

## [12-01-49-16W5] H800

**Customer: PTRHTF20024**  
 CENOVUS PECO PLANT  
 PECO GAS PLANT12-1-49-16w5  
 EDSON, AB CA  
 Attn: Kevin James  
 Tel: (780)728-4012  
 E-Mail: kevin.james@cenovus.com

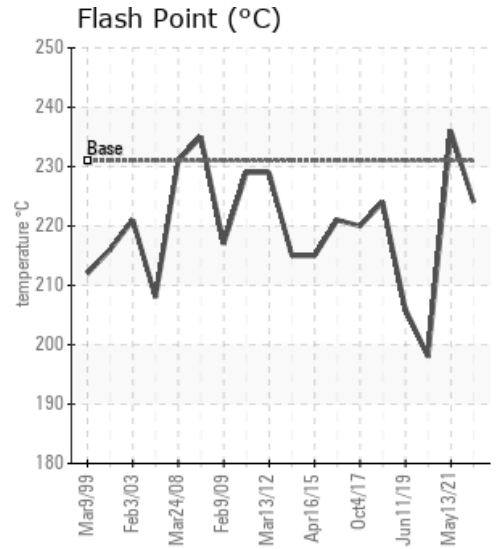
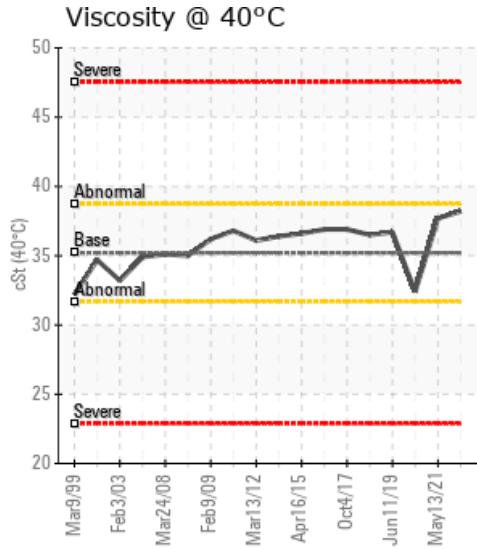
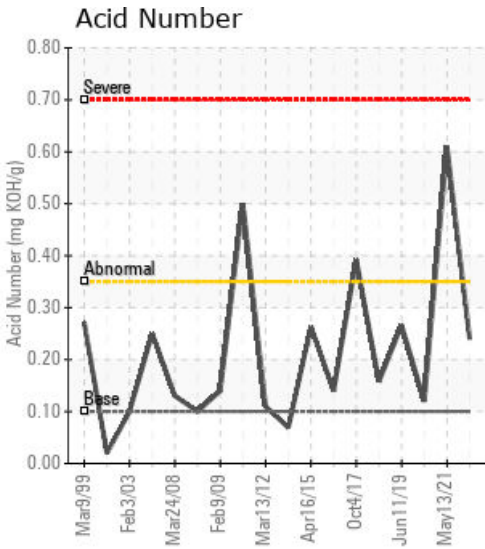
**System Information**  
 System Volume: 12000 ltr  
 Bulk Operating Temp: 410F / 210C  
 Heating Source:  
 Blanket:  
 Fluid: PETRO CANADA CALFLO HTF  
 Make: PRO FAB CANADIAN

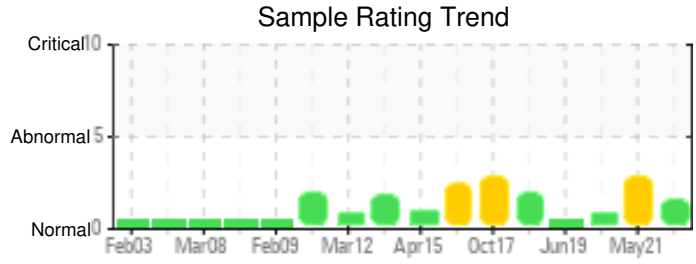
**Sample Information**  
 Lab No: 02614325  
 Analyst: Lyle Dach  
 Sample Date: 01/20/24  
 Received Date: 02/08/24  
 Completed: 02/22/24  
 Lyle Dach  
 lyle.dach@HFSinclair.com

Recommendation: Overall the fluid is good condition, solids (pentane insolubles) are on the high side but have improved from the previous sample. If filtration has been added it appears to be improving the fluid condition. Resample in 12 months.

Comments: Pentane Insolubles levels are severely high.

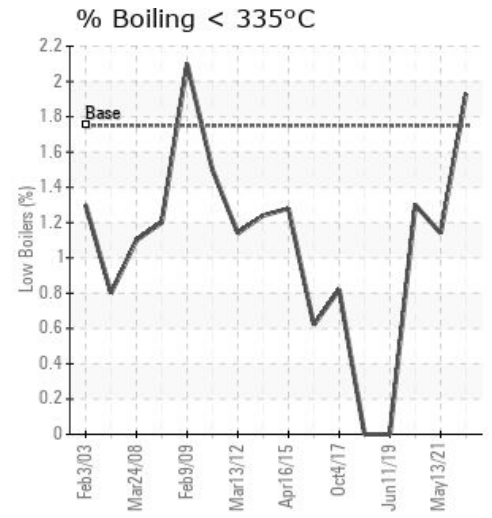
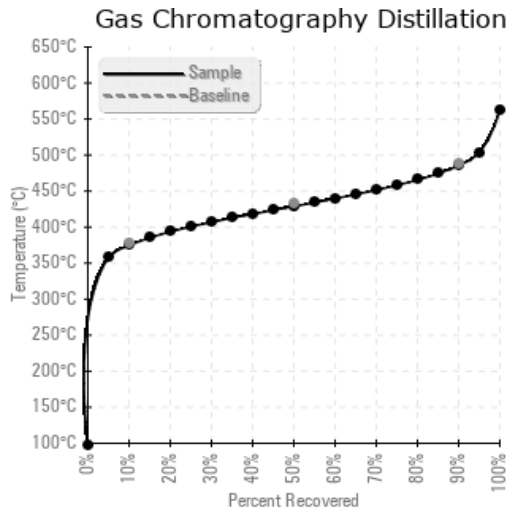
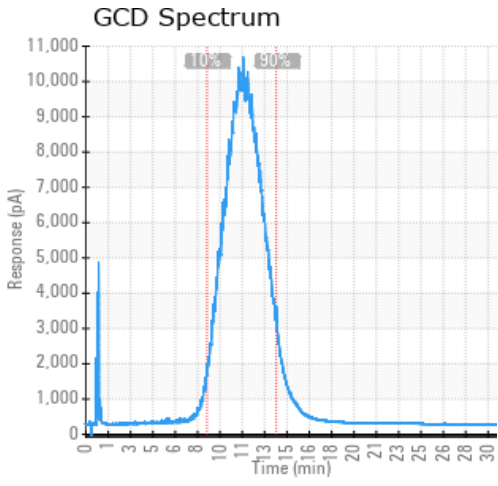
| Sample Date   | Received Date | Fluid Age | Sample Location     | Flash Point (COC) | Water (KF) | Viscosity (40°C) | Acid Number | Solids | GCD 10%   | GCD 50%   | GCD 90%   | GCD % < 335°C |
|---------------|---------------|-----------|---------------------|-------------------|------------|------------------|-------------|--------|-----------|-----------|-----------|---------------|
|               | mm/dd/yy      |           |                     | °F/°C             | ppm        | cSt              | mg/KOH/g    | %wt    | °F/°C     | °F/°C     | °F/°C     | %             |
| 01/20/24      | 02/08/24      | 0.0y      |                     | 435 / 224         | 27         | 38.2             | 0.24        | 0.567  | 706 / 374 | 804 / 429 | 906 / 485 | 1.93          |
| 05/13/21      | 05/18/21      | 0.0y      | Low level shut down | 457 / 236         | 10.5       | 37.7             | 0.61        | 1.48   | 704 / 373 | 792 / 422 | 896 / 480 | 1.14          |
| 03/09/20      | 04/08/20      | 0.0y      | MAIN TANK LEVEL     | 388 / 198         | 7.7        | 32.4             | 0.12        | 0.140  | 714 / 379 | 806 / 430 | 908 / 487 | 1.30          |
| 06/11/19      | 06/14/19      | 6.0y      | TANK OUTLET         | 403 / 206         | 22.0       | 36.7             | 0.266       | 0.275  | 706 / 374 | 800 / 427 | 901 / 483 | 0.00          |
| 04/11/19      | 04/18/19      | 0.0y      | DISCHARGE OF PUMPS  | 435 / 224         | 12.8       | 36.5             | 0.158       | 0.517  | 708 / 375 | 802 / 428 | 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 |
|----------------------|------|----------|--------|----------|--------|------|-----|---------|--------|----------|---------|--------|-----------|----------|------------|----------|-----------|---------|-------|-----------|---------|--------|------------|------|
| 01/20/24             | 1    | 0        | 0      | 0        | 0      | 0    | 0   | 0       | 0      | 0        | 0       | 0      | 2         | 0        | 0          | 0        | 0         | 0       | 0     | 0         | 0       | 0      | 74         | 0    |
| 05/13/21             | 4    | 0        | 0      | 0        | 0      | 3    | 0   | 0       | 0      | 0        | 1       | 0      | 0         | 0        | 0          | 0        | 0         | 0       | 0     | 0         | 0       | 0      | 84         | 0    |
| 03/09/20             | 0    | 0        | 0      | 0        | 0      | 0    | 0   | 0       | 0      | 0        | 0       | 0      | 0         | 0        | 0          | 0        | 0         | 0       | 0     | 0         | 0       | 0      | 22         | 0    |
| 06/11/19             | 2    | 0        | 0      | 0        | 0      | 0    | 0   | 0       | 0      | 0        | 0       | 0      | 0         | 0        | 0          | 0        | 0         | 0       | 0     | 0         | 0       | 0      | 74         | 0    |
| 04/11/19             | 0    | 0        | 0      | 0        | 0      | 0    | 0   | 0       | 0      | 0        | 0       | 0      | 0         | 0        | 0          | 0        | 0         | 0       | 0     | 0         | 0       | 0      | 72         | 0    |
| <b>Baseline Data</b> |      |          | 0      | 0        |        |      |     |         |        | 0        |         |        | 0         | 0        |            |          |           | 0       | 0     |           |         |        | 280        |      |

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



| Historical Comments |   |
|---------------------|---|
| 05/13/21            | Acid Number is higher than normal but not severe, likely from oxidation. Oxidation can be prevented by maintaining blanket gas on the surge tank at all times. The solids content is very high, should consider filtration to bring the solids content down to <0.3%. Otherwise the fluid is in good condition for further service. |
| 03/09/20            | Fluid appears to be in good condition. Rsample in 6 months. COC Flash Point is marginally low.  |
| 06/11/19            | Fluid is in very good condition. The solids content and acid number that were marginally high a couple years ago are now in the normal range. Suggest annual sample submissions to proactively monitor fluid condition.   |
| 04/11/19            | The fluid is in good condition and suitable for further use. The Pentane Insoluble (solids) content is borderline high. Consider filtration of the fluid while transferring from the temporary storage tank back into the system. Please re-sample after the system has been filled. Pentane Insolubles levels are abnormally high. |

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