

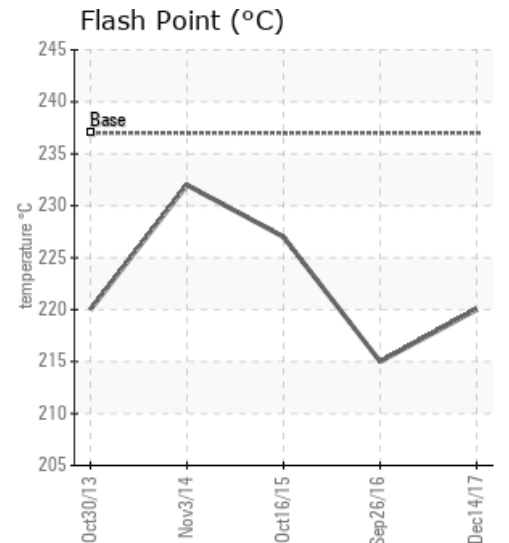
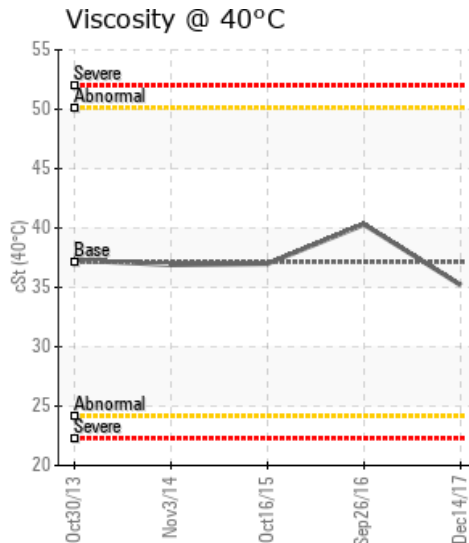
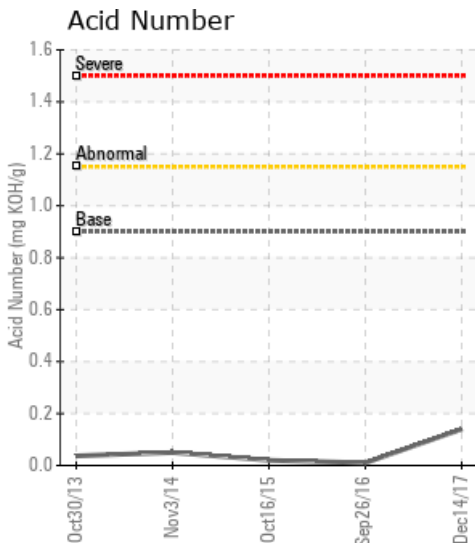
CS HOT OIL SYSTEM

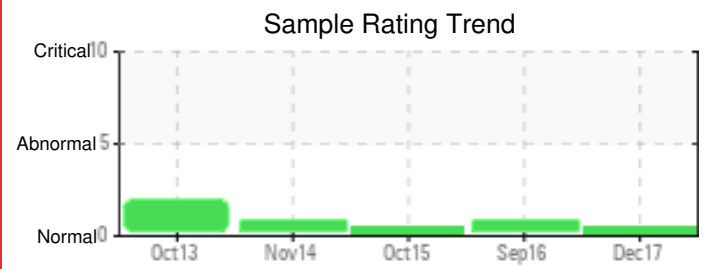
Customer: PTRHTF10139	System Information	Sample Information
ARCHER DANIELS MIDLAND (ADM) 1251 BEAVER CHANNEL PKWY. CLINTON, IA 52732 USA Attn: Tim Wiedner Tel: (563)244-6543 E-Mail: tim.wiedner.contractor@adm.com	System Volume: 2000 gal Bulk Operating Temp: 600F / 316C Heating Source: Blanket: Fluid: PETRO CANADA PURITY FG HEAT TRANSFER FLUID Make: VAPOR POWER	Lab No: 02205580 Analyst: Neil Buchanan Sample Date: 12/14/17 Received Date: 03/22/18 Completed: 03/23/18 To discuss this report contact Neil Buchanan at 612-619-6571

Recommendation: Sample looks good and is suitable for further use. Resample next interval.

Comments:

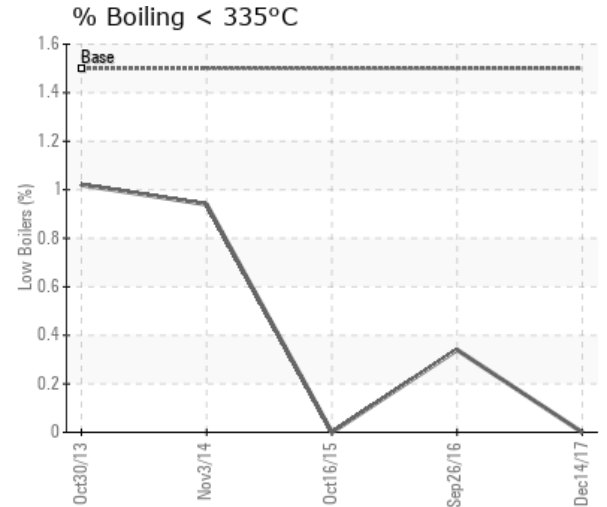
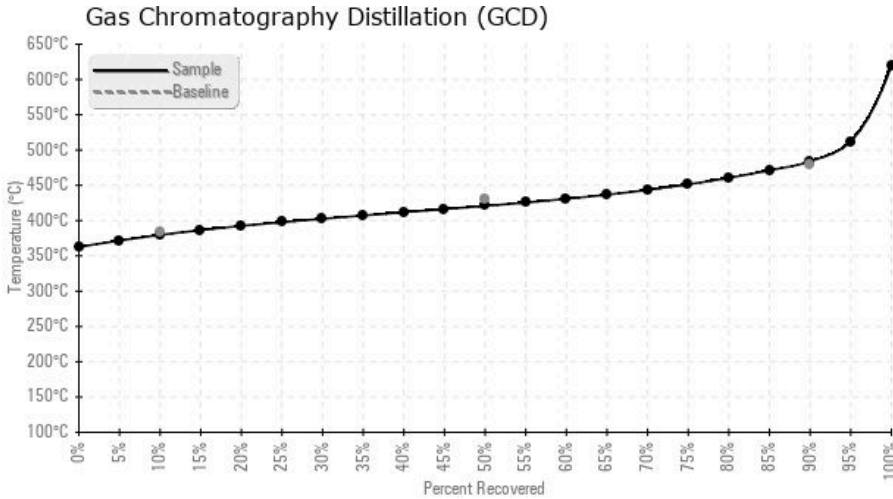
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
12/14/17	03/22/18	0y		428 / 220	15.2	35.2	0.14	0.062	715 / 380	789 / 421	903 / 484	0.00
09/26/16	10/25/16	1y	PUMP	419 / 215	73.7	40.3	0.01	0.094	726 / 386	831 / 444	963 / 517	0.34
10/16/15	11/12/15	0y	OFF PROCESS PIPING	441 / 227	7.4	37.0	0.02	0.058	709 / 376	799 / 426	914 / 490	0.00
11/03/14	11/17/14	0y	OFF PUMP	450 / 232	88.5	36.9	0.05	0.141	715 / 380	813 / 434	923 / 495	0.94
10/30/13	11/13/13	0y	PUMP	428 / 220	13.2	37.3	0.037	0.117	713 / 378	814 / 435	924 / 495	1.02
Baseline Data				459 / 237		37.12	0.90		721 / 383	807 / 431	892 / 478	1.5





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
12/14/17	16	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	36	0
09/26/16	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
10/16/15	7	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	1	1
11/03/14	16	0	0	0	0	0	0	2	0	0	1	1	0	0	0	0	0	0	1	0	2	0	2	1
10/30/13	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Baseline Data			0	0						0			0	0					0				230	

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



Historical Comments	
09/26/16	(GCD) 90% Distillation Point is elevated but fluid is fit for further service. Resample next interval.
10/16/15	Sample looks good and fit for further use. Resample at the next interval.
11/03/14	Sample looks good and is fit for further use. Resample at next interval. (GCD) 90% Distillation Point is marginally high.
10/30/13	It would have been useful to have the time the has been in the system. The oil condition is acceptable for further use and no action are needed at this time. Re-sample yearly at least.

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