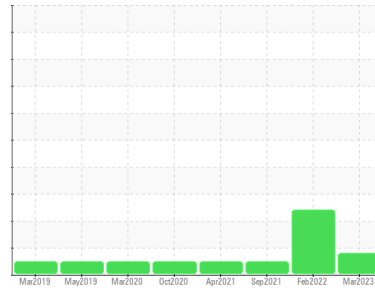


Area
KEMP QUARRIES / BCS - GRAVETTE
Machine Id
TTH032
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)



DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. (Customer Sample Comment: PM-4 changed fluid and filters)

Wear

The lead level is abnormal. All other 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	PCA0086766	PCA0034157	PCA0048579
Sample Date	Client Info	01 Mar 2023	17 Feb 2022	21 Sep 2021
Machine Age	hrs	12454	12109	11616
Oil Age	hrs	12454	493	0
Oil Changed	Client Info	Changed	Changed	Changed
Sample Status		ABNORMAL	ABNORMAL	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >5	<1.0	<1.0	<1.0
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >90	78	85	38
Chromium	ppm ASTM D5185m >20	4	10	2
Nickel	ppm ASTM D5185m >2	0	0	<1
Titanium	ppm ASTM D5185m >2	<1	<1	<1
Silver	ppm ASTM D5185m >2	<1	0	0
Aluminum	ppm ASTM D5185m >20	4	▲ 10	3
Lead	ppm ASTM D5185m >40	▲ 54	26	22
Copper	ppm ASTM D5185m >330	10	10	4
Tin	ppm ASTM D5185m >15	1	3	3
Antimony	ppm ASTM D5185m	---	0	2
Vanadium	ppm ASTM D5185m	<1	0	0
Cadmium	ppm ASTM D5185m	0	0	<1

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	2	4	4
Barium	ppm ASTM D5185m 0	0	0	0
Molybdenum	ppm ASTM D5185m 60	63	70	64
Manganese	ppm ASTM D5185m 0	1	2	<1
Magnesium	ppm ASTM D5185m 1010	985	1060	1102
Calcium	ppm ASTM D5185m 1070	1185	1457	1199
Phosphorus	ppm ASTM D5185m 1150	996	1161	1050
Zinc	ppm ASTM D5185m 1270	1288	1429	1292
Sulfur	ppm ASTM D5185m 2060	3090	2652	2089

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	13	▲ 45	7
Sodium	ppm ASTM D5185m	2	3	3
Potassium	ppm ASTM D5185m >20	0	4	14

INFRA-RED

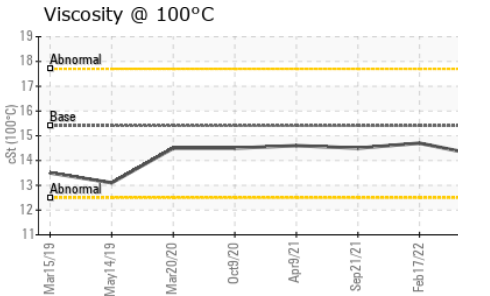
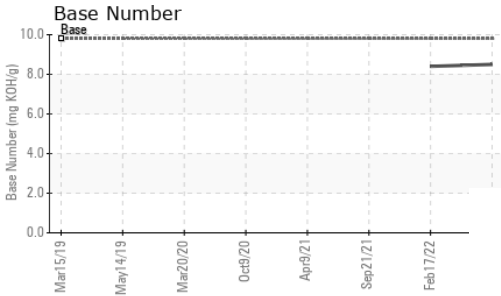
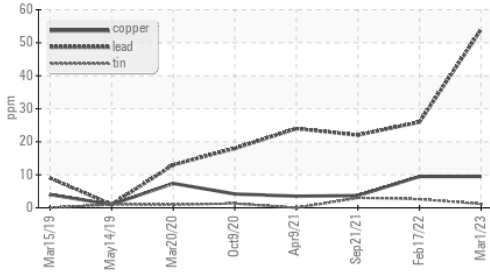
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >6	0.5	2.8	2.3
Nitration	Abs/cm *ASTM D7624 >20	10.0	13.6	11.7
Sulfation	Abs/.1mm *ASTM D7415 >30	22.4	30.4	27

FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	19.6	24.4	21.4
Base Number (BN)	mg KOH/g ASTM D2896 9.8	8.5	8.4	---

OIL ANALYSIS REPORT

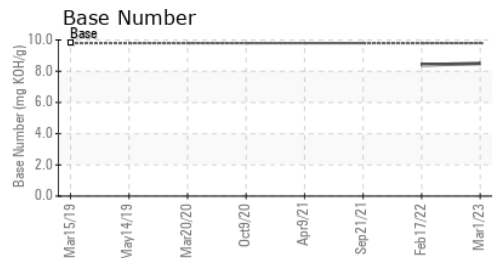
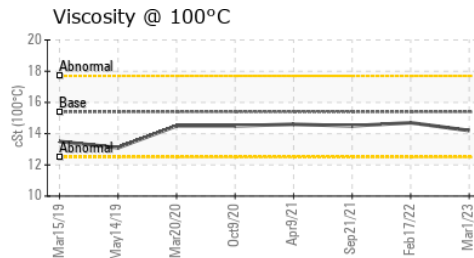
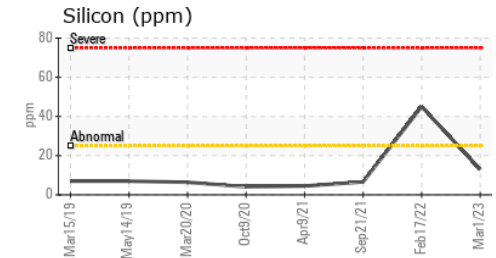
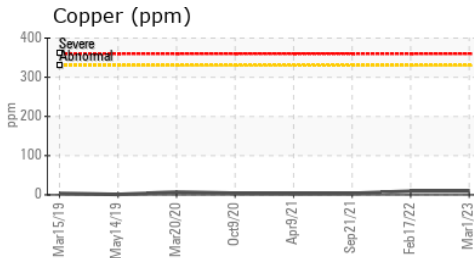
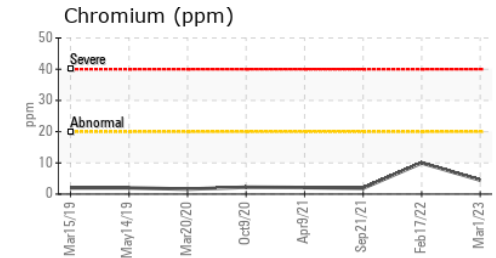
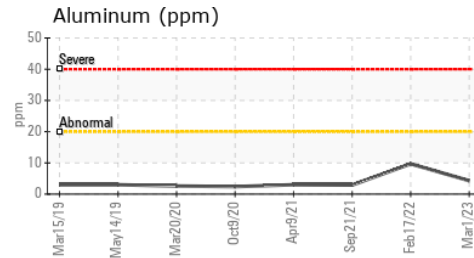
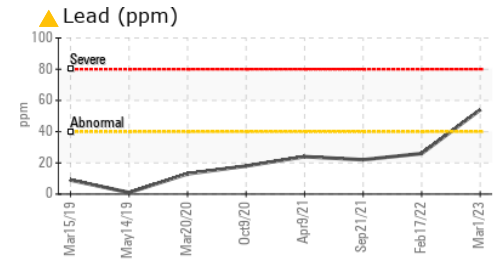
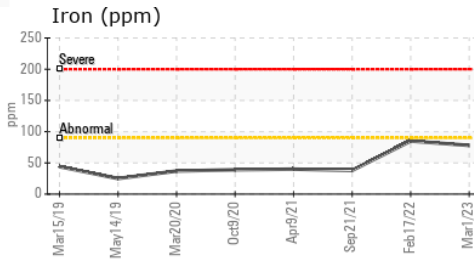
▲ Non-ferrous Metals



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	14.2	14.7

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0086766 **Received** : 14 Mar 2023
Lab Number : 05790575 **Diagnosed** : 15 Mar 2023
Unique Number : 10375246 **Diagnostician** : Sean Felton
Test Package : MOB 1 (Additional Tests: TBN)

Kemp Quarries - Benton County Stone - Gravette
 15100 N Hwy 59
 Sulphur Springs, AR
 US 72768
 Contact:
 gravette@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)