



HEAT MEDIUM #1 ^3-18-80-17W6M

| Customer: PTRHTF20156 | System Information | Sample Information |
|--|---|---|
| TOURMALINE OIL 13-25-80-16W6 9920 98a Ave FORT ST. JOHN, BC V1J 1S2 Canada Attn: Jordy Fossom Tel: (250)219-9343 E-Mail: fossom@tourmaline.com | System Volume: 15000 ltr Bulk Operating Temp: 392F / 200C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: | Lab No: 02208689 Analyst: Clinton Buhler Sample Date: 03/28/18 Received Date: 04/06/18 Completed: 04/23/18 To discuss this report contact Clinton Buhler at 780-516-9920 |

Recommendation: Sample results indicate that the thermal fluid is suitable for continued service. Please note that Acid Number of 0.247 and Iron content (possibly from corrosion) can be an early indication of oxidation. Please ensure that blanket gas is properly applied to the expansion tank. Re-sample in 6 months and please ensure sample is drawn off of pump discharge and that a thorough purge precedes the drawing of the sample.

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 | % |
| 03/28/18 | 04/06/18 | 18m | | 428 / 220 | 67.9 | 35.1 | 0.247 | 0.045 | 723 / 384 | 798 / 425 | 894 / 479 | 0.00 |
| Baseline Data | | | | 433 / 223 | | 34.2 | 0.03 | | 720 / 382 | 817 / 436 | 900 / 482 | 1.00 |



