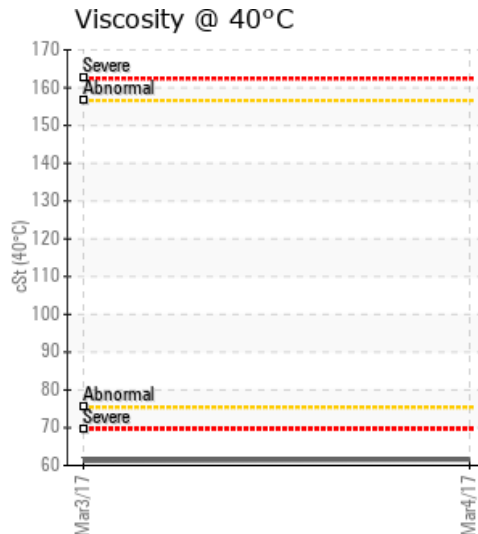
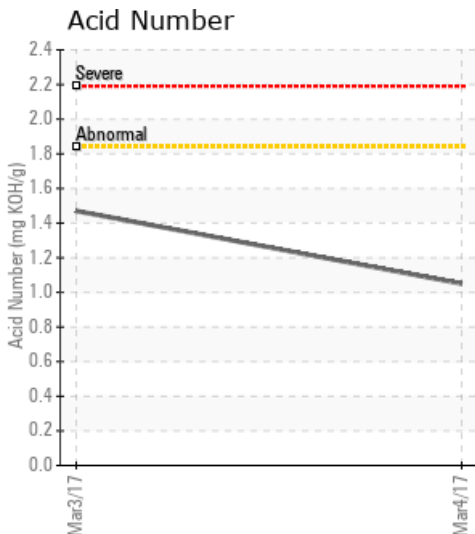
CIRCULATION PUMP

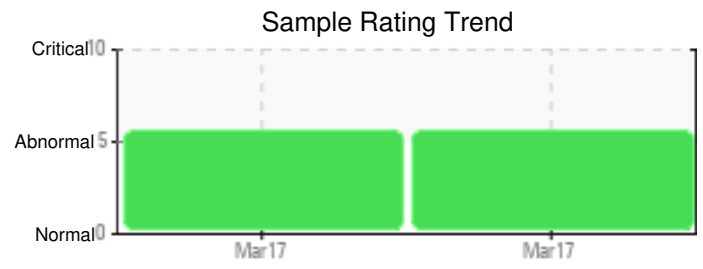
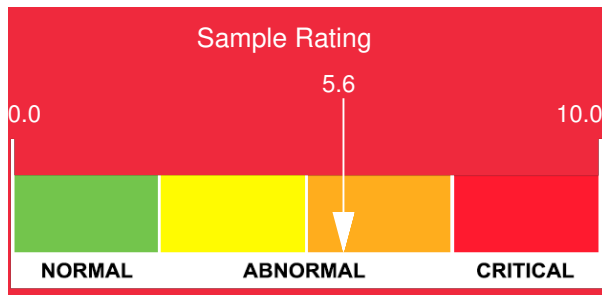
Customer: PTRHTF10184	System Information	Sample Information
Bitumar USA Inc - PLANT CLOSED 171 Brownstone avenue Portland, CT 06480 USA Attn: Albert Williams Tel: E-Mail:	System Volume: 1800 gal Bulk Operating Temp: 480F / 249C Heating Source: Blanket: Fluid: N/A Make: AMERICAN HEATING CO.	Lab No: 02131967 Analyst: Bill Quesnel CLS, OMA II, MLA-III, LLA-I Sample Date: 03/04/17 Received Date: 03/10/17 Completed: 04/10/18 To discuss this report contact Bill

Recommendation: NOTE: Sample is more than 1 year old and was never completed. Closing out in LIMS system. Please refer to more recent sample analysis (02131966) for any maintenance/corrective actions.

Comments: Pentane Insolubles levels are severely high. Water contamination levels are marginally high. Water contamination levels are marginally high.. ppm Water contamination levels are marginally high. COC Flash Point is severely high. Visc @ 40°C is severely low.

