

### **OIL ANALYSIS REPORT**

# Sample Rating Trend FUEL

## Machine Id 928074-205262

Component **Diesel Engine** 

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

#### DIAGNOSIS

#### Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

#### Wear

An increase in the aluminum level is noted. All other component wear rates are normal.

#### Contamination

Light fuel dilution occurring.

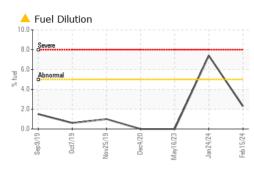
#### Fluid Condition

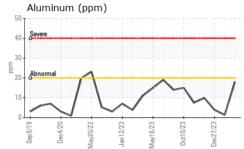
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

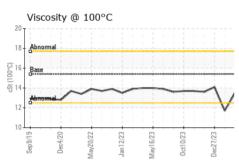
SAMPLE INFORM	<b>NATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109229	GFL0098353	GFL0098366
Sample Date		Client Info		15 Feb 2024	24 Jan 2024	27 Dec 2023
Machine Age	hrs	Client Info		18570	18288	18123
Oil Age	hrs	Client Info		700	600	150
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				ABNORMAL	ABNORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	26	18	8
Chromium	ppm	ASTM D5185m	>20	1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	18	1	4
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm		>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m	-	0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	history1	history2 <1
	ppm ppm					
Boron Barium	ppm	ASTM D5185m	0	0	1	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0 0 60	0 0	1 0	<1 8
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 61	1 0 51	<1 8 57
Boron	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 61 <1	1 0 51 <1	<1 8 57 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 0 61 <1 981	1 0 51 <1 914	<1 8 57 <1 914
Boron Barium Molybdenum Manganese Magnesium	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	0 0 61 <1 981 1075	1 0 51 <1 914 949	<1 8 57 <1 914 1033
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	0 0 61 <1 981 1075 1071	1 0 51 <1 914 949 975	<1 8 57 <1 914 1033 922
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	0 0 61 <1 981 1075 1071 1276	1 0 51 <1 914 949 975 1136	<1 8 57 <1 914 1033 922 1170 3106
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	0 0 61 <1 981 1075 1071 1276 3105	1 0 51 <1 914 949 975 1136 2846	<1 8 57 <1 914 1033 922 1170 3106
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	0 0 61 <1 981 1075 1071 1276 3105 current	1 0 51 <1 914 949 975 1136 2846 history1	<1 8 57 <1 914 1033 922 1170 3106 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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	0 0 61 <1 981 1075 1071 1276 3105 current 6	1 0 51 <1 914 949 975 1136 2846 history1 4	<1 8 57 <1 914 1033 922 1170 3106 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	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>Iimit/base</b> >25	0 0 61 <1 981 1075 1071 1276 3105 current 6 31	1 0 51 <1 914 949 975 1136 2846 history1 4 3	<1 8 57 <1 914 1033 922 1170 3106 history2 4 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Iimit/base</b> >25	0 0 61 <1 981 1075 1071 1276 3105 current 6 31 24	1 0 51 <1 914 949 975 1136 2846 history1 4 3 <1	<1 8 57 <1 914 1033 922 1170 3106 history2 4 9 10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm	ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 Imit/base >25 >20 >5	0 0 61 <1 981 1075 1071 1276 3105 current 6 31 24 ▲ 2.3	1 0 51 <1 914 949 975 1136 2846 history1 4 3 <1 ↓	<1 8 57 <1 914 1033 922 1170 3106 history2 4 9 10 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	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 20 >5 <b>Imit/base</b> >3	0 0 61 <1 981 1075 1071 1276 3105 current 6 31 24 ≥2.3 current 1	1 0 51 <1 914 949 975 1136 2846 history1 4 3 <1 ▲ 7.4 history1	<1 8 57 <1 914 1033 922 1170 3106 history2 4 9 10 <1.0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3 >20	0 0 61 <1 981 1075 1071 1276 3105 current 6 31 24 ≥2.3 current	1 0 51 <1 914 949 975 1136 2846 history1 4 3 <1 ▲ 7.4 history1 0.3	<1 8 57 <1 914 1033 922 1170 3106 history2 4 9 10 <1.0 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel 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 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3 >20	0 0 61 <1 981 1075 1071 1276 3105 current 6 31 24 ▲ 2.3 current 1 9.6	1 0 51 <1 914 949 975 1136 2846 history1 4 3 <1 ↓ 7.4 history1 0.3 7.0	<1 8 57 <1 914 1033 922 1170 3106 history2 4 9 10 <1.0 history2 0.3 5.8 17.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel 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>i</b> mit/base >25 20 >5 <b>i</b> mit/base >3 >20 >30	0 0 61 <1 981 1075 1071 1276 3105 current 6 31 24 ▲ 2.3 current 1 9.6 20.5	1 0 51 <1 914 949 975 1136 2846 history1 4 3 <1 ▲ 7.4 history1 0.3 7.0 18.3	<1 8 57 <1 914 1033 922 1170 3106 history2 4 9 10 <1.0 history2 0.3 5.8

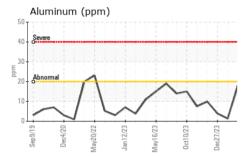


## **OIL ANALYSIS REPORT**

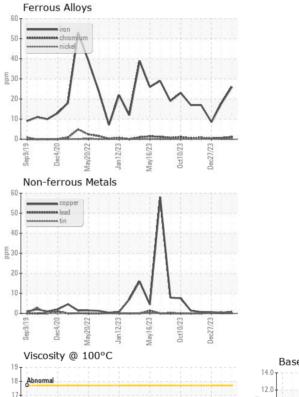








VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	13.5	▲ 11.7	14.1
GRAPHS						



Base Number 12.0 (0H/g 10.0 (mg k 8.0 mber 6.0 ase 4 ( 2.0 0.0 Dec4/20 Mav20/22 Jan 12/23 Dec27/23 Sep9/19 Mav16/23 GFL Environmental - 822 - Springfield Hauling : WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 23 Feb 2024 2120 West Bennett Street : 27 Feb 2024 Springfield, MO : 27 Feb 2024 - Sean Felton US 65807 Contact: Dennis Moore dennis.moore@gflenv.com T: (417)403-3641

Test Package : FLEET (Additional Tests: PercentFuel) Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

Lab Number : 06099003

Unique Number : 10897233

Laboratory

Sample No.

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

16 cSt (100°C)

12

11 10

Sep9/19

: GFL0109229

Dec4/20

Mav20/22

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Jan 12/23

Mav16/23

Received

Diagnosed

Tested

Dec27/23

F: