

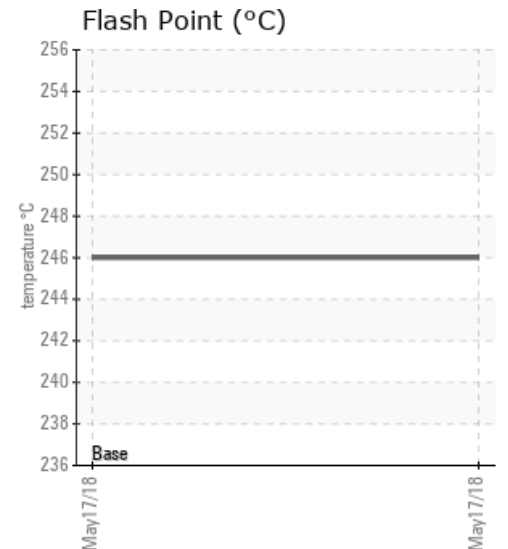
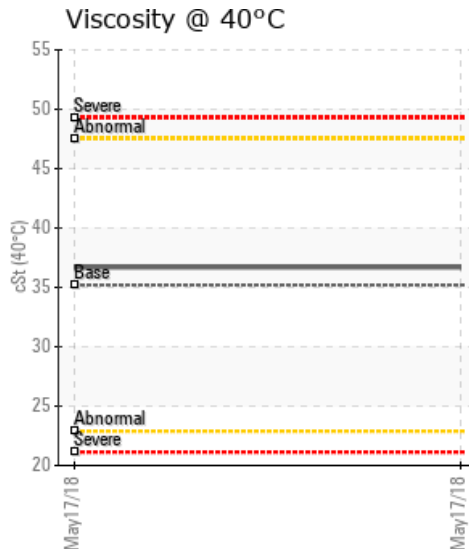
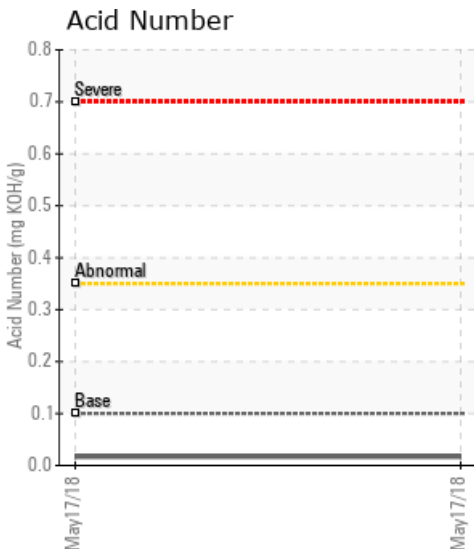
[SUNCOR MACKAY RIVER] WELL 750

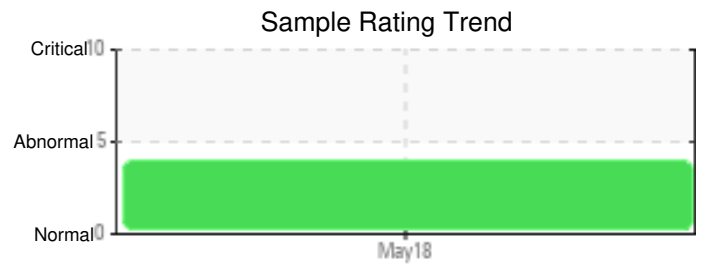
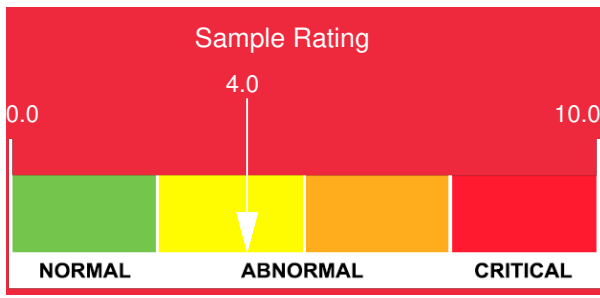
| Customer: PTRHTF20196 | System Information | Sample Information |
|--|---|--|
| SUNCOR ENERGY MACKAY RIVER PROJECT DOCK M FORT MCMURRAY, AB T9H 4W1 Canada Attn: Patrick Spargo Tel: (780)792-2977 | System Volume: 13000 ltr Bulk Operating Temp: 518F / 270C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO HTF Make: HOCS | Lab No: 02218643 Analyst: Benjamin Latorre Sample Date: 05/17/18 Received Date: 05/28/18 Completed: 09/04/18 To discuss this report contact Benjamin Latorre at (587)275-0499 |

Recommendation: 1. Locate and correct source of recurring water contamination. 2. Check low lying areas of the system, such as the expansion tank, where water can be trapped. 3. Remove water vapor by venting and addition of nitrogen to the expansion tank head space. Resample initially at 700 hours after correcting source/removal of water contamination. If it has stopped, resample oil annually.

