

### **OIL ANALYSIS REPORT**

Sample Rating Trend

VISCOSITY

# CHEESECOTE TOWER 0708915

Diesel Engine

**MOBIL 15W40 (2 GAL)** 

#### DIAGNOSIS

#### Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

#### Wear

Metal levels are typical for a new component breaking in.

#### Contamination

There is no indication of any contamination in the oil.

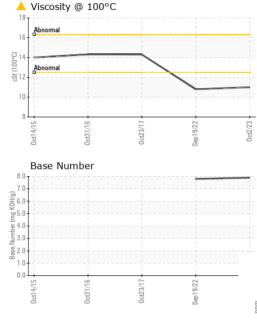
#### Fluid Condition

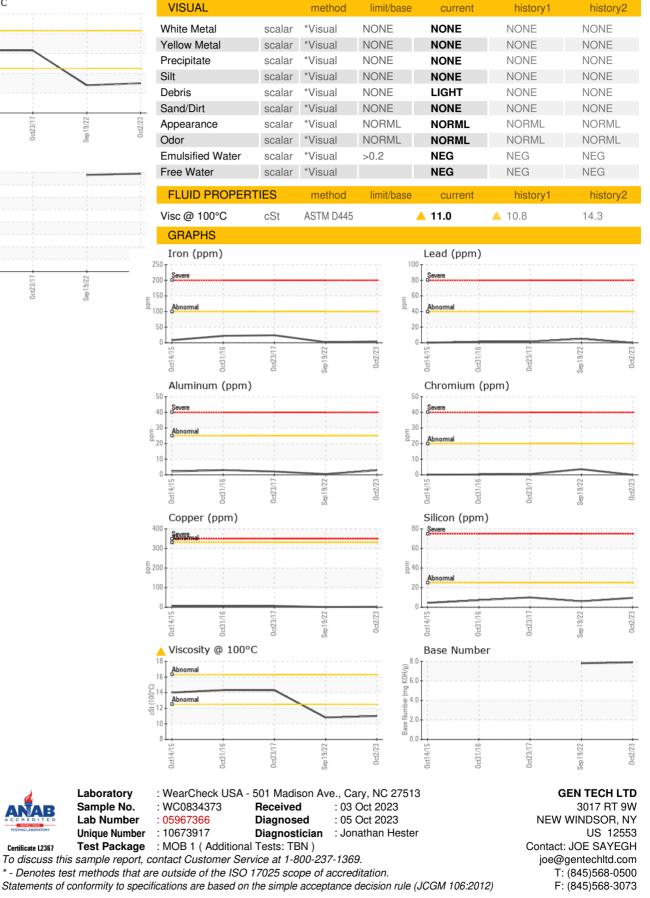
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

|  |  | Oct2015  | 0ct2016  | Oct2017 Sep2022   | Oct2023  |   |
|--|--|--|--|---|--|---|
| SAMPLE INFORM  | <b>IATION</b>  | method   | limit/base   | current   | history1   | history2  |
| Sample Number  |  | Client Info  |  | WC0834373   | WC0699380  | WCM1384172  |
| Sample Date  |  | Client Info  |  | 02 Oct 2023   | 19 Sep 2022  | 23 Oct 2017   |
| Machine Age  | hrs  | Client Info  |  | 0   | 675  | 481   |
| Oil Age  | hrs  | Client Info  |  | 0   | 0  | 0   |
| Oil Changed  |  | Client Info  |  | N/A   | Changed  | Changed   |
| Sample Status  |  |  |  | ATTENTION   | ATTENTION  | NORMAL  |
| CONTAMINATIO   | N  | method   | limit/base   | current   | history1   | history2  |
| Fuel   |  | WC Method  | >5   | <1.0  | 0.2  | <1.0  |
| Glycol   |  | WC Method  |  | NEG   | NEG  | NEG   |
| WEAR METALS  |  | method   | limit/base   | current   | history1   | history2  |
| Iron   | ppm  | ASTM D5185m  | >100   | 4   | 2  | 24  |
| Chromium   | ppm  | ASTM D5185m  | >20  | 0   | 4  | <1  |
| Nickel   | ppm  | ASTM D5185m  | >2   | 0   | 0  | 0   |
| Titanium   | ppm  | ASTM D5185m  | >2   | 0   | 18   | <1  |
| Silver   | ppm  | ASTM D5185m  | >2   | 0   | 0  | 0   |
| Aluminum   | ppm  | ASTM D5185m  | >25  | 3   | <1   | 2   |
| Lead   | ppm  | ASTM D5185m  | >40  | 0   | 5  | 2   |
| Copper   | ppm  | ASTM D5185m  | >330   | 2   | 1  | 7   |
| Tin  | ppm  | ASTM D5185m  | >15  | 0   | 0  | 0   |
| Antimony   | ppm  | ASTM D5185m  |  |   |  | 8   |
| Vanadium   | ppm  | ASTM D5185m  |  | 0   | 1  | 0   |
| Cadmium  | ppm  | ASTM D5185m  |  | 0   | 0  | 0   |
| oddiniani  | ppin   | ASTIVI DOTODITI  |  | U   | 0  | 0   |
| ADDITIVES  | ррш  | method   | limit/base   |   | 0<br>history1  | history2  |
|  | ppm  |  | limit/base   |   |  |   |
| ADDITIVES  |  | method   | limit/base   | current   | history1   | history2  |
| ADDITIVES<br>Boron   | ppm  | method<br>ASTM D5185m  | limit/base   | current<br>137  | history1<br>130  | history2<br>39  |
| ADDITIVES<br>Boron<br>Barium   | ppm<br>ppm   | method<br>ASTM D5185m<br>ASTM D5185m   | limit/base   | current<br>137<br>0   | history1<br>130<br>0   | history2<br>39<br>0   |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum   | ppm<br>ppm<br>ppm  | method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | limit/base   | current<br>137<br>0<br>67   | history1<br>130<br>0<br>58   | history2<br>39<br>0<br>84   |
| 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   | limit/base   | Current<br>137<br>0<br>67<br>0  | history1<br>130<br>0<br>58<br><1   | history2<br>39<br>0<br>84<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  | limit/base   | current<br>137<br>0<br>67<br>0<br>622   | history1<br>130<br>0<br>58<br><1<br>196  | history2<br>39<br>0<br>84<br><1<br>476  |
| 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  | limit/base   | Current<br>137<br>0<br>67<br>0<br>622<br>1194   | history1<br>130<br>0<br>58<br><1<br>196<br>1926  | history2<br>39<br>0<br>84<br><1<br>476<br>1754  |
| 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                             | Method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | limit/base   | Current<br>137<br>0<br>67<br>0<br>622<br>1194<br>789  | history1<br>130<br>0<br>58<br><1<br>196<br>1926<br>727   | history2<br>39<br>0<br>84<br><1<br>476<br>1754<br>936   |
| 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  | limit/base   | Current<br>137<br>0<br>67<br>0<br>622<br>1194<br>789<br>931<br>3226   | history1<br>130<br>0<br>58<br><1<br>196<br>1926<br>727<br>846  | history2<br>39<br>0<br>84<br><1<br>476<br>1754<br>936<br>1031   |
| 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   |  | Current<br>137<br>0<br>67<br>0<br>622<br>1194<br>789<br>931<br>3226   | history1<br>130<br>0<br>58<br><1<br>196<br>1926<br>727<br>846<br>3009  | history2<br>39<br>0<br>84<br><1<br>476<br>1754<br>936<br>1031<br>3047   |
| 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               | methodASTM D5185mASTM D5185m  | limit/base   | Current<br>137<br>0<br>67<br>0<br>622<br>1194<br>789<br>931<br>3226<br>Current  | history1   130   0   58   <1   196   1926   727   846   3009   history1  | history2   39   0   84   <1   476   1754   936   1031   3047   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               | methodASTM D5185mASTM D5185m   | limit/base   | current     137     0     67     0     622     1194     789     931     3226     current     10                         | history1     130     0     58     <1     196     1926     727     846     3009     history1     6  | history2     39     0     84     <1     476     1754     936     1031     3047     history2     10  |
| 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   | limit/base<br>>25<br>>118  | current     137     0     67     0     622     1194     789     931     3226     current     10     21                  | history1     130     0     58     <1     196     1926     727     846     3009     history1     6     <1   | history2   39   0   84   <1   476   1754   936   1031   3047   history2   10   7  |
| 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  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | methodASTM D5185mASTM D5185m  | limit/base<br>>25<br>>118<br>>20   | Current   137   0   67   0   622   1194   789   931   3226   current   10   21   3   current                            | history1     130     0     58     <1     196     1926     727     846     3009     history1     6     <1     2   | history2     39     0     84     <1     476     1754     936     1031     3047     history2     10     7     8  |
| 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  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | method     ASTM D5185m   | limit/base<br>>25<br>>118<br>>20<br>limit/base<br>>3                             | current   137   0   67   0   622   1194   789   931   3226   current   10   21   3   current   0                        | history1   130   0   58   <1   196   1926   727   846   3009   history1   6   <1   2   history1   0.1  | history2   39   0   84   <1   476   1754   936   1031   3047   history2   10   7   8   history2   0   |
| 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                          | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method     ASTM D5185m           | limit/base<br>>25<br>>118<br>>20<br>limit/base<br>>3<br>>20                      | Current   137   0   67   0   622   1194   789   931   3226   current   10   21   3   current                            | history1   130   0   58   <1   196   1926   727   846   3009   history1   6   <1   2   history1  | history2   39   0   84   <1   476   1754   936   1031   3047   history2   10   7   8   history2   |
| 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<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           | limit/base<br>>25<br>>118<br>>20<br>limit/base<br>>3<br>>20                      | current   137   0   67   0   622   1194   789   931   3226   current   10   21   3   current   0   5.6   15.6           | history1   130   0   58   <1   196   1926   727   846   3009   history1   6   <1   2   history1   0.1   5.2  | history2     39     0     84     <1     476     1754     936     1031     3047     history2     10     7     8     history2     0     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<br>Soot %<br>Nitration<br>Sulfation | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | methodASTM D5185mASTM D7844*ASTM D7624*ASTM D7415method  | limit/base<br>>25<br>>118<br>>20<br>limit/base<br>>3<br>>20<br>>30<br>limit/base | current   137   0   67   0   622   1194   789   931   3226   current   10   21   3   current   0   5.6   15.6   current | history1   130   0   58   <1   196   727   846   3009   history1   6   <1   0   0   1926   727   846   3009   history1   0   0.1   5.2   15.6   history1 | history2     39     0     84     <1     476     1754     936     1031     3047     history2     10     7     8     history2     0     6.     16.     history2 |
| 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<br>Soot %<br>Nitration<br>Sulfation | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method     ASTM D5185m     ASTM D7844     *ASTM D7624     *ASTM D7415     method | limit/base<br>>25<br>>118<br>>20<br>limit/base<br>>3<br>>20<br>>30               | current   137   0   67   0   622   1194   789   931   3226   current   10   21   3   current   0   5.6   15.6           | history1   130   0   58   <1   196   1926   727   846   3009   history1   6   <1   2   history1   0.1   5.2   15.6                                       | history2   39   0   84   <1   476   1754   936   1031   3047   history2   10   7   8   history2   0   6.   16.  |



## **OIL ANALYSIS REPORT**





Certificate L2367

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Laboratory

Contact/Location: JOE SAYEGH - GENNEW