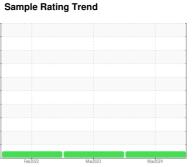


# **OIL ANALYSIS REPORT**



NORMAL



# 333 MARKET DRIVE GEN #4

Component

**Diesel Engine** 

**DIESEL ENGINE OIL SAE 30 (--- GAL)** 

| IAGN |  |
|------|--|
|      |  |
|      |  |

## Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

#### Wear

All component wear rates are normal.

## Contamination

There is no indication of any contamination in the oil.

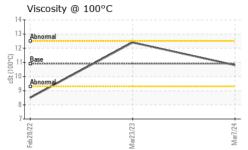
## **Fluid Condition**

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

|               |          | Feb                            | 2022       | Mar2023 Mar20 | 124         |             |
|---------------|----------|--------------------------------|------------|---------------|-------------|-------------|
| SAMPLE INFORM | MATION   | method                         | limit/base | current       | history1    | history2    |
| Sample Number |          | Client Info                    |            | WC0910597     | WC0795026   | WC0647853   |
| Sample Date   |          | Client Info                    |            | 07 Mar 2024   | 23 Mar 2023 | 28 Feb 2022 |
| Machine Age   | hrs      | Client Info                    |            | 0             | 0           | 52          |
| Oil Age       | hrs      | Client Info                    |            | 0             | 0           | 0           |
| Oil Changed   |          | Client Info                    |            | N/A           | N/A         | Changed     |
| Sample Status |          |                                |            | NORMAL        | NORMAL      | NORMAL      |
| CONTAMINATION | ١        | method                         | limit/base | current       | history1    | history2    |
| Fuel          |          | WC Method                      | >5         | <1.0          | <1.0        | 0.5         |
| Water         |          | WC Method                      | >0.2       | NEG           | NEG         | NEG         |
| Glycol        |          | WC Method                      |            | NEG           | NEG         | NEG         |
| WEAR METALS   |          | method                         | limit/base | current       | history1    | history2    |
| Iron          | ppm      | ASTM D5185(m)                  | >100       | 3             | 4           | 10          |
| Chromium      | ppm      | ASTM D5185(m)                  | >20        | 0             | 0           | <1          |
| Nickel        | ppm      | ASTM D5185(m)                  | >4         | 0             | <1          | <1          |
| Titanium      | ppm      | ASTM D5185(m)                  |            | 0             | <1          | 0           |
| Silver        | ppm      | ASTM D5185(m)                  | >3         | 0             | <1          | 0           |
| Aluminum      | ppm      | ASTM D5185(m)                  | >20        | 8             | 9           | 8           |
| Lead          | ppm      | ASTM D5185(m)                  | >40        | 0             | <1          | <1<br>7     |
| Copper<br>Tin | ppm      | ASTM D5185(m)<br>ASTM D5185(m) | >330       | 0             | 0           | <1          |
| Antimony      | ppm      | ASTM D5185(m)                  | >10        | 0             | 0           | 0           |
| Vanadium      | ppm      | ASTM D5185(m)                  |            | 0             | 0           | 0           |
| Beryllium     | ppm      | ASTM D5185(m)                  |            | 0             | 0           | 0           |
| Cadmium       | ppm      | ASTM D5185(m)                  |            | 0             | 0           | 0           |
| ADDITIVES     |          | method                         | limit/base | current       | history1    | history2    |
| Boron         | ppm      | ASTM D5185(m)                  | 250        | 152           | 337         | 63          |
| Barium        | ppm      | ASTM D5185(m)                  | 10         | <1            | <1          | 3           |
| Molybdenum    | ppm      | ASTM D5185(m)                  | 100        | 79            | 71          | 44          |
| Manganese     | ppm      | ASTM D5185(m)                  |            | 0             | <1          | 1           |
| Magnesium     | ppm      | ASTM D5185(m)                  | 450        | 458           | 404         | 529         |
| Calcium       | ppm      | ASTM D5185(m)                  | 3000       | 1259          | 1447        | 1406        |
| Phosphorus    | ppm      | ASTM D5185(m)                  | 1150       | 657           | 996         | 706         |
| Zinc          | ppm      | ASTM D5185(m)                  |            | 757           | 1062        | 769         |
| Sulfur        | ppm      | ASTM D5185(m)                  | 4250       | 1981          | 2767        | 2551        |
| Lithium       | ppm      | ASTM D5185(m)                  |            | <1            | <1          | <1          |
| CONTAMINANTS  |          | method                         | limit/base | current       | history1    | history2    |
| Silicon       | ppm      | ASTM D5185(m)                  | >25        | 9             | 21          | 35          |
| Sodium        | ppm      | ASTM D5185(m)                  | >75        | 1             | 2           | 6           |
| Potassium     | ppm      | ASTM D5185(m)                  | >20        | <1            | <1          | <1          |
| INFRA-RED     |          | method                         | limit/base | current       | history1    | history2    |
| Soot %        | %        | ASTM D7844*                    | >3         | 0             | 0           | 0           |
| Nitration     | Abs/cm   | ASTM D7624*                    |            | 4.9           | 4.8         | 5.3         |
| Sulfation     | Abs/.1mm | ASTM D7415*                    | >30        | 15.5          | 21.3        | 16.8        |



# **OIL ANALYSIS REPORT**





| Visc @ 100°C                            | cSt      | ASTM D7279(m)                           | 10.9      | 10.8           | 12.4     | 8.5       |
|---|----------|---|-----------|----------------|----------|-----------|
| GRAPHS                                  |          |   |           |                |          |           |
| Iron (ppm)                              |          |   |           | Lead (ppm)     |          |           |
| 250 Severe                              |          |   |           | Severe         |          |           |
| 200                                     |          |   |           | 00 7           |          |           |
| Abnormal                                |          |   |           | Abnormal       |          |           |
| 100 Abnormal                            |          |   |           | 40 Abnormal    |          |           |
| 50                                      |          |   |           | 20             |          |           |
| 0 2                                     | 23       |   | 4         | 0 2            | 33       | - 4       |
| Feb 28,72                               | Mar23/23 |   | Mar7/24   | Feb28/22       | Mar23/23 | Mar7/24   |
| Aluminum (ppm)                          |          |   |           | Chromium (     |          |           |
| 50 Severe                               |          |   |           | Severe         |          |           |
|   |          |   |           |                |          |           |
| 30 Abnormal                             |          |   |           | Abnormal       |          |           |
| Abnormal 20                             |          |   |           | 20 Abnormal    |          |           |
| 10                                      |          |   |           | 10             |          |           |
| 0 4 2                                   | 23       |   | 24        | 0 1 22         |          | - +2      |
| Feb 28/72                               | Mar23/23 |   | Mar7/24 - | Feb 28/22      | Mar23/23 | Mar7/24 - |
| Copper (ppm)                            |          |   |           | Silicon (ppm   |          |           |
| 400 Severe<br>350 Abnormal              |          |   |           | 80 Severe      |          |           |
| 300                                     |          |   |           | 60             |          |           |
| 250 +                                   |          |   |           | 50 +<br>E 40 + |          |           |
| 150                                     |          |   |           | 30 - Abnormal  |          |           |
| 50+                                     |          |   |           | 10             |          |           |
| 22 0                                    | - 23     |   | 24        | 0 12           | - 53     | - +2      |
| Feb28/22                                | Mar23/23 |   | Mar7/24 - | Feb28/22       | Mar23/23 | Mar7/24 - |
| Viscosity @ 100°                        |          |   |           | Soot %         | _        |           |
| 13 Abnormal                             |          |   |           | 6.0 Severe     |          |           |
| 12                                      | /        |   |           | 4.0            |          |           |
| Base<br>10 Abnormal                     | nnnnn    | *************************************** |           | Abnormal       |          | -         |
| Abnormal                                |          |   |           | 2.0            |          |           |
| 8                                       |          |   |           | 1.0            |          |           |
| 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - | 723      |   | 724       | 0.0            | /23      | 724       |
| Feb 28/22                               | Mar23/23 |   | Mar7/24   | Feb28/22       | Mar23/23 | Mar7/24 . |
|   |          |   |           |                |          |           |



**CALA** ISO 17025:2017 Accredited Laboratory

Laboratory Sample No.

: WC0910597 Lab Number : 02625635 Unique Number : 5750754 Test Package : MOB 1

Received **Tested** 

Diagnosed

: 01 Apr 2024

: 01 Apr 2024 : 01 Apr 2024 - Kevin Marson

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 NORTHERN GENERATOR CO. LTD. 80 ASHBRIDGE CIRCLE,, UNIT #1 & 2

WOODBRIDGE, ON CA L4L 3R5 Contact: Selome Afework

selome@northerngenerator.com T: (905)264-9744

F: (905)264-9714

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.