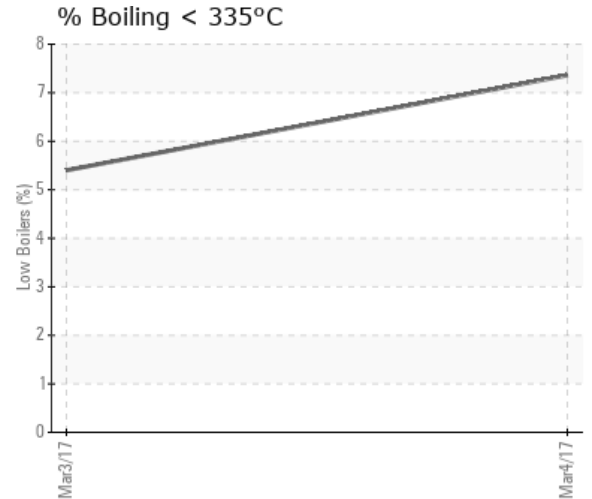
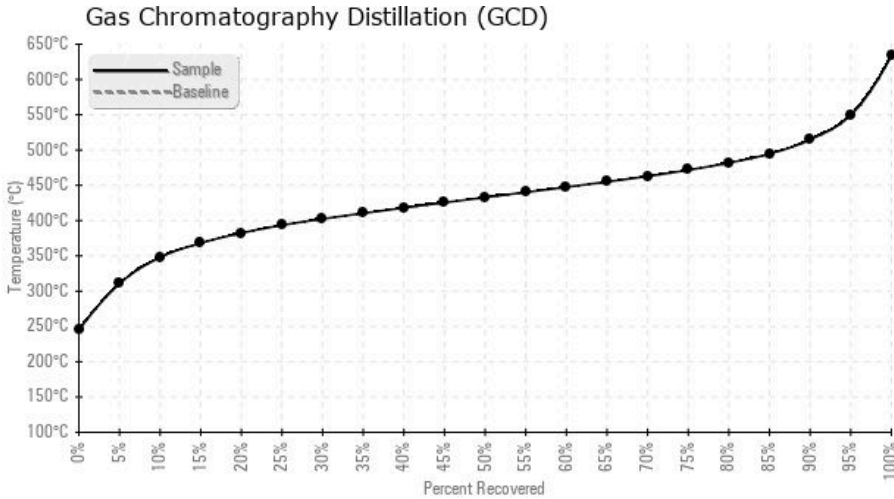
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/04/17	03/10/17	15y	CIRCULATION PUMP	338 / 170	394.4	61.6	1.05	2.82	658 / 348	811 / 433	958 / 515	7.36
03/03/17	03/10/17	15y	CIRCULATION PUMP	345 / 174	389.2	61.3	1.47	2.57	676 / 358	817 / 436	980 / 527	5.40
Baseline Data				32 / 0								





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
03/04/17	86	0	1	0	9	0	1	1	0	3	0	2	0	0	0	0	1	0	2	0	1	0	1	1
03/03/17	84	0	1	0	8	0	1	1	0	3	0	2	0	0	0	0	1	0	2	0	1	0	1	1
Baseline Data														0					0					0

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



Historical Comments

03/03/17	Results have flagged the following: an increase in viscosity, which will effect the efficiency of the heat transfer fluid. Vanadium is 3.3, which could be from a current leak or traces from a past leak, this coincides with the higher solids and Pentane Insolubles at 2.57. The Acid Number (AN) at 1.47 is usually not tolerated at this level for a system of this size. Both Oxidation and Acid Number (AN) are key components resulting in Heat Trans Fluid degradation. Also, 5% low boilers are present with Thermo-Degradation. Low COC Flash Point may be in part caused from the higher water content of 389.2 ppm effecting the testing. Replacing the fluid may be the best option, or alternatively 1/2 of the fluid should be replaced with Petro-Therm. We are willing to re-test, if you feel that the sample is not indicative of a relative good sample from the system. Pentane Insolubles levels are severely high. Water contamination levels are marginally high.. ppm Water contamination levels are marginally high. COC Flash Point is severely high. Visc @ 40°C is severely low.

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