

## **OIL ANALYSIS REPORT**

Sample Rating Trend





**OR869** Component

Hydraulic System

### PETRO CANADA 10W (--- GAL)

| DIAGNOSIS      |  |
|----------------|--|
| Recommendation |  |

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

#### Fluid Condition

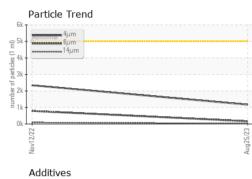
The condition of the oil is acceptable for the time in service.

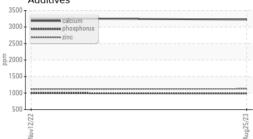
| SAMPLE INFORM   | MATION | method        | limit/base | current     | history1    | history2 |
|-----------------|--------|---------------|------------|-------------|-------------|----------|
| Sample Number   |        | Client Info   |            | GFL0076985  | GFL0054601  |          |
| Sample Date     |        | Client Info   |            | 25 Aug 2023 | 12 Nov 2022 |          |
| Machine Age     | hrs    | Client Info   |            | 16750       | 16291       |          |
| Oil Age         | hrs    | Client Info   |            | 1161        | 706         |          |
| Oil Changed     |        | Client Info   |            | Changed     | Not Changd  |          |
| Sample Status   |        |               |            | NORMAL      | NORMAL      |          |
| WEAR METAL      | S      | method        | limit/base | current     | history1    | history2 |
| Iron            | ppm    | ASTM D5185(m) | >20        | 4           | 4           |          |
| Chromium        | ppm    | ASTM D5185(m) | >10        | <1          | 0           |          |
| Nickel          | ppm    | ASTM D5185(m) | >10        | 0           | 0           |          |
| Titanium        | ppm    | ASTM D5185(m) |            | 0           | <1          |          |
| Silver          | ppm    | ASTM D5185(m) |            | <1          | 0           |          |
| Aluminum        | ppm    | ASTM D5185(m) | >10        | 1           | 2           |          |
| Lead            | ppm    | ASTM D5185(m) | >10        | <1          | <1          |          |
| Copper          | ppm    | ASTM D5185(m) |            | 2           | 1           |          |
| Tin             | ppm    | ASTM D5185(m) | >10        | 0           | <1          |          |
| Antimony        | ppm    | ASTM D5185(m) |            | 0           | <1          |          |
| Vanadium        | ppm    | ASTM D5185(m) |            | 0           | 0           |          |
| Beryllium       | ppm    | ASTM D5185(m) |            | 0           | 0           |          |
| Cadmium         | ppm    | ASTM D5185(m) |            | 0           | 0           |          |
|                 | ppm    | ( )           |            |             | -           |          |
| ADDITIVES       |        | method        | limit/base |             | history1    | history2 |
| Boron           | ppm    | ASTM D5185(m) |            | 3           | 3           |          |
| Barium          | ppm    | ASTM D5185(m) |            | 0           | 0           |          |
| Molybdenum      | ppm    | ASTM D5185(m) |            | 8           | 9           |          |
| Manganese       | ppm    | ASTM D5185(m) |            | 0           | <1          |          |
| Magnesium       | ppm    | ASTM D5185(m) |            | 14          | 14          |          |
| Calcium         | ppm    | ASTM D5185(m) |            | 3226        | 3259        |          |
| Phosphorus      | ppm    | ASTM D5185(m) |            | 989         | 996         |          |
| Zinc            | ppm    | ASTM D5185(m) |            | 1127        | 1116        |          |
| Sulfur          | ppm    | ASTM D5185(m) |            | 3306        | 3407        |          |
| Lithium         | ppm    | ASTM D5185(m) |            | <1          | <1          |          |
| CONTAMINAN      | TS     | method        | limit/base | current     | history1    | history2 |
| Silicon         | ppm    | ASTM D5185(m) | >20        | 4           | 3           |          |
| Sodium          | ppm    | ASTM D5185(m) |            | 1           | 1           |          |
| Potassium       | ppm    | ASTM D5185(m) | >20        | <1          | <1          |          |
| FLUID CLEANL    | INESS  | method        | limit/base | current     | history1    | history2 |
| Particles >4µm  |        | ASTM D7647    | >5000      | 1167        | 2342        |          |
| Particles >6µm  |        | ASTM D7647    | >1300      | 166         | 789         |          |
| Particles >14µm |        | ASTM D7647    | >160       | 24          | 92          |          |
| Particles >21µm |        | ASTM D7647    | >40        | 7           | 23          |          |
| Particles >38µm |        | ASTM D7647    | >10        | 0           | 1           |          |
| Particles >71µm |        | ASTM D7647    | >3         | 0           | 1           |          |
| Oil Cleanliness |        | ISO 4406 (c)  | >19/17/14  | 17/15/12    | 18/17/14    |          |
|                 |        | (-)           |            |             |             |          |

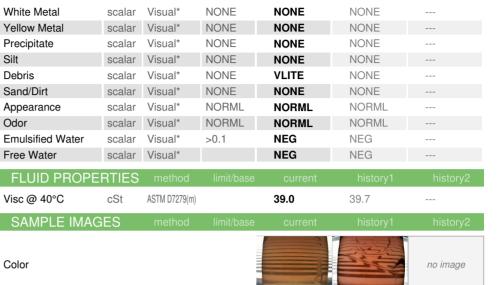


# **OIL ANALYSIS REPORT**

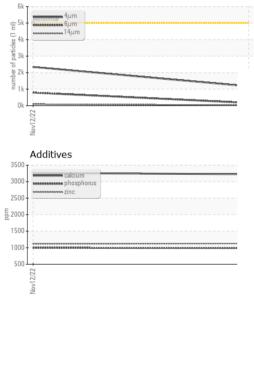
VISUAL







#### Particle Trend



| Aug25/23   | Appearance<br>Odor<br>Emulsified Water<br>Free Water                                 | scalar<br>scalar<br>scalar<br>scalar | Visual*<br>Visual*<br>Visual*<br>Visual* | NORML<br>NORML<br>>0.1  | NORML<br>NORML<br>NEG<br>NEG | NORML<br>NORML<br>NEG<br>NEG |   |
|--|--|--------------------------------------|--|---|------------------------------|------------------------------|---|
|  | FLUID PROP   |                                      | method                                   | limit/base  | current                      | history1                     | history2  |
|  | Visc @ 40°C  | cSt                                  | ASTM D7279(m)                            |   | 39.0                         | 39.7                         |   |
|  | SAMPLE IMA   | GES                                  | method                                   | limit/base  | current                      | history1                     | history2  |
| Aug25/23   | Color  |                                      |  |   |                              |                              | no image  |
|  | Bottom   |                                      |  |   |                              |                              | no image  |
|  | GRAPHS   |                                      |  |   |                              |                              |   |
|  | Ferrous Alloys   |                                      |  | 491,520   | Particle Coun                | t                            | T <sup>26</sup>   |
|  | Non-ferrous Met  | als                                  |  | 122,880<br>30,720<br>7,680<br>CZ SCOM<br>W<br>EC 1, 10,10<br>1,920<br>480<br>120<br>120 | Sovere<br>Abnormal           |                              | -24<br>-22<br>-20 ISS 4406:1999<br>-18 000<br>-14 0000<br>-14 00000<br>-14 0000<br>-14 00000<br>-14 0000<br>-14 0000<br>-10 |
|  | 6 4 2  |                                      |  | 30<br>8<br>8<br>8<br>2<br>2   |                              |                              | -12<br>-10<br>-8<br>-8  |
|  | Viscosity @ 40°C   | 2                                    |  | ₹ 04  | μ 6μ                         | 14μ 21μ                      | 38μ 71μ   |
| aboratory<br>ample No.<br>ab Number<br>nique Number<br>est Package | : WearCheck - C8-1<br>: GFL0076985<br>: 02579382<br>: 5632442<br>: MOB 1 ( Additiona | Received<br>Diagnos<br>Diagnos       | d : 30<br>ed : 31<br>tician : We         | lington, ON L<br>Aug 2023<br>Aug 2023<br>s Davis  | 7L 5H9 <b>GFL En</b> v       | 38950                        | Gquamish Hauling<br>) Queens Way,<br>Squamish, BC<br>CA V8B 0K8<br>: Dean Imbeau  |

dimbeau@gflenv.com T: (604)892-5604 F: (604)892-5238

CALA

ISO 17025:2017 Accredited Laboratory