

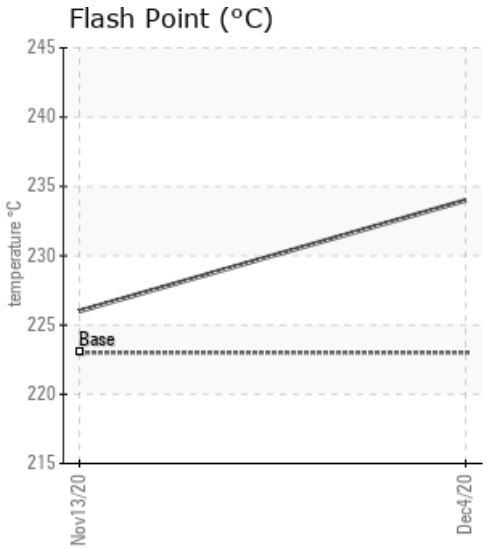
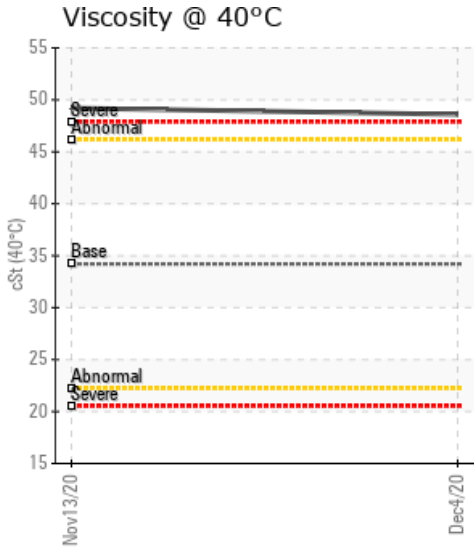
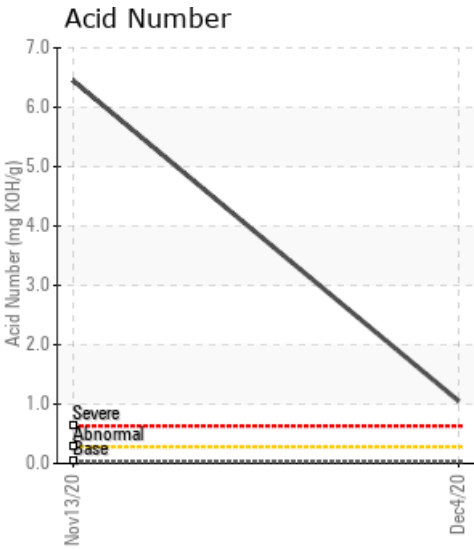
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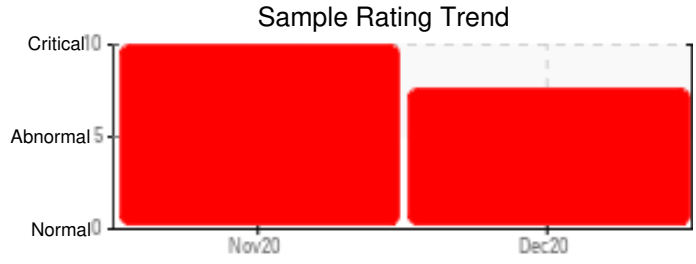
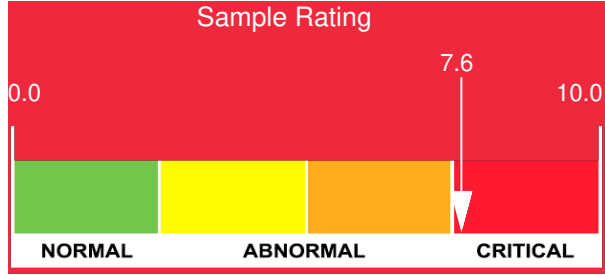
Customer: PTRHTF10237	System Information	Sample Information
Reliable Ogden LLC 2424 S Laflin Street Chicago, IL 60608 USA Attn: Bob Madden Tel: E-Mail: rmadden@biganepaving.com	System Volume: 600 ltr Bulk Operating Temp: 350F / 177C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: CMI	Lab No: 02392820 Analyst: Yvette Trzcinski Sample Date: 12/04/20 Received Date: 12/14/20 Completed: 12/28/20 Yvette Trzcinski yvette.trzcinski@petrocanadalsp.com

Recommendation: Heat transfer fluid appears to be highly oxidized based on the high acid number and increased viscosity - 40% increase over new oil. Recommend scheduling a drain, flush and recharge of the system

Comments: 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 abnormally high.

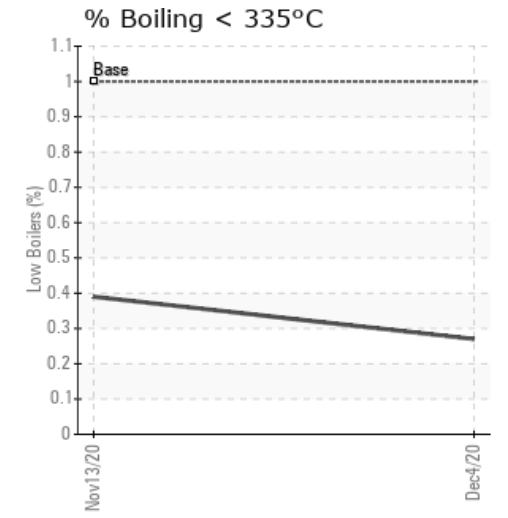
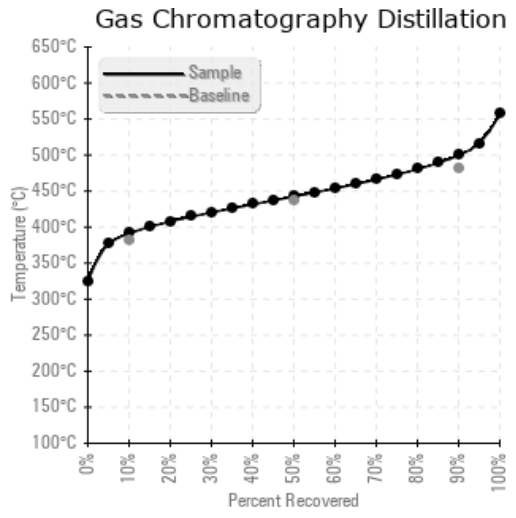
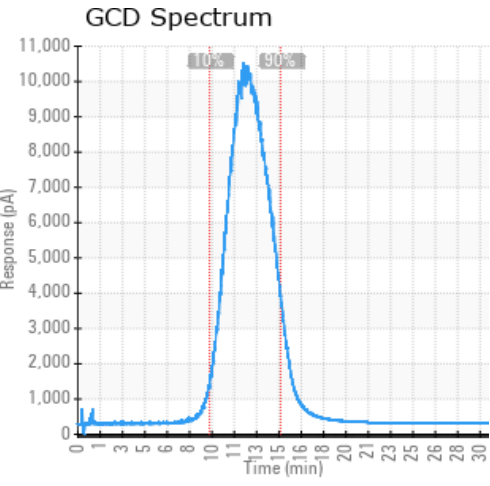
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
12/04/20	12/14/20	2y		453 / 234	55.4	48.6	1.05	1.98	736 / 391	828 / 442	931 / 500	0.27
11/13/20	11/24/20	2y		439 / 226	4646.8	49.2	6.45	1.89	736 / 391	828 / 442	930 / 499	0.39
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
12/04/20	86	0	0	2	1	0	0	0	0	0	6	10	2	0	0	0	2	0	0	7	80	0	2	9
11/13/20	128	0	0	0	1	0	1	0	0	0	0	9	0	0	0	0	3	0	1	1	72	0	1	8
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

11/13/20	The sample analysis found large amount of water contamination 0.46 wt % water or 4600 ppm. That amount of water would be noticeable you would hear it in the system and it would affect the fluid performance. I would verify the sample taken and sent to the lab was a true representative sample of what is circulating through the system and not due to taking the sample from a dirty sampling port I recommend re sampling the system 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 abnormally high.
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