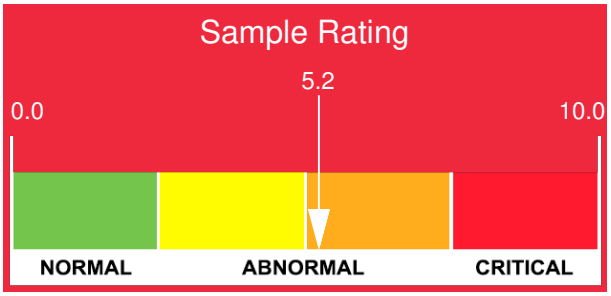
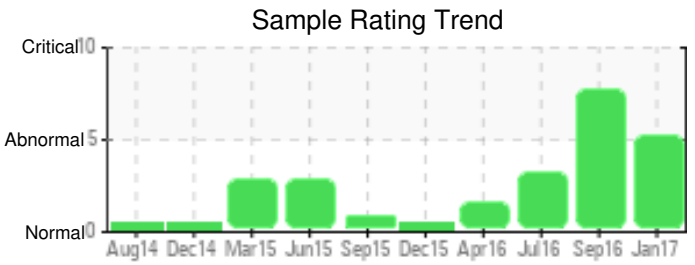
PETRO-CANADA





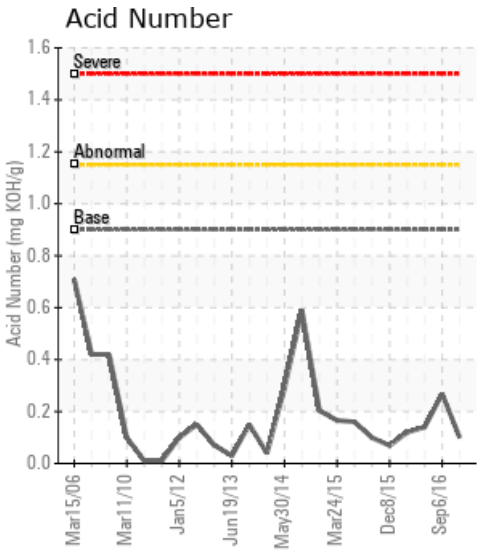
WEST HOT OIL SYSTEM

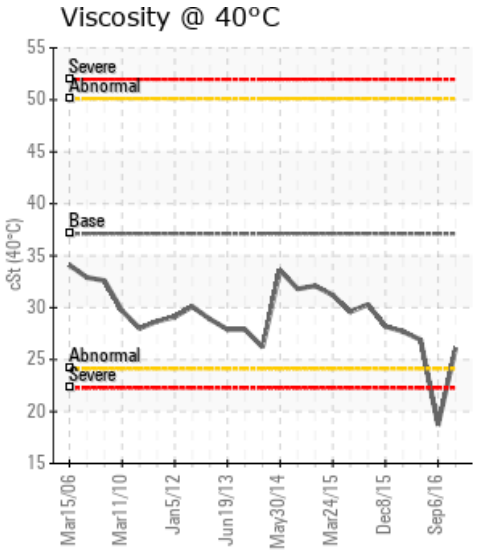
Customer: PTRHTF10004	System Information	Sample Information
ADM VITAMIN E PLANT 3700 EAST DIVISION STREET DECATUR, IL 62526 USA Attn: Rick Cluck Tel: (217)451-7770 E-Mail: ricky.cluck@adm.com	System Volume: 2200 gal Bulk Operating Temp: 550F / 288C Heating Source: Blanket: Fluid: PETRO CANADA PURITY FG HEAT TRANSFER FLUID Make: AMERICAN	Lab No: 02123408 Analyst: Bill Quesnel CLS,OMA II,MLA-III,LLA-I Sample Date: 01/18/17 Received Date: 01/23/17 Completed: 04/10/18 To discuss this report contact Bill

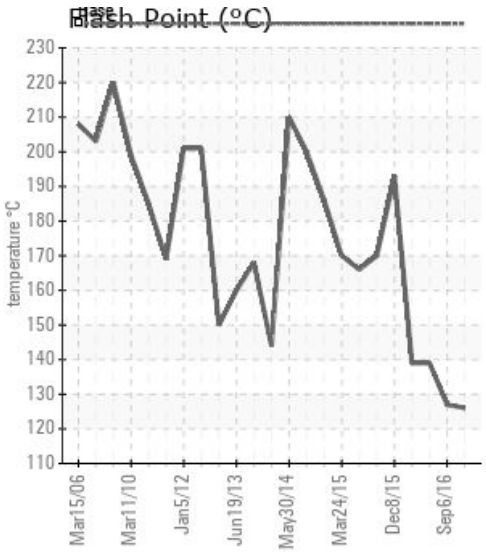
Recommendation: NOTE: Sample is more than 1 year old and was never completed. Closing out in LIMS system. Please refer to more recent sample analysis for any maintenance/corrective actions.

Comments: COC Flash Point is severely low. (GCD) % < 335°C is marginally high. (GCD) 90% Distillation Point is marginally high. (GCD) 10% Distillation Point is marginally low.

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	%
01/18/17	01/23/17	0y	B24 H.O. PUMP	259 / 126	7.0	26.1	0.10	0.048	651 / 344	806 / 430	919 / 493	8.31
09/06/16	09/12/16	0y	B24B H.O. PUMP	261 / 127	0.6	18.7	0.268	0.043	662 / 350	802 / 428	903 / 484	7.38
07/06/16	07/12/16	0y	24B HOT OIL PUMP	282 / 139	0.00	26.9	0.14	0.074	660 / 349	802 / 428	915 / 490	7.43
04/18/16	04/26/16	2y	FILTER	282 / 139	6.9	27.7	0.12	0.040	668 / 353	803 / 429	908 / 487	6.87
12/08/15	12/15/15	0y	FILTER STREAM	379 / 193	4.3	28.2	0.069	0.036	690 / 366	805 / 429	902 / 483	4.10
09/15/15	09/29/15	12y	FILTER STREAM	338 / 170	16.9	30.3	0.099	0.070	680 / 360	804 / 429	909 / 487	5.58
Baseline Data				459 / 237		37.12	0.90		721 / 383	807 / 431	892 / 478	1.5







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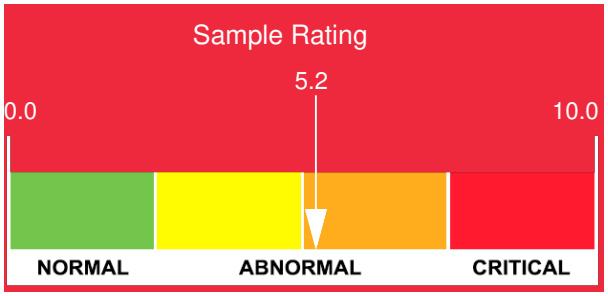
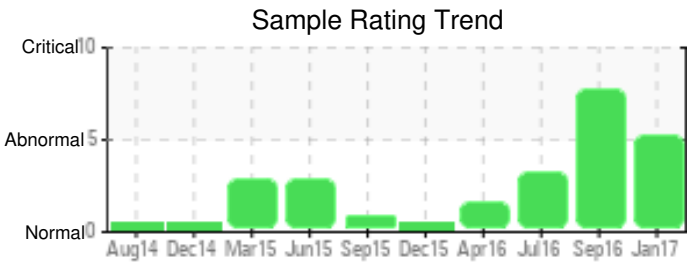
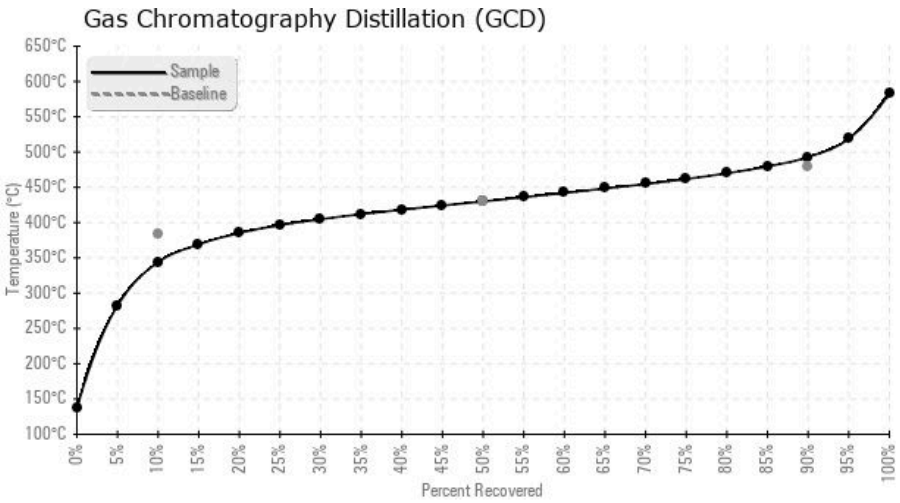
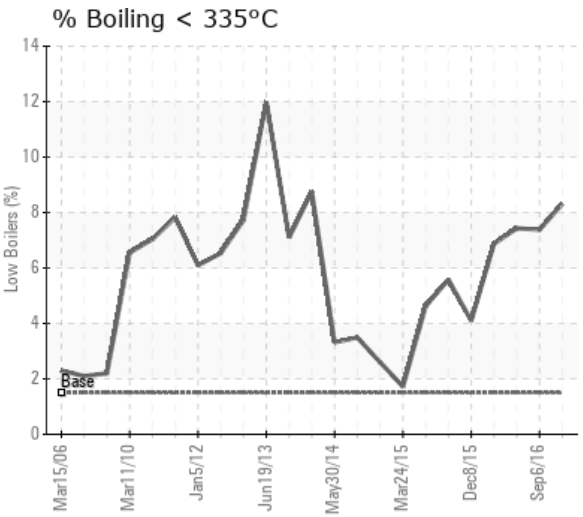




Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
01/18/17	6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0
09/06/16	7	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	11	0
07/06/16	10	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	12	0
04/18/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0
12/08/15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
09/15/15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
Baseline Data			0	0						0			0	0					0				230	

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





Historical Comments

09/06/16	The viscosity of the fluid has dropped drastically while the flash dropped modestly, but it is now at a low value of 260F, nearly 180F below fresh oil. The low boilers passed the 7% mark now. We suggest to start planning a replacement for this fluid in the upcoming months since venting would be the only way to remove low boilers but that is not possible at this location. COC Flash Point is severely low. Visc @ 40°C is severely low. (GCD) 10% Distillation Point is marginally low.
07/06/16	The fluid condition has virtually unchanged since the last sample. The flash point remains low. Please re-sample at the next quarter. COC Flash Point is severely low. (GCD) 90% Distillation Point is marginally high. (GCD) 10% Distillation Point is marginally low.
04/18/16	*** NOTE: COC Flash run two times, 139°C and 135°C ***. While the COC flash point was run twice, the result appears very low compared to the relatively low amount of low boilers. However, it confirms the presence of low boilers that reduce the boiling point of the fluid (based on the GCD 10%). Other properties look normal. Keep monitoring quarterly. COC Flash Point is severely low.
12/08/15	We can not explain why the viscosity dropped 2 cSt while the flash point and the amount of low boilers both improved. The best is to keep monitoring at quarterly interval.
09/15/15	The oil condition remained somewhat stable since the last sample. There is a very slight increase in low boilers by 1% by weight but the flash point remains unchanged. Other properties look normal. We apologize for the delay in reporting. COC Flash Point is marginally low.