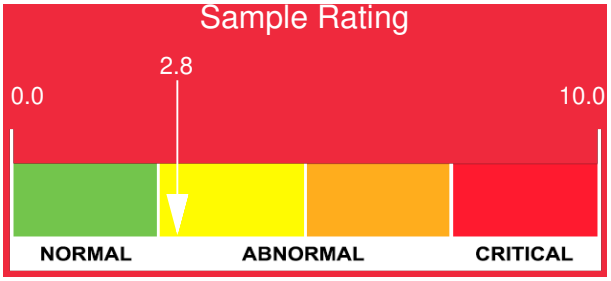
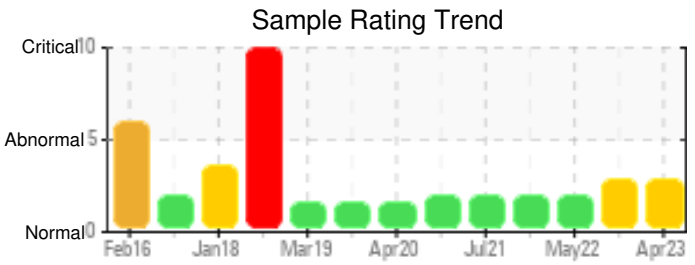




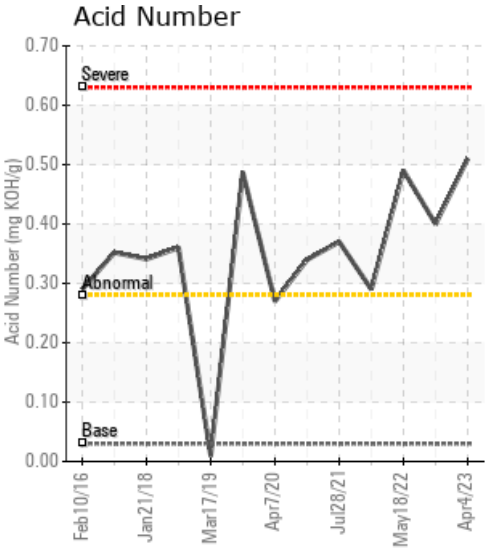
[11-21-55-20W5M] H-1210

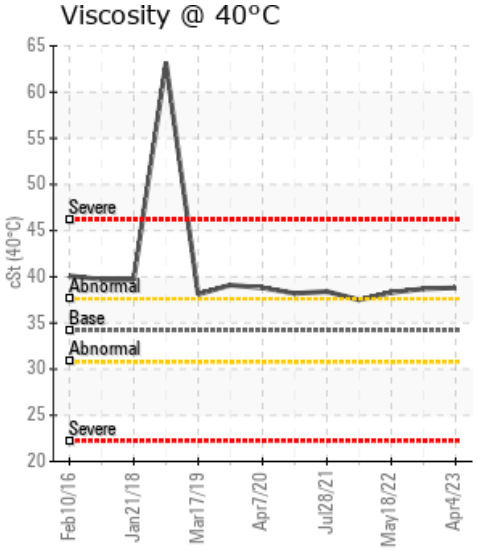
Customer: PTRHTF20228	System Information	Sample Information
PEYTO EXPLORATION Box 7198 EDSON, AB T7E 1V4 Canada Attn: Logan Pillage Tel: (780)712-9444 E-Mail: Lpillage@Peyto.com	System Volume: 27000 ltr Bulk Operating Temp: 320F / 160C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: ALCO	Lab No: 02550513 Analyst: Clinton Buhler Sample Date: 04/04/23 Received Date: 04/10/23 Completed: 04/12/23 Clinton Buhler Clinton.Buhler@HFSinclair.com

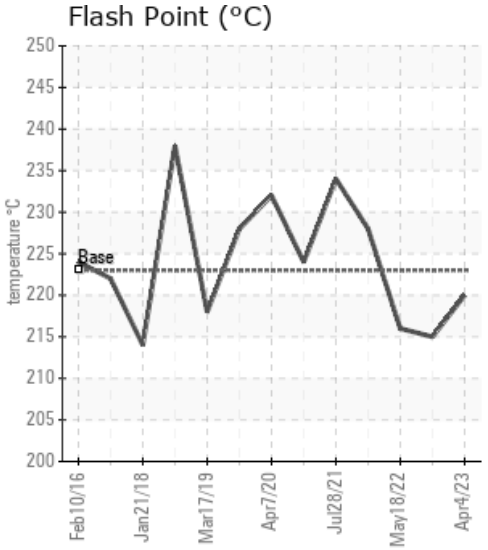
Recommendation: Fluid acidity and solids content has slightly increased since the last sample. Over the long term, system cleaning and fluid replacement should be considered during a planned outage. Please ensure blanket gas is functional in expansion tank and please re-sample in 6 months

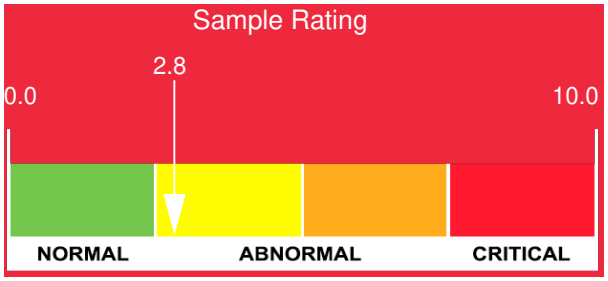
Comments:

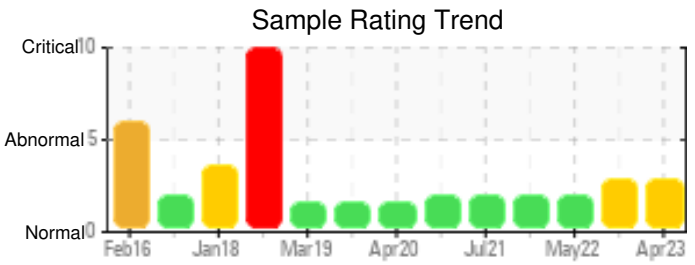
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
04/04/23	04/10/23	0.0y		428 / 220	18.3	38.8	0.51	0.740	719 / 382	812 / 433	909 / 487	1.39
10/13/22	10/18/22	0.0y	DISCHARGE PUMP SIDE	419 / 215	22.2	38.7	0.40	0.644	721 / 383	812 / 433	907 / 486	0.72
05/18/22	05/24/22	0.0y		421 / 216	0.9	38.3	0.49	0.432	720 / 382	811 / 433	909 / 487	0.48
11/09/21	11/12/21	0.0y	Discharge of pump	442 / 228	11.9	37.5	0.29	0.536	719 / 382	812 / 433	908 / 487	1.06
07/28/21	08/04/21	0.0y	DISCHARGE OF PUMP	453 / 234	21.6	38.4	0.37	0.489	720 / 382	810 / 432	903 / 484	0.59
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





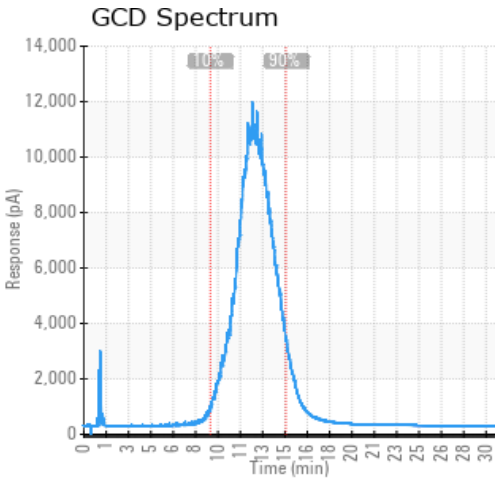


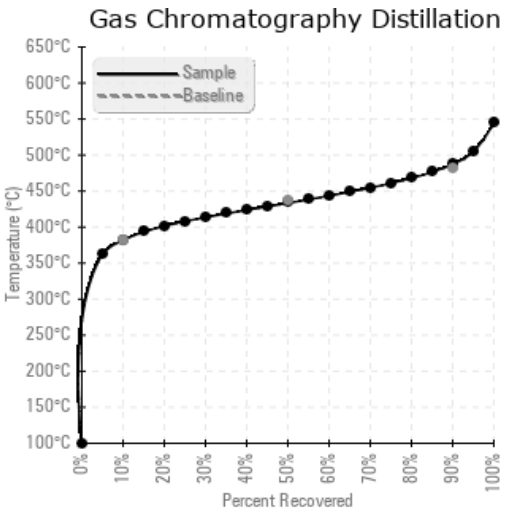


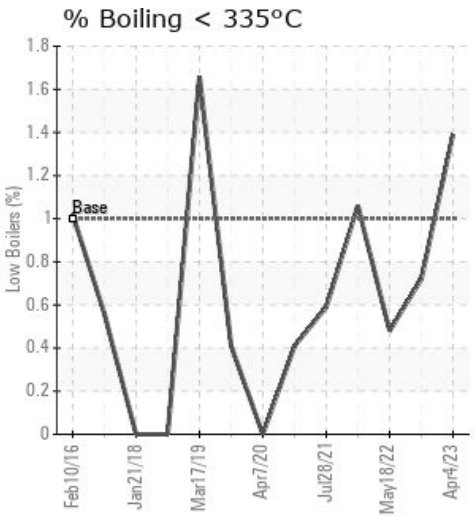


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
04/04/23	27	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
10/13/22	26	0	0	0	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
05/18/22	28	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
11/09/21	30	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
07/28/21	31	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
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

10/13/22	Sample results indicate the fluid is in comparable condition to the results from 5 months ago. Fluid acidity remain elevated but not yet at condemnable levels but solids content has increased. Fluid sweetening can help bring down the fluid acid number to prolong the life of the fluid and filtering is beneficial in controlling solids; perhaps a finer filter medium would better remove the particulate. Over the long term, system cleaning and fluid replacement should be considered during a planned outage. Please re-sample in 6 months
05/18/22	Sample results indicate the fluid is in comparable condition to the results from 6 months ago. Solids and fluid acidity remain elevated but not yet at condemnable levels. Fluid sweetening can help bring down the fluid acid number to prolong the life of the fluid and filtering is beneficial in controlling solids; perhaps a finer filter medium would better remove the particulate. Over the long term, system cleaning and fluid replacement should be considered during a planned outage. Please re-sample in 6 months
11/09/21	Sample results indicate the fluid is in suitable condition for continued service. Acid Number and Solids remain fairly flat. It would be good to investigate a finer micron kidney loop filter to help reduce the fluid's solid content further. Please ensure blanket gas is operational in the expansion tank for continued protection from oxidation.Please re-sample in 6 months and include time on oil with the next sample.
07/28/21	TAN and Pentane Insolubles are marginally high. Ensure Gas blanket is functioning to prevent oxidation of fluid. Resample in 6 months. Pentane Insolubles levels are abnormally high. Acid Number (AN) is abnormally high.