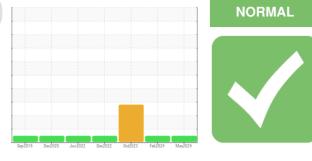


# **OIL ANALYSIS REPORT**

Sample Rating Trend



921042-205212 Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (12 GAL)

SAMPLE INFORMATION method

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Area

(77J8TV)

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

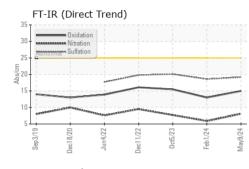
### Fluid Condition

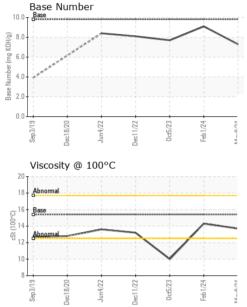
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		GFL0118241	GFL0109206	GFL0090149
Sample Date		Client Info		09 May 2024	01 Feb 2024	05 Oct 2023
Machine Age	hrs	Client Info		24048	23746	23232
Oil Age	hrs	Client Info		700	700	600
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	SEVERE
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	0.8	<b>1</b> 1.9
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	12	15	27
Chromium	ppm	ASTM D5185m	>20	1	1	<1
Nickel	ppm	ASTM D5185m	>5	2	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	1	0	0
Aluminum	ppm	ASTM D5185m	>20	2	3	8
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	2	<1	3
Tin	ppm	ASTM D5185m	>15	1	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	<1	0
			11 1. 0			
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	current	history1 <1	history2 5
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1	<1	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	<1 <1	<1 0	5 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 <1 59	<1 0 66	5 0 52
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 <1 59 <1	<1 0 66 <1	5 0 52 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 <1 59 <1 949	<1 0 66 <1 1012	5 0 52 <1 786
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	<1 <1 59 <1 949 1077	<1 0 66 <1 1012 1099	5 0 52 <1 786 854
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	<1 <1 59 <1 949 1077 979	<1 0 66 <1 1012 1099 1027	5 0 52 <1 786 854 859
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	<1 <1 59 <1 949 1077 979 1229	<1 0 66 <1 1012 1099 1027 1306	5 0 52 <1 786 854 859 1064
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	0 0 60 1010 1070 1150 1270 2060	<1 <1 59 <1 949 1077 979 1229 2974	<1 0 66 <1 1012 1099 1027 1306 3052	5 0 52 <1 786 854 859 1064 2923
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	0 0 60 1010 1070 1150 1270 2060	<1 <1 59 <1 949 1077 979 1229 2974 current	<1 0 66 <1 1012 1099 1027 1306 3052 history1	5 0 52 <1 786 854 859 1064 2923 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 ASTM D5185m <b>method</b>	0 0 60 1010 1070 1150 1270 2060	<1 <1 59 <1 949 1077 979 1229 2974 current 4	<1 0 66 <1 1012 1099 1027 1306 3052 history1 6	5 0 52 <1 786 854 859 1064 2923 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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	<1 <1 59 <1 949 1077 979 1229 2974 <b>current</b> 4 3	<1 0 66 <1 1012 1099 1027 1306 3052 history1 6 30	5 0 52 <1 786 854 859 1064 2923 history2 9 41
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 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	<1 <1 59 <1 949 1077 979 1229 2974 current 4 3 3	<1 0 66 <1 1012 1099 1027 1306 3052 history1 6 30 4	5 0 52 <1 786 854 859 1064 2923 history2 9 41 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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 225 >25 >20 Limit/base >20	<1 <1 59 <1 949 1077 979 1229 2974 <i>current</i> 4 3 3 3	<1 0 66 <1 1012 1099 1027 1306 3052 history1 6 30 4 history1	5 0 52 <1 786 854 859 1064 2923 history2 9 41 7 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 TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	<1 <1 59 <1 949 1077 979 1229 2974 <i>current</i> 4 3 3 <i>current</i> 0.6	<1 0 66 <1 1012 1099 1027 1306 3052 history1 6 30 4 history1 0.7	5 0 52 <1 786 854 859 1064 2923 history2 9 41 7 history2 0.9
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 >25 >20 imit/base >20	<1 <1 59 <1 949 1077 979 1229 2974 <i>current</i> 4 3 3 3 <i>current</i> 0.6 8.1 19.2	<1 0 66 <1 1012 1099 1027 1306 3052 history1 6 30 4 history1 0.7 5.9	5 0 52 <1 786 854 859 1064 2923 history2 9 41 7 history2 0.9 0.9 7.7
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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	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	<1 <1 59 <1 949 1077 979 1229 2974 <i>current</i> 4 3 3 <i>current</i> 0.6 8.1 19.2 <i>current</i>	<1 0 66 <1 1012 1099 1027 1306 3052 history1 6 30 4 history1 0.7 5.9 18.6 history1	5 0 52 <1 786 854 859 1064 2923 history2 9 41 7 7 history2 0.9 7.7 20.1
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	<1 <1 59 <1 949 1077 979 1229 2974 <i>current</i> 4 3 3 3 <i>current</i> 0.6 8.1 19.2	<1 0 66 <1 1012 1099 1027 1306 3052 history1 6 30 4 history1 0.7 5.9 18.6	5 0 52 <1 786 854 859 1064 2923 history2 9 41 7 history2 0.9 7.7 20.1 history2

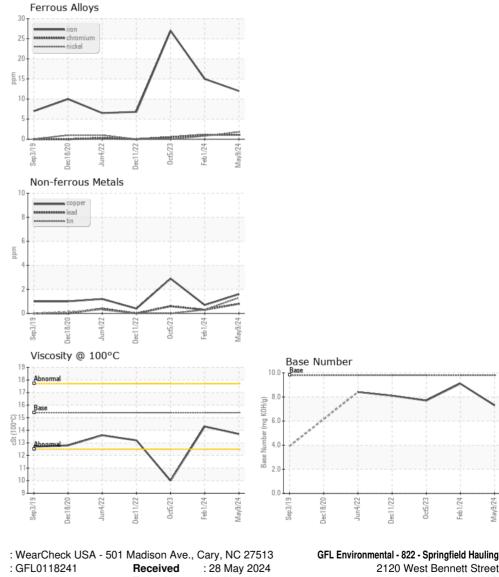


## **OIL ANALYSIS REPORT**





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
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	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	15.4	13.7	14.3	▲ 10.0
GRAPHS						



Laboratory GFL Environmental - 822 - Springfield Hauling Sample No. 2120 West Bennett Street Lab Number : 06191834 Tested : 29 May 2024 Springfield, MO Unique Number : 11048586 Diagnosed : 29 May 2024 - Wes Davis US 65807 Test Package : FLEET Contact: Dennis Moore Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. dennis.moore@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (417)403-3641 F:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)