



## [ATHABASCA OIL CORP / 16-21-078-10W4M] L1 (PAD A) LIESMER

**Customer: PTRHTF20133**  
 ATHABASCA OIL CORP.  
 LEISMER DEMONSTRATION PLANT  
 LSD2-79-10-W4M  
 NEAR CONKLIN, AB Canada  
 Attn: George Ball  
 Tel: (587)233-1312  
 E-Mail: gball@atha.com

**System Information**  
 System Volume: 8000 ltr  
 Bulk Operating Temp: 212F / 100C  
 Heating Source:  
 Blanket:  
 Fluid: PETRO CANADA CALFLO LT  
 Make: TORNADO TECHNOLOGIES

**Sample Information**  
 Lab No: 01889718  
 Analyst: Peter Harteveld  
 Sample Date: 12/11/13  
 Received Date: 01/15/14  
 Completed: 01/22/14  
 Peter Harteveld  
 peter.harteveld@HFSinclair.com

Recommendation: TAN is very high. This is most likely the result of oxidation taking place in the expansion tank of the system. The reported fluid temperature in the expansion tank is 120 degrees C. Depending on the remaining oxidative stable life of the fluid and the condition of the system internals with regard to deposit formation (coking), a decision has to be made on whether to sweeten the fill or replace the fill completely. For now it is recommended to lower the fluid temperature in the expansion tank and provide a N2 blanket to prevent contact with air (oxygen)

Comments: Acid Number (AN) is 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     | %             |
| 12/11/13      | 01/15/14      | 2.0y      | DISCHARGE PIPING | 343 / 173         | 117.9      | 8.3              | 1.21        | 0.106  | 611 / 322 | 655 / 346 | 743 / 395 | 34.83         |
| Baseline Data |               |           |                  | 349 / 176         |            | 7.52             | 0.1         |        | 604 / 318 |           | 734 / 390 | 58            |



