

Area
KEMP QUARRIES / RIVER VALLEY ARKOMA

Machine Id
WL152

Component
Diesel Engine

Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

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.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PCA0086970	PCA0084476	PCA0085784
Sample Date		Client Info		15 Apr 2024	30 Jan 2024	07 Jun 2023
Machine Age	hrs	Client Info		31696	31180	0
Oil Age	hrs	Client Info		31180	31129	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Not Changed
Filter Changed		Client Info		Changed	Changed	N/A
Sample Status				SEVERE	NORMAL	ABNORMAL

WEAR

Cylinder, crank, or cam shaft wear is indicated.

Iron	ppm	ASTM D5185m	>100	▲ 123	40	64
Chromium	ppm	ASTM D5185m	>20	2	1	2
Nickel	ppm	ASTM D5185m	>4	<1	2	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	3	7
Lead	ppm	ASTM D5185m	>40	4	4	4
Copper	ppm	ASTM D5185m	>330	10	5	94
Tin	ppm	ASTM D5185m	>15	4	2	1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

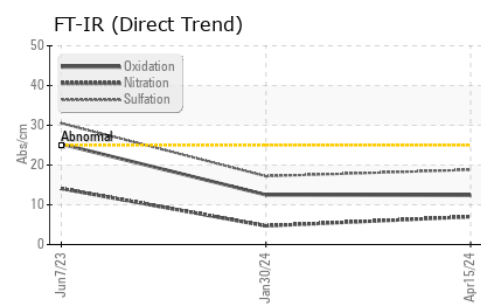
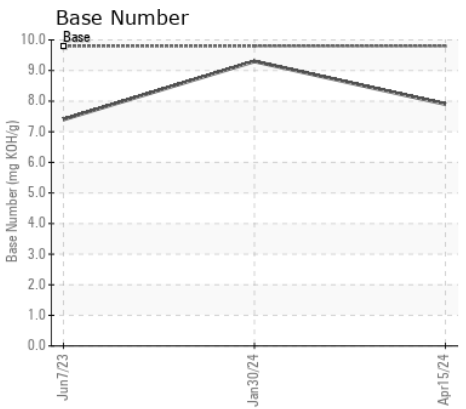
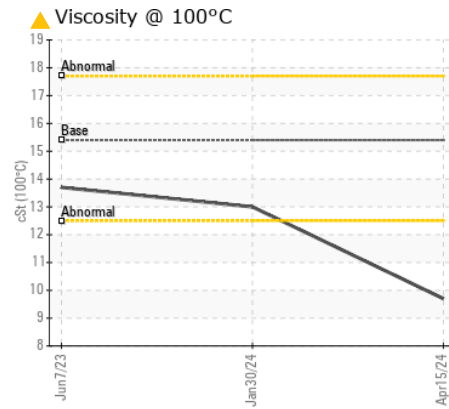
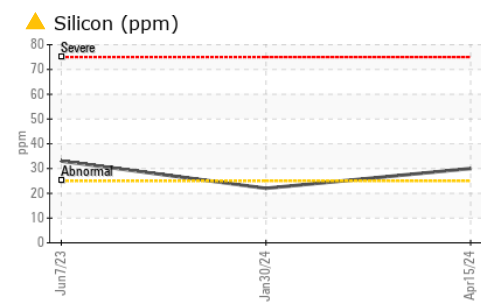
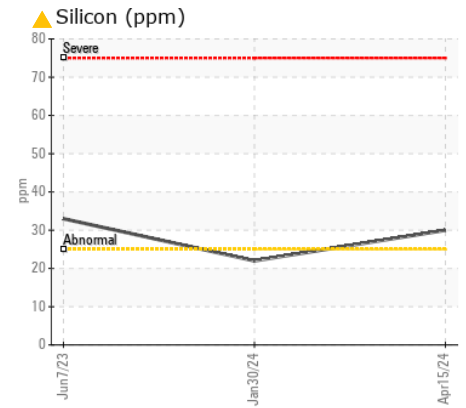
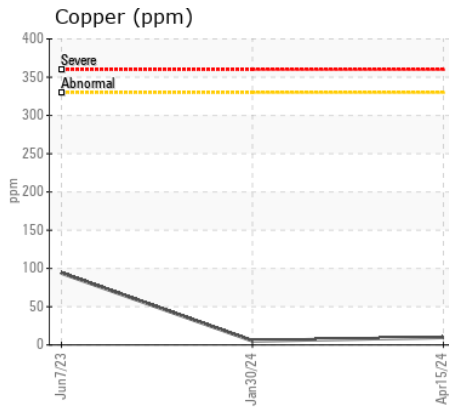
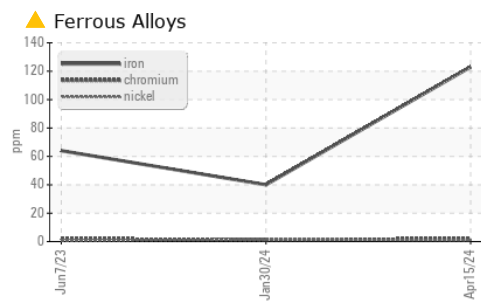
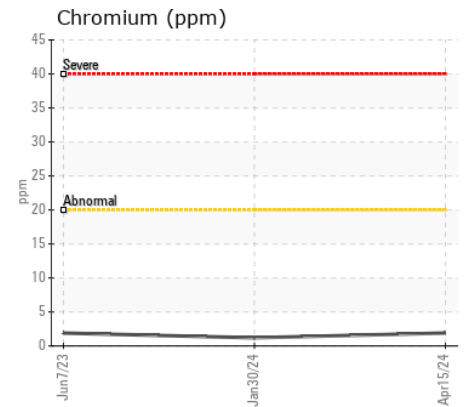
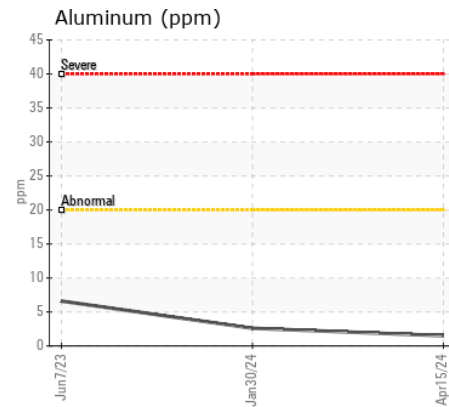
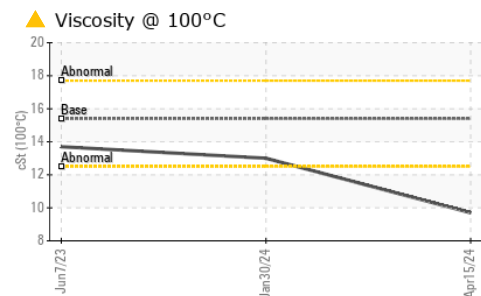
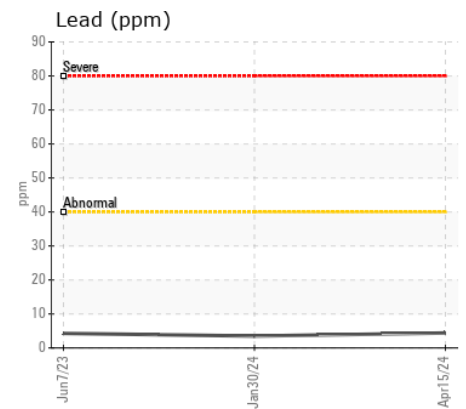
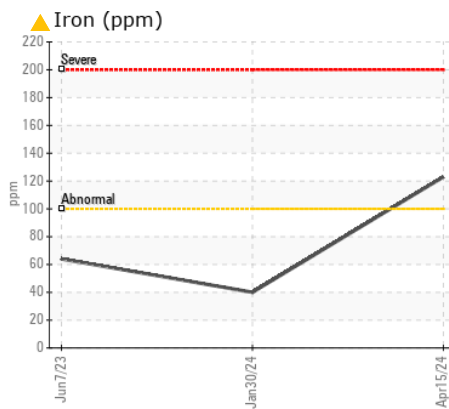
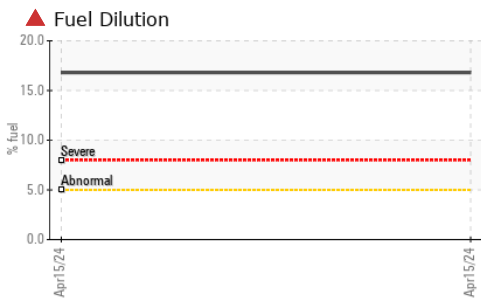
