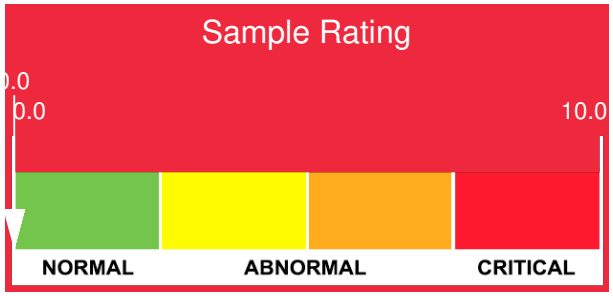
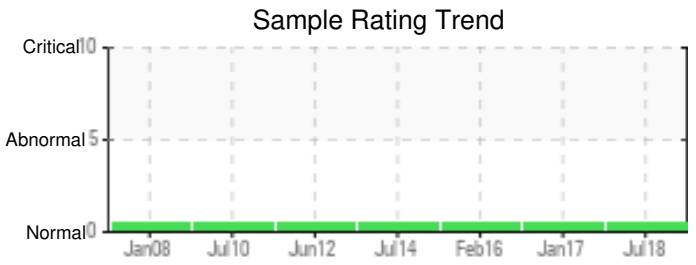




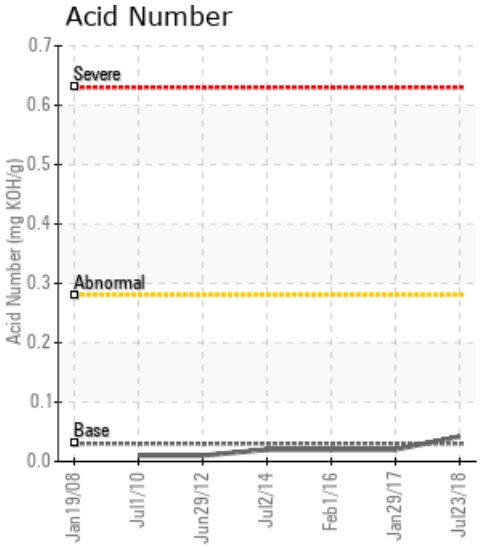
[JEREMY MOWRY] WEST SYSTEM

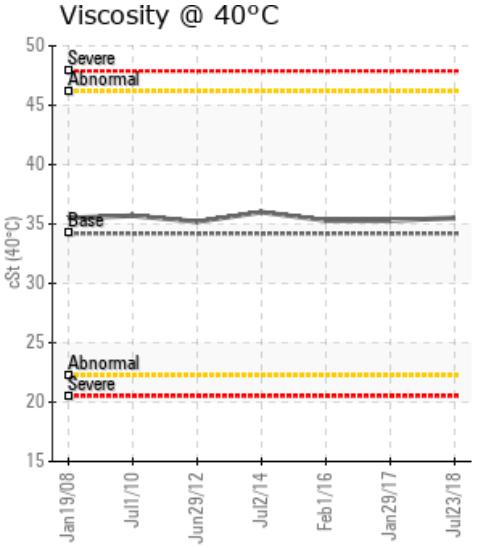
Customer: PTRHTF10182	System Information	Sample Information
American Cast Iron Pipe Co. 1501 31st Avenue North Birmingham, AL 35207 USA Attn: Jeremy Mowry Tel: (205)325-7905 E-Mail: jmowry@american-usa.com	System Volume: 5875 gal Bulk Operating Temp: 540F / 282C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: WUERZ	Lab No: 02234145 Analyst: Manny Garcia Sample Date: 07/23/18 Received Date: 08/16/18 Completed: 08/20/18 To discuss this report contact Manny Garcia at 954-384-7259

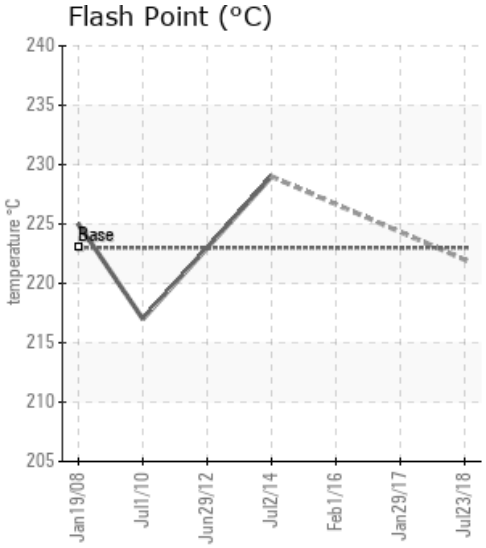
Recommendation: Fluid is suitable for continued use. Please re-submit next scheduled sample in July 2019

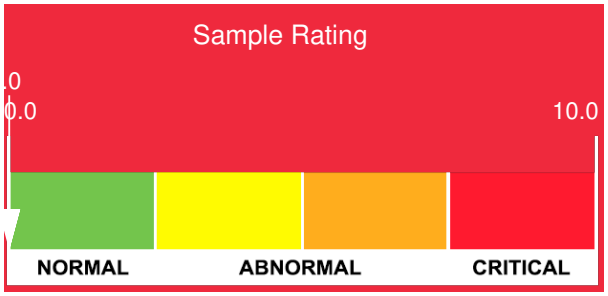
Comments: Some light/moderate debris noticed in the fluid by the lab. If the system has any filters, changing them is recommended; if the fluid in the system can be filtered safely during any system shutdowns with a kidney-loop filtration system that would be beneficial.

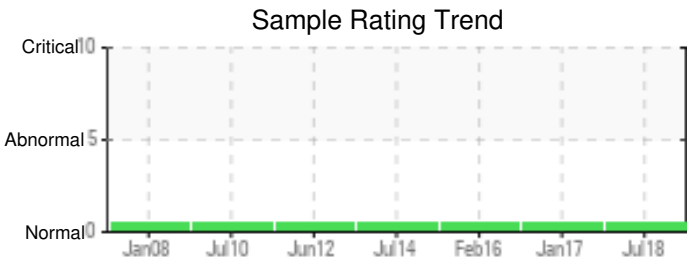
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/23/18	08/16/18	11y	PUMP OUTLET	432 / 222	1.7	35.5	0.042	0.035	713 / 378	802 / 428	891 / 477	0.00
01/29/17	05/24/18	0y			10.7	35.3	0.02	0.036	693 / 367	797 / 425	922 / 495	1.83
02/01/16	05/24/18	0y			21.9	35.3	0.02	0.035	690 / 365	799 / 426	909 / 487	4.00
07/02/14	07/22/14	7y	PUMP INLET	444 / 229	17.3	36.0	0.02	0.095	713 / 378	807 / 430	899 / 482	0.18
06/29/12	07/09/12		PUMP INLET	433 / 223	49	35.2	0.01	0.012	715 / 380	803 / 428	892 / 478	0.33
07/01/10	07/13/10		PUMP INLET	423 / 217	42	35.7	0.01	0.020	711 / 377	798 / 426	883 / 473	0.457
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





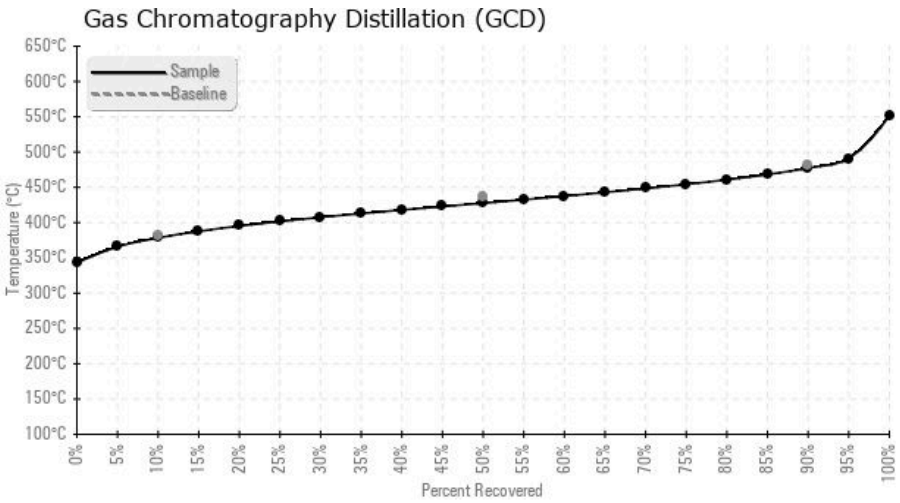


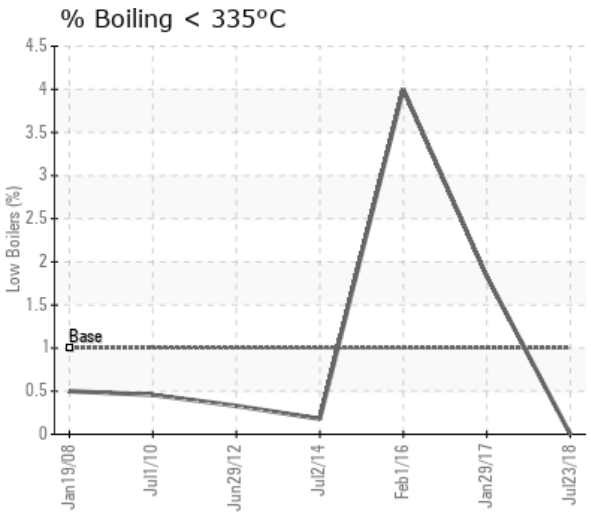




Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
07/23/18	4	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	4	1	0	1	3
01/29/17	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
02/01/16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
07/02/14	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0
06/29/12	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
07/01/10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1
Baseline Data			0	0						0			0	0					0				0	

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





Historical Comments

01/29/17	Fluid is suitable for continued use. Please re-sample in May, 2019. Fluid could be filtered during a safe time to reduce the light debris seen in the sample. Please include the time on the Petrotherm fluid and the time on the system during the next sample submission.(GCD) 90% Distillation Point is marginally high. This value can be mitigated by 'venting' the system. Some very light debris seen in the sample. (GCD) 90% Distillation Point is marginally high.
02/01/16	Fluid is suitable for continued use. Please include the age of the fluid and the age of the system on the label during May of 2019 annual sample submission. Light debris can be filtered during an appropriate time and if there are any system filters, please schedule them for a change-outLight debris noticed in fluid sample
07/02/14	The oil is still showing results that are normal and close to fresh oil. Contamination is minimal. Re-sample same time next year or before a maintenance shut down.
06/29/12	The oil properties look very much like fresh oil. Keep up the good work. Try to sample every year if possible. We understand in this case it's like watching grass grow but trending data is key to an oil analysis program.
07/01/10	The oil condition looks excellent. The oil is definitely suitable for further use according to the results