

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 910079

Fluid

Component Diesel Engine

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

DIAGNOSIS	

**Recommendation** Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

#### Contamination

There is no indication of any contamination in the oil.

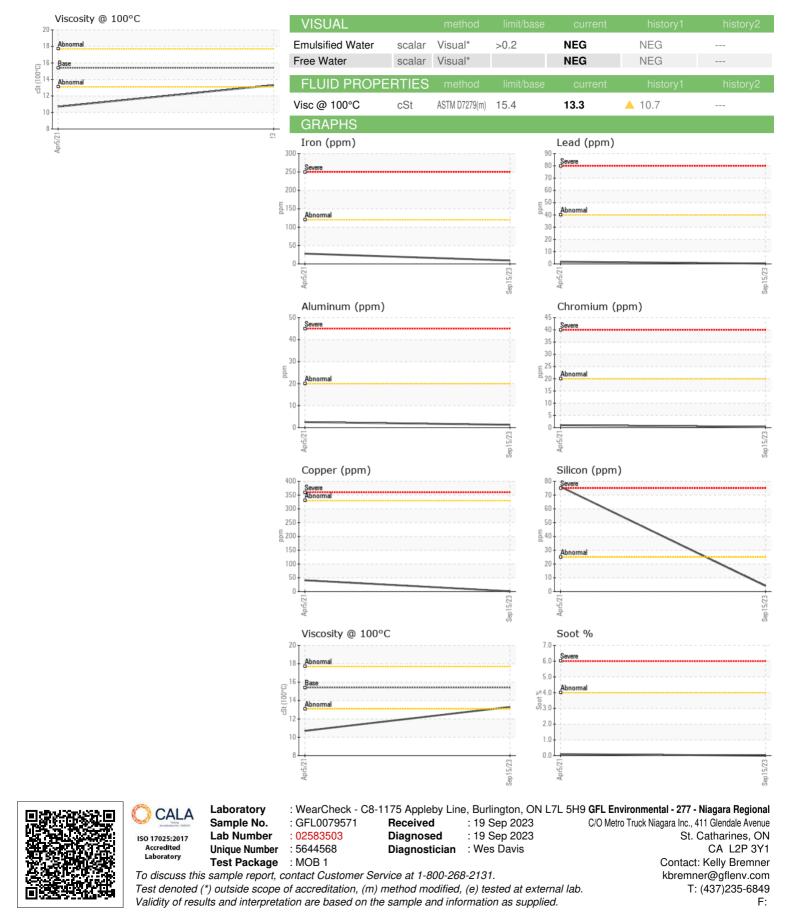
#### Fluid Condition

The condition of the oil is acceptable for the time in service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0079571	GFL0021459	
Sample Date		Client Info		15 Sep 2023	05 Apr 2021	
Machine Age	kms	Client Info		37812	7555	
Oil Age	kms	Client Info		0	0	
Oil Changed		Client Info		Changed	N/A	
Sample Status				NORMAL	ABNORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	0.3	
Glycol		WC Method		NEG	0.0	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>120	9	28	
Chromium	ppm	ASTM D5185(m)	>20	<1	1	
Nickel	ppm	ASTM D5185(m)	>5	1	10	
Titanium	ppm	ASTM D5185(m)	>2	<1	<1	
Silver	ppm	ASTM D5185(m)	>2	<1	1	
Aluminum	ppm	ASTM D5185(m)	>20	1	2	
Lead	ppm	ASTM D5185(m)	>40	<1	2	
Copper	ppm	ASTM D5185(m)	>330	1	41	
Tin	ppm	ASTM D5185(m)	>15	<1	3	
Antimony	ppm	ASTM D5185(m)		0	0	
Vanadium	ppm	ASTM D5185(m)		0	0	
Beryllium	ppm	ASTM D5185(m)		0	0	
Cadmium	ppm	ASTM D5185(m)		0	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185(m)	limit/base 0	current 88	history1 39	history2
	ppm ppm					
Boron		ASTM D5185(m)	0	88	39	
Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	0	88 0	39 <1	
Boron Barium Molybdenum	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60	88 0 62	39 <1 39	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0	88 0 62 <1	39 <1 39 4	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010	88 0 62 <1 1022	39 <1 39 4 483	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070	88 0 62 <1 1022 1021	39 <1 39 4 483 1584	   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150	88 0 62 <1 1022 1021 1050	39 <1 39 4 483 1584 893	   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270 2060	88 0 62 <1 1022 1021 1050 1161	39 <1 39 4 483 1584 893 1122	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270 2060	88 0 62 <1 1022 1021 1050 1161 2776 <1	39 <1 39 4 483 1584 893 1122 2494	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060	88 0 62 <1 1022 1021 1050 1161 2776 <1	39 <1 39 4 483 1584 893 1122 2494 <1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060 Iimit/base	88 0 62 <1 1022 1021 1050 1161 2776 <1 current	39 <1 39 4 483 1584 893 1122 2494 <1 kistory1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060 Iimit/base	88 0 62 <1 1022 1021 1050 1161 2776 <1 <i>current</i>	39 <1 39 4 483 1584 893 1122 2494 <1 ×1 history1 76	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m) ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060 limit/base >25	88 0 62 <1 1022 1021 1050 1161 2776 <1 current 4 2 2 <1	39 <1 39 4 483 1584 893 1122 2494 <1 <b>history1</b> 76 3	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060 <b>limit/base</b> >25	88 0 62 <1 1022 1021 1050 1161 2776 <1 current 4 2 2 <1	39 <1 39 4 483 1584 893 1122 2494 <1 <b>history1</b> 76 3 8	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 ilimit/base >25 >20	88 0 62 <1 1022 1021 1050 1161 2776 <1 current 4 2 <1 current	39 <1 39 4 483 1584 893 1122 2494 <1 <b>history1</b> 76 3 8 8	      history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base	88 0 62 <1 1022 1021 1050 1161 2776 <1 current 4 2 <1 current 0	39 <1 39 4 483 1584 893 1122 2494 <1 <b>history1</b> 76 3 8 <b>history1</b> 0.1	      history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >20	88 0 62 <1 1022 1021 1050 1161 2776 <1 <u>current</u> 4 2 <1 <u>current</u> 0 6.6 19.2	39 <1 39 4 483 1584 893 1122 2494 <1 history1 76 3 8 8 history1 0.1 7.0	       history2  history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm	ASTM D5185(m) ASTM D7844* ASTM D7624* ASTM D7624* ASTM D7415*	0 0 0 1010 1070 1150 1270 2060 <b>iimit/base</b> >25 <b>iimit/base</b> >4 >20	88 0 62 <1 1022 1021 1050 1161 2776 <1 <u>current</u> 4 2 <1 <u>current</u> 0 6.6 19.2	39 <1 39 4 483 1584 893 1122 2494 <1 <b>history1</b> 76 3 8 <b>history1</b> 0.1 7.0 24.1	       history2  history2  history2



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