

# **OIL ANALYSIS REPORT**

Sample Rating Trend





913071 Component **Diesel Engine** 

Machine Id

Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION method

## 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

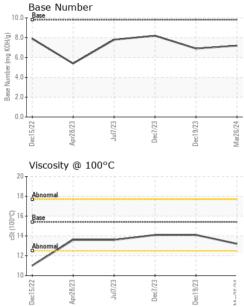
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

O				0510110000		
Sample Number		Client Info		GFL0116860	GFL0107087	GFL0107019
Sample Date		Client Info		26 Mar 2024	19 Dec 2023	07 Dec 2023
Machine Age	hrs	Client Info		3782	3603	3521
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ON	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	ppm	ASTM D5185m	>120	10	21	7
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>5	<1	6	4
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm		>20	3	<1	2
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm		>330	<1	4	2
Tin	ppm	ASTM D5185m	>15	2	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
	11					
ADDITIVES		method	limit/base		history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	history1 2	history2 <1
	ppm ppm	ASTM D5185m				
Boron Barium	ppm	ASTM D5185m	0	0	2	<1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0	2 <1	<1 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 58 <1	2 <1 61 1	<1 0 55
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 0 58 <1 938	2 <1 61 1 918	<1 0 55 0 1012
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	0 0 58 <1 938 1080	2 <1 61 1 918 1091	<1 0 55 0 1012 1205
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	0 0 58 <1 938 1080 998	2 <1 61 1 918 1091 1015	<1 0 55 0 1012 1205 1100
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	0 0 58 <1 938 1080	2 <1 61 1 918 1091	<1 0 55 0 1012 1205
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	0 0 58 <1 938 1080 998 1246	2 <1 61 1 918 1091 1015 1238	<1 0 55 0 1012 1205 1100 1247
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	0 0 58 <1 938 1080 998 1246 3546	2 <1 61 1 918 1091 1015 1238 2583	<1 0 55 0 1012 1205 1100 1247 3134
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	0 0 60 1010 1070 1150 1270 2060	0 0 58 <1 938 1080 998 1246 3546 <u>current</u> 2	2 <1 61 1 918 1091 1015 1238 2583 history1 4	<1 0 55 0 1012 1205 1100 1247 3134 history2 6
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 1010 1070 1150 1270 2060	0 0 58 <1 938 1080 998 1246 3546 Current	2 <1 61 1 918 1091 1015 1238 2583 history1	<1 0 55 0 1012 1205 1100 1247 3134 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 kimit/base >25	0 0 58 <1 938 1080 998 1246 3546 current 2 5 1	2 <1 61 1 918 1091 1015 1238 2583 history1 4 6	<1 0 55 0 1012 1205 1100 1247 3134 history2 6 <
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	0 0 58 <1 938 1080 998 1246 3546 <u>current</u> 2 5 1 1 <u>current</u>	2 <1 61 1 918 1091 1015 1238 2583 history1 4 6 2 2 history1	<1 0 55 0 1012 1205 1100 1247 3134 <b>history2</b> 6 <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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 0 58 <1 938 1080 998 1246 3546 <u>current</u> 2 5 1 1 <u>current</u> 0.4	2 <1 61 1 918 1091 1015 1238 2583 history1 4 6 2 2 history1 1.3	<1 0 55 0 1012 1205 1100 1247 3134 <b>history2</b> 6 <1 <1 <1 <b>history2</b> 0.4
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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 225 220 220 1imit/base >22 20	0 0 58 <1 938 1080 998 1246 3546 <i>current</i> 2 5 1 2 5 1 <i>current</i> 0.4 9.7	2 <1 61 1 918 1091 1015 1238 2583 history1 4 6 2 2 history1 1.3 9.7	<1 0 55 0 1012 1205 1100 1247 3134 <b>history2</b> 6 <1 <1 <1 <b>history2</b>
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 20 20 20 20 20 20 20 20 20 20 20	0 0 58 <1 938 1080 998 1246 3546 <u>current</u> 2 5 1 1 <u>current</u> 0.4 9.7 19.4	2 <1 61 1 918 1091 1015 1238 2583 history1 4 6 2 2 history1 1.3 9.7 21.5	<1 0 55 0 1012 1205 1100 1247 3134 <b>history2</b> 6 <1 <1 <1 <b>history2</b> 0.4 6.6 18.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	0 0 58 <1 938 1080 998 1246 3546 Current 2 5 1 2 5 1 0.4 9.7 19.4 Current	2 <1 61 1 918 1091 1015 1238 2583 history1 4 6 2 kistory1 1.3 9.7 21.5 history1	<1 0 55 0 1012 1205 1100 1247 3134 history2 6 <1 <1 <hr/> history2 0.4 6.6 18.6 history2
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 20 20 20 20 20 20 20 20 20 20 20	0 0 58 <1 938 1080 998 1246 3546 <u>current</u> 2 5 1 1 <u>current</u> 0.4 9.7 19.4	2 <1 61 1 918 1091 1015 1238 2583 history1 4 6 2 2 history1 1.3 9.7 21.5	<1 0 55 0 1012 1205 1100 1247 3134 history2 6 <1 <1 <1 history2 0.4 6.6 18.6



# **OIL ANALYSIS REPORT**

VISUAL



Laboratory Sample No. Lab Number Unique Number Test Package		: GFL0116860	Recei	1 Madison Ave., Cary, NC 27513 <b>Received</b> : 27 Mar 2024 <b>Tested</b> : 03 Apr 2024 <b>Diagnosed</b> : 03 Apr 2024 - Wes Davis <i>ce at 1-800-237-1369.</i>			GFL Environmental - 465 - Pontiad 888 Baldwir Pontiac, M US 48340 Contact: Ricky Matthews rickymathews@gflenv.com		
		Decl 5/28/23	Jul1/23 Dec7/23	Dec19/23 +	0.0 Base	Deci 5/22 Apr28/23	Jul7/23	Dec19/23	
		015- 314 13- Abnormal			(B)(HO) Base Number (mg) 4.0-	Y			
		16 Race			(B/HOX B2 6.0-	$\backslash$			
		18 - Abnormal 17 -							
		Viscosity @ 100°	C		10.0	Base Number			
		A D	_	Dec19/23	Mar26/24				
		8/23	Jul7/23	9/23	6/24				
		20							
		60 40							
		E 80							
		120 100							
		Non-ferrous Meta	als	 1					
		A D	. Jul7/23 Dec7/23	Dec19/23	Mar26/24				
			23	53	and a				
		30-20-		$\wedge$					
		E 40							
Dec7/23	Dec19/23	70 nickel							
/23	)/23 <b>-</b>	90 80							
		GRAPHS Ferrous Alloys							
		Visc @ 100°C	cSt	ASTM D445	15.4	13.2	14.1	14.1	
		FLUID PROPE	ERTIES	method	limit/base	current	history1	history2	
		Free Water	scalar scalar	*Visual *Visual	>0.2	NEG	NEG NEG	NEG NEG	
D	Dec	Odor Emulsified Water	scalar	*Visual	NORML	NORML NEG	NORML	NORML	
Dec7/23 -	Dec19/23 - Mar26/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
		Sand/Dirt	scalar scalar	*Visual *Visual	NONE	NONE	NONE NONE	NONE NONE	
	Silt Debris	scalar	*Visual	NONE	NONE	NONE	NONE		
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE		
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE		

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Submitted By: Ricky Matthews

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