

# **OIL ANALYSIS REPORT**

Sample Rating Trend



## <sup>Machine Id</sup> 229128-429064

#### Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- LTR)

#### 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

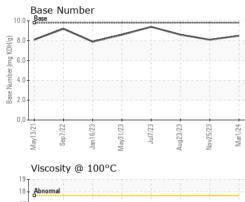
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

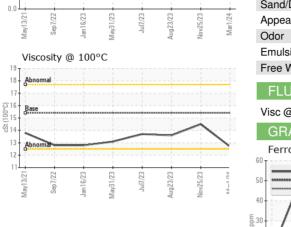
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0115466	GFL0094246	GFL0085372
Sample Date		Client Info		01 Mar 2024	25 Nov 2023	23 Aug 2023
Machine Age	hrs	Client Info		24446	24410	24027
Oil Age	hrs	Client Info		36	383	222
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method	20.L	NEG	NEG	NEG
-	<u>_</u>			-		
WEAR METAL	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	18	2	5
Chromium	ppm		>20	0	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	1	4
Lead	ppm	ASTM D5185m		0	0	1
Copper	ppm	ASTM D5185m		0	<1	<1
Tin	ppm		>15	0	<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	current 2	history1 24	history2 3
	ppm ppm					
Boron		ASTM D5185m	0	2	24	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 1	24 0	3 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 1 57	24 0 46	3 0 51
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 1 57 0	24 0 46 <1	3 0 51 <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	2 1 57 0 881	24 0 46 <1 547	3 0 51 <1 739
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	2 1 57 0 881 1027	24 0 46 <1 547 1393	3 0 51 <1 739 1001
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	2 1 57 0 881 1027 990	24 0 46 <1 547 1393 759	3 0 51 <1 739 1001 880
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	2 1 57 0 881 1027 990 1196	24 0 46 <1 547 1393 759 915	3 0 51 <1 739 1001 880 1096
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 1 57 0 881 1027 990 1196 2649	24 0 46 <1 547 1393 759 915 2321	3 0 51 <1 739 1001 880 1096 3258
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	2 1 57 0 881 1027 990 1196 2649 current	24 0 46 <1 547 1393 759 915 2321 history1	3 0 51 <1 739 1001 880 1096 3258 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 <b>method</b>	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	2 1 57 0 881 1027 990 1196 2649 current 2	24 0 46 <1 547 1393 759 915 2321 history1 2	3 0 51 <1 739 1001 880 1096 3258 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 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	2 1 57 0 881 1027 990 1196 2649 <u>current</u> 2 16	24 0 46 <1 547 1393 759 915 2321 history1 2 6	3 0 51 <1 739 1001 880 1096 3258 history2 3 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	2 1 57 0 881 1027 990 1196 2649 current 2 16 6	24 0 46 <1 547 1393 759 915 2321 history1 2 6 2	3 0 51 <1 739 1001 880 1096 3258 history2 3 9 6
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	2 1 57 0 881 1027 990 1196 2649 current 2 16 6 current	24 0 46 <1 547 1393 759 915 2321 history1 2 6 2 2 history1	3 0 51 <1 739 1001 880 1096 3258 history2 3 9 6 history2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	2 1 57 0 881 1027 990 1196 2649 <u>current</u> 2 16 6 <u>current</u> 1.4	24 0 46 <1 547 1393 759 915 2321 history1 2 6 2 2 history1 0	3 0 51 <1 739 1001 880 1096 3258 history2 3 9 6 history2 0.4
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	2 1 57 0 881 1027 990 1196 2649 <i>current</i> 2 16 6 <i>current</i> 1.4 10.0	24 0 46 <1 547 1393 759 915 2321 history1 2 6 2 6 2 history1 0 8.4	3 0 51 <1 739 1001 880 1096 3258 history2 3 9 6 history2 0.4 6.4
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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	2 1 57 0 881 1027 990 1196 2649 Current 2 16 6 Current 1.4 10.0 20.9 Current	24 0 46 <1 547 1393 759 915 2321 history1 2 6 2 6 2 history1 0 8.4 18.8 history1	3 0 51 <1 739 1001 880 1096 3258 history2 3 9 6 history2 0.4 6.4 17.5 history2
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 2060 225 20 225 20 20 320 33 20 20 20	2 1 57 0 881 1027 990 1196 2649 <u>current</u> 2 16 6 <u>current</u> 1.4 10.0 20.9	24 0 46 <1 547 1393 759 915 2321 history1 2 6 2 6 2 <b>history1</b> 0 8.4 18.8	3 0 51 <1 739 1001 880 1096 3258 history2 3 9 6 history2 0.4 6.4 17.5



# **OIL ANALYSIS REPORT**

VISUAL





	Laboratory Sample No.	: GFL0115466		Madison Ave., Cary, NC 27513 GFL Received : 05 Mar 2024 Tested : 06 Mar 2024 Diagnosed : 06 Mar 2024 - Wes Davis ce at 1-800-237-1369. 7025 scope of accreditation.			Environmental - 882 - Gainesville. 5002 SW 41st Blvc Gainesville, FL US 32608 Contact: ROBERT CLARK robert.clark@gflenv.com T:		
		Base 10 10 10 10 10 10 10 10 10 10 10 10 10	May31/23	Aug2323 Nov25/23 Marl/24	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Sep 7/22 +	May31/23 Jul7/23	Aug23/23	Mar1/24
		Viscosity @ 100°0	May31/23	Aug 23/23 Nov/25/23 Mart1/24	10.0 Base	Number			
		8 - 8 - 6 - 6 - 4 - 2 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7							
		Non-ferrous Meta	Juli/23	Aug23/23 Nov25/23 Mar1/24	•				
May31/23 Jul7/23	Auges/c5/25/28	50 40 <u>E</u> 30 20 10							
		Visc @ 100°C GRAPHS Ferrous Alloys	cSt A	STM D445 15.4	4 12.7		14.5	13.6	
		FLUID PROPE				rrent	history1	history	y2
2		Emulsified Water Free Water		Visual >0.2 Visual	2 NEG NEG		NEG NEG	NEG NEG	
May31/23 . Jul7/23 .	Augzs/23 Nov25/23 Mar1/24	Appearance Odor		Visual NOF Visual NOF			NORML	NORML	
	2 62 4	Sand/Dirt		Visual NON			NONE	NONE	
		Debris		Visual NON			NONE	NONE	
	Precipitate Silt		Visual NON Visual NON			NONE	NONE NONE		
	Yellow Metal		Visual NON			NONE	NONE		