

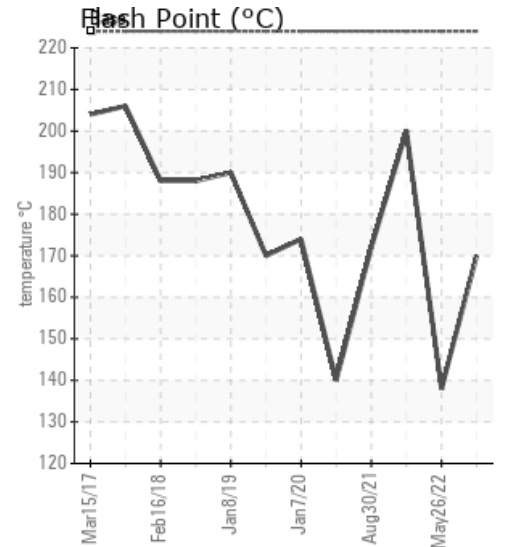
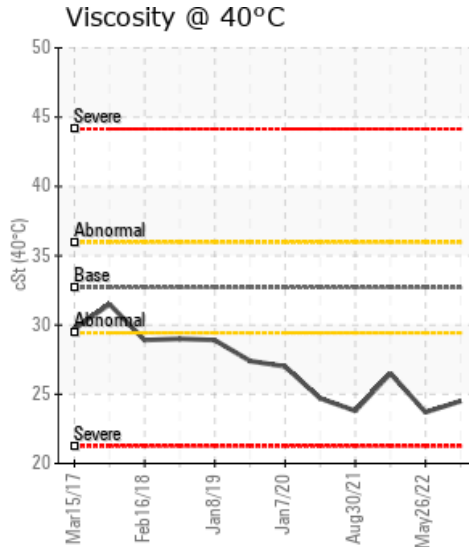
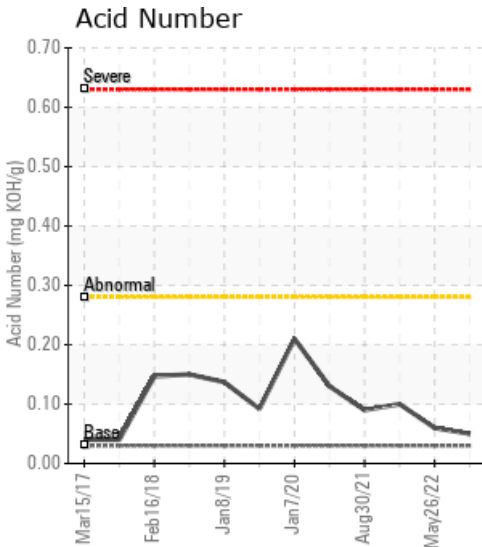
TFS H/O SYSTEM #2

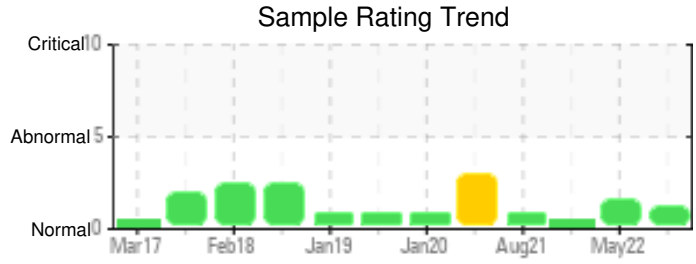
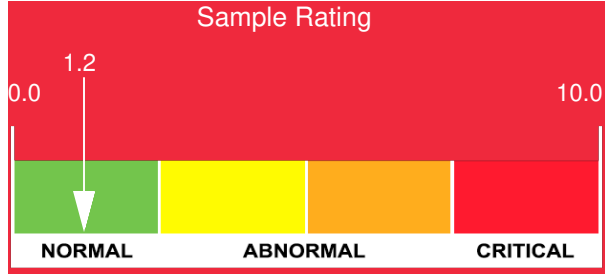
Customer: PTRHTF10176	System Information	Sample Information
CERTAINEED ROOFING 100 CERTAINEED DR JONESBURG, MO 63351 US Attn: Jeff Montgomery Tel: (952)261-9532 E-Mail: jeffrey.d.montgomery@saint-gobain.com	System Volume: 4244 gal Bulk Operating Temp: 525F / 274C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: FSE	Lab No: 02501991 Analyst: Neil Buchanan Sample Date: 07/15/22 Received Date: 07/26/22 Completed: 07/27/22 Neil Buchanan neil.buchanan@HFSinclair.com

Recommendation: Flash Point is very low and GCD % <335C is elevated showing the formation of low boilers.

Comments: COC Flash Point is abnormally low. Visc @ 40°C is abnormally low.

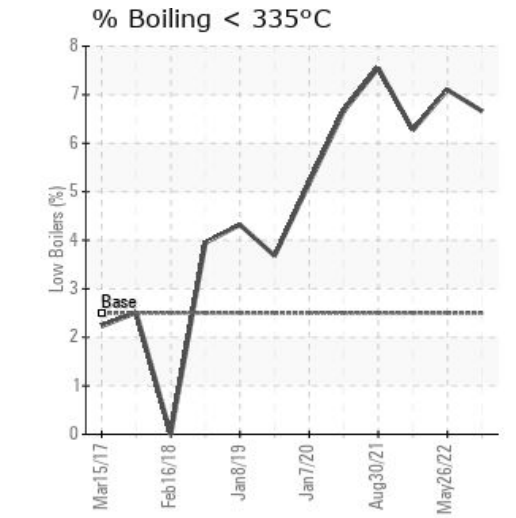
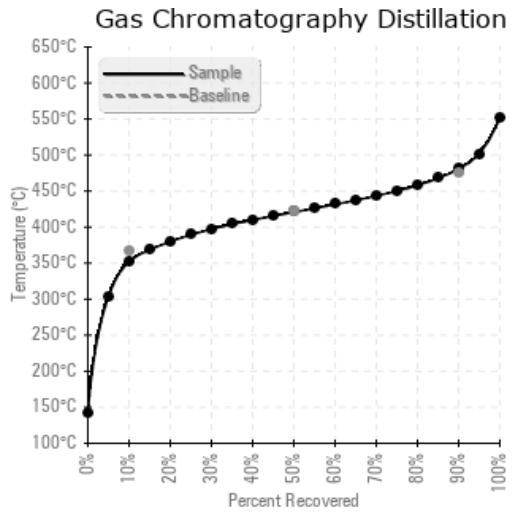
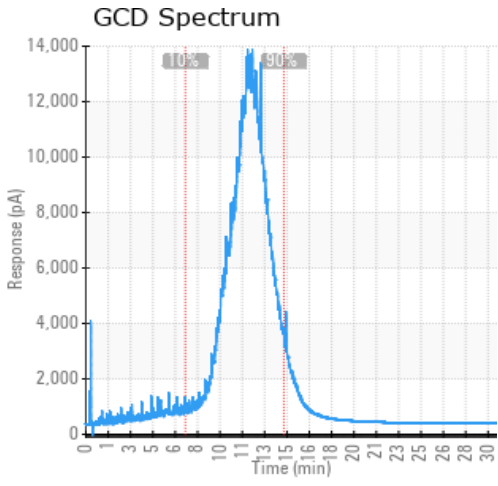
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/15/22	07/26/22	0.0m		338 / 170	27.7	24.5	0.05	0.074	666 / 352	789 / 421	897 / 481	6.66
05/26/22	06/09/22	0.0m		280 / 138	0.00	23.7	0.06	0.059	663 / 351	791 / 422	901 / 483	7.10
01/04/22	01/13/22	0.0m		392 / 200	15.8	26.5	0.10	0.089	670 / 355	792 / 422	902 / 483	6.27
08/30/21	09/07/21	48.0m	MAIN PUMP STRAINER	342 / 172	11.0	23.8	0.09	0.079	659 / 348	791 / 422	904 / 484	7.55
10/08/20	10/15/20	48.0m	SIDE STREAM	284 / 140	15.8	24.7	0.13	0.084	668 / 353	792 / 422	903 / 484	6.66
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5





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	
07/15/22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	131	0	
05/26/22	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	139	0
01/04/22	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	147	0
08/30/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	105	0
10/08/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	111	0
Baseline Data			0	0						0			0	0					0					270	

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



Historical Comments	
05/26/22	Flash Point is severely low and GCD shows the formation of some light boilers. Other properties are acceptable. COC Flash Point is severely low.
01/04/22	Sample looks good and is fit for further service. Resample next interval.
08/30/21	COC Flash Point is abnormally low. GCD indicates the formation of some low boiling hydrocarbons. Systems should be safely vented. COC Flash Point is abnormally low.
10/08/20	Viscosity is decreasing and light ends are increasing. Flash point is also getting in to critical area. We suggest planning on venting in the next couple of months to reduce light ends and raise viscosity and flash points. Resample after maintenance. COC Flash Point is severely low.

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