



Machine Id
929062
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0116888	GFL0116867	GFL0107096
Sample Date		Client Info		18 Apr 2024	26 Mar 2024	20 Dec 2023
Machine Age	hrs	Client Info		11401	11231	10682
Oil Age	hrs	Client Info		600	600	60
Filter Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Not Changd
Filter Changed		Client Info		Changed	Changed	N/A
Sample Status				ABNORMAL	NORMAL	NORMAL

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	>110	43	10	10
Chromium	ppm	ASTM D5185m	>4	1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	4	3	3
Lead	ppm	ASTM D5185m	>45	<1	<1	0
Copper	ppm	ASTM D5185m	>85	▲ 158	<1	<1
Tin	ppm	ASTM D5185m	>4	2	2	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

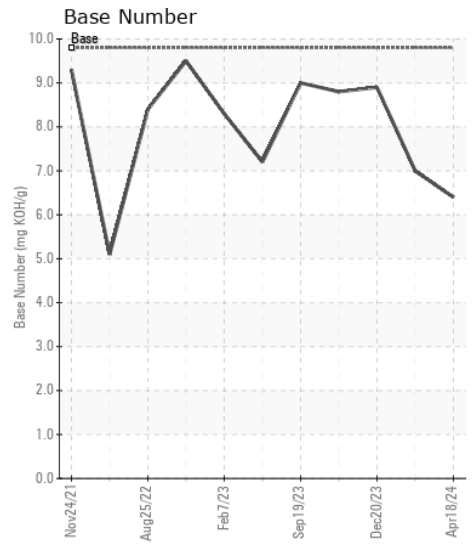
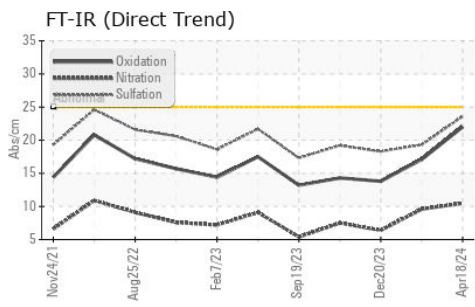
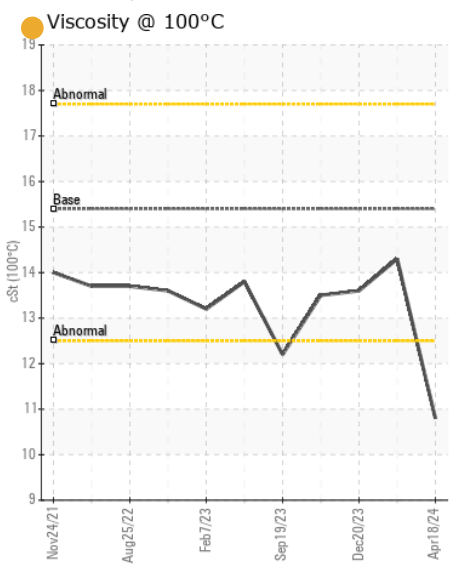
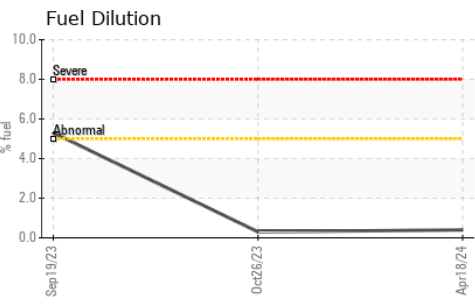
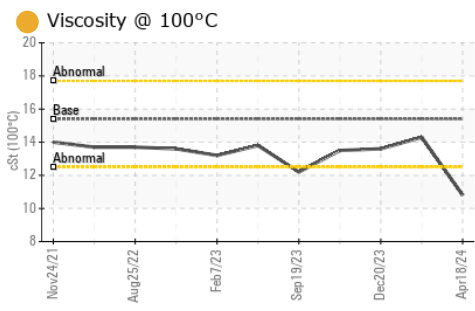
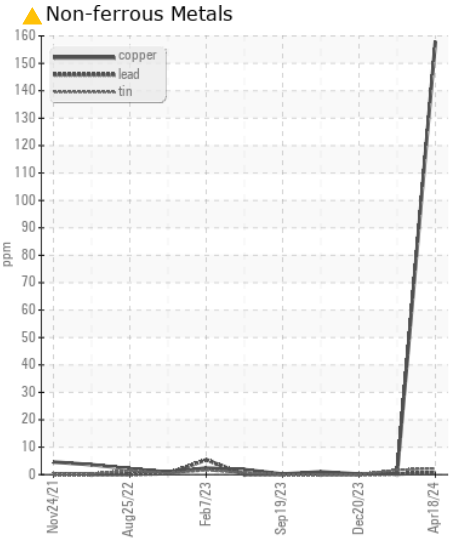
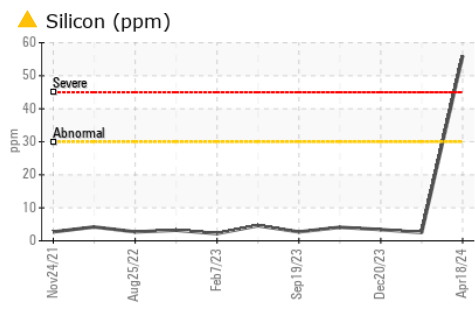
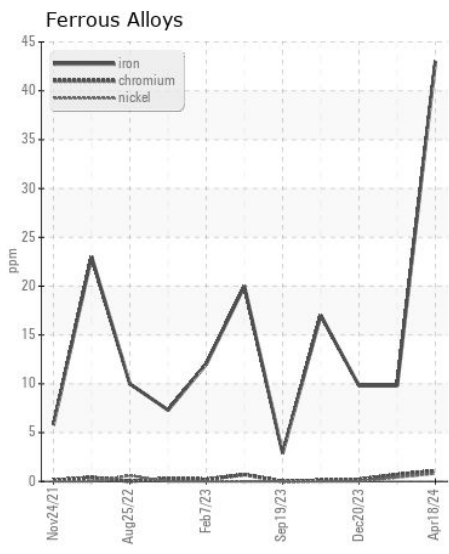
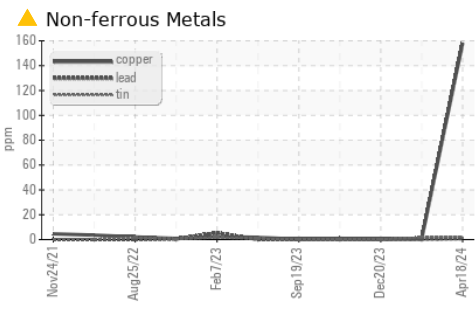
Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Silicon	ppm	ASTM D5185m	>30	▲ 56	2	3
Potassium	ppm	ASTM D5185m	>20	8	2	3
Fuel	%	ASTM D3524	>5	0.4	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.5	0.4	0.3
Nitration	Abs/cm	*ASTM D7624	>20	10.5	9.6	6.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.6	19.3	18.3
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 oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Sodium	ppm	ASTM D5185m		3	5	0
Boron	ppm	ASTM D5185m	0	114	0	0
Barium	ppm	ASTM D5185m	0	<1	0	0
Molybdenum	ppm	ASTM D5185m	60	105	59	58
Manganese	ppm	ASTM D5185m	0	4	<1	0
Magnesium	ppm	ASTM D5185m	1010	741	979	919
Calcium	ppm	ASTM D5185m	1070	1314	1101	1051
Phosphorus	ppm	ASTM D5185m	1150	788	1034	1024
Zinc	ppm	ASTM D5185m	1270	968	1288	1204
Sulfur	ppm	ASTM D5185m	2060	2622	3692	3383
Oxidation	Abs/.1mm	*ASTM D7414	>25	22.0	17.1	13.8
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.4	7.0	8.9
Visc @ 100°C	cSt	ASTM D445	15.4	● 10.8	14.3	13.6



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0116888 **Received** : 23 Apr 2024
Lab Number : 06157502 **Tested** : 25 Apr 2024
Unique Number : 10992925 **Diagnosed** : 25 Apr 2024 - Jonathan Hester
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)
 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)

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