

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id Component

Fluid

**Diesel Engine** 

### 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.

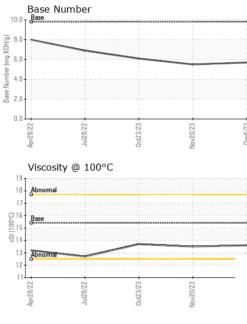
#### Fluid Condition

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

SAMPLE INFOR	MATION	method	limit/base	se current history1		history2	
Sample Number		Client Info	GFL0104359		GFL0059304	GFL0059134	
Sample Date		Client Info	06 Dec 2023		20 Nov 2023	23 Oct 2023	
Machine Age	hrs	Client Info	20477		20612	20419	
Oil Age	hrs	Client Info	20477		193	20419	
Oil Changed		Client Info	N/A		N/A	Changed	
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 <b>NEG</b>		NEG	NEG	
Glycol		WC Method	NEG		NEG	NEG	
WEAR METAL	.S	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>120	71	71	14	
Chromium	ppm	ASTM D5185m	>20	1	2	<1	
Nickel	ppm	ASTM D5185m	>5	2	2	<1	
Titanium	ppm	ASTM D5185m	>2	0	<1	<1	
Silver	ppm	ASTM D5185m	>2	0	0	0	
Aluminum	ppm	ASTM D5185m	>20	4	4	8	
Lead	ppm	ASTM D5185m	>40	1	<1	2	
Copper	ppm	ASTM D5185m	>330	8	10	1	
Tin	ppm	ASTM D5185m	>15 0		<1	<1	
Vanadium	ppm	ASTM D5185m		0	<1	0	
Cadmium	ppm	ASTM D5185m		0	0	0	
ADDITIVES		method	limit/base	current	history1	history2	
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current <1	history1 1	history2 3	
	ppm ppm						
Boron		ASTM D5185m	0	<1	1	3	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60 0	<1 0	1 0	3 0	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 56 1 1015	1 0 58 2 875	3 0 58 <1 893	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	<1 0 56 1	1 0 58 2 875 1038	3 0 58 <1 893 1050	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	<1 0 56 1 1015 1078 992	1 0 58 2 875 1038 897	3 0 58 <1 893 1050 908	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	<1 0 56 1 1015 1078 992 1242	1 0 58 2 875 1038 897 1111	3 0 58 <1 893 1050 908 1185	
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	0 0 60 0 1010 1070 1150	<1 0 56 1 1015 1078 992	1 0 58 2 875 1038 897	3 0 58 <1 893 1050 908	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	<1 0 56 1 1015 1078 992 1242	1 0 58 2 875 1038 897 1111	3 0 58 <1 893 1050 908 1185 2306 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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	<1 0 56 1 1015 1078 992 1242 2305 current 5	1 0 58 2 875 1038 897 1111 2044 history1 4	3 0 58 <1 893 1050 908 1185 2306 history2 12	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	<1 0 56 1 1015 1078 992 1242 2305 <u>current</u> 5 4	1 0 58 2 875 1038 897 1111 2044 history1 4 6	3 0 58 <1 893 1050 908 1185 2306 history2 12 64	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	<1 0 56 1 1015 1078 992 1242 2305 current 5	1 0 58 2 875 1038 897 1111 2044 history1 4	3 0 58 <1 893 1050 908 1185 2306 history2 12	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	<1 0 56 1 1015 1078 992 1242 2305 <b>current</b> 5 4 <1 <b>current</b>	1 0 58 2 875 1038 897 1111 2044 history1 4 6 0 0 history1	3 0 58 <1 893 1050 908 1185 2306 history2 12 64 2 2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	<1 0 56 1 1015 1078 992 1242 2305 <i>current</i> 5 4 <1 <i>current</i>	1 0 58 2 875 1038 897 1111 2044 history1 4 6 0 0 history1 1	3 0 58 <1 893 1050 908 1185 2306 history2 12 64 2 history2 0.6	
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 <b>TS</b>	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1imit/base >22 20	<1 0 56 1 1015 1078 992 1242 2305 current 5 4 <1 5 4 <1 current 1 10.1	1 0 58 2 875 1038 897 1111 2044 history1 4 6 0 0 history1 1 9.9	3 0 58 <1 893 1050 908 1185 2306 history2 12 64 2 history2 0.6 9.3	
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	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	<1 0 56 1 1015 1078 992 1242 2305 <i>current</i> 5 4 <1 <i>current</i>	1 0 58 2 875 1038 897 1111 2044 history1 4 6 0 0 history1 1	3 0 58 <1 893 1050 908 1185 2306 history2 12 64 2 history2 0.6	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	<pre>ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm</pre>	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1imit/base >22 20	<1 0 56 1 1015 1078 992 1242 2305 current 5 4 <1 5 4 <1 current 1 10.1	1 0 58 2 875 1038 897 1111 2044 history1 4 6 0 0 history1 1 9.9	3 0 58 <1 893 1050 908 1185 2306 history2 12 64 2 history2 0.6 9.3	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	<pre>ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm</pre>	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	<1 0 56 1 1015 1078 992 1242 2305 <i>current</i> 5 4 <1 <i>current</i> 1 10.1 22.4	1 0 58 2 875 1038 897 1111 2044 history1 4 6 0 0 history1 1 9.9 22.3	3 0 58 <1 893 1050 908 1185 2306 <b>history2</b> 12 64 2 <b>history2</b> 0.6 9.3 21.9	



# **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
0ct23/23	Nov20/23 Dec6/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
0	NG	Cuui	scalar	*Visual	NORML	NORML	NORML	NORML
°C		Emulsified Water Free Water	scalar	*Visual *Visual	>0.2	NEG NEG	NEG NEG	NEG NEG
			scalar					
		FLUID PROPE			limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.5	13.7
		GRAPHS						
		Ferrous Alloys						
3/23	0/23 -	70 - iron						
0ct23/23	Nov20/23	60 nickel		/				
		50		/				
		튭 40	/					
		30	/					
		10	1					
		Apr28/22 Jul28/22	0ct23/23	Nov20/23	Dec6/23			
				No				
		Non-ferrous Metal	s					
		copper						
		8- ensemble tin		/				
		6		/				
		е е е	/					
		2-			and a local division in the local division i			
				C.	Service and Servic			
		Apr28/22 Jul28/22	0ct23/23	Nov20/23	Dec6/23			
		∝		Nc				
		<sup>19</sup>	· 		10.0	Base Number		
		18 - Abnormal						
		17-			(B/H0			
		G16 Base 15 53 14			93 BE 6.0			
		C 15 ts 14		   	Jaquer 4.0			
					ase N			
		13 Abnormal			<sup>66</sup> 2.0			
		11 2 2	~				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m m
		Apr28/22 Jul28/22	0ct23/23	Nov20/23	Dec6/23	Apr28/22 Jul28/22	0ct23/23	Nov20/23 Dec6/23
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Certificate L2367	Laboratory Sample No. Lab Number Unique Number Test Package	: WearCheck USA - 501 Madison Ave., Cary, NC : GFL0104359 <b>Received</b> : 13 Dec 202 : 06033128 <b>Diagnosed</b> : 14 Dec 202 : 10782919 <b>Diagnostician</b> : Wes Davis : FLEET			Dec 2023 Dec 2023 s Davis	23 39000 Van Born R 23 Wayne, M US 4818 Contact: Belal Dgheis		
* - Denotes tes	t methods that a	contact Customer Servi are outside of the ISO 1 cifications are based on tl	7025 sco	pe of accrea	litation.	JCGM 106:2012)		sh@gflenv.com (734)714-2340 F: