

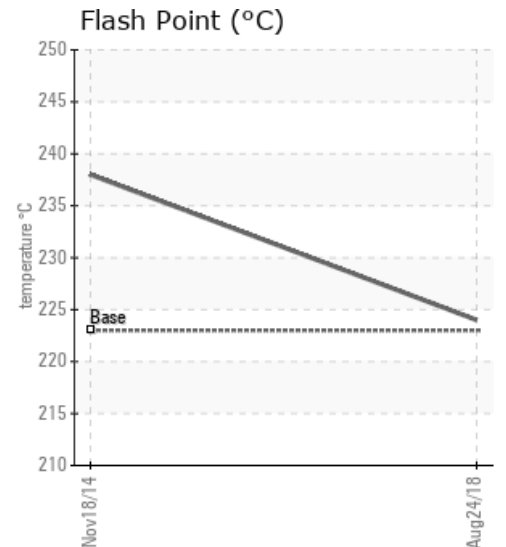
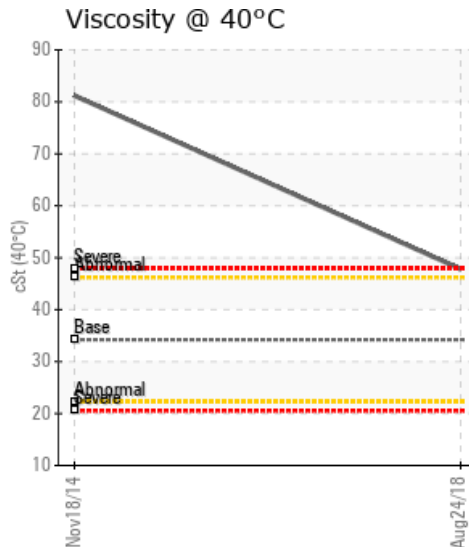
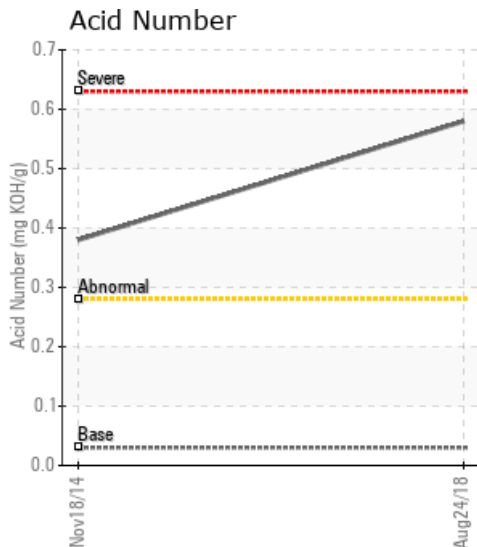
## [PEYTO 9-34-53-20W5M] PLANT 1 ALCO DE-ETH OIL

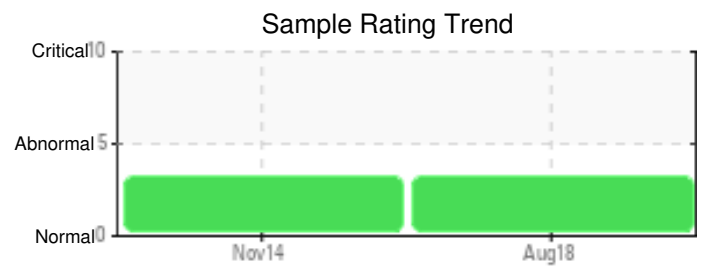
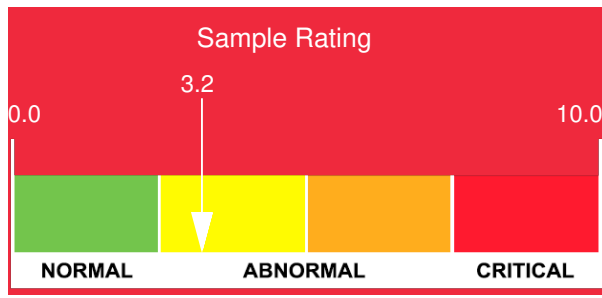
Customer: PTRHTF20124	System Information	Sample Information
PEYTO EXPLORATION 11-17-55-21W5 BOX 7198 EDSON, AB T7E 1V4 Canada Attn: Cory Pambrub Tel: (780)712-0217 E-Mail: cpambrun@peyto.com	System Volume: 2500 ltr Bulk Operating Temp: 356F / 180C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: ALCO	Lab No: 02236635 Analyst: Peter Harteveld Sample Date: 08/24/18 Received Date: 08/29/18 Completed: 09/03/18 To discuss this report contact Peter Harteveld at (780)967-4234

Recommendation: TAN and viscosity are high. This can be the result of oxidation. Please check proper operation of the blanket gas system. The high viscosity can also be the result of the high solids (pentane insoluble) content of the fluid. (over 3x the reportable limit of 0.5%) The fluid is suitable for further use but filtration of the fluid to lower the solids content is strongly advised.

Comments: Pentane Insolubles levels are severely high. Acid Number (AN) is abnormally high. Visc @ 40°C is abnormally high.

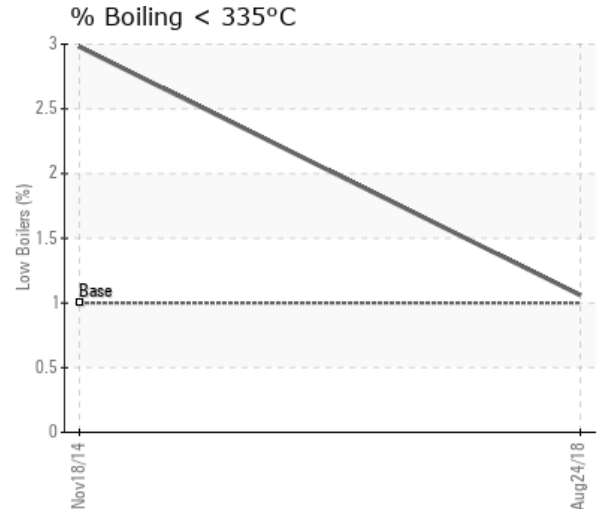
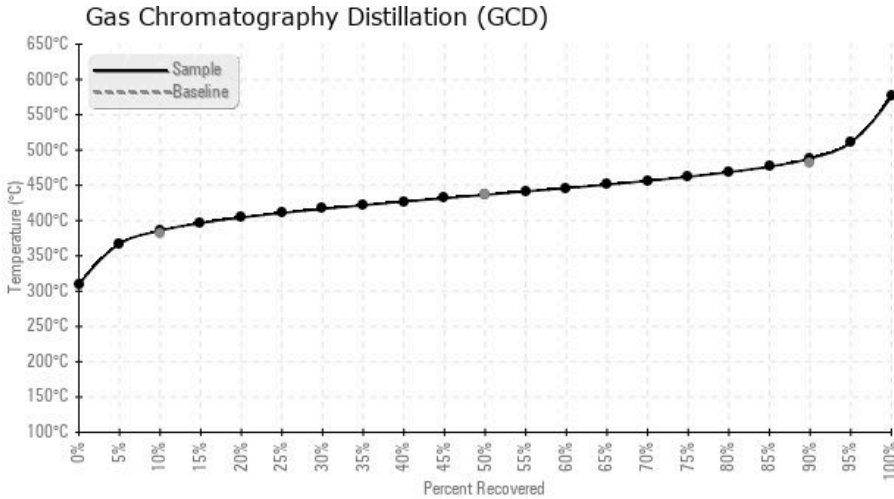
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
08/24/18	08/29/18	6m	BOTTOM DZAIN	435 / 224	21.1	47.8	0.58	1.72	726 / 386	818 / 437	910 / 488	1.06
11/18/14	11/19/14	2m	LOW POINT DRAIN	460 / 238	177.4	81.2	0.38	2.86	702 / 372	801 / 427	899 / 482	2.98
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
08/24/18	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	15	0	4	4
11/18/14	120	0	0	1	1	0	0	0	0	0	11	0	1	0	0	0	2	0	11	0	8	0	4	2
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

11/18/14	Viscosity and TAN are high. The solids content of the fluid has exceeded the limit with >5x. This can be the result of fluid oxidation or outside contamination. It is advised to plan a fluid change-out for the summer of 2015. Please re-sample in 6 months. Pentane Insolubles levels are severely high. Acid Number (AN) is abnormally high. Visc @ 40°C is abnormally high.
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