

## **OIL ANALYSIS REPORT**

SAMPLE INFORMATION method

Sample Rating Trend



Machine Id

### 813001

## Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

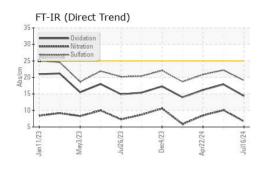
#### Fluid Condition

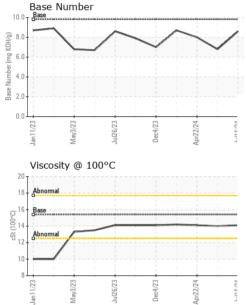
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR		method	limit/base	current	nistory I	nistory2
Sample Number		Client Info		GFL0121104	GFL0091968	GFL0103136
Sample Date		Client Info		16 Jul 2024	28 May 2024	22 Apr 2024
Machine Age	hrs	Client Info		2735	2417	2030
Oil Age	hrs	Client Info		318	550	63
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	ABNORMAL
-				Normize		
CONTAMINAT	ION	method	limit/base	current	history1	history2
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
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WEAR METAL	3	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	7	17	13
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	1	2	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	3	2	1
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	2	8	6
Tin	ppm	ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	Method ASTM D5185m	limit/base	current 10	history1 15	history2 16
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	10	15	16
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	10 <1	15 0	16 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	10 <1 60	15 0 65	16 0 66
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	10 <1 60 <1	15 0 65 <1	16 0 66 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	10 <1 60 <1 913	15 0 65 <1 982	16 0 66 <1 989
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	10 <1 60 <1 913 1107	15 0 65 <1 982 1124	16 0 66 <1 989 1169
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	10 <1 60 <1 913 1107 1021	15 0 65 <1 982 1124 1107	16 0 66 <1 989 1169 1069
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	10 <1 60 <1 913 1107 1021 1210	15 0 65 <1 982 1124 1107 1305	16 0 66 <1 989 1169 1069 1310
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	10 <1 60 <1 913 1107 1021 1210 3067	15 0 65 <1 982 1124 1107 1305 3358	16 0 66 <1 989 1169 1069 1310 3358
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	10 <1 60 <1 913 1107 1021 1210 3067 current	15 0 65 <1 982 1124 1107 1305 3358 history1	16 0 66 <1 989 1169 1069 1310 3358 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	10 <1 60 <1 913 1107 1021 1210 3067 current 4	15 0 65 <1 982 1124 1107 1305 3358 history1 5	16 0 66 <1 989 1169 1069 1310 3358 history2 ▲ 36
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	10 <1 60 <1 913 1107 1021 1210 3067 current 4 <	15 0 65 <1 982 1124 1107 1305 3358 history1 5 4	16 0 66 <1 989 1169 1069 1310 3358 history2 ▲ 36 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	10 <1 60 <1 913 1107 1021 1210 3067 current 4 <1 2 current	15 0 65 <1 982 1124 1107 1305 3358 history1 5 4 <1 5	16 0 66 <1 989 1169 1069 1310 3358 history2 ▲ 36 2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <u>limit/base</u> >20	10 <1 60 <1 913 1107 1021 1210 3067 <i>current</i> 4 <1 2 <i>current</i>	15 0 65 <1 982 1124 1107 1305 3358 history1 5 4 <1 5 4 <1 history1 0.7	16 0 66 <1 989 1169 1069 1310 3358 <b>history2</b> ▲ 36 2 0 0 <b>history2</b>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <u>limit/base</u> >20	10 <1 60 <1 913 1107 1021 1210 3067 current 4 <1 2 current	15 0 65 <1 982 1124 1107 1305 3358 history1 5 4 <1 5	16 0 66 <1 989 1169 1069 1310 3358 history2 36 2 0 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >4 >20	10 <1 60 <1 913 1107 1021 1210 3067 <i>current</i> 4 <1 2 <i>current</i> 0.5 6.7 19.1	15 0 65 <1 982 1124 1107 1305 3358 history1 5 4 <1 5 4 <1 0.7 0.7 10.1 22.2	16 0 66 <1 989 1169 1069 1310 3358 <b>history2</b> 36 2 0 0 <b>history2</b> 0.9 8.5 20.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	10 <1 60 <1 913 1107 1021 1210 3067 <i>current</i> 4 <1 2 <i>current</i> 0.5 6.7 19.1	15 0 65 <1 982 1124 1107 1305 3358 history1 5 4 <1 5 4 <1 0.7 10.1 22.2 history1	16 0 66 <1 989 1169 1069 1310 3358 history2 ▲ 36 2 0 0 history2 0.9 8.5 20.9 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 20 20 20 20 20 20 20 20 2	10 <1 60 <1 913 1107 1021 1210 3067 current 4 <1 2 current 0.5 6.7 19.1 current 14.4	15 0 65 <1 982 1124 1107 1305 3358 history1 5 4 <1 5 4 <1 0.7 10.1 22.2 history1 17.9	16 0 66 <1 989 1169 1069 1310 3358 <b>history2</b> ▲ 36 2 0 0 <b>history2</b> 0.9 8.5 20.9 <b>history2</b>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 20 20 20 20 20 20 20 20 2	10 <1 60 <1 913 1107 1021 1210 3067 <i>current</i> 4 <1 2 <i>current</i> 0.5 6.7 19.1	15 0 65 <1 982 1124 1107 1305 3358 history1 5 4 <1 5 4 <1 0.7 10.1 22.2 history1	16 0 66 <1 989 1169 1069 1310 3358 <b>history2</b> ▲ 36 2 0 <b>history2</b> 0.9 8.5 20.9



# **OIL ANALYSIS REPORT**





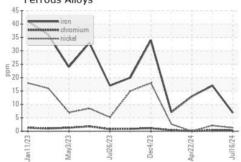
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	14.0	14.1
GRAPHS						

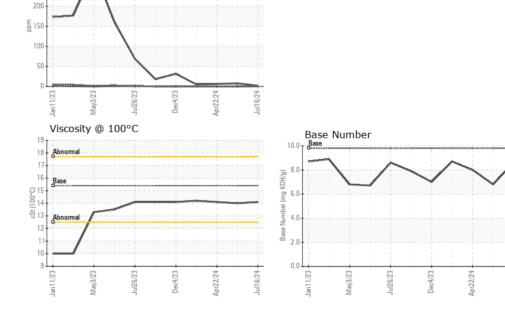
Ferrous Alloys

Non-ferrous Metals

30

250





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 683 - Ruckersville Hauling Sample No. : GFL0121104 Received : 17 Jul 2024 261 INDUSTRIAL DR Lab Number : 06238992 Tested : 18 Jul 2024 Ruckersville, VA US 22698 Unique Number : 11127826 Diagnosed : 18 Jul 2024 - Wes Davis Test Package : FLEET Contact: Jaf Finney Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jfinney@gflenv.com T: (434)990-4972 \* - 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) F:

Report Id: GFL683 [WUSCAR] 06238992 (Generated: 07/18/2024 13:18:13) Rev: 1

Submitted By: Jaf Finney Page 2 of 2

Jul16/24