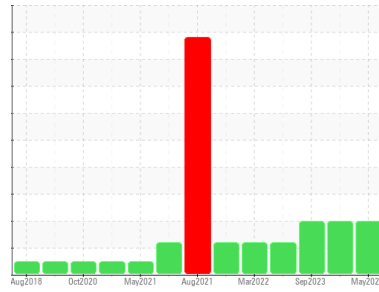


# OIL ANALYSIS REPORT



Area  
**KEMP QUARRIES / HULBERT**  
 Machine Id  
**OHT097**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

Sample Rating Trend



**GLYCOL**



## DIAGNOSIS

### Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

### Wear

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

### Contamination

Sodium and/or potassium levels are high.

### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>PCA0085955</b>	PCA0109178	PCA0086800
Sample Date	Client Info	<b>10 May 2024</b>	10 Feb 2024	29 Sep 2023
Machine Age	hrs	<b>36071</b>	35540	35032
Oil Age	hrs	<b>531</b>	0	34585
Oil Changed	Client Info	<b>Changed</b>	Changed	Changed
Sample Status		<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

## CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >5	<b>&lt;1.0</b>	<1.0	<1.0
Water	WC Method >0.2	<b>NEG</b>	NEG	NEG

## WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >100	<b>43</b>	32	30
Chromium	ppm	ASTM D5185m >20	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m >2	<b>0</b>	<1	<1
Titanium	ppm	ASTM D5185m >2	<b>0</b>	<1	0
Silver	ppm	ASTM D5185m >2	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m >25	<b>1</b>	1	1
Lead	ppm	ASTM D5185m >40	<b>7</b>	6	7
Copper	ppm	ASTM D5185m >330	<b>411</b>	327	440
Tin	ppm	ASTM D5185m >15	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185m	<b>0</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>0</b>	3	2
Barium	ppm	ASTM D5185m 0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m 60	<b>91</b>	104	94
Manganese	ppm	ASTM D5185m 0	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m 1010	<b>1050</b>	1098	923
Calcium	ppm	ASTM D5185m 1070	<b>1271</b>	1131	976
Phosphorus	ppm	ASTM D5185m 1150	<b>1144</b>	1171	944
Zinc	ppm	ASTM D5185m 1270	<b>1477</b>	1444	1208
Sulfur	ppm	ASTM D5185m 2060	<b>3376</b>	3309	2679

## CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >25	<b>5</b>	6	7
Sodium	ppm	ASTM D5185m	<b>232</b>	392	356
Potassium	ppm	ASTM D5185m >20	<b>26</b>	26	23
Glycol	%	*ASTM D2982	<b>NEG</b>	NEG	NEG

## INFRA-RED

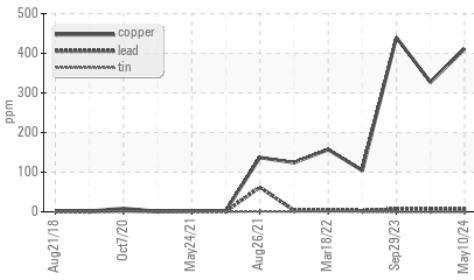
method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844 >3	<b>1</b>	0.7	0.9
Nitration	Abs/cm	*ASTM D7624 >20	<b>10.6</b>	11.1	10.0
Sulfation	Abs/.1mm	*ASTM D7415 >30	<b>21.8</b>	20.6	20.8

## FLUID DEGRADATION

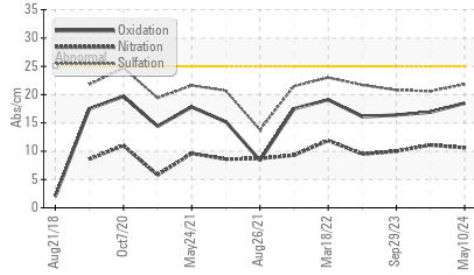
method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	<b>18.5</b>	16.9	16.4
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	<b>8.0</b>	9.4	8.1

# OIL ANALYSIS REPORT

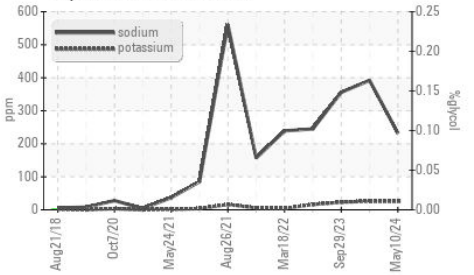
## ▲ Non-ferrous Metals



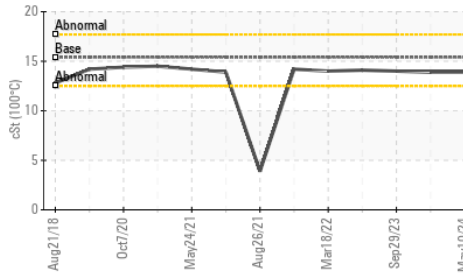
## FT-IR (Direct Trend)