Comments: Wear metals are low/normal. Water contamination levels are severely high. Acid Number and Pentane Insolubles are low/normal.

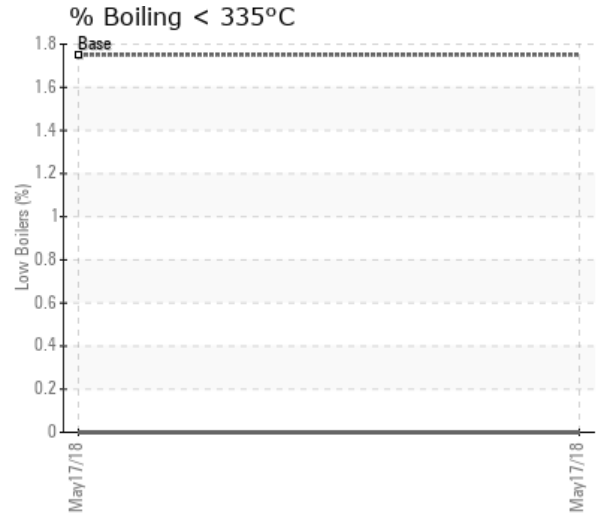
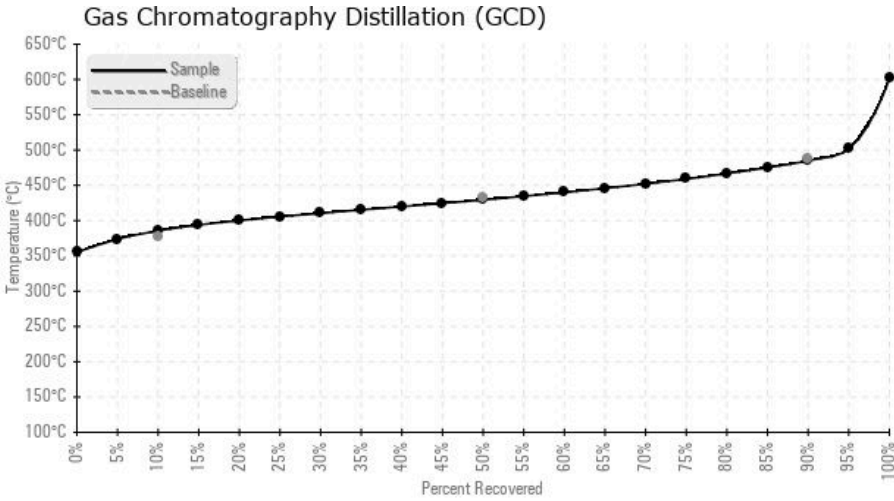
| Sample Date | Received Date | Fluid Age | Sample Location | Flash Point (COC) | Water (KF) | Viscosity (40°C) | Acid Number | Solids | GCD 10% | GCD 50% | GCD 90% | GCD % < 335°C |
|---------------|---------------|-----------|-----------------|-------------------|------------|------------------|-------------|--------|-----------|-----------|-----------|---------------|
| | mm/dd/yy | | | °F/°C | ppm | cSt | mg/KOH/g | %wt | °F/°C | °F/°C | °F/°C | % |
| 05/17/18 | 05/28/18 | 2d | WELL RETURN #2 | 475 / 246 | 6027.8 | 36.7 | 0.017 | 0.041 | 726 / 386 | 805 / 429 | 905 / 485 | 0.00 |
| Baseline Data | | | | 448 / 231 | | 35.20 | .1 | | 712 / 378 | 810 / 432 | 910 / 488 | 1.75 |





| 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 |
|---------------|------|----------|--------|----------|--------|------|-----|---------|--------|----------|---------|--------|-----------|----------|------------|----------|-----------|---------|-------|-----------|---------|--------|------------|------|
| 05/17/18 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 8 | 0 | 293 | 1 |
| Baseline Data | | | 0 | 0 | | | | | | 0 | | | 0 | 0 | | | | | 0 | | | | 280 | |

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



| Historical Comments | |
|---------------------|--|
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