

## **OIL ANALYSIS REPORT**

# (YA133461) 10645C

**Natural Gas Engine** 

Fluid PETRO CANADA DURON GEO LD 15W40 (36 QTS)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. ( Customer Sample Comment: E service )

### Wear

Area

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

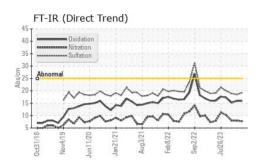
### Fluid Condition

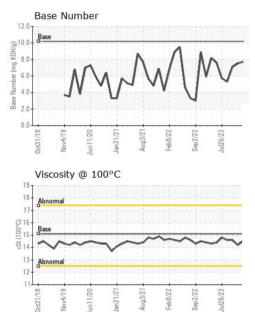
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0111073	GFL0098525	GFL0087759
Sample Date		Client Info		23 Apr 2024	15 Jan 2024	28 Sep 2023
Machine Age	hrs	Client Info		20456	19820	19245
Oil Age	hrs	Client Info		1211	575	1083
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	4	11	9
Chromium	ppm	ASTM D5185m	>4	<1	<1	2
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	<1	1	2
Lead	ppm	ASTM D5185m	>30	0	0	0
Copper	ppm	ASTM D5185m	>35	<1	<1	<1
Tin	ppm	ASTM D5185m	>4	0	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
		method				history2
ADDITIVES		methou	iiiiii/base	Current	history1	THSTOLYZ
Boron	ppm	ASTM D5185m	50	34	29	3
	ppm ppm					
Boron		ASTM D5185m	50	34	29	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5	34 0	29 0	3 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	34 0 51	29 0 52	3 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	34 0 51 <1	29 0 52 1	3 0 59 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	34 0 51 <1 590	29 0 52 1 562	3 0 59 <1 827
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510	34 0 51 <1 590 1536	29 0 52 1 562 1561	3 0 59 <1 827 1256
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 ASTM D5185m	50 5 50 0 560 1510 780	34 0 51 <1 590 1536 775	29 0 52 1 562 1561 784	3 0 59 <1 827 1256 973
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	50 5 50 0 560 1510 780 870	34 0 51 <1 590 1536 775 919	29 0 52 1 562 1561 784 933	3 0 59 <1 827 1256 973 1192
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	50 5 50 560 1510 780 870 2040	34 0 51 <1 590 1536 775 919 2635	29 0 52 1 562 1561 784 933 2410	3 0 59 <1 827 1256 973 1192 3004
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	50 5 50 0 560 1510 780 870 2040	34 0 51 <1 590 1536 775 919 2635 current	29 0 52 1 562 1561 784 933 2410 history1	3 0 59 <1 827 1256 973 1192 3004 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	50 50 50 560 1510 780 870 2040 <b>limit/base</b> >+100	34 0 51 <1 590 1536 775 919 2635 current 4	29 0 52 1 562 1561 784 933 2410 history1 11	3 0 59 <1 827 1256 973 1192 3004 history2 4
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	50 50 50 560 1510 780 870 2040 <b>limit/base</b> >+100	34 0 51 <1 590 1536 775 919 2635 current 4 2	29 0 52 1 562 1561 784 933 2410 history1 11 4	3 0 59 <1 827 1256 973 1192 3004 history2 4 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	50 50 0 560 1510 780 870 2040 <b>limit/base</b> >+100	34 0 51 <1 590 1536 775 919 2635 current 4 2 0	29 0 52 1 562 1561 784 933 2410 history1 11 4 2	3 0 59 <1 827 1256 973 1192 3004 history2 4 2 2 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 0 560 1510 780 870 2040 2040 >+100 >20 20 }	34 0 51 <1 590 1536 775 919 2635 current 4 2 0 0	29 0 52 1 562 1561 784 933 2410 history1 11 4 2 2 history1	3 0 59 <1 827 1256 973 1192 3004 <b>history2</b> 4 2 <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 ppm ppm	ASTM D5185m ASTM D5185m	50 50 0 560 1510 780 870 2040 2040 >+100 >20 20 }	34 0 51 <1 590 1536 775 919 2635 current 4 2 0 0 current 0	29 0 52 1 562 1561 784 933 2410 history1 11 4 2 2 history1 0	3 0 59 <1 827 1256 973 1192 3004 <b>history2</b> 4 2 <1 <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 ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040 <b>Iimit/base</b> >+100 20 <b>Iimit/base</b>	34 0 51 <1 590 1536 775 919 2635 current 4 2 0 current 0 7.7	29 0 52 1 562 1561 784 933 2410 history1 11 4 2 2 history1 0 8.0	3 0 59 <1 827 1256 973 1192 3004 history2 4 2 2 <1 history2 0 8.0
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	50 50 560 1510 780 870 2040 <b>Iinit/base</b> >+100 	34 0 51 <1 590 1536 775 919 2635 <b>current</b> 4 2 0 <b>current</b> 0 7.7 19.2	29 0 52 1 562 1561 784 933 2410 history1 11 4 2 2 history1 0 8.0 18.5	3 0 59 <1 827 1256 973 1192 3004 <b>history2</b> 4 2 <1 <b>history2</b> 0 8.0 18.9
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	50 50 0 560 1510 780 870 2040 2040 >+100 >20 20 imit/base >20 >30 imit/base	34 0 51 <1 590 1536 775 919 2635 <i>current</i> 4 2 0 <i>current</i> 0 <i>current</i> 0 7.7 19.2	29 0 52 1 562 1561 784 933 2410 history1 11 4 2 history1 0 8.0 18.5 history1	3 0 59 <1 827 1256 973 1192 3004 history2 4 2 <1 history2 0 8.0 18.9 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	>0.1	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	15.1	14.5	14.2	14.6
GRAPHS						

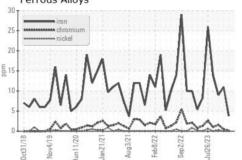
Ferrous Alloys

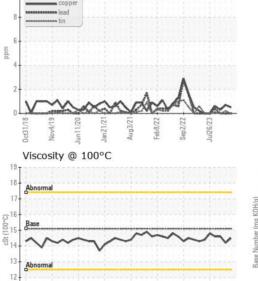
Non-ferrous Metals

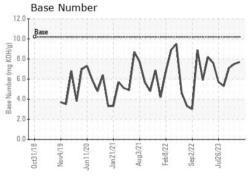
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0ct31/18

Jun 11/20 an21/21







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 006 - Wilmington Sample No. : GFL0111073 Received : 24 Apr 2024 3618 US Highway 421 N Lab Number : 06158919 Tested : 25 Apr 2024 Wilmington, NC US 28401 Unique Number : 10994342 Diagnosed : 26 Apr 2024 - Jonathan Hester Test Package : FLEET Contact: Eric Wood Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. eric.wood@gflenv.com T: (717)723-1956 \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. F: (910)762-6880

Feb 8/22 .

Sen 2/22

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

Submitted By: Eric Wood

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