

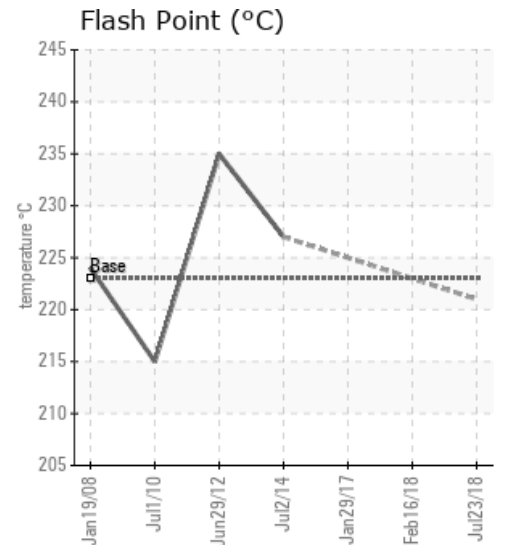
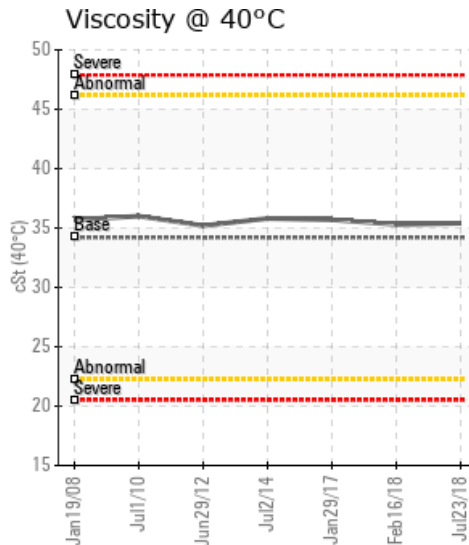
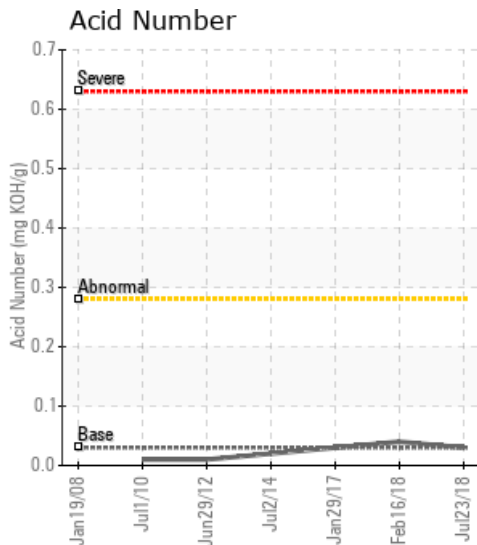
EAST SYSTEM

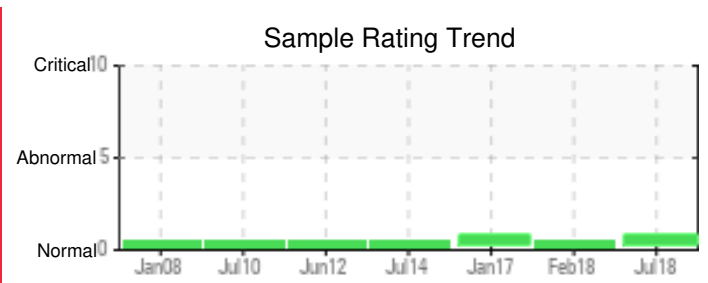
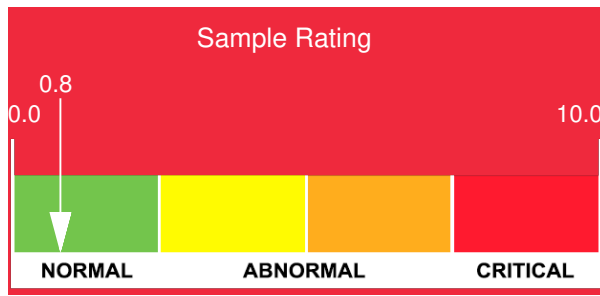
Customer: PTRHTF10182	System Information	Sample Information
American Cast Iron Pipe Co. 1501 31st Avenue North Birmingham, AL 35207 USA Attn: Jeremy Mowry Tel: (205)325-7905 E-Mail: jmowry@american-usa.com	System Volume: 5875 gal Bulk Operating Temp: 540F / 282C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: WUERZ	Lab No: 02234146 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.

Comments: (GCD) 90% Distillation Point is marginally low. 'Venting' the system could bring this value up to normal. Light debris noticed by the lab. Please change any system filters and/or filter the system fluid safely during any shutdowns with a portable kidney-loop filtration system.

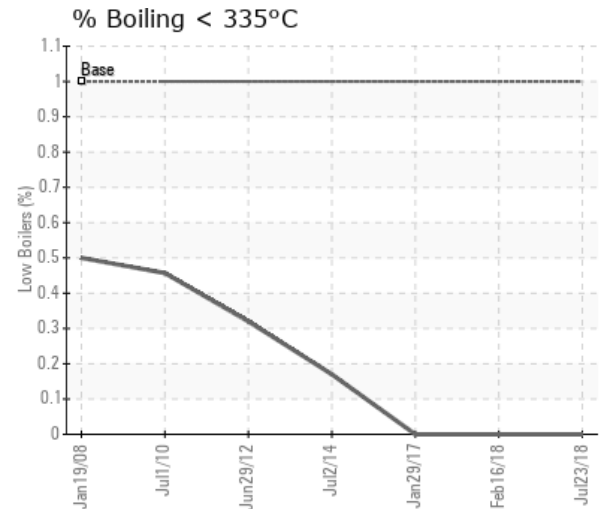
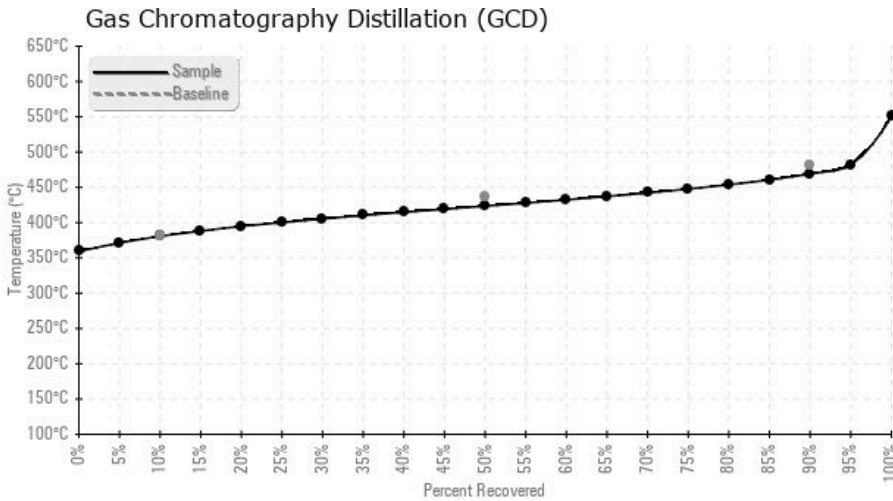
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/23/18	08/16/18	11y	PUMP OUTLET	430 / 221	2.2	35.4	0.030	0.025	717 / 381	794 / 424	877 / 469	0.00
02/16/18	05/24/18	0y			29.0	35.3	0.04	0.058	711 / 377	799 / 426	909 / 487	0.00
01/29/17	05/24/18	0y			21.2	35.7	0.03	0.037	708 / 376	778 / 414	871 / 466	0.00
07/02/14	07/22/14	7y	PUMP INLET	441 / 227	16.7	35.8	0.02	0.119	713 / 378	808 / 431	899 / 482	0.17
06/29/12	07/09/12		PUMP INLET	455 / 235	55	35.2	0.01	0.011	714 / 379	803 / 428	895 / 480	0.32
07/01/10	07/13/10		PUMP INLET	419 / 215	48	36	0.01	0.007	709 / 376	797 / 425	884 / 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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
02/16/18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3
01/29/17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3
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	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	1
07/01/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	
02/16/18	Fluid is suitable for continued use. Please re-submit annual sample of Petro-therm in May 2019. During a safe shutdown opportunity the fluid can be filtered with a kidney-loop filtration system to clean up any contamination. If system has any filters, please schedule them to be changed. Light Debris noticed in sample of fluid
01/29/17	Fluid is suitable for continued use. 'Venting' the system may improve the 90% distillation point. Changing system filters or filtering fluid with a kidney loop system may reduce any 'debris' found in sample. Please include the age of the fluid and the age of the heat transfer system on next year's label. Re-submit fluid sample in May 2019. Light debris seen in fluid sample. (GCD) 90% Distillation Point is abnormally low.
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 appears to be in acceptable condition for further service. We are noticing the oxidation level (Acid Number) is rising. Resample in 6-9 months to monitor the fluid condition.

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