

## **OIL ANALYSIS REPORT**

Sample Rating Trend

### **COOL CHEMICALS**

### (P635738) 2686C

Natural Gas Engine

Fluid

PETRO CANADA DURON GEO LD 15W40 (50 QTS)

#### DIAGNOSIS

#### Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

#### Wear

Area

All component wear rates are normal.

#### Contamination

Sodium and/or potassium levels are high.

#### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0101768	GFL0090102	GFL0070787
Sample Date		Client Info		30 Apr 2024	27 Oct 2023	07 Jun 2023
Machine Age	hrs	Client Info		16599	15980	14945
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	5	15	6
Chromium	ppm	ASTM D5185m	>4	<1	2	1
Nickel	ppm	ASTM D5185m	>2	0	<1	1
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>9	2	1	1
Lead	ppm	ASTM D5185m	>30	2	10	2
Copper	ppm	ASTM D5185m	>35	<1	<1	0
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 46	<mark>history1</mark> 8	history2 11
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 50 5	current 46 0	history1 8 0	history2 11 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 50 5 50	current 46 0 50	history1 8 0 50	history2 11 0 54
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 50 5 50 0	current 46 0 50 0	history1 8 0 50 <1	history2 11 0 54 <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 50 5 50 0 560	current           46           0           50           0           524	history1 8 0 50 <1 503	history2 11 0 54 <1 551
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	limit/base 50 50 50 0 560 1510	current           46           0           50           0           524           1468	history1 8 0 50 <1 503 1478	history2 11 0 54 <1 551 1602
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	limit/base 50 50 50 0 560 1510 780	Current 46 0 50 0 524 1468 812	history1 8 0 50 <1 503 1478 611	history2 11 0 54 <1 551 1602 728
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	limit/base 50 50 0 560 1510 780 870	Current 46 0 50 0 524 1468 812 945	history1 8 0 50 <1 503 1478 611 836	history2 11 0 54 <1 551 1602 728 1005
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 50 50 0 560 1510 780 870 2040	current           46           0           50           0           524           1468           812           945           2766	history1	history2 11 0 54 <1 551 1602 728 1005 3068
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 50 50 0 560 1510 780 870 2040 limit/base	46         0         50         0         524         1468         812         945         2766         current	history1	history2         11         0         54         <1         551         1602         728         1005         3068         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185m	limit/base 50 50 0 560 1510 780 870 2040 limit/base >+100	current           46           0           50           0           524           1468           812           945           2766           current           5	history1         8         0         50         <1         503         1478         611         836         2173         history1         12	history2         11         0         54         <1         551         1602         728         1005         3068         history2         11
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	limit/base 50 50 0 560 1510 780 870 2040 limit/base >+100	46         0         50         0         524         1468         812         945         2766         current         5         61	history1         8         0         50         <1         503         1478         611         836         2173         history1         12         96	history2 11 0 54 <1 551 1602 728 1005 3068 history2 11 ▲ 74
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 50 50 0 560 1510 780 870 2040 limit/base >+100 >20	46         0         50         0         524         1468         812         945         2766         current         5         61         137	history1         8         0         50         <1         503         1478         611         836         2173         history1         12         96         185	history2         11         0         54         <1         551         1602         728         1005         3068         history2         11         ▲ 74         ▲ 50
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm	method           ASTM D5185m	limit/base 50 50 0 560 1510 780 870 2040 limit/base >+100 >20	46         0         50         0         524         1468         812         945         2766         current         5         61         137	history1         8         0         50         <1         503         1478         611         836         2173         history1         12         96         185         history1	history2 11 0 54 <1 551 1602 728 1005 3068 history2 11 ▲ 74 ▲ 50 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 50 50 0 560 1510 780 870 2040 limit/base >20 limit/base	46         0         50         0         524         1468         812         945         2766         current         5         61         137         current         0	history1         8         0         50         <1         503         1478         611         836         2173         history1         12         96         185         history1         0	history2 11 0 54 <1 551 1602 728 1005 3068 history2 11 ▲ 74 ▲ 50 history2 0.1
ADDITIVES 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	method           ASTM D5185m	limit/base 50 5 50 0 560 1510 780 870 2040 limit/base >20 limit/base >20	46         0         50         0         524         1468         812         945         2766         current         5         61         137         current         0         7.3	history1         8         0         50         <1         503         1478         611         836         2173         history1         12         96         185         history1         0         12.2	history2         11         0         54         <1         551         1602         728         1005         3068         history2         11         ▲ 74         50         history2         0.1         10.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Sulfur Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 50 50 0 560 1510 780 870 2040 limit/base >20 limit/base >20 S20 S30	46         0         50         0         524         1468         812         945         2766         current         5         61         137         current         0         7.3         20.4	history1         8         0         500         <1         503         1478         611         836         2173         history1         12         96         185         history1         0         12.2         26.7	history2         11         0         54         <1         551         1602         728         1005         3068         history2         11         ▲ 74         ▲ 50         history2         0.1         10.2         22.0
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 ppm	method           ASTM D5185m           ASTM D5185m	limit/base 50 50 0 560 1510 780 870 2040 limit/base >20 limit/base >20 >20 limit/base	46         0         50         0         524         1468         812         945         2766         current         5         ▲ 61         137         current         0         7.3         20.4	history1         8         0         50         <1         503         1478         611         836         2173         history1         12         96         185         history1         0         12.2         26.7         history1	history2 11 0 54 <1 551 1602 728 1005 3068 history2 11 ▲ 74 ▲ 74 ▲ 50 history2 0.1 10.2 22.0
ADDITIVES 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	method           ASTM D5185m           ASTM D7185           method           *ASTM D7844           *ASTM D7624           *ASTM D7415           method	limit/base 50 50 50 0 560 1510 780 870 2040 limit/base >20 limit/base >20 30 limit/base >25	46         0         50         0         524         1468         812         945         2766         current         5         61         137         current         0         7.3         20.4         current         16.6	history1         8         0         50         <1         503         1478         611         836         2173         history1         12         96         185         history1         0         12.2         26.7         history1         23.9	history2 11 0 54 <1 551 1602 728 1005 3068 history2 11 ▲ 74 ▲ 50 history2 0.1 10.2 22.0 history2 19.3



# **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	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
		method	limit/base	ourrent	history1	history?
		method	iiiiii/base	Current	Thistory I	Thistory 2
Visc @ 100°C	cSt	ASTM D445	15.1	14.5	14.0	14.4
GRAPHS						

Ferrous Alloys









Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 030 - Conway Myrtle Beach Sample No. : GFL0101768 Received :09 May 2024 3010 HWY 378 Lab Number : 06174964 Tested : 15 May 2024 Conway, SC US 29527 Unique Number : 11021017 Diagnosed : 15 May 2024 - Sean Felton Test Package : FLEET ( Additional Tests: Glycol ) Contact: ARCILIO RUEZ Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. aruiz@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:

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Submitted By: TECHNICIAN ACCOUNT

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