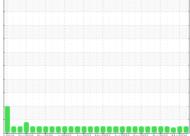


## **OIL ANALYSIS REPORT**

#### Sample Rating Trend







SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0114073	GFL0114031	GFL0109831
Sample Date		Client Info		27 Mar 2024	15 Mar 2024	06 Feb 2024
Machine Age	hrs	Client Info		16488	16417	16274
Oil Age	hrs	Client Info		600	600	0
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	ATTENTION
CONTAMINA	ΓΙΟΝ	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	0.6
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR META	_S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	4	13	5
Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	2
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	<1	5
Lead	ppm	ASTM D5185m	>45	= <1	0	0
Copper	ppm	ASTM D5185m	>85	<1	0	3
Tin	ppm	ASTM D5185m	>4	<1	0	1
Vanadium	ppm	ASTM D5185m	27	0	0	<1
Cadmium	ppm	ASTM D5185m		۰ <1	0	0
ADDITIVES	le le		limit/base	current	history1	history2
		method			TIISIOI V I	HISTOLA
	mag	method ASTM D5185m				
Boron	ppm	ASTM D5185m	0	8	4	55
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	8 0	4 0	55 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 61	4 0 58	55 0 16
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 61 <1	4 0 58 0	55 0 16 <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	8 0 61 <1 907	4 0 58 0 968	55 0 16 <1 792
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	8 0 61 <1 907 1169	4 0 58 0 968 1112	55 0 16 <1 792 1161
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	8 0 61 <1 907 1169 964	4 0 58 0 968 1112 1031	55 0 16 <1 792 1161 718
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	8 0 61 <1 907 1169	4 0 58 0 968 1112	55 0 16 <1 792 1161
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm 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	8 0 61 <1 907 1169 964 1206	4 0 58 0 968 1112 1031 1207	55 0 16 <1 792 1161 718 835
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	8 0 61 <1 907 1169 964 1206 3317	4 0 58 0 968 1112 1031 1207 3591	55 0 16 <1 792 1161 718 835 2200
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	8 0 61 <1 907 1169 964 1206 3317 current	4 0 58 0 968 1112 1031 1207 3591 history1	55 0 16 <1 792 1161 718 835 2200 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 <b>method</b> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	8 0 61 <1 907 1169 964 1206 3317 current 4	4 0 58 0 968 1112 1031 1207 3591 history1 2	55 0 16 <1 792 1161 718 835 2200 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAI Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>VTS</b>	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	8 0 61 <1 907 1169 964 1206 3317 current 4 1	4 0 58 0 968 1112 1031 1207 3591 history1 2 <1	55 0 16 <1 792 1161 718 835 2200 history2 3 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAI Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>VTS</b>	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	8 0 61 <1 907 1169 964 1206 3317 current 4 1 2	4 0 58 0 968 1112 1031 1207 3591 history1 2 <1 0	55 0 16 <1 792 1161 718 835 2200 history2 3 1 3 1 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINA Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>VTS</b>	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >30 >20	8 0 61 <1 907 1169 964 1206 3317 <i>current</i> 4 1 2 <i>current</i> 0.1	4 0 58 0 968 1112 1031 1207 3591 history1 2 <1 0	55 0 16 <1 792 1161 718 835 2200 history2 3 1 3 1 3 <i>history2</i>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINA Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm vTS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >30 >20 <b>Imit/base</b> >33	8 0 61 <1 907 1169 964 1206 3317 <i>current</i> 4 1 2 <i>current</i>	4 0 58 0 968 1112 1031 1207 3591 history1 2 <1 0 history1 0.4	55 0 16 <1 792 1161 718 835 2200 history2 3 1 3 1 3 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINA Silicon Sodium Potassium INFRA-RED Soot % Nitration	<pre>ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm</pre>	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 200 imit/base >3 20	8 0 61 <1 907 1169 964 1206 3317 <i>current</i> 4 1 2 <i>current</i> 0.1 5.0	4 0 58 0 968 1112 1031 1207 3591 history1 2 <1 0 history1 0.4 7.5	55 0 16 <1 792 1161 718 835 2200 history2 3 1 3 1 3 history2 0.2 8.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAI Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm vTS vTS ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >30 >20 <b>imit/base</b> >3 >20 >30	8 0 61 <1 907 1169 964 1206 3317 <i>current</i> 4 1 2 <i>current</i> 0.1 5.0 17.3	4 0 58 0 968 1112 1031 1207 3591 history1 2 <1 0 Vistory1 0.4 7.5 19.3 history1	55 0 16 <1 792 1161 718 835 2200 history2 3 1 3 1 3 history2 0.2 8.9 21.9 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAI Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	<pre>ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm</pre>	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >30 <b>imit/base</b> >3 20	8 0 61 <1 907 1169 964 1206 3317 <i>current</i> 4 1 2 2 <i>current</i> 0.1 5.0 17.3	4 0 58 0 968 1112 1031 1207 3591 history1 2 <1 0 history1 0.4 7.5 19.3	55 0 16 <1 792 1161 718 835 2200 history2 3 1 3 1 3 1 3 0.2 8.9 21.9

# Machine Id 726036-310024

#### Component **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.

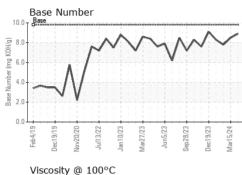
### Fluid Condition

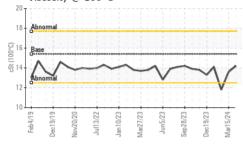
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Contact/Location: GFL823,834,836,837,840 - Loyce Stewart - GFL836



# **OIL ANALYSIS REPORT**





		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	14.2	13.6	11.8
GRAPHS						
Ferrous Alloys						
0 1100	Thursday	VI	$\sum_{i=1}^{n}$			
1 4	Jan 10/23	Jun5/23 Sep28/23 Dec19/23	Mar15/24			
0 61/61/3 0 Non-ferrous Meta 30			Mar15/24			
Non-ferrous Meta			Mar15/24			
Non-ferrous Meta			Marl5/24			
Non-ferrous Meta			Mart 5/24			
Non-ferrous Meta			Mart5/24			
Non-ferrous Meta			Mar15/24			
6UF130 20 25 20 15			Mart 5/24			
Bull Part of the second	ls	Jun5/23 Sep28/23 Dec19/23				
Bull Part of the second	ls	Jun5/23 Sep28/23 Dec19/23				
Dec(3/13 0ec(3/13) 0	Jan10/23 -		Mar15/24 🕅 Mar15/24			
Perfault Non-ferrous Meta Perfault	Jan10/23 -	Jun5/23 Sep28/23 Dec19/23	Marls/24	Base Number		
Dec(3/13 0ec(3/13) 0	Jan10/23 -	Jun5/23 Sep28/23 Dec19/23	Marls/24	Base Number		
Non-ferrous Meta	Jan10/23 -	Jun5/23 Sep28/23 Dec19/23	Marl5/24	Base		~~~~
Non-ferrous Meta	Jan10/23 -	Jun5/23 Sep28/23 Dec19/23	Marl5/24	Base P	~~~	~~~
Viscosity @ 100°C	Jan10/23 -	Jun5/23 Sep28/23 Dec19/23	671212 10.0	Base P	~~~	~~~

Base

Dec19/23

Mar15/24

: 01 Apr 2024

: 02 Apr 2024

ep28/23

2.0

0.0

Feb4/19 Dec19/19



Lab Number : 06134700 Kansas City, MO Unique Number : 10954165 Diagnosed : 02 Apr 2024 - Wes Davis Test Package : FLEET Contact: Loyce Stewart Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. loyce.stewart@gflenv.com \* - 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)

Received

Tested

Mar27/23

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

12

11-10

Laboratory Sample No. Feb4/19

: GFL0114073

ov20/20 Jul13/22 Jan 10/23

Dec19/19

Mar27/23

GFL Environmental - 836 - Kansas City Hauling

Jan 10/23

ep28/23

7801 East Truman Road

Mar15/24

Dec19/23

US 64126

T:

F: