

# **OIL ANALYSIS REPORT**

Sample Rating Trend

SAMPLE INFORMATION method limit/base

NORMAL



### Machine Id 413005

Fluid

**Diesel Engine** PETRO CANADA DURON SHP 15W40 (12 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 Number Sample Date		Client Info Client Info		GFL0118669 24 May 2024	GFL0118708 01 May 2024	GFL0110575 20 Mar 2024
Machine Age	hrs	Client Info		3477	47838	3059
Oil Age	hrs	Client Info		200	600	200
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	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
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	11	7	6
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	2	<1	2
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	2	2	2
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	3	2	2
Tin	ppm	ASTM D5185m	>15	<1	<1	1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 0	history1 1	history2 <1
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0	current 0 <1	history1 1 0	history2 <1 1
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60	current 0 <1 65	history1 1 0 59	history2 <1 1 60
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	current 0 <1 65 <1	history1 1 0 59 1	history2 <1 1 60 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010	current 0 <1 65 <1 975	history1 1 0 59 1 960	history2 <1 1 60 1 946
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 60 1010 1070	current           0           <1           65           <1           975           1090	history1 1 0 59 1 960 1052	history2 <1 1 60 1 946 1056
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150	current           0           <1           65           <1           975           1090           1011	history1 1 0 59 1 960 1052 1043	history2 <1 1 60 1 946 1056 973
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270	current           0           <1           65           <1           975           1090           1011           1202	history1 1 0 59 1 960 1052 1043 1261	history2 <1 1 60 1 946 1056 973 1184
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060	current           0           <1           65           <1           975           1090           1011           1202           2838	history1	history2           <1           60           1           946           1056           973           1184           3032
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060	current         0         <1         65         <1         975         1090         1011         1202         2838         current	history1 1 0 59 1 960 1052 1043 1261 3438 history1	history2 <1 1 60 1 946 1056 973 1184 3032 history2
ADDITIVES Boron Barium Molybdenum Maganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon	ppm	method           ASTM D5185m	limit/base 0 60 1010 1070 1150 1270 2060 >25	current           0           <1           65           <1           975           1090           1011           1202           2838           current           6	history1         1         0         59         1         960         1052         1043         1261         3438         history1         4	<1         1         60         1         946         1056         973         1184         3032         history2         5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	method           ASTM D5185m	limit/base 0 0 0 1010 1010 1070 1150 1270 2060 limit/base >25	current           0           <1           65           <1           975           1090           1011           1202           2838           current           6           3	history1         1         0         59         1         960         1052         1043         1261         3438         history1         4         3	<1         1         60         1         946         1056         973         1184         3032         history2         5         <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060 2060 225 >22	current           0           <1           65           <1           975           1090           1011           1202           2838           current           6           3           6           3           6	history1         1         0         59         1         960         1052         1043         1261         3438         history1         4         3         4	<1         1         60         1         946         1056         973         1184         3032         history2         5         <1         5         <1         5         <1         5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >20 limit/base	current         0         <1         65         <1         975         1090         1011         1202         2838         current         6         3         6         3         6         current	history1         1         0         59         1         960         1052         1043         1261         3438         history1         4         3         4         3         4         3         4         history1	kistory2         <1         60         1         946         1056         973         1184         3032         history2         5         <1         5         <1         5         <1         5         kistory2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	method           ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 2060 225 225 220 20 1000 20 20 20	current           0           <1           65           <1           975           1090           1011           1202           2838           current           6           3           6           current           0.4	history1           1           0           59           1           960           1052           1043           1261           3438           history1           4           3           4           Distory1           0.3	<1         1         60         1         946         1056         973         1184         3032         history2         5         <1         5         <1         5         <1         0.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >20 limit/base >4 >20	current           0           <1           65           <1           975           1090           1011           1202           2838           current           6           3           6           current           0.4           8.2	history1         1         0         59         1         960         1052         1043         1261         3438         history1         4         3         4         0.3         7.9	<1         1         60         1         946         1056         973         1184         3032         history2         5         <1         5         <1         5         <1         5         <1         5         <1         5         <2         <1         5         <1         5         <1         5         <1         5         <2
ADDITIVES 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 t ppm ppm	method           ASTM D5185m           ASTM D7624           *ASTM D7624	limit/base 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20 >20 >30	current         0         <1         65         <1         975         1090         1011         1202         2838         current         6         3         6         3         6         0.4         8.2         19.7	history1         1         0         59         1         960         1052         1043         1261         3438         history1         4         3         4         3         4         0.3         7.9         19.5	<1         1         60         1         946         1056         973         1184         3032         history2         5         <1         5         <1         5         0.2         6.2         18.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7844           *ASTM D7624           *ASTM D7415           Method	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >20 limit/base >4 >20 >30	current           0           <1           65           <1           975           1090           1011           1202           2838           current           6           3           6           current           0.4           8.2           19.7           current	history1         1         0         59         1         960         1052         1043         1261         3438         history1         4         3         4         0.3         7.9         19.5         history1	<1         1         60         1         946         1056         973         1184         3032         history2         5         <1         5         <1         5         <1.2         history2         0.2         6.2         18.2         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7844           *ASTM D7844           *ASTM D7415           method           *ASTM D7414	<pre>limit/base 0 0 1010 1070 1150 1270 2060  limit/base &gt;20 limit/base &gt;4 &gt;20 &gt;30 limit/base &gt;20</pre>	current           0           <1           65           <1           975           1090           1011           1202           2838           current           6           3           6           current           0.4           8.2           19.7           current           16.1	history1         1         0         59         1         960         1052         1043         1261         3438         history1         4         3         4         0.3         7.9         19.5         history1         15.5	<1         1         60         1         946         1056         973         1184         3032         history2         5         <1         5         <1         5         <1.1         5         <1.2         history2         0.2         6.2         18.2         history2         14.7



# **OIL ANALYSIS REPORT**





VISUAL		method				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 PROPEI	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.8	14.2
GRAPHS						

Ferrous Alloys

Non-ferrous Metals

250







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 166 - Phenix City Sample No. : GFL0118669 Received : 31 May 2024 18 Old Brickyard Rd Lab Number : 06196291 Tested : 03 Jun 2024 Phenix City, AL Unique Number : 11058414 Diagnosed : 03 Jun 2024 - Wes Davis US 36869 Test Package : FLEET Contact: DEAN PEACE JR Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. dean.peace@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Submitted By: DEAN PEACE JR Page 2 of 2