

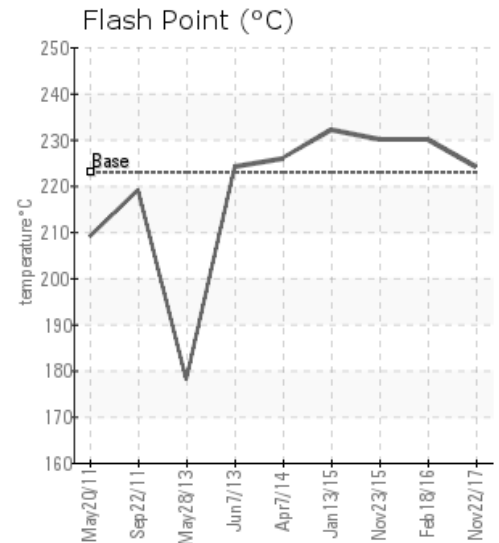
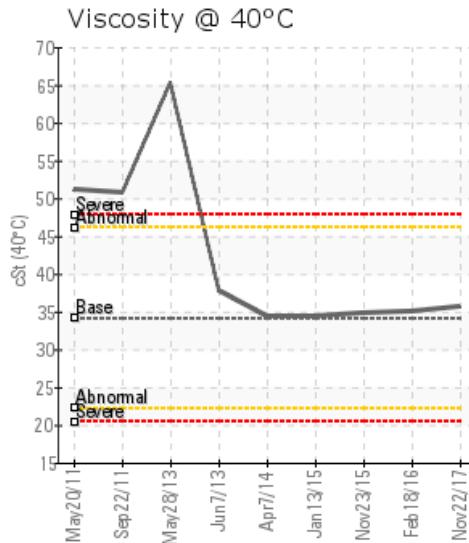
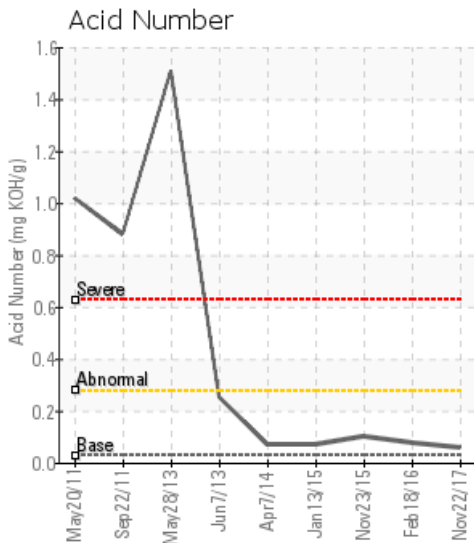
[OSIDIAN ENERGY / LSD 14-01-42-07 W5] LSD 14-01-42-07W5

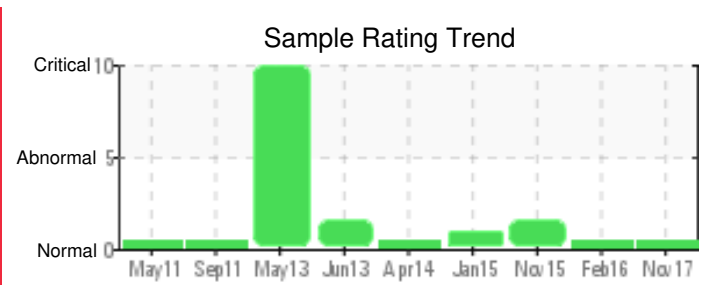
Customer: PTRHTF20039	System Information	Sample Information
BRENNTAG CANADA INC 3124-54TH AVENUE SE CALGARY, AB T2A 0A8 CANADA Attn: Marcie Sommerville Tel: E-Mail: msommerville@brenntag.ca	System Volume: 12000 ltr Bulk Operating Temp: 347F / 175C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make:	Lab No: 02186302 Analyst: Kevin McDermott Sample Date: 11/22/17 Received Date: 12/06/17 Completed: 12/15/17 To discuss this report contact Kevin McDermott at (403)215-7052

Recommendation: Fluid remains in excellent condition. Suggest to submit annual samples to proactively monitor fluid condition.

Comments:

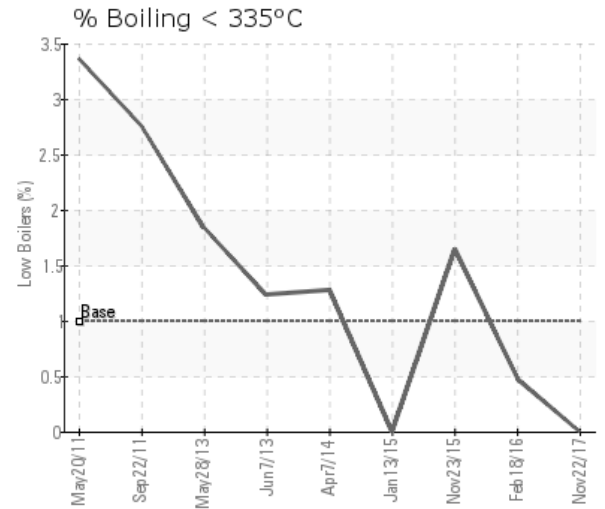
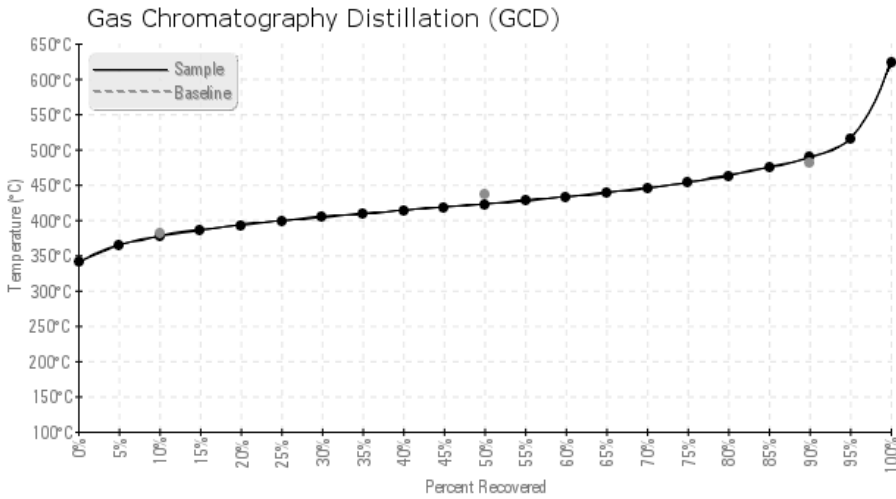
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
11/22/17	12/06/17	10y		435 / 224	15.6	35.7	0.06	0.309	710 / 377	793 / 423	912 / 489	0.00
02/18/16	03/10/16	0y	PUMP DISCHARGE	446 / 230	0.00	35.0	0.08	0.145	717 / 381	810 / 432	907 / 486	0.48
11/23/15	12/04/15	4y	HOT OIL PUMP	446 / 230	9.5	34.9	0.10	0.626	707 / 375	801 / 427	897 / 481	1.65
01/13/15	02/18/15	8y	HOT OIL SKID	450 / 232	95.3	34.5	0.07	0.701	713 / 378	796 / 424	913 / 490	0.00
04/07/14	04/17/14	1y	PUMP DISCHARGE	439 / 226	33.6	34.4	0.07	0.325	715 / 379	811 / 433	905 / 485	1.28
06/07/13	06/25/13	0y	LINE HEATER	435 / 224	71.2	37.9	0.253	1.53	713 / 378	806 / 430	901 / 483	1.23
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
11/22/17	16	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0
02/18/16	10	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
11/23/15	11	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
01/13/15	49	0	0	0	1	1	2	5	0	0	3	1	0	0	0	0	1	0	0	0	5	0	1	1
04/07/14	27	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
06/07/13	114	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	0	0	0	2	0	2	1
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	
02/18/16	Fluid is in very good condition. Continue with annual samples or more frequent if process conditions become severe.
11/23/15	Fluid in good condition and shows very little change from January 2015 sample. Suggest annual samples going forward, or more frequently if process conditions become severe. Pentane Insolubles levels are high.
01/13/15	Generally the fluid looks in good condition with a few comments to consider. Pentane Insolubles (suspended solids) are increasing over time. Installation of a system filter can help mitigate this condition. Water content can be reduced by short term venting of system. Suggest installation of a system filter, then re-sampling fluid in 6 months to monitor fluid condition. Pentane Insolubles levels are high.
04/07/14	Fluid is in good condition. Resample again in 12 months or sooner if system encounters any severe temperatures or changes.
06/07/13	The oil condition has improved dramatically since the last sample, presumably due to a fluid change-out. Iron content and insoluble solids remain high, but this may be due to hold up in the system following flushing. We recommend regular sampling (9-12 months) to monitor the condition of the oil. Pentane Insolubles levels are severely high.

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