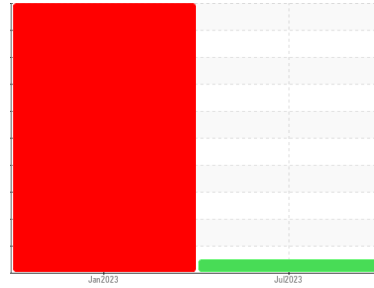


# OIL ANALYSIS REPORT

**Sample Rating Trend**

**NORMAL**


Area  
**KEMP QUARRIES / BCS-STILWELL**  
 Machine Id  
**TTH036**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

**DIAGNOSIS**
**Recommendation**

Resample at the next service interval to monitor. ( Customer Sample Comment: PM-1 changed filters and fluid )

**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 INFORMATION**

|               | method      | limit/base  | current            | history 1   | history 2 |
|---------------|-------------|-------------|--------------------|-------------|-----------|
| Sample Number | Client Info |             | <b>PCA0086291</b>  | PCA0086714  | ---       |
| Sample Date   | Client Info |             | <b>06 Jul 2023</b> | 30 Jan 2023 | ---       |
| Machine Age   | hrs         | Client Info | <b>6958</b>        | 6499        | ---       |
| Oil Age       | hrs         | Client Info | <b>6958</b>        | 6499        | ---       |
| Oil Changed   | Client Info |             | <b>Changed</b>     | Changed     | ---       |
| Sample Status |             |             | <b>NORMAL</b>      | SEVERE      | ---       |

**CONTAMINATION**

|        | method    | limit/base | current        | history 1 | history 2 |
|--------|-----------|------------|----------------|-----------|-----------|
| Fuel   | WC Method | >5         | <b>&lt;1.0</b> | <1.0      | ---       |
| Glycol | WC Method |            | <b>NEG</b>     | NEG       | ---       |

**WEAR METALS**

|          | method | limit/base       | current      | history 1 | history 2 |
|----------|--------|------------------|--------------|-----------|-----------|
| Iron     | ppm    | ASTM D5185m >100 | <b>71</b>    | 411       | ---       |
| Chromium | ppm    | ASTM D5185m >20  | <b>1</b>     | 5         | ---       |
| Nickel   | ppm    | ASTM D5185m >4   | <b>&lt;1</b> | 2         | ---       |
| Titanium | ppm    | ASTM D5185m      | <b>0</b>     | <1        | ---       |
| Silver   | ppm    | ASTM D5185m >3   | <b>0</b>     | 0         | ---       |
| Aluminum | ppm    | ASTM D5185m >20  | <b>7</b>     | 27        | ---       |
| Lead     | ppm    | ASTM D5185m >40  | <b>2</b>     | 35        | ---       |
| Copper   | ppm    | ASTM D5185m >330 | <b>3</b>     | 10        | ---       |
| Tin      | ppm    | ASTM D5185m >15  | <b>&lt;1</b> | 3         | ---       |
| Vanadium | ppm    | ASTM D5185m      | <b>0</b>     | <1        | ---       |
| Cadmium  | ppm    | ASTM D5185m      | <b>0</b>     | 0         | ---       |

**ADDITIVES**

|            | method | limit/base       | current      | history 1 | history 2 |
|------------|--------|------------------|--------------|-----------|-----------|
| Boron      | ppm    | ASTM D5185m 0    | <b>4</b>     | 56        | ---       |
| Barium     | ppm    | ASTM D5185m 0    | <b>0</b>     | 0         | ---       |
| Molybdenum | ppm    | ASTM D5185m 60   | <b>59</b>    | 28        | ---       |
| Manganese  | ppm    | ASTM D5185m 0    | <b>&lt;1</b> | 4         | ---       |
| Magnesium  | ppm    | ASTM D5185m 1010 | <b>965</b>   | 213       | ---       |
| Calcium    | ppm    | ASTM D5185m 1070 | <b>1239</b>  | 2420      | ---       |
| Phosphorus | ppm    | ASTM D5185m 1150 | <b>1127</b>  | 1132      | ---       |
| Zinc       | ppm    | ASTM D5185m 1270 | <b>1399</b>  | 1511      | ---       |
| Sulfur     | ppm    | ASTM D5185m 2060 | <b>3892</b>  | 4097      | ---       |

