

## **OIL ANALYSIS REPORT**

Sample Rating Trend





# CATERPILLAR 980K LDR015

Rear Differential

PETRO CANADA PRODURO TO-4 SAE 30 (--- GAL)

|               | GAL)   |  | C          | ec2023      |          |              |
|---------------|--------|--|------------|-------------|----------|--------------|
| SAMPLE INFOR  | MATION | method                                   | limit/base | current     | history1 | history2     |
| Sample Number |        | Client Info                              |            | WC0879731   |          |              |
| Sample Date   |        | Client Info                              |            | 01 Dec 2023 |          |              |
| Machine Age   | hrs    | Client Info                              |            | 15581       |          |              |
| Oil Age       | hrs    | Client Info                              |            | 0           |          |              |
| Oil Changed   |        | Client Info                              |            | Not Changd  |          |              |
| Sample Status |        |  |            | NORMAL      |          |              |
| CONTAMINATION |        | method                                   | limit/base | current     | history1 | history2     |
| Water         |        | WC Method                                | >.2        | NEG         |          |              |
| WEAR METALS   |        | method                                   | limit/base | current     | history1 | history2     |
| ron           | ppm    | ASTM D5185(m)                            | >500       | 75          |          |              |
| Chromium      | ppm    | ASTM D5185(m)                            | >3         | <1          |          |              |
| Nickel        | ppm    | ASTM D5185(m)                            | >3         | <1          |          |              |
| Titanium      | ppm    | ASTM D5185(m)                            | >2         | 0           |          |              |
| Silver        | ppm    | ASTM D5185(m)                            | >2         | <1          |          |              |
| Aluminum      | ppm    | ASTM D5185(m)                            | >30        | 3           |          |              |
| _ead          | ppm    | ASTM D5185(m)                            | >13        | 4           |          |              |
| Copper        | ppm    | ASTM D5185(m)                            | >103       | 12          |          |              |
| Γin           | ppm    | ASTM D5185(m)                            | >5         | 0           |          |              |
| Antimony      | ppm    | ASTM D5185(m)                            | >5         | 0           |          |              |
| /anadium      | ppm    | ASTM D5185(m)                            |            | 0           |          |              |
| Beryllium     | ppm    | ASTM D5185(m)                            |            | 0           |          |              |
| Cadmium       | ppm    | ASTM D5185(m)                            |            | 0           |          |              |
| ADDITIVES     |        | method                                   | limit/base | current     | history1 | history2     |
| Boron         | ppm    | ASTM D5185(m)                            | 2          | 3           |          |              |
| Barium        | ppm    | ASTM D5185(m)                            | 0          | <1          |          |              |
| Volybdenum    | ppm    | ASTM D5185(m)                            | 0          | <1          |          |              |
| Vanganese     | ppm    | ASTM D5185(m)                            | 9          | <1          |          |              |
| Vagnesium     | ppm    | ASTM D5185(m)                            | 1          | 18          |          |              |
| Calcium       | ppm    | ASTM D5185(m)                            | 3131       | 2993        |          |              |
| Phosphorus    | ppm    | ASTM D5185(m)                            | 1194       | 1017        |          |              |
| Zinc          | ppm    | ASTM D5185(m)                            | 1281       | 1272        |          |              |
| Sulfur        | ppm    | ASTM D5185(m)                            | 3811       | 9301        |          |              |
|               | ppm    | ASTM D5185(m)                            |            | <1          |          |              |
| Lithium       |        |  |            |             |          |              |
|               |        | method                                   | limit/base | current     | history1 | history2     |
| CONTAMINANTS  | 5      |  |            | current     | history1 | history2     |
|               |        | method<br>ASTM D5185(m)<br>ASTM D5185(m) |            |             |          | history2<br> |

#### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

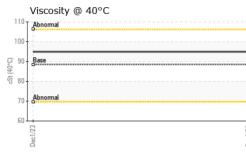
## Fluid Condition

The condition of the oil is acceptable for the time in service.



# **OIL ANALYSIS REPORT**

VISUAL



|   |   | VISUAL  |                                    | method                                 | limit/base   | current                          | nistory i   | nistory2  |
|---|---|---|------------------------------------|--|--|----------------------------------|---|---|
|   |   | White Metal   | scalar                             | Visual*                                | NONE   | NONE                             |   |   |
|   |   | Yellow Metal  | scalar                             | Visual*                                | NONE   | NONE                             |   |   |
|   |   | Precipitate   | scalar                             | Visual*                                | NONE   | NONE                             |   |   |
|   |   | Silt  | scalar                             | Visual*                                | NONE   | NONE                             |   |   |
|   | -   | Debris  | scalar                             | Visual*                                | NONE   | NONE                             |   |   |
|   |   | Sand/Dirt   | scalar                             | Visual*                                | NONE   | NONE                             |   |   |
|   | Dec1/23 -   | Appearance  | scalar                             | Visual*                                | NORML  | NORML                            |   |   |
|   | Dec   | Odor  | scalar                             | Visual*                                | NORML  | NORML                            |   |   |
|   |   | Emulsified Water  | scalar                             | Visual*                                | >.2  | NEG                              |   |   |
|   |   | Free Water  | scalar                             | Visual*                                |  | NEG                              |   |   |
|   |   | FLUID PROPER  | TIES                               | method                                 | limit/base   | current                          | history1  | history2  |
|   |   | Visc @ 40°C   |                                    | ASTM D7279(m)                          | 88.5   | 94.9                             |   |   |
|   |   | SAMPLE IMAGE  | S                                  | method                                 | limit/base   | current                          | history1  | history2  |
|   |   | Color   |                                    |  |  |                                  | no image  | no image  |
|   |   | Bottom  |                                    |  |  |                                  | no image  | no image  |
|   |   | GRAPHS  |                                    |  |  | Land (mmm)                       |   |   |
|   | 1   | Iron (ppm)<br><sup>1000</sup> T Severe  |                                    |  | 3  | Lead (ppm)                       |   |   |
|   | E   | 7   |                                    |  | E 2  | Ú.                               |   |   |
|   | dd  | 500 - Abnormal  | ****************                   |  | عام 2<br>ط 1   | Abnormal                         |   |   |
|   |   |   |                                    |  |  |                                  |   |   |
|   |   | Dec1/23   |                                    |  | Dec1/23  | Dec1/23                          |   |   |
|   |   |   |                                    |  | _  |                                  | )   |   |
|   |   | Aluminum (ppm)  |                                    |  | 1  | Chromium (pp                     | om)   |   |
|   | E   |   |                                    |  | E  | Severe                           |   |   |
|   | 8   | E 40 - Abnormal   |                                    |  | ШШ   | Abnormal                         |   |   |
|   |   |   |                                    |  |  |                                  |   |   |
|   |   | Dec1/23   |                                    |  | Dec1/23  | Dec1/23                          |   |   |
|   |   |   |                                    |  |  |                                  |   |   |
|   |   | Copper (ppm)  |                                    |  | 20   | Silicon (ppm)                    |   |   |
|   |   |   |                                    |  |  | -                                |   |   |
|   | udd   | 100 - Abnormal  |                                    |  | E 10   | 0 - Abnormal                     |   |   |
|   |   | 0   |                                    |  |  |                                  |   |   |
|   |   | Dec1/23   |                                    |  | Dec1/23  | Dec1/23                          |   |   |
|   |   |   |                                    |  |  |                                  |   |   |
|   |   | Viscosity @ 40°C  |                                    |  | 400  | Additives                        |   |   |
|   | )°C)  | Abnormal  |                                    |  |  | calcium                          |   |   |
|   | cSt (40°C)  | 80 - Abnormal   |                                    |  | E 300  | 0 - zinc                         |   |   |
|   |   | 60  |                                    |  |  |                                  |   |   |
|   | 0   | <u>67</u>   |                                    |  | Dec1/23  | Dec1/23                          |   |   |
|   | 0   | lec1/23   |                                    |  |  |                                  |   |   |
|   |   | Dec1/23   |                                    |  | De   |                                  |   |   |
| CALA<br>Laber of<br>17025:2017<br>credited<br>box | Laboratory<br>Sample No.<br>Lab Number<br>Unique Number<br>Test Package                       | : WearCheck - C8-11<br>: WC0879731<br>: <mark>02601309</mark><br>: 5694394<br>: MOB 1 | Received<br>Diagnose<br>Diagnosti  | : 06<br>d : 06<br>cian : We            | lington, ON I<br>Dec 2023<br>Dec 2023<br>s Davis       | .7L 5H9<br>1350 Gove             | ernment Rd. W, MA<br>Kirk<br>Contact: Mito                          | Eagle Canad<br>CASSA COMPLE<br>(land Lake, O<br>CA P2N 3J<br>ch Lamontagn |
| credited<br>boratory<br>discuss this              | Laboratory<br>Sample No.<br>Lab Number<br>Unique Number<br>Test Package<br>s sample report, c | : WearCheck - C8-11<br>: WC0879731<br>: <mark>02601309</mark><br>: 5694394            | Received<br>Diagnose<br>Diagnostic | :06<br>d :06<br>cian :We<br>00-268-213 | lington, ON I<br>Dec 2023<br>Dec 2023<br>s Davis<br>1. | .7L 5H9<br>1350 Gove<br>AEM_KL_r | ernment Rd. W, MA<br>Kirk<br>Contact: Mito<br>nacassaoilsampleresul | Eagle Canad<br>CASSA COMPLE<br>(land Lake, O<br>CA P2N 3J<br>ch Lamontagn |