



Machine Id
923038-260199
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0104950	GFL0104845	GFL0067755
Sample Date		Client Info		20 Feb 2024	18 Jan 2024	06 Mar 2023
Machine Age	hrs	Client Info		21038	21034	0
Oil Age	hrs	Client Info		21038	16904	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	Changed	N/A
Filter Changed		Client Info		N/A	Changed	N/A
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	14	6	4
Chromium	ppm	ASTM D5185m	>20	<1	0	0
Nickel	ppm	ASTM D5185m	>5	1	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	4	1
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	4	2	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

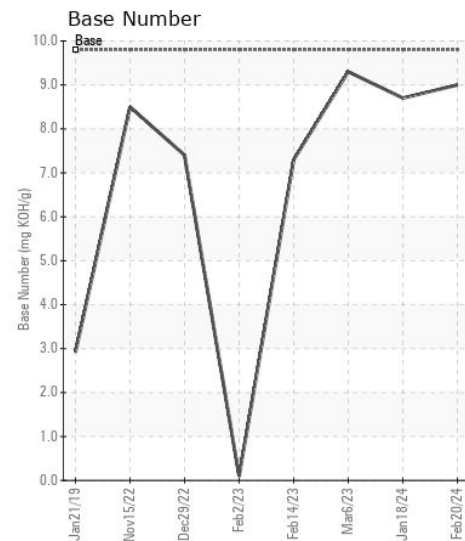
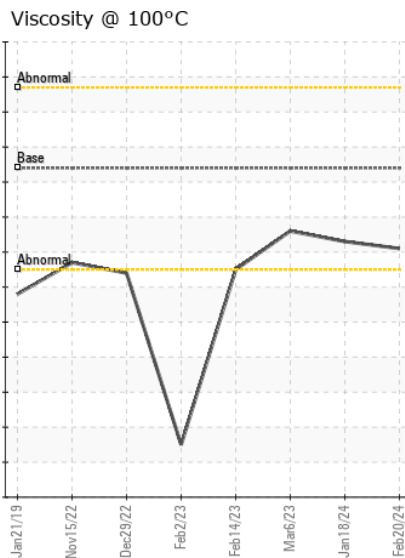
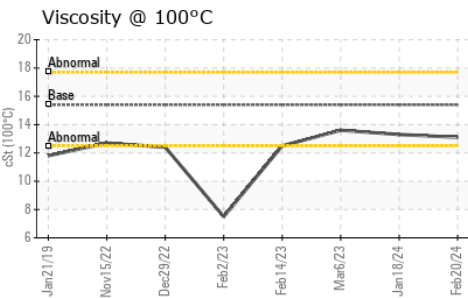
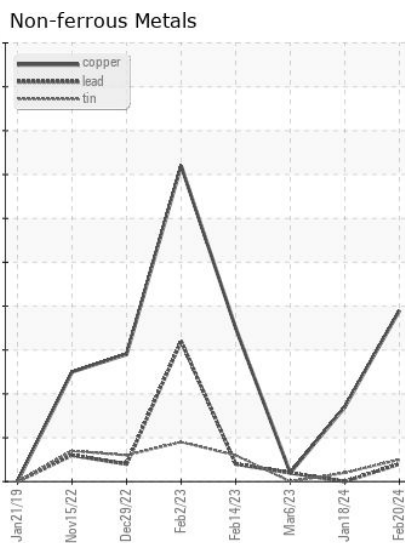
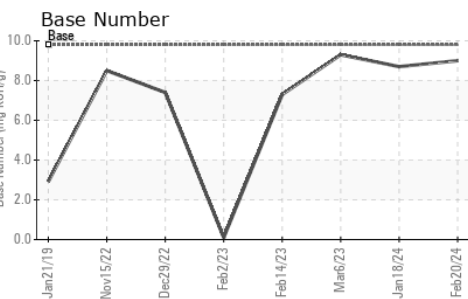
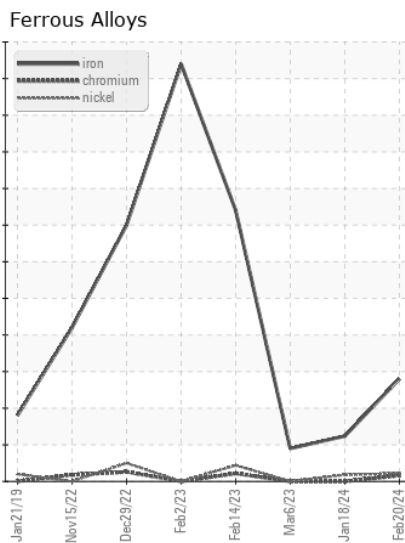
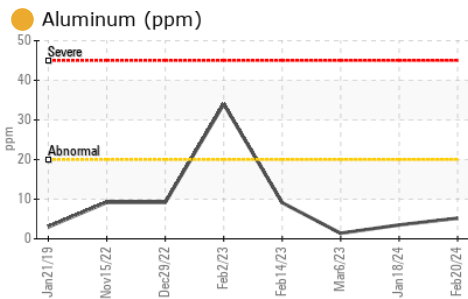
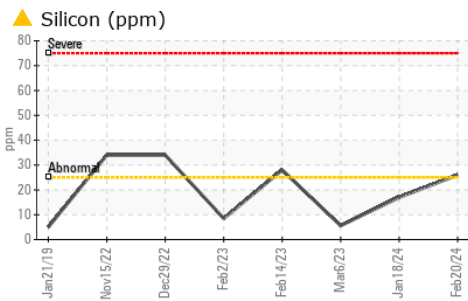
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Silicon	ppm	ASTM D5185m	>25	▲ 26	17	6
Potassium	ppm	ASTM D5185m	>20	3	1	2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>4	0.3	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	5.4	5.2	5.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.7	17.7	17.6
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. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		5	2	2
Boron	ppm	ASTM D5185m	0	10	7	3
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	79	53	58
Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Magnesium	ppm	ASTM D5185m	1010	1226	853	913
Calcium	ppm	ASTM D5185m	1070	1284	932	1086
Phosphorus	ppm	ASTM D5185m	1150	1367	953	992
Zinc	ppm	ASTM D5185m	1270	1626	1174	1255
Sulfur	ppm	ASTM D5185m	2060	4240	2869	3510
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.4	13.3	12.8
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.0	8.7	9.3
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	13.3	13.6



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0104950 **Received** : 01 Mar 2024
Lab Number : 06105761 **Tested** : 01 Mar 2024
Unique Number : 10909258 **Diagnosed** : 04 Mar 2024 - Sean Felton
Test Package : FLEET

GFL Environmental - 820 - Joplin Hauling
 3700 West 7th Street
 Joplin, MO
 US 64801
 Contact: James Jarrett
 jjarrett@gflenv.com
 T: (417)310-2802
 F:

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)