

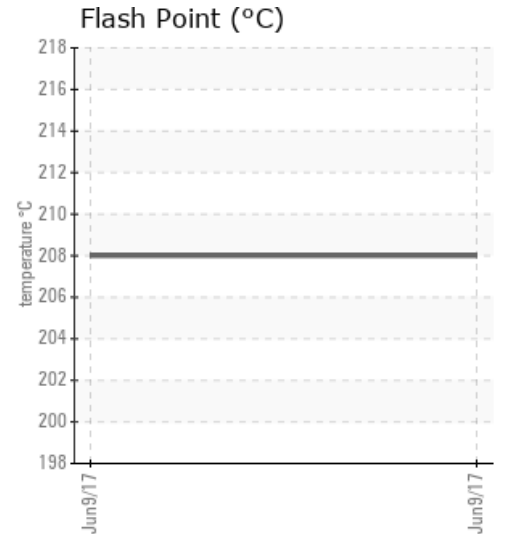
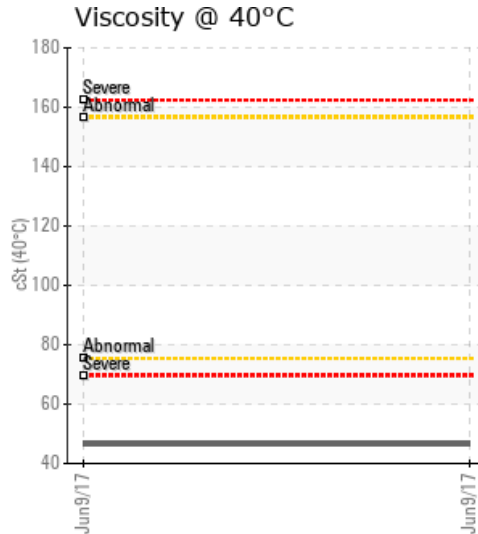
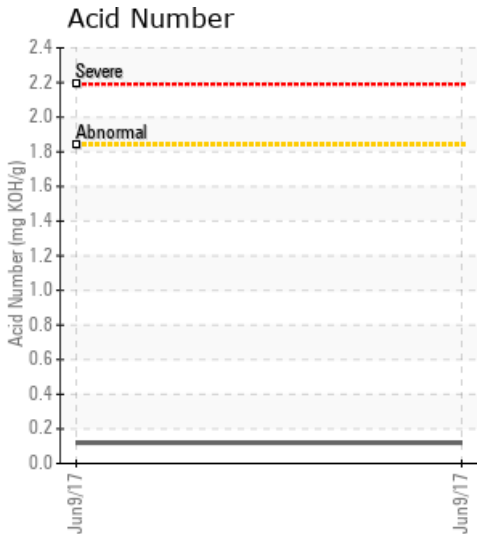
SOUTH HOT OIL HEATER

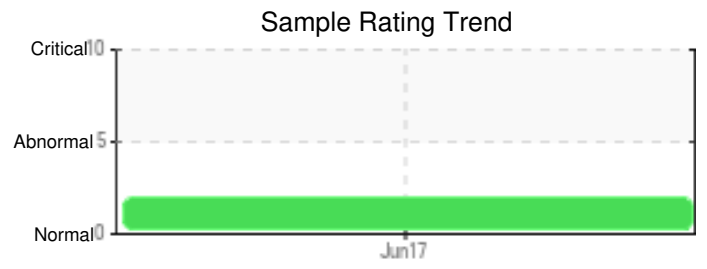
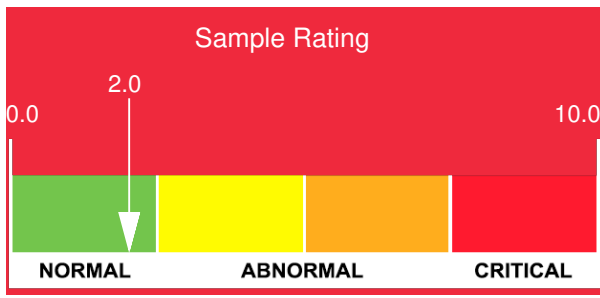
Customer: PTRHTF10190	System Information	Sample Information
HOLLY FRONTIER ASPHALT 7110 W. NORTHERN AVENUE GLENDALE, AZ 85303 USA Attn: MARK NIELSON Tel: (602)617-7010 E-Mail: mark.nielson@hollyfrontier.com	System Volume: 10000 gal Bulk Operating Temp: 460F / 238C Heating Source: Blanket: Fluid: N/A Make: NAVAJO REFINING CO.	Lab No: 02155455 Analyst: Steven Slanker Sample Date: 06/09/17 Received Date: 07/04/17 Completed: 07/06/17 To discuss this report contact Steven Slanker at (951)225-2115

Recommendation: The pentane insolubles are severely high as is the viscosity. Recommend filtration and partial replacement of heat transfer fluid.

Comments: Pentane Insolubles levels are severely high. Visc @ 40°C is abnormally high.

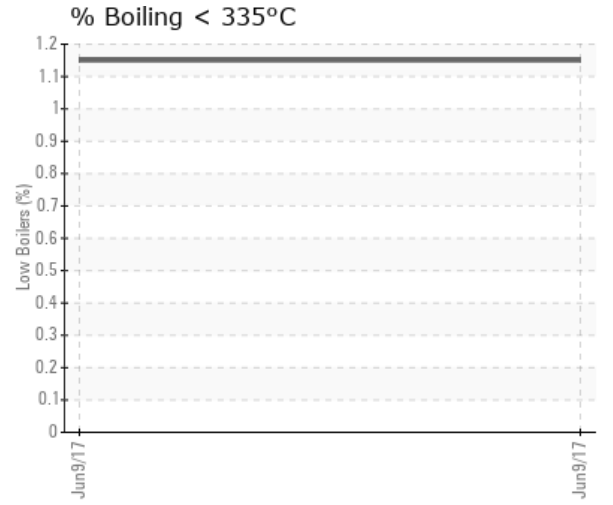
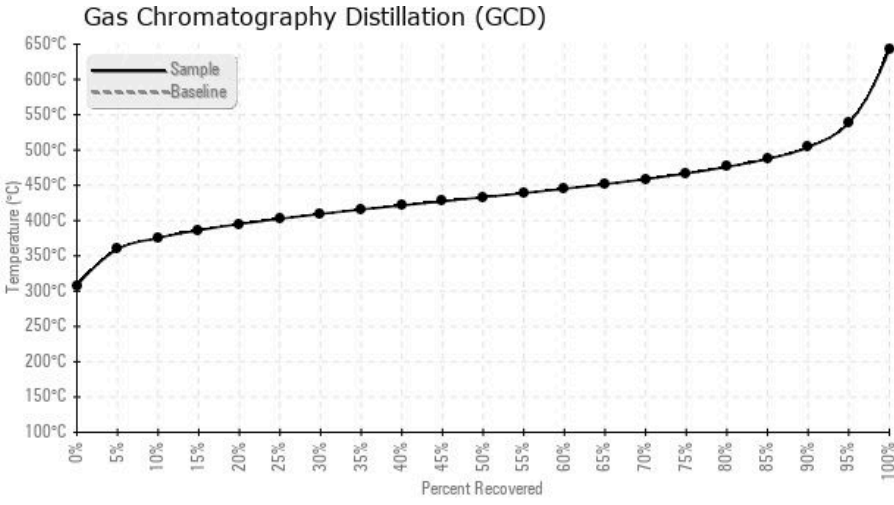
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
06/09/17	07/04/17	22y	AT MAIN CIRC. PUMP	406 / 208	41.2	46.5	0.12	0.685	708 / 375	812 / 433	939 / 504	1.15
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
06/09/17	4	0	3	0	0	0	1	58	0	6	0	1	0	0	0	0	0	0	0	0	58	0	10	0
Baseline Data													0						0				0	

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



Historical Comments

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