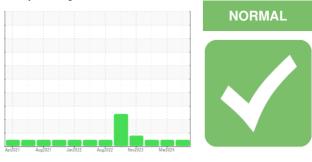


# **OIL ANALYSIS REPORT**

Sample Rating Trend



**Diesel Engine** PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION method

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Machine Id 4688M

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

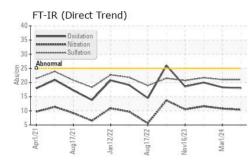
### Fluid Condition

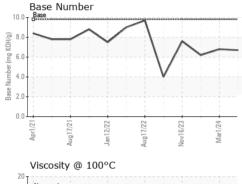
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

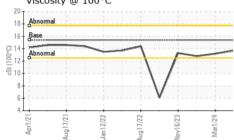
			mmbase	current		
Sample Number		Client Info		GFL0122389	GFL0108964	GFL0101465
Sample Date		Client Info		18 Jun 2024	01 Mar 2024	06 Dec 2023
Machine Age	hrs	Client Info		15526	14897	14309
Oil Age	hrs	Client Info		15526	14309	14148
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
			11 1.0			
CONTAMINATI	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		NEG	NEG	NEG
WEAR METALS	2	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	24	28	23
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>30	4	4	2
Lead	ppm	ASTM D5185m	>30	0	0	0
Copper	ppm	ASTM D5185m	>150	<1	1	2
Tin	ppm	ASTM D5185m	>5	<1	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method				history2
ADDITIVES Boron	ppm	Method ASTM D5185m	limit/base	current 3	history1 <1	history2 2
	ppm ppm		0			
Boron		ASTM D5185m	0	3	<1	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	3 0	<1 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	3 0 61	<1 0 66	2 0 55
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	3 0 61 <1	<1 0 66 0	2 0 55 <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	3 0 61 <1 1023	<1 0 66 0 933	2 0 55 <1 874
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	3 0 61 <1 1023 1118	<1 0 66 0 933 1012	2 0 55 <1 874 994
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	3 0 61 <1 1023 1118 1163	<1 0 66 0 933 1012 958	2 0 55 <1 874 994 980
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	0 0 60 0 1010 1070 1150 1270	3 0 61 <1 1023 1118 1163 1395	<1 0 66 0 933 1012 958 1229 2651	2 0 55 <1 874 994 980 1198 2738
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	3 0 61 <1 1023 1118 1163 1395 3659 current	<1 0 66 0 933 1012 958 1229 2651 history1	2 0 55 <1 874 994 980 1198 2738 history2
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 <b>method</b>	0 0 60 0 1010 1070 1150 1270 2060	3 0 61 <1 1023 1118 1163 1395 3659 current 4	<1 0 66 0 933 1012 958 1229 2651 history1 5	2 0 55 <1 874 994 980 1198 2738 history2 4
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	3 0 61 <1 1023 1118 1163 1395 3659 current 4 6	<1 0 66 0 933 1012 958 1229 2651 <b>history1</b> 5 4	2 0 55 <1 874 994 980 1198 2738 <b>history2</b> 4 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >20	3 0 61 <1 1023 1118 1163 1395 3659 current 4 6 5	<1 0 66 0 933 1012 958 1229 2651 history1 5 4 2	2 0 55 <1 874 994 980 1198 2738 history2 4 7 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	3 0 61 <1 1023 1118 1163 1395 3659 current 4 6 5 5	<1 0 66 0 933 1012 958 1229 2651 <b>history1</b> 5 4 2 2 <b>history1</b>	2 0 55 <1 874 994 980 1198 2738 history2 4 7 1 1
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 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >20	3 0 61 <1 1023 1118 1163 1395 3659 current 4 6 5 current 0.6	<1 0 66 0 933 1012 958 1229 2651 history1 5 4 2 2 5 4 2 2 <b>history1</b> 0.6	2 0 55 <1 874 994 980 1198 2738 history2 4 7 1 history2 0.7
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 220 220	3 0 61 <1 1023 1118 1163 1395 3659 current 4 6 5 5	<1 0 66 0 933 1012 958 1229 2651 <b>history1</b> 5 4 2 2 <b>history1</b>	2 0 55 <1 874 994 980 1198 2738 history2 4 7 1 1
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 60 0 1010 1070 1150 1270 2060 limit/base >20 >20 limit/base	3 0 61 <1 1023 1118 1163 1395 3659 current 4 6 5 current 0.6	<1 0 66 0 933 1012 958 1229 2651 history1 5 4 2 2 5 4 2 2 <b>history1</b> 0.6	2 0 55 <1 874 994 980 1198 2738 history2 4 7 1 history2 0.7
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 2060 220 220 220 220 220 23 20 23 20	3 0 61 <1 1023 1118 1163 1395 3659 current 4 6 5 current 0.6 10.4	<1 0 66 0 933 1012 958 1229 2651 history1 5 4 2 2 5 4 2 2 5 4 2 0.6 10.8	2 0 55 <1 874 994 980 1198 2738 history2 4 7 1 history2 0.7 11.6
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 220 200 220 320 320 33 220 330	3 0 61 <1 1023 1118 1163 1395 3659 current 4 6 5 5 current 0.6 10.4 21.0	<1 0 66 0 933 1012 958 1229 2651 history1 5 4 2 2 5 4 2 2 history1 0.6 10.8 21.0	2 0 55 <1 874 994 980 1198 2738 history2 4 7 1 history2 0.7 11.6 21.7
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 TS ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 2060 220 220 220 220 33 220 330 30	3 0 61 <1 1023 1118 1163 1395 3659 current 4 6 5 current 0.6 10.4 21.0 current	<1 0 66 0 933 1012 958 1229 2651 history1 5 4 2 history1 0.6 10.8 21.0 history1	2 0 55 <1 874 994 980 1198 2738 history2 4 7 1 1 history2 0.7 11.6 21.7 history2



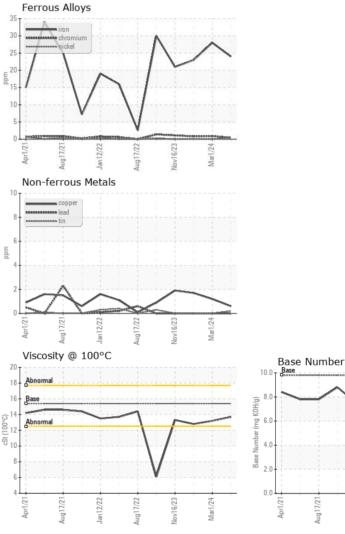
# **OIL ANALYSIS REPORT**

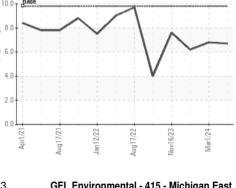






VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	13.7	13.2	12.8
GRAPHS						





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 415 - Michigan East Sample No. 6200 Elmridge : GFL0122389 Received : 20 Jun 2024 Lab Number : 06215371 Tested : 21 Jun 2024 Sterling Heights, MI US 48313 Unique Number : 11088235 Diagnosed : 21 Jun 2024 - Wes Davis Test Package : FLEET Contact: Frank Wolak Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. fwolak@gflenv.com T: (586)825-9514 \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. F:

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

Submitted By: Frank Wolak

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