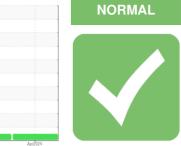


# **OIL ANALYSIS REPORT**

Sample Rating Trend



### Area GFL035 934053 Omponent Diesel Engin Fluid PETRO CANA

Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (42 QTS)

SAMPLE INFORMATION metho

## 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.

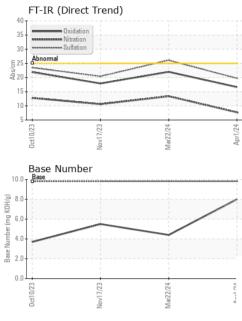
### Fluid Condition

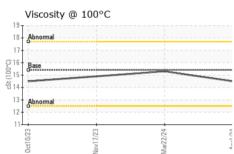
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR		method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0116424	GFL0116456	GFL0085161
Sample Date		Client Info		01 Apr 2024	22 Mar 2024	17 Nov 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		600	600	300
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
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		ASTM D5185m	>120	9	33	19
Chromium	ppm	ASTM D5185m	>20	3 <1	2	1
Nickel	ppm	ASTM D5185m	>5	0	1	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m ASTM D5185m	>2	0	0	<1
Aluminum	ppm ppm	ASTM D5185m	>2	2	7	5
				0	2	0
Lead	ppm	ASTM D5185m	>40	-	4	4
Copper Tin	ppm	ASTM D5185m ASTM D5185m		<1 0	4	
	ppm		>15	-		<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 33	history1 9	history2 11
	ppm ppm					
Boron		ASTM D5185m	0	33	9	11
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	33 0	9 <1	11 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	33 0 52	9 <1 68	11 0 55
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	33 0 52 <1	9 <1 68 2	11 0 55 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	33 0 52 <1 590	9 <1 68 2 700	11 0 55 2 579
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	33 0 52 <1 590 1740	9 <1 68 2 700 2051	11 0 55 2 579 1584
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	33 0 52 <1 590 1740 836	9 <1 68 2 700 2051 871	11 0 55 2 579 1584 725
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	33 0 52 <1 590 1740 836 1012	9 <1 68 2 700 2051 871 1173	11 0 55 2 579 1584 725 968
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	33 0 52 <1 590 1740 836 1012 3048	9 <1 68 2 700 2051 871 1173 3116	11 0 55 2 579 1584 725 968 2504
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	0 0 60 0 1010 1070 1150 1270 2060	33 0 52 <1 590 1740 836 1012 3048 current	9 <1 68 2 700 2051 871 1173 3116 history1	11 0 55 2 579 1584 725 968 2504 <b>history2</b>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm 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 <b>limit/base</b>	33 0 52 <1 590 1740 836 1012 3048 current 4	9 <1 68 2 700 2051 871 1173 3116 history1 7	11 0 55 2 579 1584 725 968 2504 <b>history2</b> 8
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	33 0 52 <1 590 1740 836 1012 3048 current 4 5 3	9 <1 68 2 700 2051 871 1173 3116 history1 7 9 17	11 0 55 2 579 1584 725 968 2504 history2 8 5 13
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	33 0 52 <1 590 1740 836 1012 3048 current 4 5 3 3	9 <1 68 2 700 2051 871 1173 3116 history1 7 9 17 history1	11 0 55 2 579 1584 725 968 2504 <b>bistory2</b> 8 5 13 <b>bistory2</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 2060 225 >25 >20 <u>limit/base</u> >20	33 0 52 <1 590 1740 836 1012 3048 <u>current</u> 4 5 3 3 <u>current</u> 0	9 <1 68 2 700 2051 871 1173 3116 history1 7 9 17 history1 0.1	111 0 55 2 579 1584 725 968 2504 <b>history2</b> 8 5 13 <b>history2</b> 0
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 2060 225 >25 >20 imit/base >20	33 0 52 <1 590 1740 836 1012 3048 <i>current</i> 4 5 3 <i>current</i> 0 7.7	9 <1 68 2 700 2051 871 1173 3116 history1 7 9 17 9 17 history1 0.1 13.4	111 0 55 2 579 1584 725 968 2504 history2 8 5 13 history2 0 10.6
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	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	33 0 52 <1 590 1740 836 1012 3048 <u>current</u> 4 5 3 3 <u>current</u> 0	9 <1 68 2 700 2051 871 1173 3116 history1 7 9 17 7 9 17 0.1 13.4 26.1	11 0 55 2 579 1584 725 968 2504 <b>history2</b> 8 5 13 <b>history2</b> 0 10.6 20.4
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	33 0 52 <1 590 1740 836 1012 3048 <i>current</i> 4 5 3 <i>current</i> 0 7.7	9 <1 68 2 700 2051 871 1173 3116 history1 7 9 17 9 17 history1 0.1 13.4	111 0 55 2 579 1584 725 968 2504 history2 8 5 13 history2 0 10.6
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	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	33 0 52 <1 590 1740 836 1012 3048 <u>current</u> 4 5 3 3 <u>current</u> 0 7.7 19.7	9 <1 68 2 700 2051 871 1173 3116 history1 7 9 17 7 9 17 0.1 13.4 26.1	11 0 55 2 579 1584 725 968 2504 <b>history2</b> 8 5 13 <b>history2</b> 0 10.6 20.4
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	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 220 230 20 20 20 20 20 20 20 20 20 20 20 20 20	33 0 52 <1 590 1740 836 1012 3048 <i>current</i> 4 5 3 <i>current</i> 0 7.7 19.7	9 <1 68 2 700 2051 871 1173 3116 history1 7 9 17 7 9 17 0.1 13.4 26.1 history1	11 0 55 2 579 1584 725 968 2504 history2 8 5 13 history2 0 10.6 20.4 history2

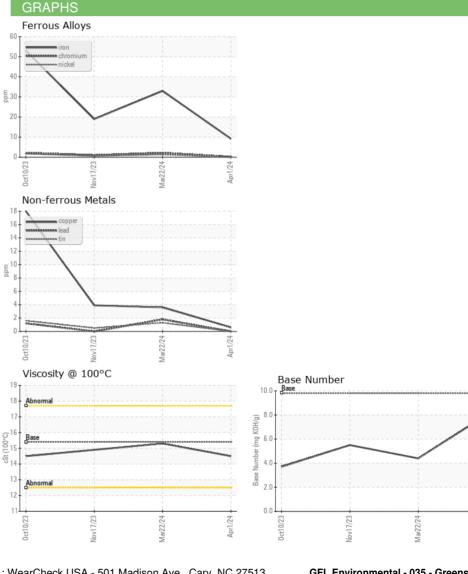


# **OIL ANALYSIS REPORT**





			11 1. 4			
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	14.5	15.3	14.9
GRAPHS						



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 035 - Greensboro Sample No. : GFL0116424 Received : 03 Apr 2024 1236 Elon Place Lab Number : 06137228 Tested : 04 Apr 2024 High Point, NC US 27263 Unique Number : 10956693 Diagnosed : 05 Apr 2024 - Don Baldridge Test Package : FLEET Contact: JORGE COSTA Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jorge.costa@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (336)668-3712 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Submitted By: JORGE COSTA Page 2 of 2

Apr1/24