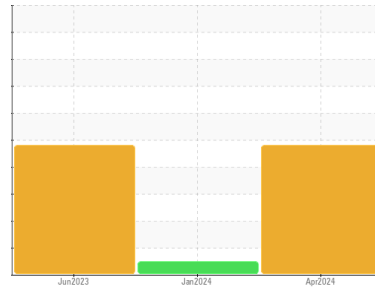


# OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Area  
**KEMP QUARRIES / RIVER VALLEY ARKOMA**  
 Machine Id  
**WL152**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## DIAGNOSIS

### Recommendation

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

### Wear

Cylinder, crank, or cam shaft wear is indicated.

### Contamination

There is a high amount of fuel present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

### Fluid Condition

Fuel is present in the oil and is lowering the viscosity. 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>PCA0086970</b>	PCA0084476	PCA0085784
Sample Date	Client Info		<b>15 Apr 2024</b>	30 Jan 2024	07 Jun 2023
Machine Age	hrs	Client Info	<b>31696</b>	31180	0
Oil Age	hrs	Client Info	<b>31180</b>	31129	0
Oil Changed	Client Info		<b>Changed</b>	Changed	Not Changed
Sample Status			<b>SEVERE</b>	NORMAL	ABNORMAL

## CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	WC Method		<b>NEG</b>	NEG	NEG

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	<b>▲ 123</b>	40	64
Chromium	ppm	ASTM D5185m >20	<b>2</b>	1	2
Nickel	ppm	ASTM D5185m >4	<b>&lt;1</b>	2	<1
Titanium	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m >3	<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185m >20	<b>2</b>	3	7
Lead	ppm	ASTM D5185m >40	<b>4</b>	4	4
Copper	ppm	ASTM D5185m >330	<b>10</b>	5	94
Tin	ppm	ASTM D5185m >15	<b>4</b>	2	1
Vanadium	ppm	ASTM D5185m	<b>0</b>	<1	0
Cadmium	ppm	ASTM D5185m	<b>&lt;1</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	<b>&lt;1</b>	0	33
Barium	ppm	ASTM D5185m 0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m 60	<b>53</b>	55	37
Manganese	ppm	ASTM D5185m 0	<b>1</b>	1	<1
Magnesium	ppm	ASTM D5185m 1010	<b>765</b>	850	86
Calcium	ppm	ASTM D5185m 1070	<b>895</b>	943	2474
Phosphorus	ppm	ASTM D5185m 1150	<b>890</b>	965	949
Zinc	ppm	ASTM D5185m 1270	<b>1019</b>	1157	1171
Sulfur	ppm	ASTM D5185m 2060	<b>2781</b>	2924	4045

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	<b>▲ 30</b>	22	▲ 33
Sodium	ppm	ASTM D5185m	<b>4</b>	9	▲ 101
Potassium	ppm	ASTM D5185m >20	<b>2</b>	4	▲ 103
Fuel	%	ASTM D3524 >5	<b>▲ 16.8</b>	<1.0	<1.0

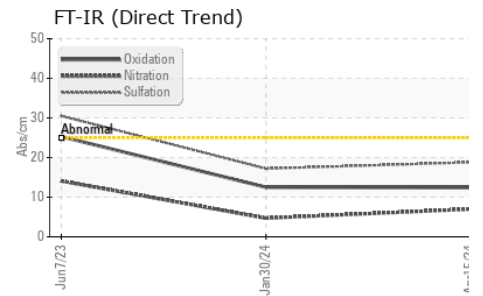
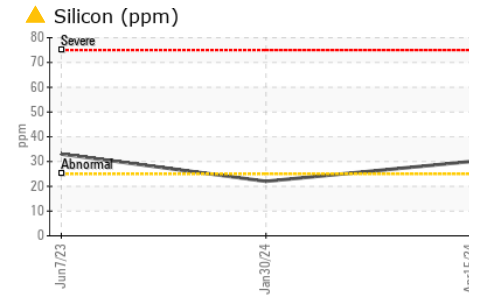
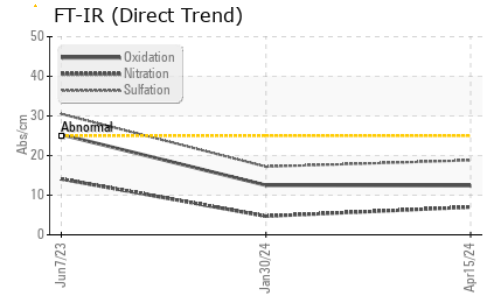
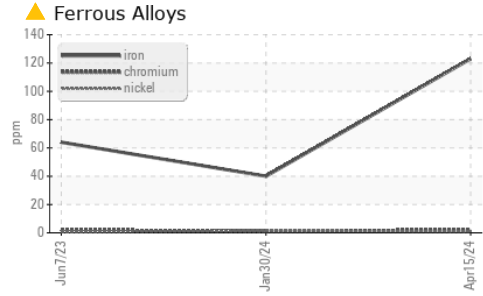
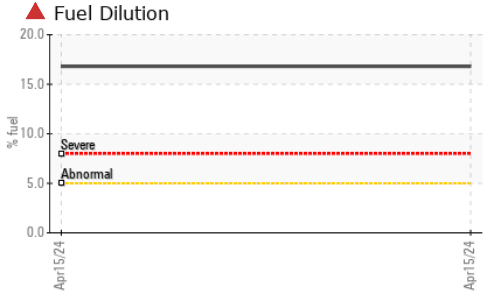
## INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	<b>1.3</b>	0.1	1.7
Nitration	Abs/cm	*ASTM D7624 >20	<b>7.0</b>	4.7	14.1
Sulfation	Abs/.1mm	*ASTM D7415 >30	<b>18.8</b>	17.2	30.5