**CONTAMINANTS**

|           | method | limit/base      | current   | history 1 | history 2 |
|-----------|--------|-----------------|-----------|-----------|-----------|
| Silicon   | ppm    | ASTM D5185m >25 | <b>8</b>  | 49        | ---       |
| Sodium    | ppm    | ASTM D5185m     | <b>21</b> | 134       | ---       |
| Potassium | ppm    | ASTM D5185m >20 | <b>5</b>  | 28        | ---       |

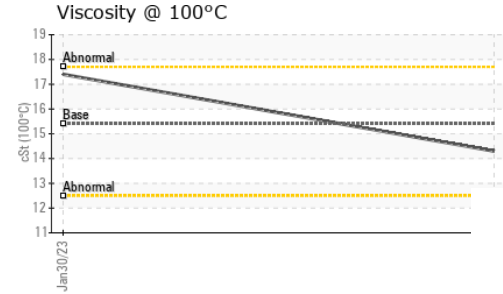
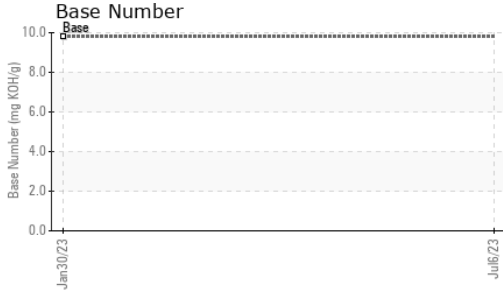
**INFRA-RED**

|           | method   | limit/base      | current     | history 1 | history 2 |
|-----------|----------|-----------------|-------------|-----------|-----------|
| Soot %    | %        | *ASTM D7844 >3  | <b>0.3</b>  | 2.4       | ---       |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>9.4</b>  | 12.3      | ---       |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>21.1</b> | 29.4      | ---       |

**FLUID DEGRADATION**

|                  | method   | limit/base      | current     | history 1 | history 2 |
|------------------|----------|-----------------|-------------|-----------|-----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>18.8</b> | 22.6      | ---       |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8  | <b>8.1</b>  | ---       | ---       |

