

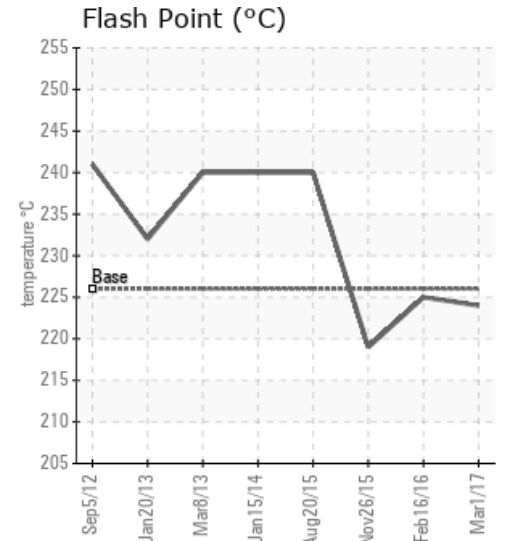
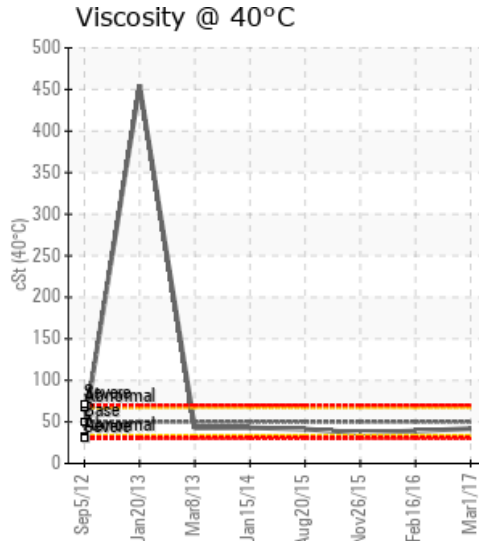
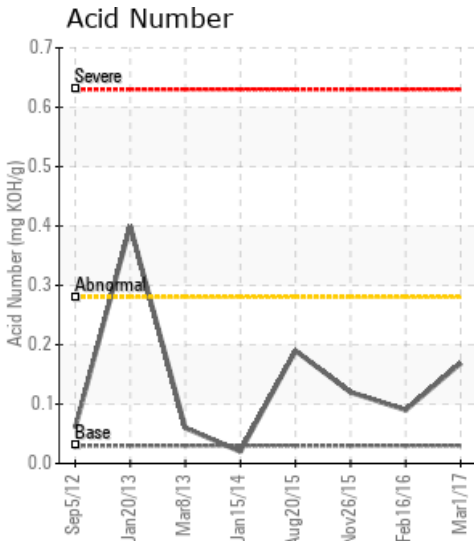
[DEASE DEVINE / LSD 12-27-81-18W6] CREW ENERGY SEPTIMUS PLANT SK-1500

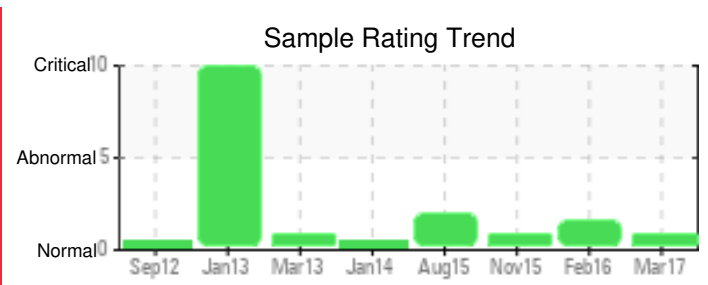
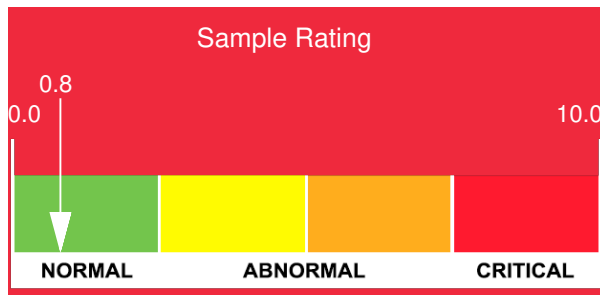
| Customer: PTRHTF20109 | System Information | Sample Information |
|---|---|---|
| Crew Energy Septimus Plant 12-27-81-18W6 8043-100TH AVENUE FORT ST.JOHN, BC V1J 1W2 Canada Attn: Dease Devine Tel: (250)262-1957 E-Mail: deasedevine@crewenergy.com | System Volume: 24000 ltr Bulk Operating Temp: 356F / 180C Heating Source: Blanket: Fluid: SUNOCO SUN HEAT TRANSFER 21 PD Make: NATCO | Lab No: 02131771 Analyst: Bill Quesnel CLS, OMA II, MLA-III, LLA-I Sample Date: 03/01/17 Received Date: 03/10/17 Completed: 03/17/17 To discuss this report contact Bill |

Recommendation: Resample at the next service interval to monitor.

Comments: The water content is negligible. There is no indication of any contamination in the component. (GCD) 90% Distillation Point is marginally high. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

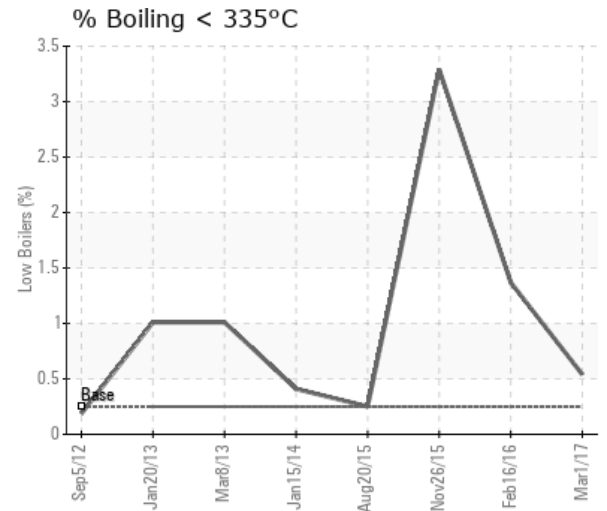
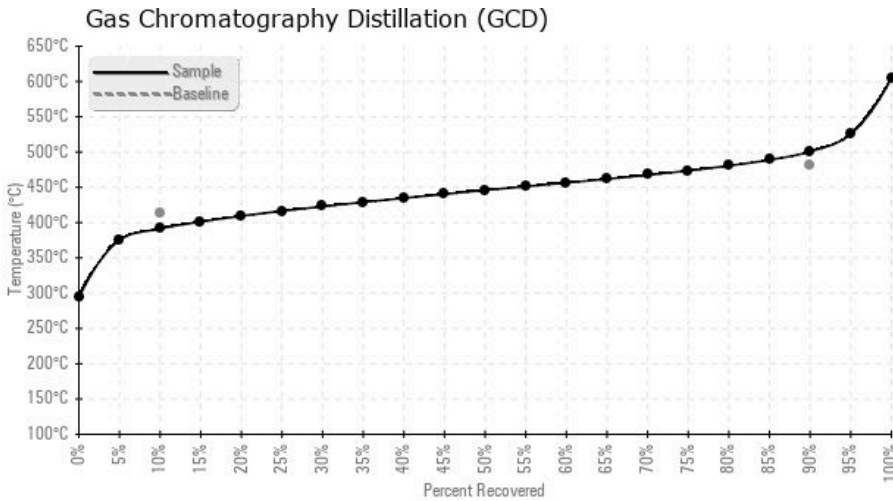
| Sample Date | Received Date | Fluid Age | Sample Location | Flash Point (COC) | Water (KF) | Viscosity (40°C) | Acid Number | Solids | GCD 10% | GCD 50% | GCD 90% | GCD % < 335°C |
|---------------|---------------|-----------|-----------------|-------------------|------------|------------------|-------------|--------|-----------|-----------|-----------|---------------|
| | mm/dd/yy | | | °F/°C | ppm | cSt | mg/KOH/g | %wt | °F/°C | °F/°C | °F/°C | % |
| 03/01/17 | 03/10/17 | 6y | PUMP DISCHARGE | 435 / 224 | 8.6 | 41.9 | 0.169 | 0.366 | 736 / 391 | 835 / 446 | 933 / 501 | 0.54 |
| 02/16/16 | 02/25/16 | 0y | SK1500 | 437 / 225 | 21.2 | 39.2 | 0.09 | 0.438 | 732 / 389 | 834 / 446 | 925 / 496 | 1.37 |
| 11/26/15 | 12/03/15 | 2y | PUMP DISCHARGE | 426 / 219 | 0.00 | 36.8 | 0.12 | 0.534 | 720 / 382 | 826 / 441 | 920 / 493 | 3.29 |
| 08/20/15 | 09/15/15 | 0y | PUMP SUCTION | 464 / 240 | 0.00 | 41.4 | 0.19 | 0.265 | 740 / 393 | 843 / 450 | 959 / 515 | 0.25 |
| 01/15/14 | 01/23/14 | 0y | PUMP DISCHARGE | 464 / 240 | 11.2 | 43.0 | 0.02 | 0.329 | 735 / 391 | 832 / 444 | 921 / 494 | 0.41 |
| 03/08/13 | 03/18/13 | 2y | BATH | 464 / 240 | 0.00 | 42.5 | 0.06 | 0.406 | 734 / 390 | 829 / 443 | 927 / 497 | 1.01 |
| Baseline Data | | | | 439 / 226 | | 50.0 | 0.03 | | 777 / 414 | | 900 / 482 | 0.25 |





| 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 |
|---------------|------|----------|--------|----------|--------|------|-----|---------|--------|----------|---------|--------|-----------|----------|------------|----------|-----------|---------|-------|-----------|---------|--------|------------|------|
| 03/01/17 | 31 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 02/16/16 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| 11/26/15 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 08/20/15 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 0 |
| 01/15/14 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 0 |
| 03/08/13 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 4 | 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 | |
|---------------------|--|
| 02/16/16 | (GCD) 90% Distillation Point is marginally high however is improved over previous sample. Pentane insolubles has stabilized. TAN and Viscosity continue to look good. Continue to operate and resample in 6 months. Pentane Insolubles levels are abnormally high. (GCD) 90% Distillation Point is marginally high. |
| 11/26/15 | (GCD) 90% Distillation Point is marginally high however is improved over previous sample. (GCD) 10% Distillation Point is marginally low. Pentane insolubles has risen slightly. TAN and Viscosity both look good. Continue to operate and resample in 6 months. Pentane Insolubles levels are abnormally high. (GCD) 90% Distillation Point is marginally high. (GCD) 10% Distillation Point is marginally low. |
| 08/20/15 | GCD @90% is a little high indicating some heavier ends in the oil. TAN is starting to come up but still within Spec. (GCD) 90% Distillation Point is severely high. |
| 01/15/14 | |
| 03/08/13 | Solids are still a bit high but overall this sample looks quantum leap better than the last one. Keep sampling to monitor. Pentane Insolubles levels are abnormally high. |