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	<b>12.4</b>	12.5	25.3
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	<b>7.9</b>	9.3	7.4

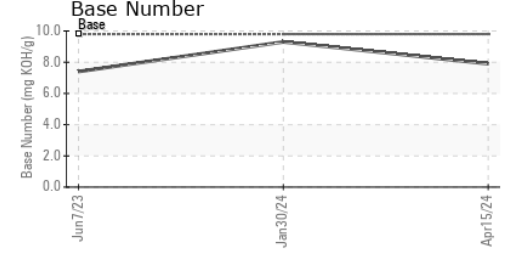
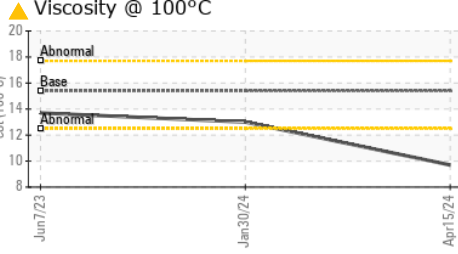
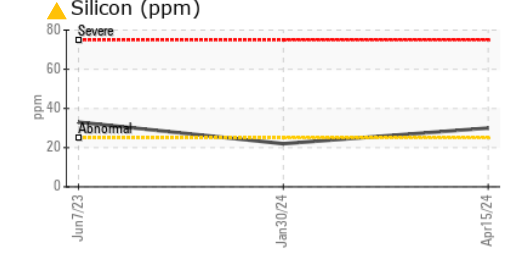
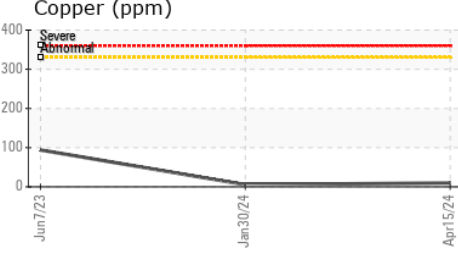
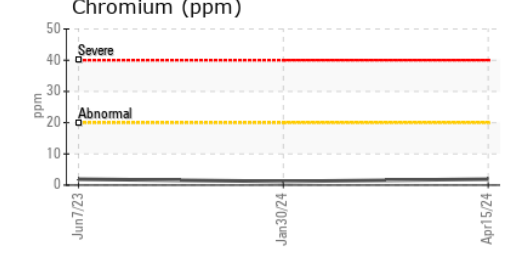
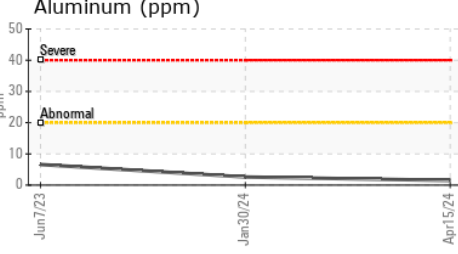
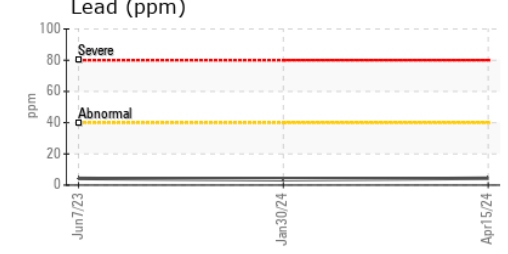
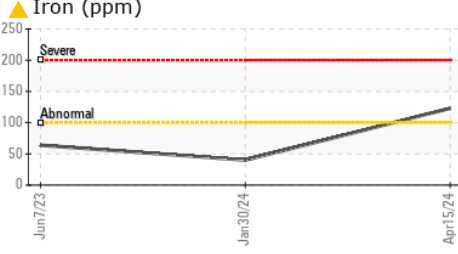
# OIL ANALYSIS REPORT



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	▲ 9.7	13.0

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0086970  
**Lab Number** : 06155087  
**Unique Number** : 10990510  
**Test Package** : MOB 1 ( Additional Tests : FuelDilution, PercentFuel, TBN )

**Kemp Quarries - River Valley - Arkoma**  
 12971 HWY 9a  
 Shawnee, OK  
 US 74804  
 Contact:  
 arkomashop@kempquarries.net

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)