

# **OIL ANALYSIS REPORT**

Sample Rating Trend

### NORMAL

## Machine Id KENWORTH T800 3WKDD40X1GF109090

Diesel Engine

Fluid MOBIL DELVAC 1300 SUPER15W40 (10 GAL)

#### 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.

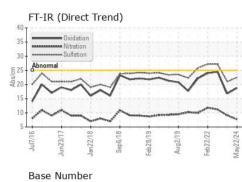
### Fluid Condition

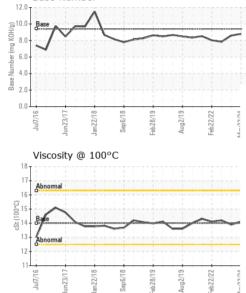
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFORM  | IATION   | method   | limit/base   | current  | history1   | history2  |
|--|--|--|--|--|--|---|
| Sample Number  |  | Client Info  |  | RW0004910  | RW0004913  | RW0003005   |
| Sample Date  |  | Client Info  |  | 22 May 2024  | 26 Jan 2024  | 03 Jun 2022   |
| Machine Age  | hrs  | Client Info  |  | 10917  | 10541  | 0   |
| Oil Age  | hrs  | Client Info  |  | 376  | 386  | 503   |
| Oil Changed  |  | Client Info  |  | Changed  | Changed  | Changed   |
| Sample Status  |  |  |  | NORMAL   | NORMAL   | NORMAL  |
| CONTAMINATION  | ٧  | method   | limit/base   | current  | history1   | history2  |
| Fuel   |  | WC Method  | >3.0   | <1.0   | <1.0   | <1.0  |
| 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 D5185m  | >165   | 18   | 15   | 23  |
| Chromium   | ppm  | ASTM D5185m  | >5   | <1   | <1   | 1   |
| Nickel   | ppm  | ASTM D5185m  | >4   | <1   | 0  | 0   |
| Titanium   | ppm  | ASTM D5185m  | >2   | <1   | 0  | 0   |
| Silver   | ppm  | ASTM D5185m  | >2   | <1   | 0  | <1  |
| Aluminum   | ppm  | ASTM D5185m  | >20  | 3  | 2  | 4   |
| Lead   | ppm  | ASTM D5185m  | >150   | 2  | <1   | 4   |
| Copper   | ppm  | ASTM D5185m  | >90  | 1  | 0  | <1  |
| Tin  | ppm  | ASTM D5185m  | >5   | 1  | 0  | <1  |
| Vanadium   | ppm  | ASTM D5185m  |  | <1   | 0  | 0   |
| Cadmium  | ppm  | ASTM D5185m  |  | <1   | 0  | 0   |
|  | le le  | No III Borooiii  |  | <1   | 0  | 0   |
| ADDITIVES  | <b>h h</b>   | method   | limit/base   | current  | history1   | history2  |
|  | ppm  |  | limit/base   |  | -  | -   |
| ADDITIVES  |  | method<br>ASTM D5185m  |  | current  | history1   | history2  |
| ADDITIVES<br>Boron   | ppm  | method<br>ASTM D5185m<br>ASTM D5185m   | 0  | current<br>52  | history1<br>47   | history2<br>59  |
| ADDITIVES<br>Boron<br>Barium   | ppm<br>ppm   | method<br>ASTM D5185m<br>ASTM D5185m   | 0  | current<br>52<br>2   | history1<br>47<br>0  | history2<br>59<br>0   |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum   | ppm<br>ppm<br>ppm  | method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>0<br>0  | current<br>52<br>2<br>43   | history1<br>47<br>0<br>30  | history2<br>59<br>0<br>45   |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese  | ppm<br>ppm<br>ppm<br>ppm   | method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0<br>0<br>0  | current<br>52<br>2<br>43<br><1   | history1<br>47<br>0<br>30<br><1  | history2<br>59<br>0<br>45<br><1   |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm                                    | method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>0<br>0  | current<br>52<br>2<br>43<br><1<br>561  | history1<br>47<br>0<br>30<br><1<br>714   | history2<br>59<br>0<br>45<br><1<br>531  |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>0<br>0  | current           52           2           43           <1           561           1797  | history1<br>47<br>0<br>30<br><1<br>714<br>1778   | history2<br>59<br>0<br>45<br><1<br>531<br>1783  |
| ADDITIVES<br>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                      | method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0<br>0<br>0  | current           52           2           43           <1           561           1797           871  | history1<br>47<br>0<br>30<br><1<br>714<br>1778<br>879  | history2<br>59<br>0<br>45<br><1<br>531<br>1783<br>742   |
| ADDITIVES<br>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               | method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>0<br>0  | current           52           2           43           <1           561           1797           871           1008   | history1<br>47<br>0<br>30<br><1<br>714<br>1778<br>879<br>1057  | history2<br>59<br>0<br>45<br><1<br>531<br>1783<br>742<br>919  |
| ADDITIVES<br>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               | method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0<br>0<br>0<br>0<br>Imit/base  | Current<br>52<br>2<br>43<br><1<br>561<br>1797<br>871<br>1008<br>2862   | history1           47           0           30           <1           714           1778           879           1057           3650           history1           8  | history2           59           0           45           <1           531           1783           742           919           2760           history2           6  |
| ADDITIVES<br>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               | method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>0<br>0<br>0<br>Imit/base  | current           52           2           43           <1           561           1797           871           1008           2862           current  | history1           47           0           30           <1           714           1778           879           1057           3650           history1  | history2<br>59<br>0<br>45<br><1<br>531<br>1783<br>742<br>919<br>2760<br>history2  |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<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        | method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0<br>0<br>0<br>0<br>   | current           52           2           43           <1           561           1797           871           1008           2862           current           10   | history1           47           0           30           <1           714           1778           879           1057           3650           history1           8  | history2           59           0           45           <1           531           1783           742           919           2760           history2           6  |
| ADDITIVES<br>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        | method           ASTM D5185m   | 0<br>0<br>0<br>0<br>   | current           52           2           43           <1           561           1797           871           1008           2862           current           10           2   | history1           47           0           30           <1           714           1778           879           1057           3650           history1           8           2  | history2         59         0         45         <1         531         1783         742         919         2760         history2         6         3  |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Calcium<br>Phosphorus<br>Zinc<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %      | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | method           ASTM D5185m   | 0<br>0<br>0<br>0<br><u>limit/base</u><br>>35   | current         52         2         43         <1         561         1797         871         1008         2862         current         10         2         10         2         10         2         10         2         10         2         10         10         2         10  | history1           47           0           30           <1           714           1778           879           1057           3650           history1           8           2           5  | history2         59         0         45         <1         531         1783         742         919         2760         history2         6         3         6         3         6         1.6                        |
| ADDITIVES<br>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>INFRA-RED                                   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | method           ASTM D5185m   | 0<br>0<br>0<br>0<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 | current         52         2         43         <1         561         1797         871         1008         2862         0         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10   | history1         47         0         30         <1         714         1778         879         1057         3650         history1         8         2         5         history1   | history2         59         0         45         <1         531         1783         742         919         2760         history2         6         3         6         3         6         history2                   |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Calcium<br>Phosphorus<br>Zinc<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %      | ppm                            | method         ASTM D5185m   | 0<br>0<br>0<br>0<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 | current         52         2         43         <1         561         1797         871         1008         2862         0urrent         10         2         10         2         10         2         0.6   | history1           47           0           30           <1           714           1778           879           1057           3650           history1           8           2           5           history1           0.9               | history2         59         0         45         <1         531         1783         742         919         2760         history2         6         3         6         3         6         1.6                        |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %<br>Nitration | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method         ASTM D5185m   | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0      | current         52         2         43         <1         561         1797         871         1008         2862         current         10         2         10         2         10         2         0.6         7.7   | history1           47           0           30           <1           714           1778           879           1057           3650           history1           8           2           5           history1           0.9           9.1 | history2         59         0         45         <1         531         1783         742         919         2760         history2         6         3         6         history2         1.6         11.2              |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method           ASTM D5185m           ASTM D5185m | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0      | current         52         2         43         <1         561         1797         871         1008         2862         current         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         2         10 | history1         47         0         30         <1         714         1778         879         1057         3650         history1         8         2         5         history1         0.9         9.1         21.0                    | history2         59         0         45         <1         531         1783         742         919         2760         history2         6         3         6         history2         1.6         11.2         27.2 |



# **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                                  |  |  |  |  |  |
| A                         | Precipitate                     | scalar  | *Visual                 | NONE   | NONE                | NONE                | NONE                                  |  |  |  |  |  |
| ノビ                        | Silt                            | scalar  | *Visual                 | NONE   | NONE                | NONE                | NONE                                  |  |  |  |  |  |
| 1                         | Debris                          | scalar  | *Visual                 | NONE   | NONE                | NONE                | NONE                                  |  |  |  |  |  |
| Barris Contraction        | Sand/Dirt                       | scalar  | *Visual                 | NONE   | NONE                | NONE                | NONE                                  |  |  |  |  |  |
| 2/22                      | Appearance                      | scalar  | *Visual                 | NORML  | NORML               | NORML               | NORML                                 |  |  |  |  |  |
| Feb22/22<br>May22/24      | Odor                            | scalar  | *Visual                 | NORML  | NORML               | NORML               | NORML                                 |  |  |  |  |  |
| -                         | Emulsified Water                | scalar  | *Visual                 | >0.2   | NEG                 | NEG                 | NEG                                   |  |  |  |  |  |
|                           | Free Water                      | scalar  | *Visual                 |  | NEG                 | NEG                 | NEG                                   |  |  |  |  |  |
| $\sim$                    | FLUID PROPER                    | TIES  | method                  | limit/base   | current             | history1            | history2                              |  |  |  |  |  |
|                           | Visc @ 100°C                    | cSt   | ASTM D445               | 14   | 14.1                | 13.9                | 14.2                                  |  |  |  |  |  |
|                           | GRAPHS                          |   |                         |  |                     |                     |                                       |  |  |  |  |  |
|                           | Iron (ppm)                      | Lead (ppn<br><sup>300</sup> T Severe                                  |                         |  |                     |                     |                                       |  |  |  |  |  |
| 2/22                      | 250                             |   |                         | 25   |                     |                     |                                       |  |  |  |  |  |
| Feb22/22                  | 200 Abnormal                    |   |                         | 20<br>   |                     |                     |                                       |  |  |  |  |  |
|                           | 100                             |   |                         | 10   | )                   |                     |                                       |  |  |  |  |  |
|                           | 50                              |   |                         |  |                     |                     |                                       |  |  |  |  |  |
|                           | Jul7/16<br>Jun 23/17            | Sep6/18<br>Feb28/19   | Aug2/19                 | May22/24   | Jul7/16<br>Jun23/17 | Sep6/18             | Aug2/19 -<br>Feb22/22 -<br>May22/24 - |  |  |  |  |  |
|                           | ج ج<br>Aluminum (ppm)           | ι, π  | Y ł                     | Ň  | ت ت<br>Chromium (p  | , "                 | W <sup>1</sup>                        |  |  |  |  |  |
|                           | 40 Severe                       |   |                         | 1  |                     |                     |                                       |  |  |  |  |  |
|                           | 30                              |   |                         | 1  |                     |                     | *****                                 |  |  |  |  |  |
|                           | E 20 - Abnormal                 |   |                         | E  | Abnormal            |                     |                                       |  |  |  |  |  |
| Feb22/22                  |                                 |   |                         | dd   | Abnormal            |                     |                                       |  |  |  |  |  |
| Feb22                     | 10                              |   |                         |  | $\sim$              |                     |                                       |  |  |  |  |  |
|                           | 0 - 91                          | - 61  | 19                      |  |                     |                     | 22<br>24                              |  |  |  |  |  |
|                           | Jul7/16<br>Jun23/17<br>Jan22/18 | Sep 6/18 -  | Aug2/19 .<br>Feb22/22 . | May22/24   | Jul7/16<br>Jun23/17 | Sep6/18<br>Feb28/19 | Aug2/19 -<br>Feb22/22 -<br>May22/24 - |  |  |  |  |  |
|                           | Copper (ppm)                    |   |                         | _  | Silicon (ppm)       | )                   | _                                     |  |  |  |  |  |
|                           | 200 Severe                      |   |                         | 8  |                     |                     |                                       |  |  |  |  |  |
|                           | 150 -                           |   |                         | 6  | ) - Severe          |                     |                                       |  |  |  |  |  |
|                           | a 100 - Abnormal                |   |                         | E 4  | - Abnormal          |                     |                                       |  |  |  |  |  |
|                           | 50-                             |   |                         | 2  | T                   |                     |                                       |  |  |  |  |  |
|                           |                                 |   |                         |  |                     |                     | ~~~                                   |  |  |  |  |  |
|                           |                                 | 18-   | 719                     |  |                     | 19                  | 719-                                  |  |  |  |  |  |
|                           | Jul7/16 Jun23/17 Jun23/17       | Sep6/18 .   | Aug2/19 .<br>Feb22/22 . | May22/24   | Jul7/16<br>Jun23/17 | Sep6/18             | Aug2/19<br>Feb22/22<br>May22/24       |  |  |  |  |  |
|                           | Viscosity @ 100°C               | 2   |                         |  | Base Numbe          | r                   | 2                                     |  |  |  |  |  |
|                           | Abnormal                        |   |                         | 12.<br>()<br>岩10.1   | Base                |                     |                                       |  |  |  |  |  |
|                           |                                 |   |                         | (0)H0)<br>Bull 10.1<br>Bull 10.1 | 1                   |                     | ~~~~                                  |  |  |  |  |  |
|                           | Base<br>Abnormal                |   |                         | 13 6.  | 0-                  |                     |                                       |  |  |  |  |  |
|                           | 12-                             |   |                         | N 98 2   | 1                   |                     |                                       |  |  |  |  |  |
|                           | 10                              |   |                         | 0.1  | )                   |                     |                                       |  |  |  |  |  |
|                           | Jul7/16<br>Jun23/17<br>Jan22/18 | Sep6/18 .   | Aug2/19<br>Feb22/22     | May22/24   | Jul7/16<br>Jun23/17 | Sep6/18<br>Feb28/19 | Aug2/19 -<br>Feb22/22 -<br>May22/24 - |  |  |  |  |  |
|                           | Jun Jan                         | Sr<br>Feb   | Au<br>Feb               | May  | L nub               | Se<br>Feb           | Au<br>Feb<br>May                      |  |  |  |  |  |
| aboratory                 | : WearCheck USA - 50            | HOMER CONCRETE<br>205 S CEDAR ST                                      |                         |  |                     |                     |                                       |  |  |  |  |  |
| ample No.<br>ab Number    |                                 | : RW0004910 Received : 31 May 2024<br>: 06196862 Tested : 03 Jun 2024 |                         |  |                     |                     |                                       |  |  |  |  |  |
| ab Number<br>nique Number |                                 | Diagr   |                         | 3 Jun 2024<br>3 Jun 2024 - W   | les Davis           |                     | IMLAY CITY, M<br>US 48444             |  |  |  |  |  |
| est Package               |                                 | Diagi   |                         |  | ee Barlo            | Contact: DEI        |                                       |  |  |  |  |  |
|                           |                                 | : MOB 2 Contact: DENNIS ONDRAJ  |                         |  |                     |                     |                                       |  |  |  |  |  |

To discuss this sample report, contact Customer Service at 1-800-237-1369.

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

Report Id: HOMIML [WUSCAR] 06196862 (Generated: 06/03/2024 14:21:15) Rev: 1

Certificate L2367

Contact/Location: DENNIS ONDRAJKA - HOMIML

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