



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL



Machine Id
420092 - SW4020
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. Resample at the next service interval to monitor. (Customer Sample Comment: Engine)

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0105542	GFL0094084	GFL0089453
Sample Date		Client Info		10 Jan 2024	18 Oct 2023	14 Aug 2023
Machine Age	mls	Client Info		141662	132193	123904
Oil Age	mls	Client Info		141662	132193	123904
Filter Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	N/A	Changed
Filter Changed		Client Info		Changed	N/A	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	6	2	6
Chromium	ppm	ASTM D5185m	>20	0	<1	0
Nickel	ppm	ASTM D5185m	>5	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	2	<1
Lead	ppm	ASTM D5185m	>40	<1	2	2
Copper	ppm	ASTM D5185m	>330	1	2	2
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

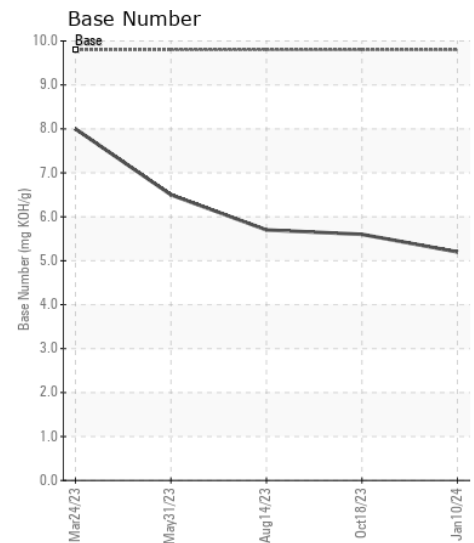
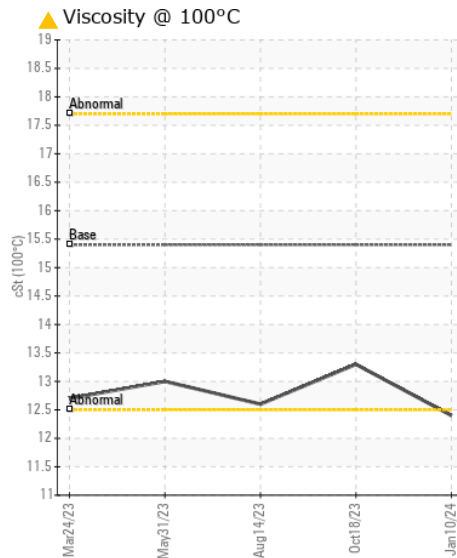
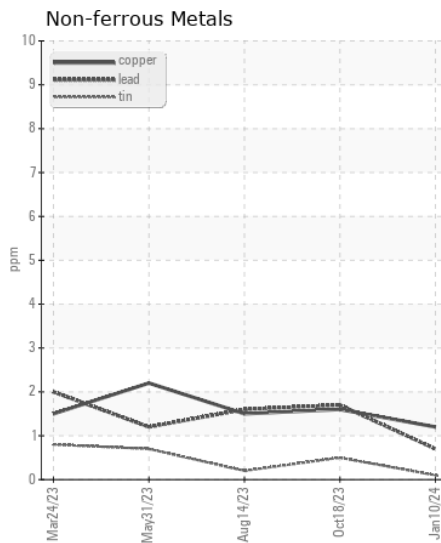
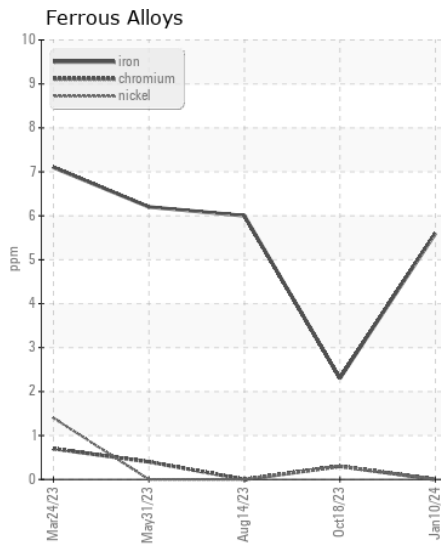
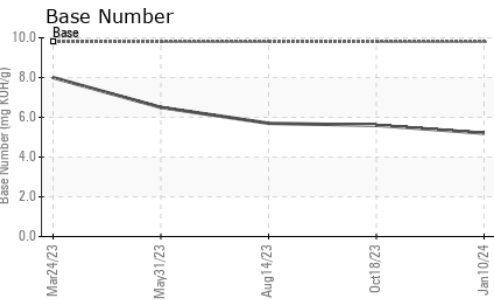
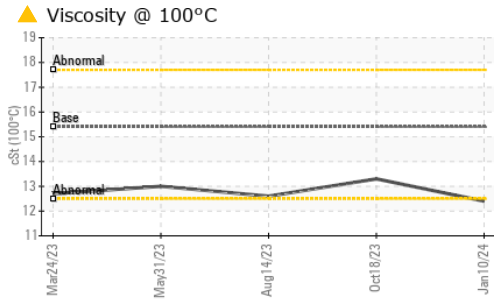
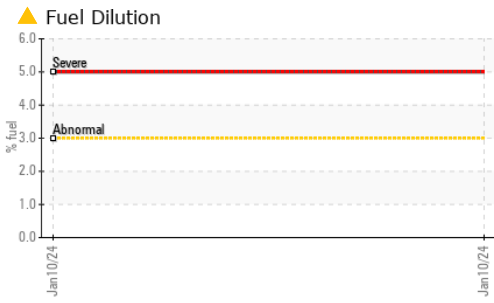
There is a moderate amount of fuel present in the oil.

Silicon	ppm	ASTM D5185m	>25	7	5	7
Potassium	ppm	ASTM D5185m	>20	0	4	0
Fuel	%	ASTM D3524	>3.0	▲ 5.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>4	0.2	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	8.8	7.9	8.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.2	19.5	19.4
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		2	0	2
Boron	ppm	ASTM D5185m	0	5	0	0
Barium	ppm	ASTM D5185m	0	0	9	0
Molybdenum	ppm	ASTM D5185m	60	50	49	45
Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Magnesium	ppm	ASTM D5185m	1010	5	6	0
Calcium	ppm	ASTM D5185m	1070	2392	2562	2446
Phosphorus	ppm	ASTM D5185m	1150	1091	988	1135
Zinc	ppm	ASTM D5185m	1270	1238	1243	1318
Sulfur	ppm	ASTM D5185m	2060	3081	3710	3908
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.5	11.3	11.2
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	5.2	5.6	5.7
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 12.4	13.3	12.6



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0105542 **Received** : 16 Jan 2024
Lab Number : 06060725 **Diagnosed** : 18 Jan 2024
Unique Number : 10832107 **Diagnostician** : Don Baldrige
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

GFL Environmental - 983 - Sugar Land Hauling
 16011 West Belfort Street
 Sugar Land, TX
 US 77498
 Contact: Gino Griego
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Certificate L2367
 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)