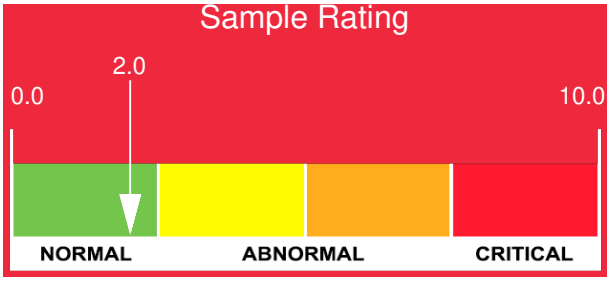
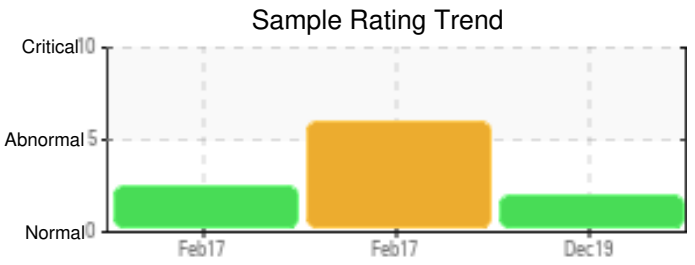




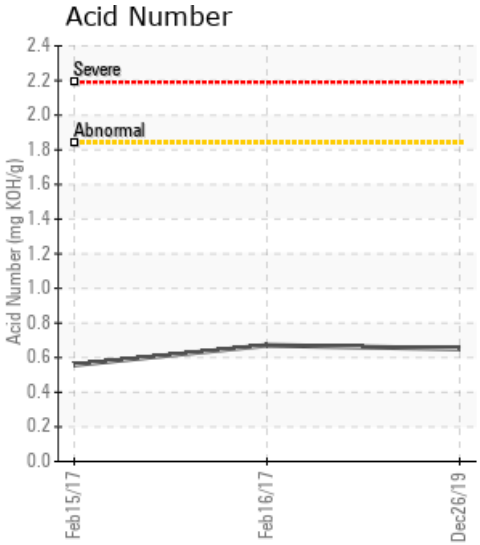
HEAT TRANSFER

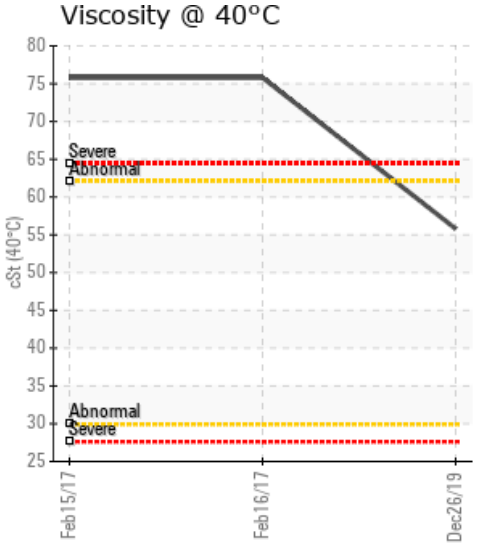
Customer: PTRHTF10185	System Information	Sample Information
Bitumar USA Inc 29 Terminal Road Providence, RI 02905 USA Attn: Dennis Leamy Tel: E-Mail: dleamy@hudsoncompanies.com	System Volume: 28000 gal Bulk Operating Temp: 490F / 254C Heating Source: Blanket: Fluid: N/A Make: WELLS CORP.	Lab No: 02329110 Analyst: Gaston Arseneault Sample Date: 12/26/19 Received Date: 12/27/19 Completed: 01/10/20

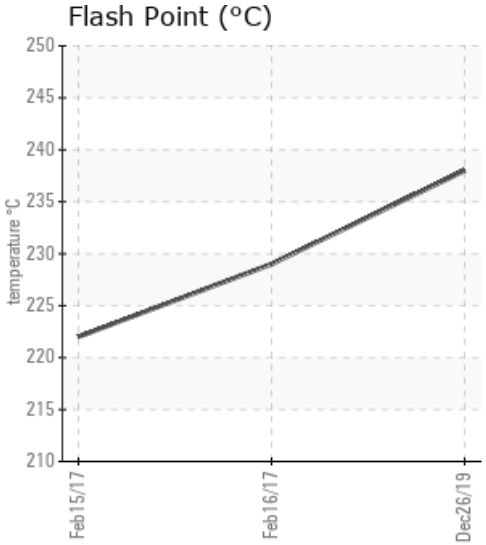
Recommendation: The oil viscosity has dropped since the last sample 2 years ago, presumably because of the addition of fresh oil. However, the solids present remain very high at 2.4% by weight so there are a lot of debris and particles circulating with the oil. The Acid Number, an indicator of the degradation (oxidation) level of the oil is considered very high at 0.65 considering the huge volume of oil in this system. We do not believe that a system flush or clean is needed but the effect of oxidation (causing the high viscosity and high Acid Number) can be reduced by replacing a percentage of the charge with fresh oil.

Comments: Pentane Insolubles levels are severely high. Visc @ 100°C is abnormally high.

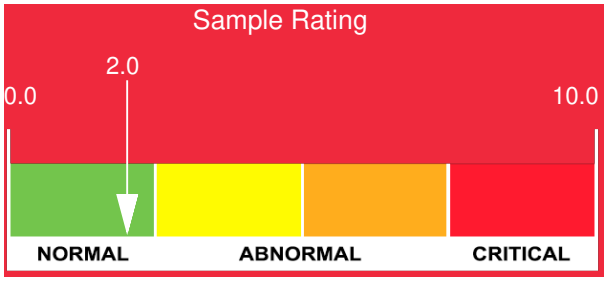
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
12/26/19	12/27/19	3y	CIRCULATOR	460 / 238	33.9	55.8	0.651	2.37	754 / 401	851 / 455	955 / 513	0.00
02/16/17	02/24/17	10y	2 HRS AFTER SHUTDOWN	444 / 229	78.0	75.8	0.671	2.30	726 / 386	851 / 455	984 / 529	1.33
02/15/17	02/24/17	10y		432 / 222	63.1	75.8	0.558	2.48	716 / 380	841 / 450	978 / 526	2.09
Baseline Data				32 / 0								

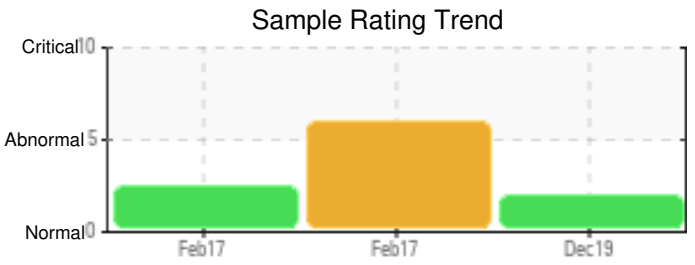






PETRO-CANADA LUBRICANTS

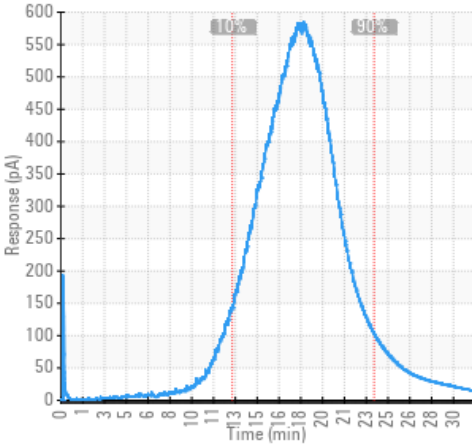




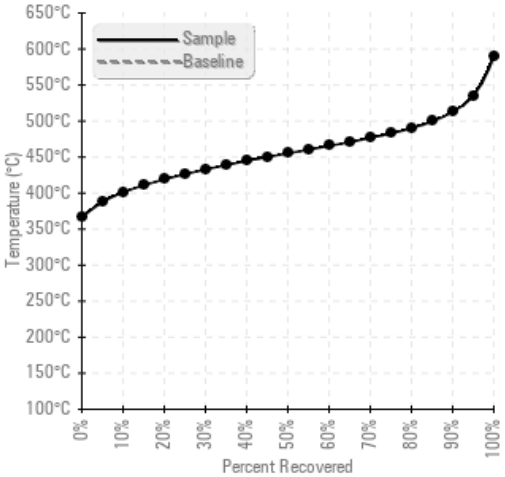
Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
12/26/19	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8	0	7	5
02/16/17	80	0	1	0	2	0	0	0	0	1	1	2	0	0	0	0	1	0	2	0	3	0	2	2
02/15/17	79	0	1	0	2	0	0	0	0	1	1	1	0	0	0	0	1	0	2	0	3	0	2	2
Baseline Data													0						0				0	

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

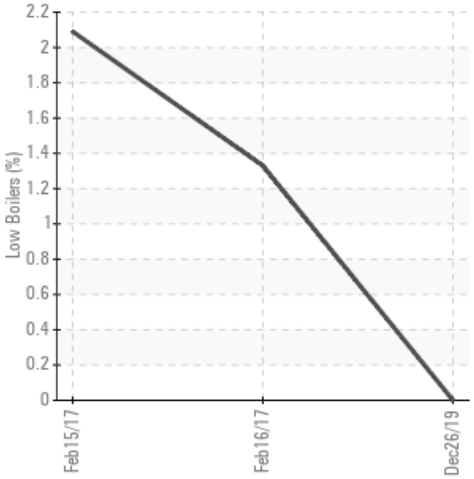
GCD Spectrum



Gas Chromatography Distillation



% Boiling < 335°C



Historical Comments

02/16/17	Analysis show and flag high viscosity at 75.8@ 40 degrees C. Fluid is assumed to be a rebrand of Chevron Heat Transfer fluid with viscosities of either 22 or 46, as it is believed that Ocean State does not produce their own HTF. High viscosity could be the result of current or past Asphalt leak into the system, this is also further supported by the flagged solid content -(Pentane Insolubles) at 2.30 which is, normal would be .5 or below. GCD 90% - 529.1 and is flagged. Fluid is heavy with solids and/or residues from current or past asphalt leak, again consistent with the 2.30 value of Pentane Insolubles. Pentane Insolubles levels are severely high. (GCD) 90% Distillation Point is abnormal. Pentane Insolubles levels are severely high. (GCD) 90% Distillation Point is abnormal.
02/15/17	Analysis show and flag high viscosity at 75.8@ 40 degrees C. Fluid is assumed to be a rebrand of Chevron Heat Transfer fluid with viscosities of either 22 or 46, as it is believed that Ocean State does not produce their own HTF. High viscosity could be the result of current or past Asphalt leak into the system, this is also further supported by the flagged solid content -(Pentane Insolubles) at 2.48 which is, normal would be .5 or below. GCD 90% - 525.6 and is flagged. Fluid is heavy with solids and/or residues from current or past asphalt leak, again consistent with the 2.48 value of Pentane Insolubles. Pentane Insolubles levels are severely high. (GCD) 90% Distillation Point is abnormal.