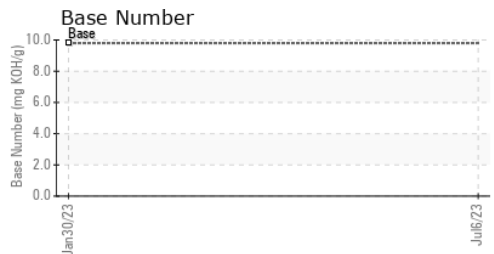
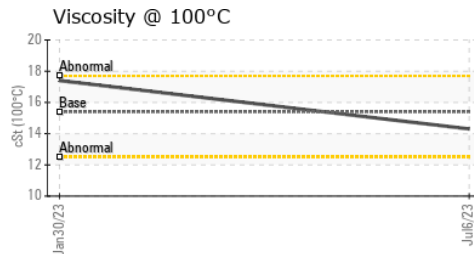
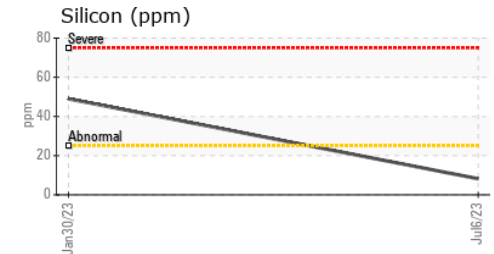
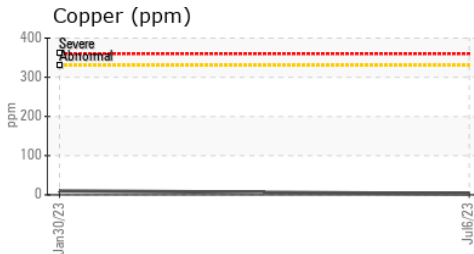
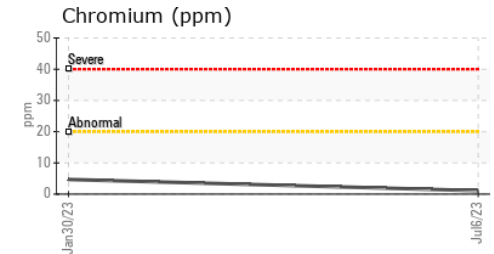
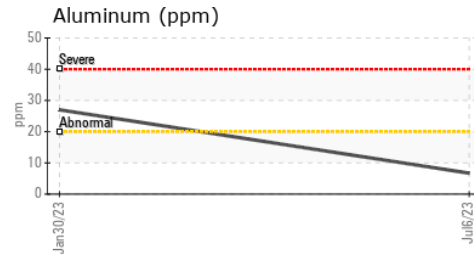
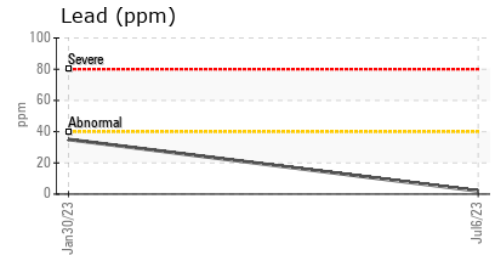
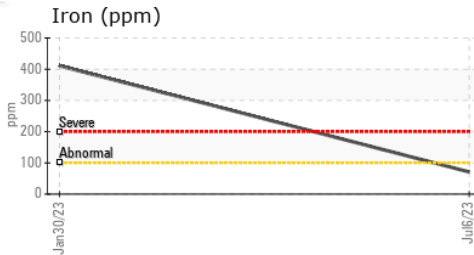
# OIL ANALYSIS REPORT



| VISUAL           | method | limit/base | current | history 1 | history 2 |
|------------------|--------|------------|---------|-----------|-----------|
| White Metal      | scalar | *Visual    | NONE    | NONE      | ---       |
| Yellow Metal     | scalar | *Visual    | NONE    | NONE      | ---       |
| Precipitate      | scalar | *Visual    | NONE    | NONE      | ---       |
| Silt             | scalar | *Visual    | NONE    | NONE      | ---       |
| Debris           | scalar | *Visual    | NONE    | NONE      | ---       |
| Sand/Dirt        | scalar | *Visual    | NONE    | NONE      | ---       |
| Appearance       | scalar | *Visual    | NORML   | NORML     | ---       |
| Odor             | scalar | *Visual    | NORML   | NORML     | ---       |
| Emulsified Water | scalar | *Visual    | >0.2    | NEG       | ---       |
| Free Water       | scalar | *Visual    |         | NEG       | ---       |

| FLUID PROPERTIES | method | limit/base | current | history 1   | history 2 |     |
|------------------|--------|------------|---------|-------------|-----------|-----|
| Visc @ 100°C     | cSt    | ASTM D445  | 15.4    | <b>14.3</b> | ▲ 17.4    | --- |

## GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0086291 **Received** : 10 Jul 2023  
**Lab Number** : 05894258 **Diagnosed** : 12 Jul 2023  
**Unique Number** : 10550068 **Diagnostician** : Don Baldrige  
**Test Package** : MOB 1 ( Additional Tests: TBN )

**Kemp Quarries - Benton County Stone - Stillwell**  
 463917 Highway 100  
 Bunch, OK  
 US 74931  
 Contact:  
 stilwell@bentoncountystone.com

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)

T:  
F: