



Machine Id
228062-670443
 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. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0118492	GFL0104986	GFL0104992
Sample Date		Client Info		04 Apr 2024	04 Mar 2024	29 Jan 2024
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Filter Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				SEVERE	SEVERE	MARGINAL

WEAR

Cylinder, crank, or cam shaft wear is indicated.

Iron	ppm	ASTM D5185m	>100	▲ 168	16	36
Chromium	ppm	ASTM D5185m	>20	13	0	2
Nickel	ppm	ASTM D5185m	>2	4	0	0
Titanium	ppm	ASTM D5185m	>2	1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	● 27	4	▲ 18
Lead	ppm	ASTM D5185m	>40	<1	2	<1
Copper	ppm	ASTM D5185m	>330	6	<1	2
Tin	ppm	ASTM D5185m	>15	<1	1	1
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

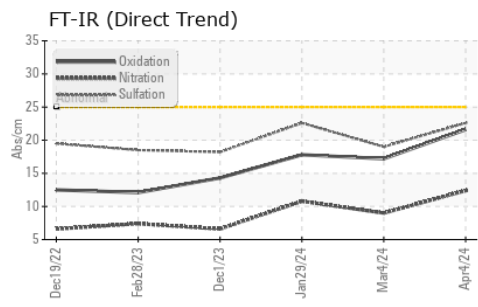
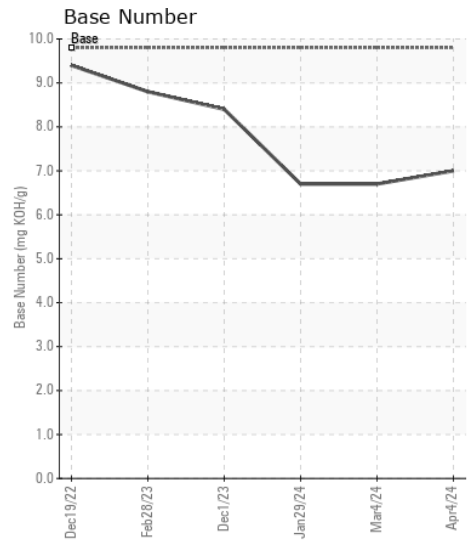
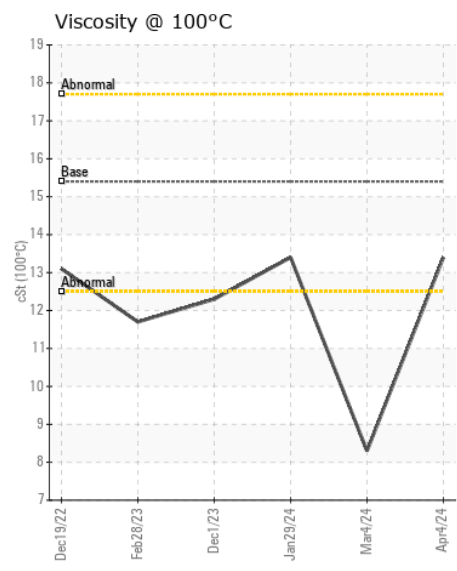
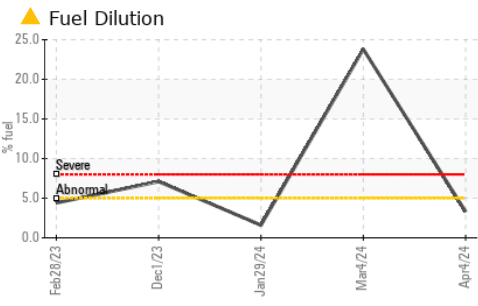
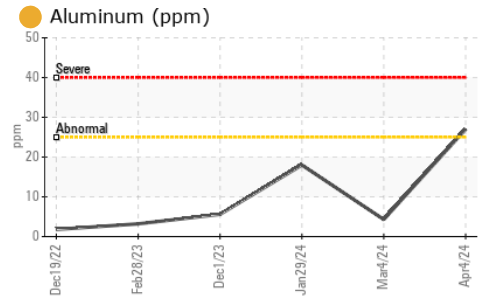
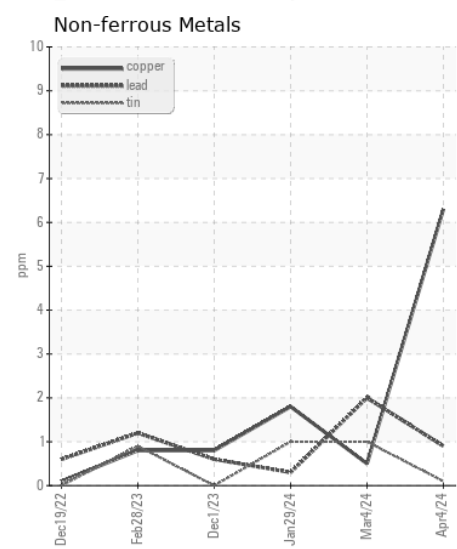
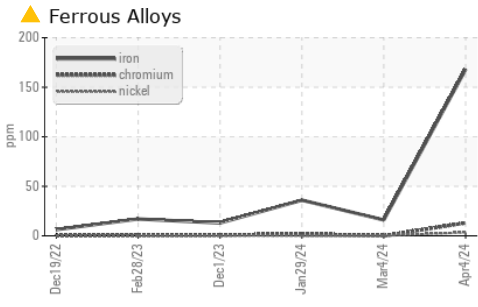
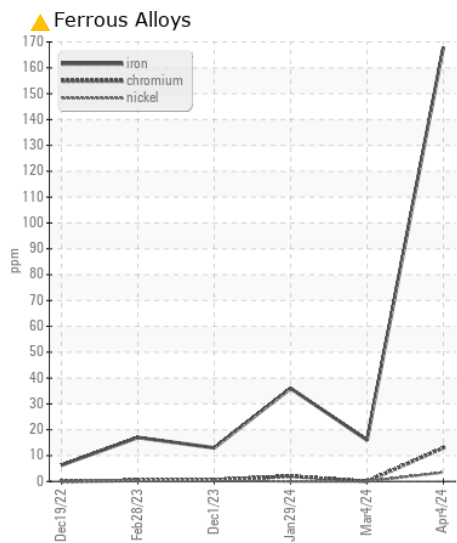
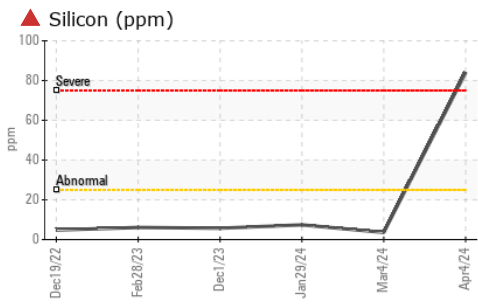
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. Light fuel dilution occurring.

Silicon	ppm	ASTM D5185m	>25	▲ 84	4	7
Potassium	ppm	ASTM D5185m	>20	37	0	29
Fuel	%	ASTM D3524	>5	▲ 3.3	▲ 23.8	1.6
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.5	0.2	1.2
Nitration	Abs/cm	*ASTM D7624	>20	12.4	9.0	10.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.6	19.0	22.6
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 oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		36	<1	15
Boron	ppm	ASTM D5185m	0	0	2	<1
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	66	42	61
Manganese	ppm	ASTM D5185m	0	2	0	1
Magnesium	ppm	ASTM D5185m	1010	921	710	1040
Calcium	ppm	ASTM D5185m	1070	1101	802	1096
Phosphorus	ppm	ASTM D5185m	1150	935	747	1038
Zinc	ppm	ASTM D5185m	1270	1118	913	1236
Sulfur	ppm	ASTM D5185m	2060	3080	2186	2736
Oxidation	Abs/.1mm	*ASTM D7414	>25	21.6	17.2	17.8
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.0	6.7	6.7
Visc @ 100°C	cSt	ASTM D445	15.4	13.4	▲ 8.3	13.4



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0118492 **Received** : 12 Apr 2024
Lab Number : 06148032 **Tested** : 18 Apr 2024
Unique Number : 10978110 **Diagnosed** : 18 Apr 2024 - Don Baldrige
Test Package : FLEET (Additional Tests: PercentFuel)

GFL Environmental - 893 - OK East Hauling
 2100 Lilly Street
 Seminole, OK
 US 74868
 Contact: Roger Barlow
 rbarlow@gflenv.com
 T: (405)204-6183
 F:

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)