

## **OIL ANALYSIS REPORT**

Sample Rating Trend



# Machine Id 948009-260346

Component Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (--- LTR)

### 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

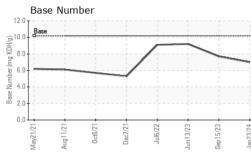
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

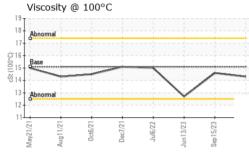
, 			ug2021 Oct2021 Dec20	021 Jul2022 Jun2023 Sep2023	Jan2024	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0095990	GFL0071768	GFL0071740
Sample Date		Client Info		23 Jan 2024	15 Sep 2023	13 Jun 2023
Machine Age	hrs	Client Info		67180	66756	66756
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	12	29	18
Chromium	ppm	ASTM D5185m	>4	<1	2	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	2	4	<1
Lead	ppm	ASTM D5185m	>30	<1	<1	0
Copper	ppm	ASTM D5185m	>35	1	2	1
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
					,	
Boron	ppm	ASTM D5185m	50	18	28	19
	ppm ppm					
Boron		ASTM D5185m	50	18	28	19
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5	18 0	28 0	19 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	18 0 51	28 0 60 <1 570	19 0 53
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	18 0 51 <1	28 0 60 <1	19 0 53 <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	18 0 51 <1 610	28 0 60 <1 570	19 0 53 <1 575
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	18 0 51 <1 610 1605	28 0 60 <1 570 1564	19 0 53 <1 575 1574
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	50 5 50 0 560 1510 780	18 0 51 <1 610 1605 783	28 0 60 <1 570 1564 831	19 0 53 <1 575 1574 786
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	18 0 51 <1 610 1605 783 1017 2486	28 0 60 <1 570 1564 831 1038	19 0 53 <1 575 1574 786 967
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 50 00 560 1510 780 870 2040	18 0 51 <1 610 1605 783 1017 2486	28 0 60 <1 570 1564 831 1038 3036	19 0 53 <1 575 1574 786 967 2946
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 50 00 560 1510 780 870 2040	18 0 51 <1 610 1605 783 1017 2486 current	28 0 60 <1 570 1564 831 1038 3036 history1	19 0 53 <1 575 1574 786 967 2946 history2
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 ASTM D5185m	50 50 00 560 1510 780 870 2040	18 0 51 <1 610 1605 783 1017 2486 current 6	28 0 60 <1 570 1564 831 1038 3036 history1 10	19 0 53 <1 575 1574 786 967 2946 history2 9
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 5 50 0 560 1510 780 870 2040 <b>limit/base</b> >+100	18 0 51 <1 610 1605 783 1017 2486 current 6 8 8 <1	28 0 60 <1 570 1564 831 1038 3036 history1 10 18	19 0 53 <1 575 1574 786 967 2946 <b>history2</b> 9 17
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 00 560 1510 780 870 2040 <b>limit/base</b> >+100	18 0 51 <1 610 1605 783 1017 2486 current 6 8 8 <1	28 0 60 <1 570 1564 831 1038 3036 history1 10 18 4	19 0 53 <1 575 1574 786 967 2946 history2 9 17 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 50 0 560 1510 780 870 2040 <b>Imit/base</b> >+100 >20 <b>Imit/base</b>	18 0 51 <1 610 1605 783 1017 2486 <u>current</u> 6 8 <1 <u>current</u>	28 0 60 <1 570 1564 831 1038 3036 history1 10 18 4 4	19 0 53 <1 575 1574 786 967 2946 <b>bistory2</b> 9 17 3 <i>bistory2</i>
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	50 50 0 560 1510 780 870 2040 <b>Imit/base</b> >+100 >20 <b>Imit/base</b>	18 0 51 <1 610 1605 783 1017 2486 <u>current</u> 6 8 <1 <u>current</u> 0	28 0 60 <1 570 1564 831 1038 3036 history1 10 18 4 4 history1 0	19 0 53 <1 575 1574 786 967 2946 history2 9 17 3 history2 0.1
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 imit/base >+100 20 imit/base	18 0 51 <1 610 1605 783 1017 2486 <b>current</b> 6 8 <1 <b>current</b> 0 9.4 19.6	28 0 60 <1 570 1564 831 1038 3036 history1 10 18 4 4 history1 0 9.9	19 0 53 <1 575 1574 786 967 2946 history2 9 17 3 history2 0.1 9.6
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	50 50 560 1510 780 870 2040 <b>Imit/base</b> >20 <b>Imit/base</b> >20 <b>Imit/base</b>	18 0 51 <1 610 1605 783 1017 2486 <u>current</u> 6 8 <1 <u>current</u> 0 9.4 19.6	28 0 60 <1 570 1564 831 1038 3036 history1 10 18 4 4 history1 0 9.9 23.0	19 0 53 <1 575 1574 786 967 2946 history2 9 17 3 <u>history2</u> 0.1 9.6 18.7
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 ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	50 50 560 1510 780 870 2040 >timit/base >+100 220 imit/base >20 >30	18 0 51 <1 610 1605 783 1017 2486 <i>current</i> 6 8 <1 <i>current</i> 0 9.4 19.6	28 0 60 <1 570 1564 831 1038 3036 history1 10 18 4 4 history1 0 9.9 23.0 history1	19 0 53 <1 575 1574 786 967 2946 history2 9 17 3 history2 0.1 9.6 18.7 history2



# **OIL ANALYSIS REPORT**

VICLIAI





	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				
Sep 15/23 Jan 23/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML				
Sep	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	14.3	14.6	12.7				
	GRAPHS										
	Ferrous Alloys										
23	iron										
Sep 15/23	25 - management chromium										
	20-	/	$\vee$								
	<u>۾</u> 15-	/		$\sim$							
	10										
	5-										
			THE REPORT OF THE PARTY OF THE	a change of the second s							
	0	22	23	24							
	May21/21 Aug11/20	Dec7/21 Jul6/22	Jun 13/23 Sep 15/23	Jan 23/24							
	Non-ferrous Meta	s		7							
	10 T										
	8 + copper										
	0 -	Λ									
	6	- / \									
	E C C C C C C C C C C C C C C C C C C C										
		/									
	2-	1-	1-								
	0		1	Stold and and a stole of the st							
		Dec7/21 - Jul6/22 -	Jun 13/23 • Sep 15/23 •	Jan23/24 -							
	Aug	Ju	Jun1 Sep1	Janź							
	Viscosity @ 100°C Base Number										
	18 Abnormal			10.0	Base						
	17			( <sup>6</sup> /H0) 8.0							
	Base			B B							
	(3)-00 [15 53] 14			a 6.0							
			$\backslash$	.8.1 Base Number (mg KOH(g)	•						
	13 Abnormal		V	2.0	D <b>-</b>						
	11										
		Dec7/21. Jul6/22.	Jun13/23 - Sep15/23 -	Jan 23/24 -	May21/21 Aug11/21	Dec7/21 - Jul6/22 -	Jun 13/23 - Sep 15/23 -				
	Mayi Augi	Jul	Jun1 Sep1	Jan2	Mayi Aug1 Oc	Jul	Jun13/23 Sep15/23				
				NO 075	· · · · ·						
boratory mple No.	: WearCheck USA - : GFL0095990	501 Madi <b>Recieve</b> e		ary, NC 27513 Jan 2024	GFL En	vironmental - 88	<b>3 - Orange Cit</b> uth Volusia Av				
b Number		Diagnos		Jan 2024 Jan 2024			Drange City, F				
ique Number		Diagnos		s Davis							



Test Package : FLEET Contact: JEFF COOPERSMITH Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. JCOOPERSMITH@GFLENV.COM \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Diagnostician : Wes Davis

Unique Number : 10846638

Submitted By: Kenneth Pearce

Page 2 of 2

US 32763

F:

T: (386)503-8468