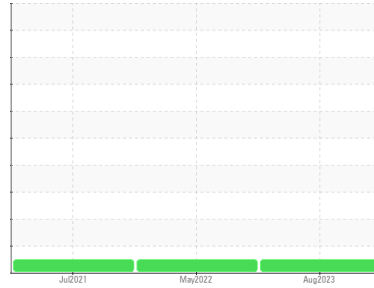


# OIL ANALYSIS REPORT



Area  
**KEMP QUARRIES / RIVER VALLEY ARKOMA**  
Machine Id  
**GEN029**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

Sample Rating Trend



**NORMAL**



## 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 INFORMATION

|               | method      | limit/base  | current            | history1    | history2    |
|---------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info |             | <b>PCA0034672</b>  | PCA0037736  | PCA0038035  |
| Sample Date   | Client Info |             | <b>04 Aug 2023</b> | 03 May 2022 | 01 Jul 2021 |
| Machine Age   | hrs         | Client Info | <b>4018</b>        | 50798       | 49829       |
| Oil Age       | hrs         | Client Info | <b>50798</b>       | 0           | 0           |
| Oil Changed   | Client Info |             | <b>Changed</b>     | Changed     | Changed     |
| Sample Status |             |             | <b>NORMAL</b>      | NORMAL      | NORMAL      |

## CONTAMINATION

|        | method    | limit/base | current        | history1 | history2 |
|--------|-----------|------------|----------------|----------|----------|
| Fuel   | WC Method | >5         | <b>&lt;1.0</b> | <1.0     | <1.0     |
| Glycol | WC Method |            | <b>NEG</b>     | NEG      | NEG      |

## WEAR METALS

|          | method | limit/base       | current      | history1 | history2 |
|----------|--------|------------------|--------------|----------|----------|
| Iron     | ppm    | ASTM D5185m >100 | <b>20</b>    | 16       | 18       |
| Chromium | ppm    | ASTM D5185m >20  | <b>8</b>     | 12       | 2        |
| Nickel   | ppm    | ASTM D5185m >2   | <b>&lt;1</b> | 0        | <1       |
| Titanium | ppm    | ASTM D5185m >2   | <b>&lt;1</b> | <1       | <1       |
| Silver   | ppm    | ASTM D5185m >2   | <b>0</b>     | <1       | 0        |
| Aluminum | ppm    | ASTM D5185m >25  | <b>4</b>     | 3        | 2        |
| Lead     | ppm    | ASTM D5185m >40  | <b>3</b>     | 1        | 2        |
| Copper   | ppm    | ASTM D5185m >330 | <b>3</b>     | 7        | 10       |
| Tin      | ppm    | ASTM D5185m >15  | <b>&lt;1</b> | <1       | <1       |
| Antimony | ppm    | ASTM D5185m      | <b>---</b>   | ---      | 0        |
| Vanadium | ppm    | ASTM D5185m      | <b>&lt;1</b> | 0        | 0        |
| Cadmium  | ppm    | ASTM D5185m      | <b>0</b>     | 0        | 0        |

## ADDITIVES

|            | method | limit/base       | current      | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron      | ppm    | ASTM D5185m 0    | <b>1</b>     | 8        | 70       |
| Barium     | ppm    | ASTM D5185m 0    | <b>1</b>     | 0        | 0        |
| Molybdenum | ppm    | ASTM D5185m 60   | <b>60</b>    | 56       | 61       |
| Manganese  | ppm    | ASTM D5185m 0    | <b>&lt;1</b> | <1       | <1       |
| Magnesium  | ppm    | ASTM D5185m 1010 | <b>969</b>   | 948      | 747      |
| Calcium    | ppm    | ASTM D5185m 1070 | <b>1059</b>  | 1201     | 1580     |
| Phosphorus | ppm    | ASTM D5185m 1150 | <b>970</b>   | 1045     | 982      |
| Zinc       | ppm    | ASTM D5185m 1270 | <b>1200</b>  | 1240     | 1134     |
| Sulfur     | ppm    | ASTM D5185m 2060 | <b>3010</b>  | 2642     | 2713     |

## CONTAMINANTS

|           | method | limit/base      | current   | history1 | history2 |
|-----------|--------|-----------------|-----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >25 | <b>10</b> | 9        | 11       |
| Sodium    | ppm    | ASTM D5185m     | <b>5</b>  | 3        | 4        |
| Potassium | ppm    | ASTM D5185m >20 | <b>2</b>  | 1        | 3        |

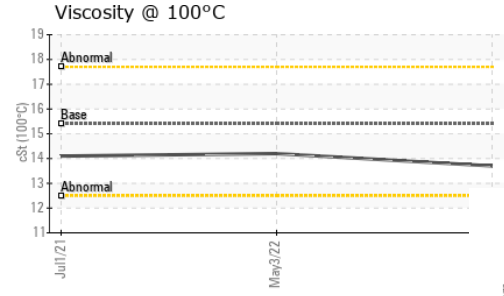
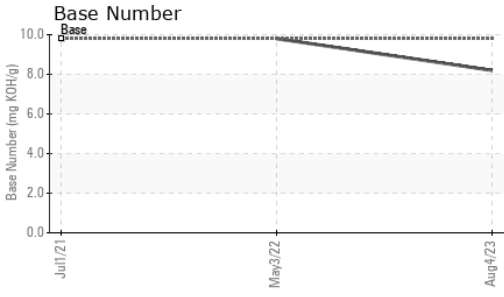
## INFRA-RED

|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 >3  | <b>0.2</b>  | 0.1      | 0.2      |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>5.8</b>  | 9.7      | 11.6     |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>17.3</b> | 21.5     | 23.7     |

## FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>13.4</b> | 19.1     | 23.6     |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8  | <b>8.2</b>  | 9.8      | ---      |

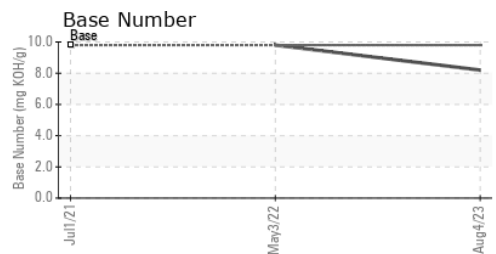
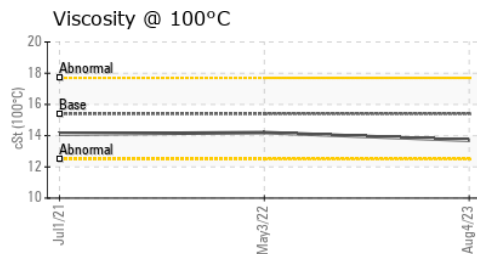
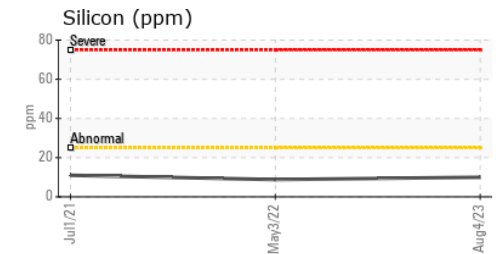
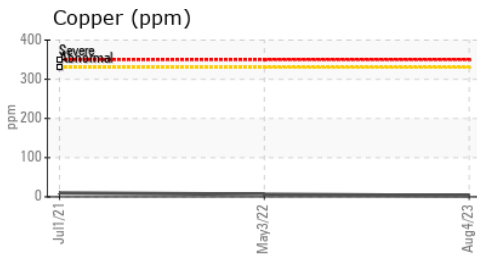
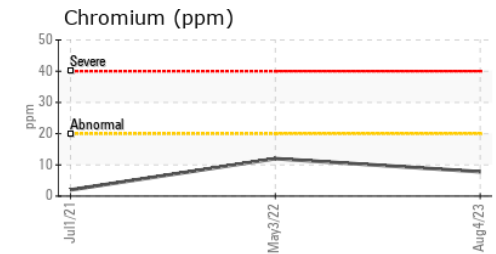
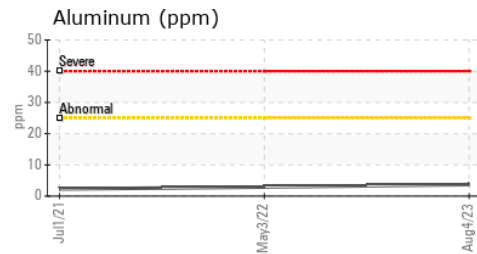
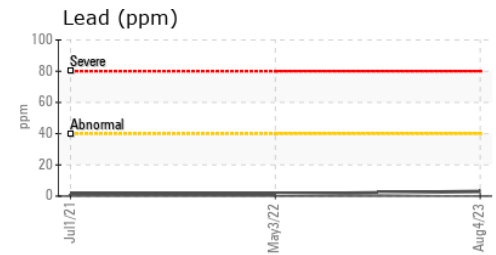
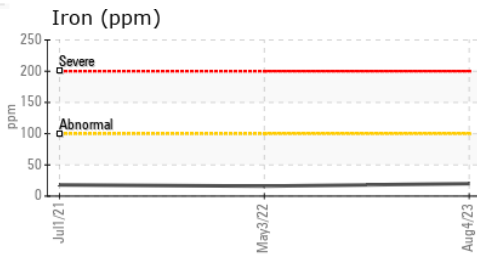
# OIL ANALYSIS REPORT



| VISUAL           | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal      | scalar | *Visual    | NONE    | NONE     | NONE     |
| Yellow Metal     | scalar | *Visual    | NONE    | NONE     | NONE     |
| Precipitate      | scalar | *Visual    | NONE    | NONE     | NONE     |
| Silt             | scalar | *Visual    | NONE    | NONE     | NONE     |
| Debris           | scalar | *Visual    | NONE    | NONE     | NONE     |
| Sand/Dirt        | scalar | *Visual    | NONE    | NONE     | NONE     |
| Appearance       | scalar | *Visual    | NORML   | NORML    | NORML    |
| Odor             | scalar | *Visual    | NORML   | NORML    | NORML    |
| Emulsified Water | scalar | *Visual    | >0.2    | NEG      | NEG      |
| Free Water       | scalar | *Visual    |         | NEG      | NEG      |

| FLUID PROPERTIES | method | limit/base | current | history1    | history2 |      |
|------------------|--------|------------|---------|-------------|----------|------|
| Visc @ 100°C     | cSt    | ASTM D445  | 15.4    | <b>13.7</b> | 14.2     | 14.1 |

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0034672 **Received** : 09 Aug 2023  
**Lab Number** : **05920145** **Diagnosed** : 10 Aug 2023  
**Unique Number** : 10592059 **Diagnostician** : Wes Davis  
**Test Package** : MOB 1 ( Additional Tests: TBN )

**Kemp Quarries - River Valley - Arkoma**  
 12971 HWY 9a  
 Shawnee, OK  
 US 74804  
 Contact:

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)

arkomashop@kempquarries.net

T:  
F: