

## **OIL ANALYSIS REPORT**

#### Machine Id 525144- SW7530 FREIGHTLINER CASCADIA 125 Component

Diesel Engine

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

#### DIAGNOSIS

#### Recommendation

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is a moderate amount of fuel present in the oil.

### Fluid Condition

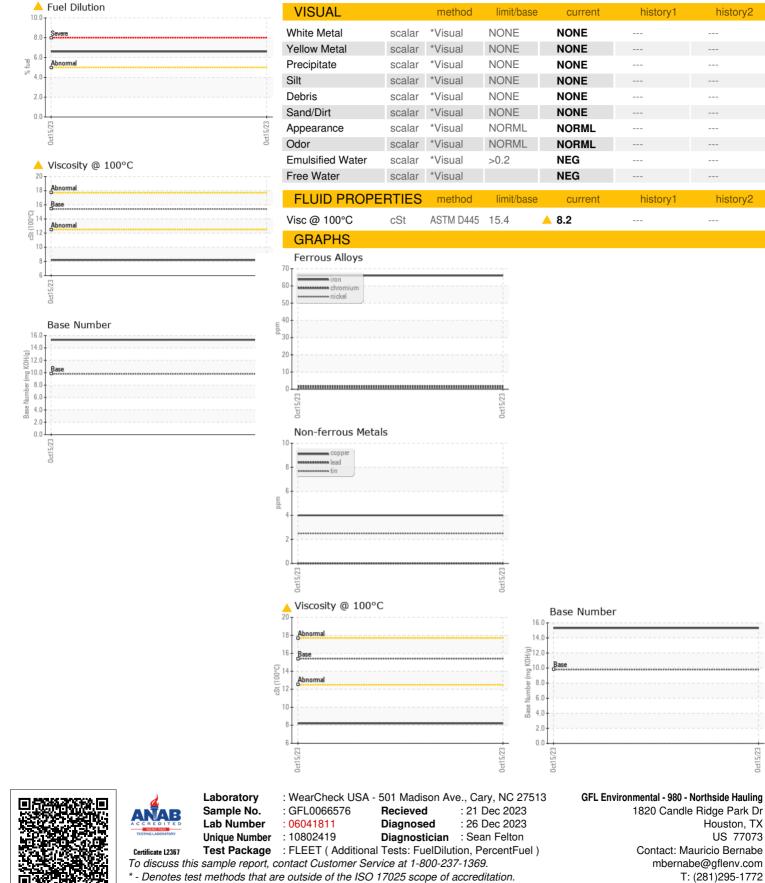
Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.



SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0066576		
Sample Date		Client Info		15 Oct 2023		
Machine Age	mls	Client Info		0		
Oil Age	mls	Client Info		0		
Oil Changed		Client Info		Changed		
Sample Status				ABNORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	66		
Chromium	ppm	ASTM D5185m	>5	2		
Nickel	ppm	ASTM D5185m	>2	<1		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>30	6		
Lead	ppm	ASTM D5185m	>30	0		
Copper	ppm	ASTM D5185m	>150	4		
Tin	ppm	ASTM D5185m	>5	2		
Vanadium	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		<1		
			11 11 11 11			
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	current 22	history1	history2
	ppm ppm					
Boron		ASTM D5185m	0	22		
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	0 0 60	22 <1 57 <1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	22 <1 57 <1 924		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	22 <1 57 <1 924 1086		
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	22 <1 57 <1 924 1086 1040		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	22 <1 57 <1 924 1086 1040 1311	   	
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	0 0 60 1010 1070 1150 1270 2060	22 <1 57 <1 924 1086 1040		
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	22 <1 57 <1 924 1086 1040 1311	   	
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 <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	22 <1 57 <1 924 1086 1040 1311 3625 current 9		
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 1010 1070 1150 1270 2060 limit/base >20	22 <1 57 <1 924 1086 1040 1311 3625 current		     history2
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	0 0 0 1010 1070 1150 1270 2060 limit/base >20	22 <1 57 <1 924 1086 1040 1311 3625 <u>current</u> 9 5 16	     history1	    history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >20	22 <1 57 <1 924 1086 1040 1311 3625 <u>current</u> 9 5	     history1	      history2
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	0 0 0 1010 1070 1150 1270 2060 limit/base >20	22 <1 57 <1 924 1086 1040 1311 3625 <u>current</u> 9 5 16	     history1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >20 >20 >20	22 <1 57 <1 924 1086 1040 1311 3625 current 9 5 16 ▲ 6.6	     history1  	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20 >20 >5	22 <1 57 <1 924 1086 1040 1311 3625 current 9 5 16 € 6.6 current	     history1    history1	     history2    history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm %	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20 >20 >5 limit/base >3	22 <1 57 <1 924 1086 1040 1311 3625 current 9 5 16 ▲ 6.6 current 1.3	     history1    history1	     history2   history2   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm %	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 2060 200 220 220 25 20 1imit/base 23 23 220	22 <1 57 <1 924 1086 1040 1311 3625 current 9 5 16 ▲ 6.6 current 1.3 19.1	      history1    history1  	     history2    history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm %	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>I</b> imit/base >20 >20 >20 >5 <b>I</b> imit/base >3 >20 >3 >20	22 <1 57 <1 924 1086 1040 1311 3625 current 9 5 16 ▲ 6.6 current 1.3 19.1 16.4	        history1    history1	     history2    history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel 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 imit/base >20 >20 >5 imit/base >3 >20 >30 imit/base	22 <1 57 <1 924 1086 1040 1311 3625 current 9 5 16 ▲ 6.6 current 1.3 19.1 16.4 current	       history1   history1   history1  history1 	      history2    history2  history2    history2



# **OIL ANALYSIS REPORT**



<sup>\* -</sup> 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)

Submitted By: Mauricio Bernabe

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Houston, TX

US 77073

F:

history2

history2