

# **OIL ANALYSIS REPORT**

Sample Rating Trend



NORMAL

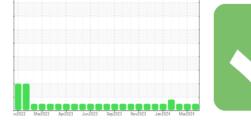


Machine Id 913005

Fluid

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

SAMPLE INFORMATION method





## 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.

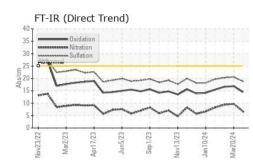
### Fluid Condition

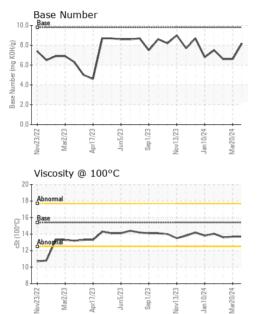
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		GFL0110624	GFL0110577	GFL0110605
Sample Date		Client Info		11 Apr 2024	20 Mar 2024	11 Mar 2024
Machine Age	hrs	Client Info		4552	47098	54546
Oil Age	hrs	Client Info		400	45455	0
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
			Press In University		In the transmission	la la tanya O
CONTAMINAT	ION	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 METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	6	24	19
Chromium	ppm	ASTM D5185m	>20	1	2	<1
Nickel	ppm	ASTM D5185m	>5	1	16	12
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver						0
	ppm	ASTM D5185m	>2	<1	<1	
Aluminum	ppm	ASTM D5185m		1	2	<1
Lead	ppm	ASTM D5185m	>40	2	1	0
Copper	ppm	ASTM D5185m	>330	2	14	10
Tin	ppm	ASTM D5185m	>15	1	2	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		<1	<1	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	Method ASTM D5185m	limit/base	current 4	history1 <1	history2 0
	ppm ppm					
Boron		ASTM D5185m	0	4	<1	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	4 0	<1 1	0
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 61	<1 1 64	0 0 55
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 0 61 1 926	<1 1 64 1 942	0 0 55 <1 911
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	4 0 61 1 926 1079	<1 1 64 1 942 1093	0 0 55 <1 911 1036
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	4 0 61 1 926 1079 1117	<1 1 64 1 942 1093 916	0 0 55 <1 911 1036 951
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	4 0 61 1 926 1079 1117 1217	<1 1 64 1 942 1093 916 1187	0 0 55 <1 911 1036 951 1154
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	4 0 61 1 926 1079 1117 1217 3453	<1 1 64 1 942 1093 916 1187 2465	0 0 55 <1 911 1036 951 1154 2878
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	4 0 61 1 926 1079 1117 1217 3453 current	<1 1 64 1 942 1093 916 1187 2465 history1	0 0 55 <1 911 1036 951 1154 2878 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> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	4 0 61 1 926 1079 1117 1217 3453 current 9	<1 1 64 1 942 1093 916 1187 2465 history1 7	0 0 55 <1 911 1036 951 1154 2878 history2 5
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	4 0 61 1 926 1079 1117 1217 3453 current	<1 1 64 1 942 1093 916 1187 2465 history1	0 0 55 <1 911 1036 951 1154 2878 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> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	4 0 61 1 926 1079 1117 1217 3453 current 9	<1 1 64 1 942 1093 916 1187 2465 history1 7	0 0 55 <1 911 1036 951 1154 2878 history2 5
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 <b>method</b> ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	4 0 61 1 926 1079 1117 1217 3453 current 9 2	<1 1 64 1 942 1093 916 1187 2465 history1 7 2	0 0 55 <1 911 1036 951 1154 2878 history2 5 2
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	4 0 61 1 926 1079 1117 1217 3453 current 9 2 1	<1 1 64 1 942 1093 916 1187 2465 history1 7 2 6	0 0 55 <1 911 1036 951 1154 2878 history2 5 2 0
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	4 0 61 1 926 1079 1117 1217 3453 current 9 2 1 1 current	<1 1 64 1 942 1093 916 1187 2465 history1 7 2 6 history1	0 0 55 <1 911 1036 951 1154 2878 history2 5 2 0 0 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	4 0 61 1 926 1079 1117 1217 3453 <u>current</u> 9 2 1 1 <u>current</u> 0.3	<1 1 64 1 942 1093 916 1187 2465 history1 7 2 6 history1 1	0 0 55 <1 911 1036 951 1154 2878 history2 5 2 0 0 history2 0.9
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 20 20 20 20 20 20 20 20 20 20 20	4 0 61 1 926 1079 1117 1217 3453 <u>current</u> 9 2 1 <u>current</u> 0.3 6.7 18.8	<1 1 64 1 942 1093 916 1187 2465 history1 7 2 6 history1 1 9.7 20.6	0 0 55 <1 911 1036 951 1154 2878 history2 5 2 0 0 history2 0.9 9.4 20.3
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	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 20 20 20 20 20 20 20 20	4 0 61 1 926 1079 1117 1217 3453 <i>current</i> 9 2 1 2 1 <i>current</i> 0.3 6.7 18.8	<1 1 64 1 942 1093 916 1187 2465 history1 7 2 6 history1 1 9.7 20.6 history1	0 0 55 <1 911 1036 951 1154 2878 history2 5 2 0 0 history2 0.9 9.4 20.3 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 20 <b>imit/base</b> >4 >20 30 <b>imit/base</b>	4 0 61 1 926 1079 1117 1217 3453 <u>current</u> 9 2 1 2 1 0.3 6.7 18.8 <u>current</u> 14.5	<1 1 64 1 942 1093 916 1187 2465  history1 7 2 6 history1 1 9.7 20.6 history1 16.9	0 0 55 <1 911 1036 951 1154 2878 history2 5 2 0 0 history2 0.9 9.4 20.3 history2 16.6
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 20 20 20 20 20 20 20 20	4 0 61 1 926 1079 1117 1217 3453 <i>current</i> 9 2 1 2 1 <i>current</i> 0.3 6.7 18.8	<1 1 64 1 942 1093 916 1187 2465 history1 7 2 6 history1 1 9.7 20.6 history1	0 0 55 <1 911 1036 951 1154 2878 history2 5 2 0 0 history2 0.9 9.4 20.3 history2



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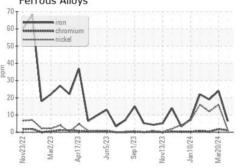
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	13.7	13.6
GRAPHS						

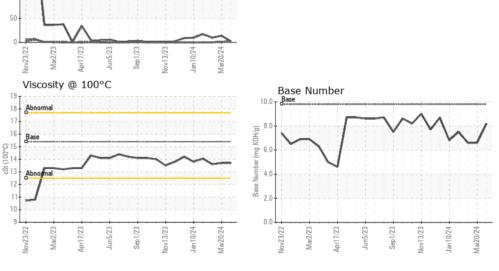
Ferrous Alloys

Non-ferrous Metals

lead

250





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 166 - Phenix City Sample No. : GFL0110624 Received : 18 Apr 2024 18 Old Brickyard Rd Lab Number : 06152750 Tested : 18 Apr 2024 Phenix City, AL Unique Number : 10982828 Diagnosed : 18 Apr 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: F:

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

Report Id: GFL166 [WUSCAR] 06152750 (Generated: 04/18/2024 17:40:15) Rev: 1

Submitted By: DARRIN WRIGHT

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