

# **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 910094

Fluid

Component Diesel Engine

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

DIAGNOS	IS

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.

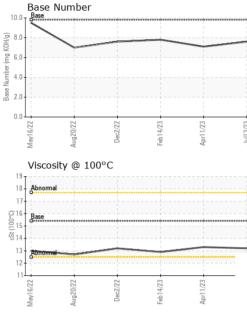
## Fluid Condition

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

SAMPLE INFORM	MATION	method				history2
Sample Number		Client Info		GFL0077499	GFL0068196	GFL0060754
Sample Date		Client Info		13 Jul 2023	11 Apr 2023	14 Feb 2023
Machine Age	hrs	Client Info		3174	2566	2337
Oil Age	hrs	Client Info		608	600	412
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ON	method	limit/base	current	history1	history2
Fuel			>3.0	<1.0	<1.0	<1.0
Glycol		WC Method	20.0	NEG	NEG	NEG
						-
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	17	9	12
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	2	0	<1
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	6	5	15
Tin	ppm	ASTM D5185m	>15	1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
		and a flat of all	11			Is to take the O
ADDITIVES		method				history2
Boron	ppm	ASTM D5185m	0	current	history1 2	nistory2 0
	ppm ppm					
Boron		ASTM D5185m	0	<1	2	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 0	2 2	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 64	2 2 60	0 0 62
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 64 <1	2 2 60 <1	0 0 62 <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	<1 0 64 <1 1021	2 2 60 <1 869	0 0 62 <1 884
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	<1 0 64 <1 1021 1187	2 2 60 <1 869 1046	0 0 62 <1 884 1060
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	<1 0 64 <1 1021 1187 965	2 2 60 <1 869 1046 944	0 0 62 <1 884 1060 899
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	<1 0 64 <1 1021 1187 965 1280	2 2 60 <1 869 1046 944 1145	0 0 62 <1 884 1060 899 1113
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 0 1010 1070 1150 1270 2060	<1 0 64 <1 1021 1187 965 1280 3081	2 2 60 <1 869 1046 944 1145 2726	0 0 62 <1 884 1060 899 1113 2924
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	<1 0 64 <1 1021 1187 965 1280 3081 current	2 2 60 <1 869 1046 944 1145 2726 history1	0 0 62 <1 884 1060 899 1113 2924 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	<1 0 64 <1 1021 1187 965 1280 3081 current 6	2 2 60 <1 869 1046 944 1145 2726 history1 5	0 0 62 <1 884 1060 899 1113 2924 history2 3
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 ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b>	<1 0 64 <1 1021 1187 965 1280 3081 <u>current</u> 6 5	2 2 60 <1 869 1046 944 1145 2726 history1 5 <	0 0 62 <1 884 1060 899 1113 2924 history2 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25	<1 0 64 <1 1021 1187 965 1280 3081 current 6 5 <1 current	2 2 60 <1 869 1046 944 1145 2726 history1 5 <1 <1 <1 <1 history1	0 0 62 <1 884 1060 899 1113 2924 history2 3 2 0 bistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >20	<1 0 64 <1 1021 1187 965 1280 3081 <u>current</u> 6 5 <1 <1 <u>current</u> 0.7	2 2 60 <1 869 1046 944 1145 2726 history1 5 <1 <1 <1 <1 0.3	0 0 62 <1 884 1060 899 1113 2924 history2 3 2 2 0 history2 0.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS 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> >20	<1 0 64 <1 1021 1187 965 1280 3081 <u>current</u> 6 5 <1 current 0.7 8.7	2 2 60 <1 869 1046 944 1145 2726 history1 5 <1 <1 <1 <1 history1 0.3 6.1	0 0 62 <1 884 1060 899 1113 2924 history2 3 2 2 0 history2 0.5 7.7
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> >20 <b>imit/base</b> >20	<1 0 64 <1 1021 1187 965 1280 3081 <u>current</u> 6 5 <1 <u>current</u> 0.7 8.7 21.1	2 2 60 <1 869 1046 944 1145 2726 history1 5 <1 <1 <1 0.3 6.1 17.0	0 0 62 <1 884 1060 899 1113 2924 history2 3 2 0 0 history2 0.5 7.7 19.5
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 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	<1 0 64 <1 1021 1187 965 1280 3081  current 6 5 <1  current 0.7 8.7 21.1  current	2 2 60 <1 869 1046 944 1145 2726 history1 5 <1 <1 <1 history1 0.3 6.1 17.0 history1	0 0 62 <1 884 1060 899 1113 2924 history2 3 2 2 0 history2 0.5 7.7 19.5 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >4 >20 30 <b>imit/base</b>	<1 0 64 <1 1021 1187 965 1280 3081  current 6 5 <1  current 0.7 8.7 21.1  current 17.2	2 2 60 <1 869 1046 944 1145 2726 history1 5 <1 <1 <1 0.3 6.1 17.0 history1 13.5	0 0 62 <1 884 1060 899 1113 2924 history2 3 2 2 0 0 history2 0.5 7.7 19.5 history2 15.1
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 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	<1 0 64 <1 1021 1187 965 1280 3081  current 6 5 <1  current 0.7 8.7 21.1  current	2 2 60 <1 869 1046 944 1145 2726 history1 5 <1 <1 <1 history1 0.3 6.1 17.0 history1	0 0 62 <1 884 1060 899 1113 2924 history2 3 2 2 0 history2 0.5 7.7 19.5 history2



# **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	13.2	13.3	12.9
GRAPHS						
Ferrous Alloys						
Ferrous Alloys						
Ferrous Alloys						
Ferrous Alloys						
Ferrous Alloys						
Ferrous Alloys						
Ferrous Alloys			/			
Ferrous Alloys						
Ferrous Alloys						
Ferrous Alloys	20403	41/23	11323			
Ferrous Alloys	Feb14/23	Auri 1/23	Juliaza			
Ferrous Alloys		April 1/23	Jult3/23			
Ferrous Alloys		April 1/23	Jult3/23			
Ferrous Alloys		Apr11/23	Jult3/23			

Apr11/23

Apr11/23 -

Unique Number : 10563163 Diagnostician : Wes Davis Test Package : FLEET Contact: Glenda Standen 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)

Dec2/22 -

Jec2/22

Viscosity @ 100°C

Aug20/22

Feb 14/23

Feb14/23 -

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

Received

Diagnosed

Report Id: GFL625 [WUSCAR] 05901807 (Generated: 07/19/2023 13:01:18) Rev: 1

Laboratory

Sample No.

Lab Number

0

19

18 17

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12 11-

May16/22

: GFL0077499

: 05901807

Mav1

B

Submitted By: also GFL632 and GFL638 - Glenda Standen

Dec2/22

Feb14/23

GFL Environmental - 625 - Harrison Hauling

Apr11/23

4102 Industrial Pkwy

gstanden@gflenv.com

Harrison, MI

US 48625

Base Number

Aug20/22

10.0

8. (mg KOH/g)

6 (

0.0

May16/22 -

umber 4 ( Base

Jul13/23 -

: 18 Jul 2023

: 19 Jul 2023

Jul13/23

T:

F: