

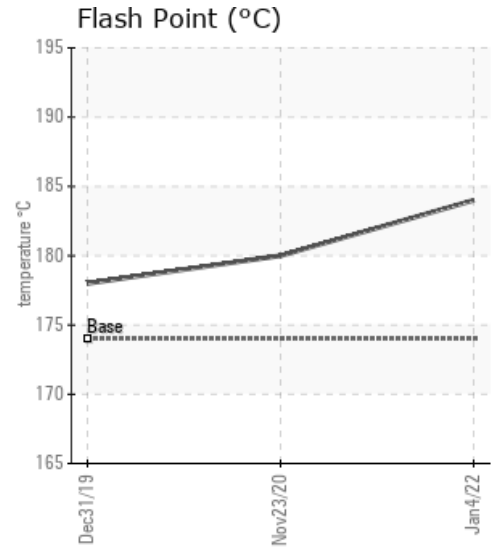
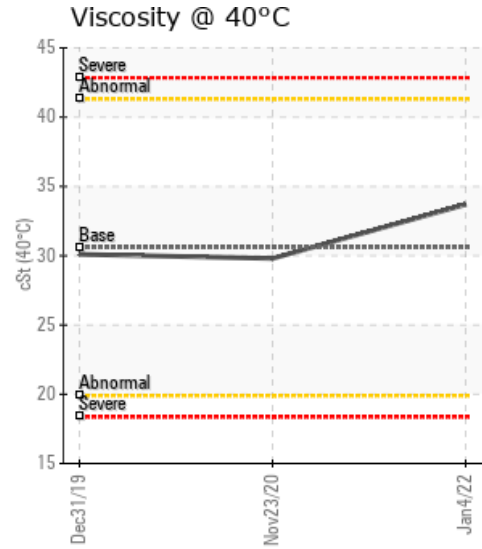
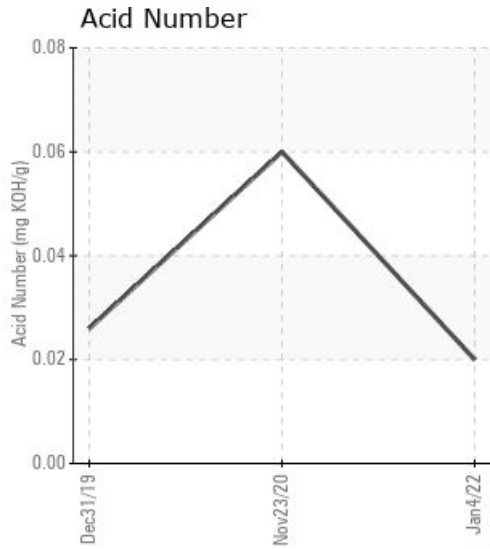
[LSD 11-21-66-03W6] PHASE 1/2 HEAT MEDIUM

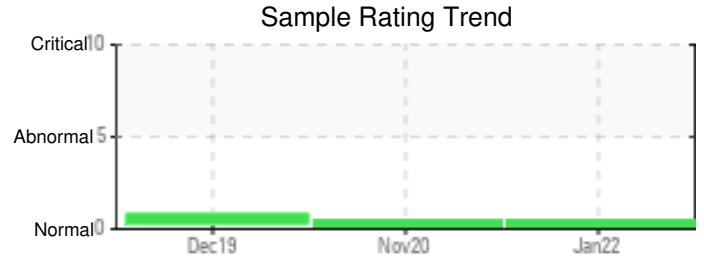
Customer: PTRHTF20236	System Information	Sample Information
Semcams Mldstream	System Volume: 10000 ltr	Lab No: 02467894
Grande Prairie, AB Canada	Bulk Operating Temp: 482F / 250C	Analyst: Clinton Buhler
Attn: Don Dempsey	Heating Source:	Sample Date: 01/04/22
Tel: (587)343-7564	Blanket:	Received Date: 01/24/22
E-Mail:	Fluid: BRENNTAG CHEMTHERM 550	Completed: 01/26/22
donald.dempsey@energytransfer.com	Make: HEAT TECH	Clinton Buhler
		Clinton.Buhler@hollyfrontier.com

Recommendation: Sample results indicate the heat transfer fluid is in suitable condition for continued service. Please re-sample in 12 months

Comments:

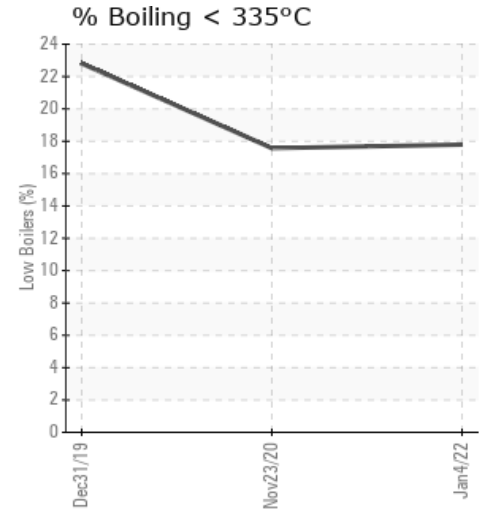
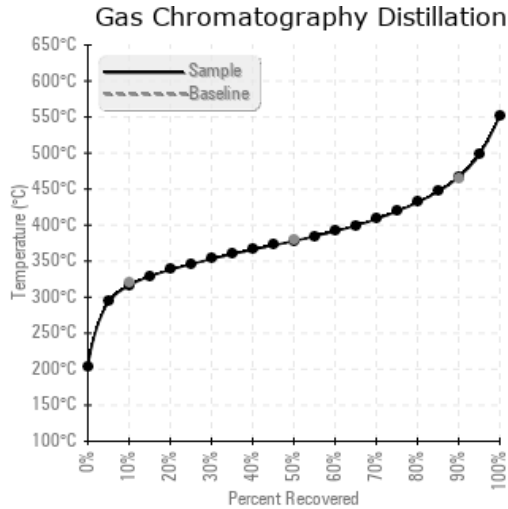
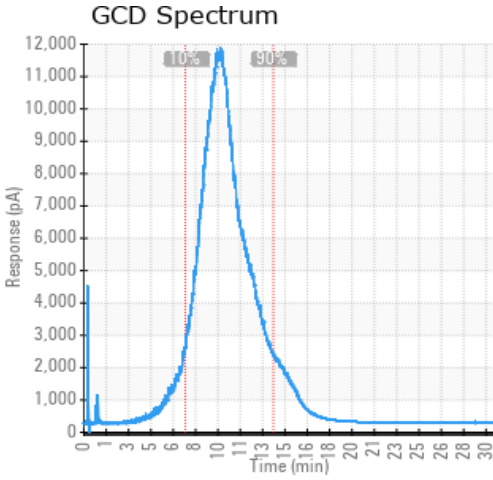
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
01/04/22	01/24/22	5.0y	Pump discharge	363 / 184	44.8	33.7	0.02	0.048	601 / 316	712 / 378	872 / 467	17.79
11/23/20	12/14/20	4.0y	Pump discharge	356 / 180	24.6	29.8	0.06	0.068	603 / 317	712 / 378	871 / 466	17.57
12/31/19	02/03/20	2.3y	UPSTREAM OF PUMP	352 / 178	0.00	30.1	0.026	0.045	592 / 311	695 / 368	843 / 450	22.81
Baseline Data				345 / 174		30.6			609 / 321	714 / 379	867 / 464	





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	
01/04/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11/23/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/31/19	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	
11/23/20	Sample results indicate that the thermal fluid is suitable for continued service. Please re-sample in 12 months.
12/31/19	Sample results indicate that the fluid is suitable for continued service. GCD 90% Distillation Point is marginally low. Please re-sample in 12 months

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