

## **OIL ANALYSIS REPORT**

SAMPLE INFORMATION method

Sample Rating Trend



Machine Id

### 719005

#### Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- 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

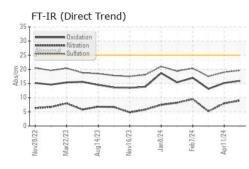
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

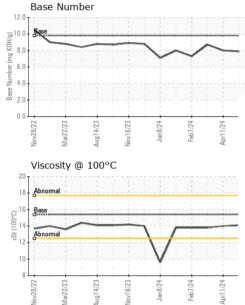
		method	iiiiii/base	current	TIIStOLA	TIIStoryz
Sample Number		Client Info		GFL0115840	GFL0115850	GFL0111010
Sample Date		Client Info		01 May 2024	11 Apr 2024	20 Feb 2024
Machine Age	hrs	Client Info		2175	2052	1793
Oil Age	hrs	Client Info		910	787	0
Oil Changed	1110	Client Info		N/A	N/A	N/A
U				NORMAL	NORMAL	NORMAL
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		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	20	18	5
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	4	<1
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm		>330	0	<1	<1
Tin	ppm		>15	۰ <1	<1	0
Vanadium	ppm	ASTM D5185m	210	0	<1	0
Cadmium		ASTM D5185m		0	0	0
	ppm			0	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base 0	7	3	10
	ppm ppm	ASTM D5185m	0	7 1	3 0	10 0
Boron		ASTM D5185m	0	7	3	10 0 63
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	7 1	3 0	10 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	7 1 69	3 0 67	10 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	7 1 69 <1	3 0 67 <1	10 0 63 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	7 1 69 <1 929	3 0 67 <1 940	10 0 63 0 900
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	7 1 69 <1 929 1106	3 0 67 <1 940 1137	10 0 63 0 900 1094
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	7 1 69 <1 929 1106 1126	3 0 67 <1 940 1137 1018	10 0 63 0 900 1094 1004
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	7 1 69 <1 929 1106 1126 1263	3 0 67 <1 940 1137 1018 1189	10 0 63 0 900 1094 1004 1166
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	0 0 60 0 1010 1070 1150 1270 2060	7 1 69 <1 929 1106 1126 1263 3433 current	3 0 67 <1 940 1137 1018 1189 3440 history1	10 0 63 0 900 1094 1004 1166 3036 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	7 1 69 <1 929 1106 1126 1263 3433 current 5	3 0 67 <1 940 1137 1018 1189 3440 history1 6	10 0 63 0 900 1094 1004 1166 3036 history2 2
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	0 0 60 0 1010 1070 1150 1270 2060	7 1 69 <1 929 1106 1126 1263 3433 current	3 0 67 <1 940 1137 1018 1189 3440 history1	10 0 63 0 900 1094 1004 1166 3036 history2
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 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	7 1 69 <1 929 1106 1126 1263 3433 <u>current</u> 5 <1 <1	3 0 67 <1 940 1137 1018 1189 3440 history1 6 < 1	10 0 63 0 900 1094 1004 1166 3036 history2 2 2 <1 <1
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	7 1 69 <1 929 1106 1126 1263 3433 current 5 <1 <1 <1	3 0 67 <1 940 1137 1018 1189 3440 history1 6 <1 1 1 history1	10 0 63 0 900 1094 1004 1166 3036 <b>history2</b> 2 <1 <1 <1 <b>history2</b>
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	7 1 69 <1 929 1106 1126 1263 3433 current 5 <1 <1 <1 current 0.7	3 0 67 <1 940 1137 1018 1189 3440 history1 6 <1 1 1 history1 0.5	10 0 63 0 900 1094 1004 1166 3036 history2 2 2 <1 <1 <1 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20	7 1 69 <1 929 1106 1126 1263 3433 current 5 <1 <1 <1 current 0.7 9.0	3 0 67 <1 940 1137 1018 1189 3440 history1 6 <1 1 1 history1 0.5 8.0	10 0 63 0 900 1094 1004 1166 3036 history2 2 <1 <1 <1 history2 0.2 5.2
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 limit/base >25 >20 limit/base >3	7 1 69 <1 929 1106 1126 1263 3433 <u>current</u> 5 <1 <1 <1 <u>current</u> 0.7 9.0 19.6	3 0 67 <1 940 1137 1018 1189 3440 history1 6 <1 1 1 history1 0.5	10 0 63 0 900 1094 1004 1166 3036 history2 2 2 <1 <1 <1 history2 0.2
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 imit/base >25 >20 imit/base >3 >20	7 1 69 <1 929 1106 1126 1263 3433 current 5 <1 <1 <1 current 0.7 9.0	3 0 67 <1 940 1137 1018 1189 3440 history1 6 <1 1 1 history1 0.5 8.0	10 0 63 0 900 1094 1004 1166 3036 history2 2 <1 <1 <1 history2 0.2 5.2
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 3 20 20 20 20 20 20 20 20 20 20 20 20 20	7 1 69 <1 929 1106 1126 1263 3433 <u>current</u> 5 <1 <1 <1 <u>current</u> 0.7 9.0 19.6	3 0 67 <1 940 1137 1018 1189 3440 history1 6 <1 1 1 <b>history1</b> 0.5 8.0 19.0	10 0 63 0 900 1094 1004 1166 3036 <b>history2</b> 2 <1 <1 <1 <b>history2</b> 0.2 5.2 17.5
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 20 33 220 330	7 1 69 <1 929 1106 1126 1263 3433 Current 5 <1 <1 <1 Current 0.7 9.0 19.6 Current	3 0 67 <1 940 1137 1018 1189 3440 history1 6 <1 1 6 <1 1 1 0.5 8.0 19.0 history1	10 0 63 0 900 1094 1004 1166 3036 history2 2 <1 <1 <1 history2 0.2 5.2 17.5 history2

Submitted By: GFL166,GFL172,GFL180,GFL867,GFL868,GFL955 - Chelsea Bryan



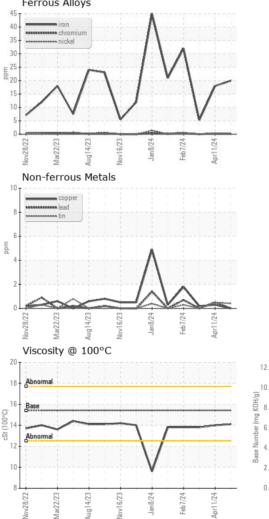
# **OIL ANALYSIS REPORT**

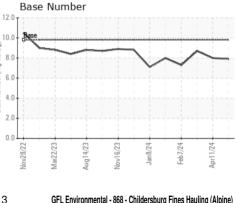




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	14.1	14.0	13.8
GRAPHS						

Ferrous Alloys





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 868 - Childersburg Fines Hauling (Alpine) 13737 Plant Rd Sample No. : GFL0115840 Received : 14 May 2024 Lab Number : 06178384 Tested : 14 May 2024 Childersburg, AL Unique Number : 11029710 Diagnosed : 14 May 2024 - Wes Davis US 35044 Test Package : FLEET Contact: JONATHAN WILLIAMS Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jonathan.williams@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: GFL868 [WUSCAR] 06178384 (Generated: 05/14/2024 18:41:43) Rev: 1 Submitted By: GFL166,GFL172,GFL180,GFL867,GFL868,GFL955 - Chelsea Bryan

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