There is a high amount of fuel present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Silicon	ppm	ASTM D5185m	>25	▲ 30	22	▲ 33
Potassium	ppm	ASTM D5185m	>20	2	4	▲ 103
Fuel	%	ASTM D3524	>5	▲ 16.8	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	1.3	0.1	1.7
Nitration	Abs/cm	*ASTM D7624	>20	7.0	4.7	14.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.8	17.2	30.5
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG

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.

Sodium	ppm	ASTM D5185m		4	9	▲ 101
Boron	ppm	ASTM D5185m	0	<1	0	33
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	53	55	37
Manganese	ppm	ASTM D5185m	0	1	1	<1
Magnesium	ppm	ASTM D5185m	1010	765	850	86
Calcium	ppm	ASTM D5185m	1070	895	943	2474
Phosphorus	ppm	ASTM D5185m	1150	890	965	949
Zinc	ppm	ASTM D5185m	1270	1019	1157	1171
Sulfur	ppm	ASTM D5185m	2060	2781	2924	4045
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.4	12.5	25.3
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.9	9.3	7.4
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 9.7	13.0	13.7



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0086970 **Received** : 19 Apr 2024
Lab Number : 06155087 **Tested** : 24 Apr 2024
Unique Number : 10990510 **Diagnosed** : 24 Apr 2024 - Jonathan Hester
Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel, 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.

arkomashop@kempquarries.net

* - 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: