



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL



Area
(H917016) gfl knoxville
Machine Id
912107
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (11 GAL)

RECOMMENDATION

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0106935	GFL0106952	GFL0098798
Sample Date		Client Info		23 May 2024	11 Apr 2024	22 Jan 2024
Machine Age	hrs	Client Info		5755	5570	5168
Oil Age	hrs	Client Info		136	100	536
Filter Age	hrs	Client Info		136	100	536
Oil Changed		Client Info		Not Changd	Not Changd	Changd
Filter Changed		Client Info		Changd	N/A	Not Changd
Sample Status				ABNORMAL	SEVERE	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	8	37	17
Chromium	ppm	ASTM D5185m	>20	<1	1	<1
Nickel	ppm	ASTM D5185m	>5	1	3	2
Titanium	ppm	ASTM D5185m	>2	5	93	67
Silver	ppm	ASTM D5185m	>2	1	0	0
Aluminum	ppm	ASTM D5185m	>20	2	4	4
Lead	ppm	ASTM D5185m	>40	<1	2	0
Copper	ppm	ASTM D5185m	>330	2	8	4
Tin	ppm	ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m		<1	1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

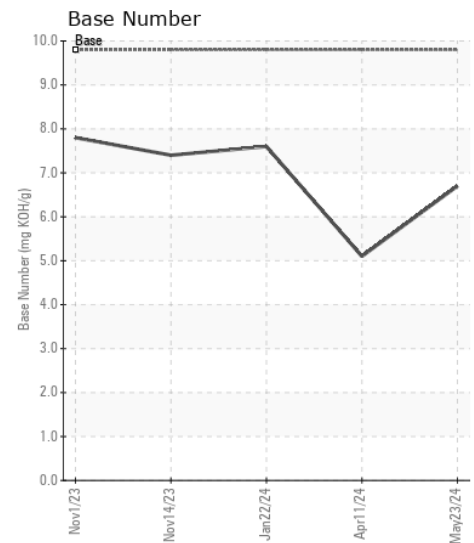
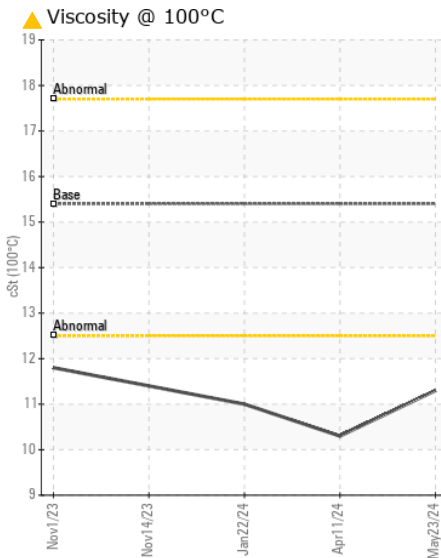
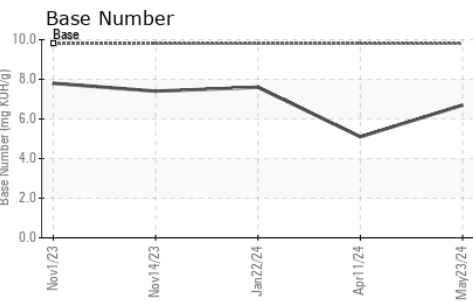
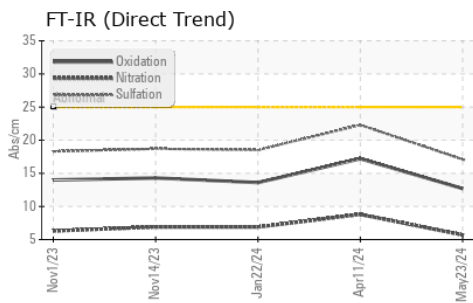
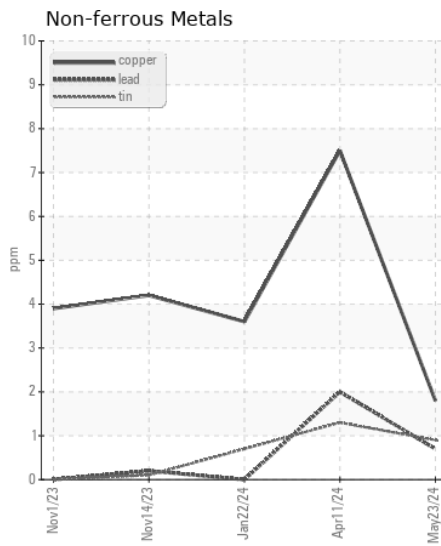
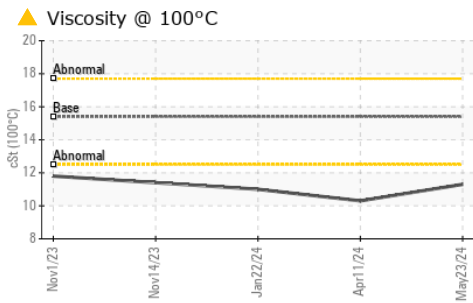
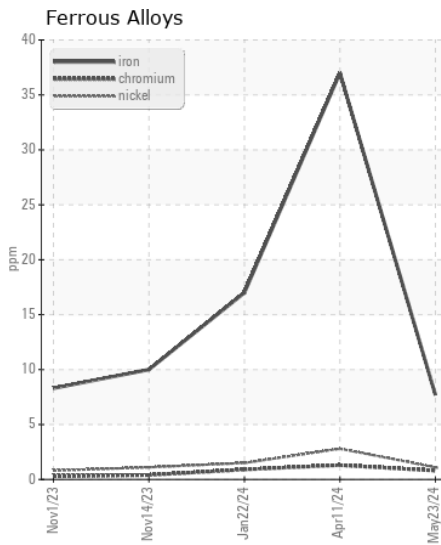
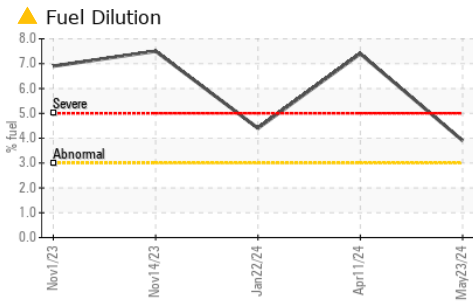
There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Silicon	ppm	ASTM D5185m	>25	6	21	9
Potassium	ppm	ASTM D5185m	>20	3	6	3
Fuel	%	ASTM D3524	>3.0	▲ 3.9	▲ 7.4	▲ 4.4
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>4	0.2	0.4	0.2
Nitration	Abs/cm	*ASTM D7624	>20	5.7	8.8	6.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.1	22.3	18.5
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

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		2	3	3
Boron	ppm	ASTM D5185m	0	12	51	100
Barium	ppm	ASTM D5185m	0	<1	0	0
Molybdenum	ppm	ASTM D5185m	60	54	24	18
Manganese	ppm	ASTM D5185m	0	<1	1	<1
Magnesium	ppm	ASTM D5185m	1010	737	550	432
Calcium	ppm	ASTM D5185m	1070	922	1988	1459
Phosphorus	ppm	ASTM D5185m	1150	837	1202	925
Zinc	ppm	ASTM D5185m	1270	1016	1384	1117
Sulfur	ppm	ASTM D5185m	2060	2623	4282	3650
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.7	17.2	13.6
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.7	5.1	7.6
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 11.3	▲ 10.3	▲ 11.0



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0106935 **Received** : 28 May 2024
Lab Number : 06191853 **Tested** : 29 May 2024
Unique Number : 11048605 **Diagnosed** : 29 May 2024 - Wes Davis
Test Package : FLEET (Additional Tests: PercentFuel)

GFL Environmental - 097 - Knoxville Hauling
 1901 Sutherland Ave
 Knoxville, TN
 US 37921
 Contact: Doug Weeden
 dweeden@gflenv.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)

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F: