



WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ABNORMAL



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

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.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PCA0085955	PCA0109178	PCA0086800
Sample Date		Client Info		10 May 2024	10 Feb 2024	29 Sep 2023
Machine Age	hrs	Client Info		36071	35540	35032
Oil Age	hrs	Client Info		531	0	34585
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

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).

Iron	ppm	ASTM D5185m	>100	43	32	30
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>25	1	1	1
Lead	ppm	ASTM D5185m	>40	7	6	7
Copper	ppm	ASTM D5185m	>330	▲ 411	▲ 327	▲ 440
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

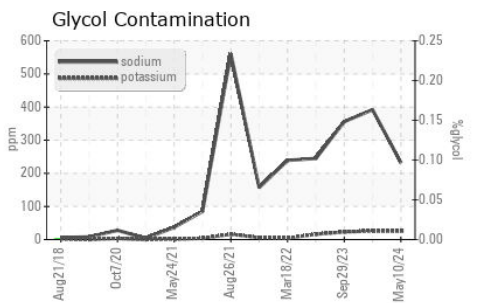
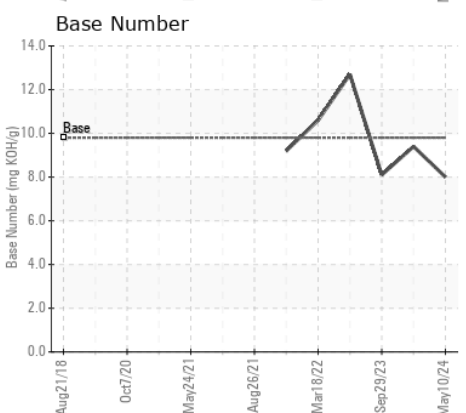
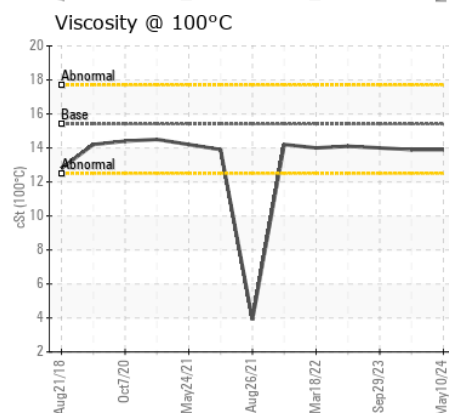
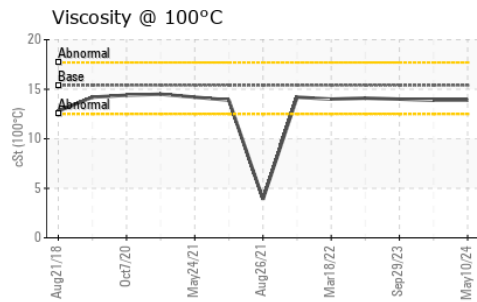
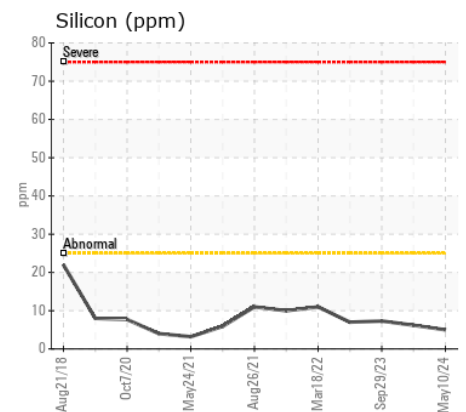
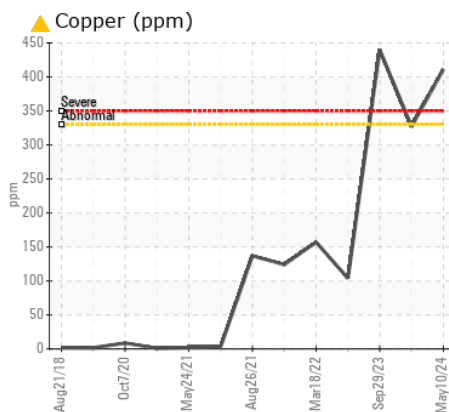
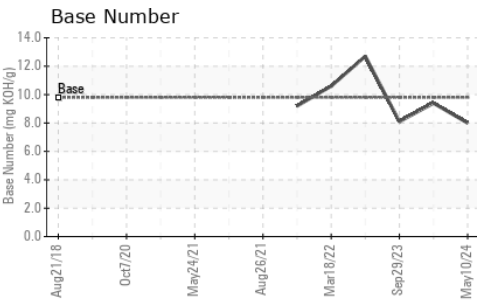
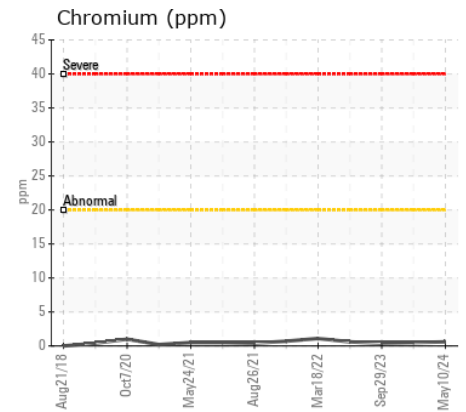
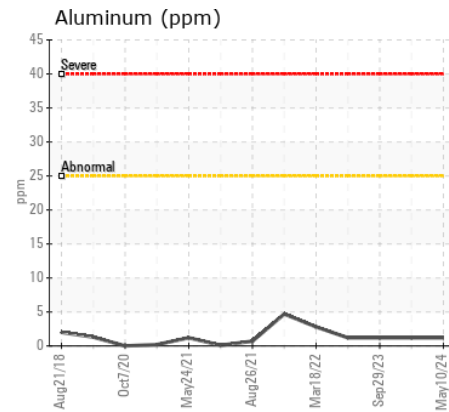
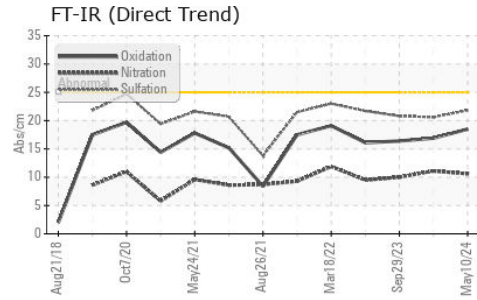
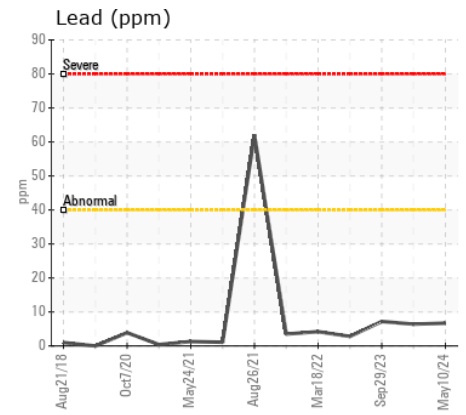
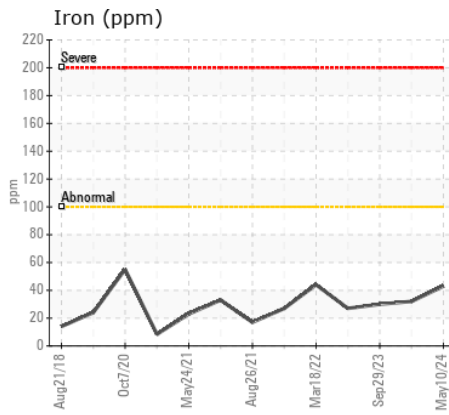
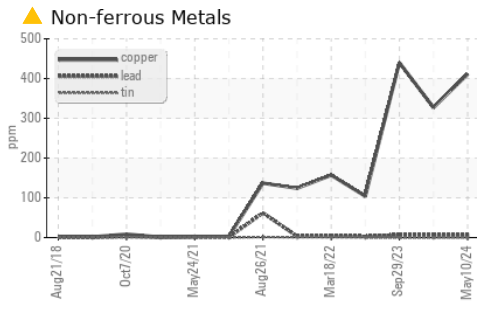
Sodium and/or potassium levels are high.

Silicon	ppm	ASTM D5185m	>25	5	6	7
Potassium	ppm	ASTM D5185m	>20	26	26	23
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	1	0.7	0.9
Nitration	Abs/cm	*ASTM D7624	>20	10.6	11.1	10.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.8	20.6	20.8
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

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

Sodium	ppm	ASTM D5185m		▲ 232	▲ 392	▲ 356
Boron	ppm	ASTM D5185m	0	0	3	2
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	91	104	94
Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Magnesium	ppm	ASTM D5185m	1010	1050	1098	923
Calcium	ppm	ASTM D5185m	1070	1271	1131	976
Phosphorus	ppm	ASTM D5185m	1150	1144	1171	944
Zinc	ppm	ASTM D5185m	1270	1477	1444	1208
Sulfur	ppm	ASTM D5185m	2060	3376	3309	2679
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.5	16.9	16.4
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.0	9.4	8.1
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	13.9	14.0



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)

Kemp Quarries - Kemp Stone - Hulbert
 17801 Hwy 80
 Hulbert, OK
 US 74441

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)

Contact: hulbert@kempstone.com

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