

## **OIL ANALYSIS REPORT**

## Machine Id MCQUAY DCLS 2 COMMON WEALTH OF VIRGINIA (S/N STNU020400111) Component

Refrigeration Compressor POE (16 GAL)

### Recommendation

Resample at the next service interval to monitor.

#### Wear

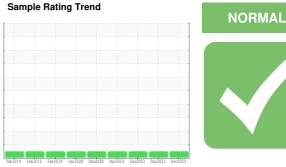
All component wear rates are normal.

#### Contamination

The water content is negligible. There is no indication of any contamination in the oil.

### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

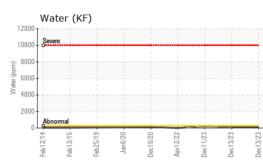


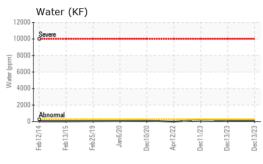


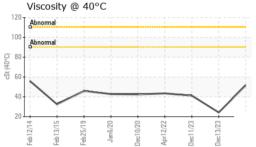
| SAMPLE INFORM   | <b>IATION</b>  | method   | limit/base                        | current   | history1  | history2  |
|---|--|--|-----------------------------------|---|---|---|
| Sample Number   |  | Client Info  |                                   | WC0812061   | WC0812060   | WC0812221   |
| Sample Date   |  | Client Info  |                                   | 13 Dec 2023   | 13 Dec 2023   | 11 Dec 2023   |
| Machine Age   | hrs  | Client Info  |                                   | 78860   | 78330   | 3690  |
| Oil Age   | hrs  | Client Info  |                                   | 0   | 0   | 3690  |
| Oil Changed   |  | Client Info  |                                   | N/A   | N/A   | N/A   |
| Sample Status   |  |  |                                   | NORMAL  | NORMAL  | NORMAL  |
| WEAR METALS   |  | method   | limit/base                        | current   | history1  | history2  |
| Iron  | ppm  | ASTM D5185m  | >100                              | 0   | 0   | 0   |
| Chromium  | ppm  | ASTM D5185m  | >2                                | 0   | 0   | 0   |
| Nickel  | ppm  | ASTM D5185m  |                                   | 0   | 0   | 0   |
| Titanium  | ppm  | ASTM D5185m  |                                   | 0   | 0   | 0   |
| Silver  | ppm  | ASTM D5185m  | >2                                | 0   | 0   | 0   |
| Aluminum  | ppm  | ASTM D5185m  | >50                               | <1  | 0   | 0   |
| Lead  | ppm  | ASTM D5185m  | >2                                | 0   | 0   | 0   |
| Copper  | ppm  | ASTM D5185m  | >100                              | 19  | 18  | 12  |
| Tin   | ppm  | ASTM D5185m  | >4                                | 0   | 0   | 0   |
| Vanadium  | ppm  | ASTM D5185m  |                                   | 0   | 0   | 0   |
| Cadmium   | ppm  | ASTM D5185m  |                                   | 0   | 0   | 0   |
|   | 1-1-   |  |                                   | •   | 0   |   |
| ADDITIVES   | 1- 1-  | method   | limit/base                        | current   | history1  | history2  |
| ADDITIVES<br>Boron  | ppm  | method<br>ASTM D5185m  | limit/base                        |   |   | history2<br>0   |
|   |  |  | limit/base                        | current   | history1  |   |
| Boron   | ppm  | ASTM D5185m  | limit/base                        | current<br>0  | history1<br>0   | 0   |
| Boron<br>Barium   | ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m   | limit/base                        | current<br>0<br>0   | history1<br>0<br>0  | 0<br>0  |
| Boron<br>Barium<br>Molybdenum   | ppm<br>ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | limit/base                        | current<br>0<br>0<br>0  | history1<br>0<br>0<br>0   | 0<br>0<br>0   |
| Boron<br>Barium<br>Molybdenum<br>Manganese  | ppm<br>ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | limit/base                        | current<br>0<br>0<br>0<br><1  | history1<br>0<br>0<br>0<br><1   | 0<br>0<br>0<br><1   |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm                                    | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | limit/base                        | Current<br>0<br>0<br>0<br><1<br><1<br><1<br><1<br>1890  | history1<br>0<br>0<br>0<br><1<br>1<br><1<br>614                               | 0<br>0<br><1<br><1<br><1<br><1<br>1656  |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc  | ppm<br>ppm<br>ppm<br>ppm<br>ppm                                    | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | limit/base                        | Current<br>0<br>0<br>0<br><1<br><1<br><1<br><1<br>1<br>890<br>10  | history1<br>0<br>0<br><1<br>1<br><1<br>614<br>13                              | 0<br>0<br><1<br><1<br><1<br><1<br>1656<br>9   |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | limit/base                        | Current<br>0<br>0<br>0<br><1<br><1<br><1<br><1<br>1890  | history1<br>0<br>0<br>0<br><1<br>1<br><1<br>614                               | 0<br>0<br><1<br><1<br><1<br><1<br>1656  |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | limit/base                        | Current<br>0<br>0<br>0<br><1<br><1<br><1<br><1<br>1<br>890<br>10  | history1<br>0<br>0<br><1<br>1<br><1<br>614<br>13                              | 0<br>0<br><1<br><1<br><1<br><1<br>1656<br>9   |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   |                                   | Current<br>0<br>0<br>0<br><1<br><1<br><1<br><1<br>1890<br>10<br>20  | history1<br>0<br>0<br>0<br><1<br>1<br>1<br><1<br>614<br>13<br>16              | 0<br>0<br><1<br><1<br><1<br><1<br>1656<br>9<br>15   |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm               | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m                             | limit/base                        | Current<br>0<br>0<br><1<br><1<br><1<br><1<br>1890<br>10<br>20<br>Current  | history1   0   0   0   0   <1   1   <1   614   13   16   history1             | 0<br>0<br>0<br><1<br><1<br><1<br>1656<br>9<br>15<br>15<br>history2<br>0<br>0                    |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon                                 | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b>  | limit/base                        | current   0   0   0   1   <1   <1   10   20   current   0   | history1   0   0   0   0   <1   614   13   16   history1                      | 0<br>0<br>0<br><1<br><1<br><1<br>1656<br>9<br>15<br>history2<br>0                               |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium                       | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m                             | limit/base                        | Current   0   0   0   -   <1   <1   <1   20   current   0   0   | history1   0   0   0   <1   1   <1   614   13   16   history1   <1            | 0<br>0<br>0<br><1<br><1<br><1<br>1656<br>9<br>15<br>15<br>history2<br>0<br>0                    |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium          | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m<br>ASTM D5185m                | limit/base<br>>50<br>>20          | Current   0   0   0   0   <1   <1   <1   20   current   0   0   0   | history1   0   0   0   0   <1   614   13   16   history1   <1   0             | 0<br>0<br>0<br><1<br><1<br><1<br>1656<br>9<br>15<br>15<br><b>history2</b><br>0<br>0<br>0        |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>Water | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>ASTM D5185m | limit/base<br>>50<br>>20<br>>0.02 | Current   0   0   0   0   <1   <1   <1   20   current   0 | history1   0   0   0   0   <1   614   13   16   history1   <1   0   0   0.010 | 0<br>0<br>0<br><1<br><1<br><1<br>1656<br>9<br>15<br>history2<br>0<br>0<br>0<br>0<br>0<br>0<br>0 |



# **OIL ANALYSIS REPORT**

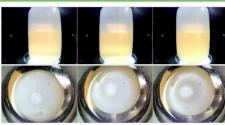




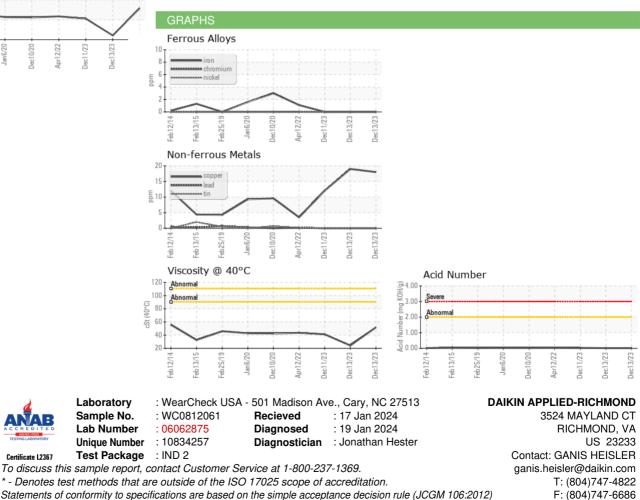


| VISUAL           |        | method    | limit/base | current | history1 | history2 |
|------------------|--------|-----------|------------|---------|----------|----------|
| White Metal      | scalar | *Visual   | NONE       | NONE    | NONE     | NONE     |
| Yellow Metal     | scalar | *Visual   | NONE       | NONE    | NONE     | NONE     |
| Precipitate      | scalar | *Visual   | NONE       | NONE    | NONE     | NONE     |
| Silt             | scalar | *Visual   | NONE       | NONE    | NONE     | NONE     |
| Debris           | scalar | *Visual   | NONE       | NONE    | NONE     | NONE     |
| Sand/Dirt        | scalar | *Visual   | NONE       | NONE    | NONE     | NONE     |
| Appearance       | scalar | *Visual   | NORML      | NORML   | NORML    | NORML    |
| Odor             | scalar | *Visual   | NORML      | NORML   | NORML    | NORML    |
| Emulsified Water | scalar | *Visual   | >0.02      | NEG     | NEG      | NEG      |
| Free Water       | scalar | *Visual   |            | NEG     | NEG      | NEG      |
| FLUID PROPERTIES |        | method    | limit/base | current | history1 | history2 |
| Visc @ 40°C      | cSt    | ASTM D445 |            | 51.7    | 24.2     | 41.2     |
| SAMPLE IMAGES    |        | method    | limit/base | current | history1 | history2 |
|                  |        |           | -          |         |          |          |

Color



Bottom



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367

Contact/Location: GANIS HEISLER - MCQRIC