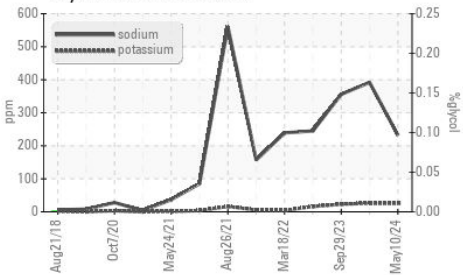
## Glycol Contamination



## Viscosity @ 100°C



## Glycol Contamination

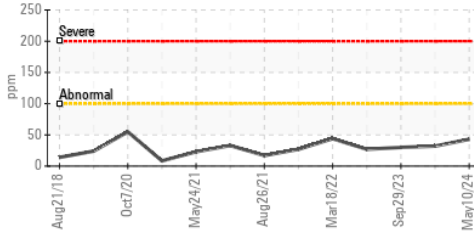


PARAMETER	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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	NEG

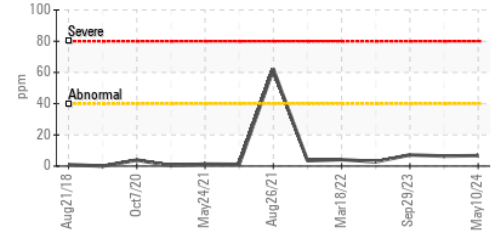
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	13.9

## GRAPHS

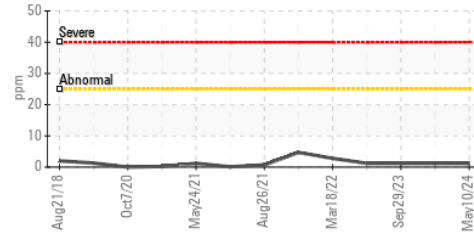
### Iron (ppm)



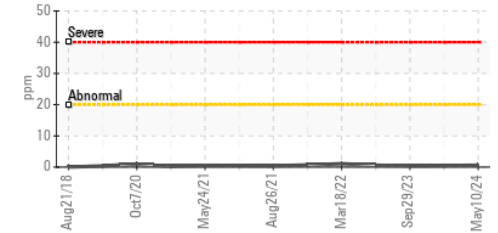
### Lead (ppm)



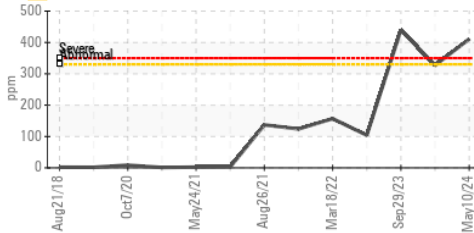
### Aluminum (ppm)



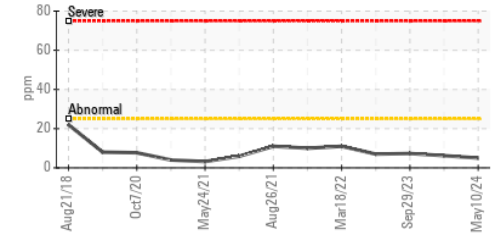
### Chromium (ppm)



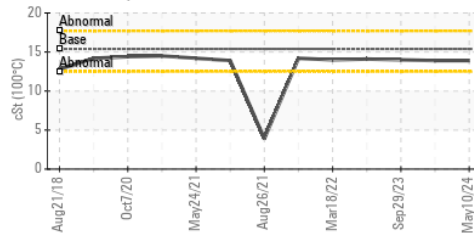
### ▲ Copper (ppm)



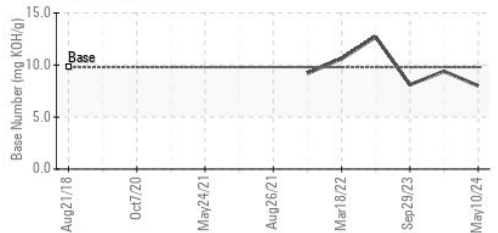
### Silicon (ppm)



### Viscosity @ 100°C



### Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

**Sample No.** : PCA0085955

**Lab Number** : 06193290

**Unique Number** : 11050042

**Test Package** : MOB 1 ( Additional Tests: Glycol, TBN )

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)

**Received** : 28 May 2024

**Tested** : 30 May 2024

**Diagnosed** : 30 May 2024 - Sean Felton

**Kemp Quarries - Kemp Stone - Hulbert**

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US 74441

Contact:

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