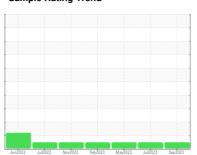


# **OIL ANALYSIS REPORT**

## Sample Rating Trend









712033 Component Diesel Engine

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

# 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

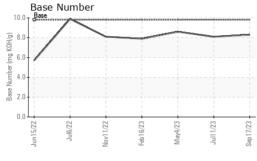
## **Fluid Condition**

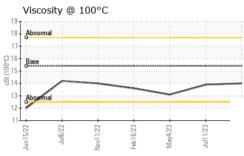
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

`		Jun2022	300022 14042022	Feb 2023 May 2023 Jul 2023	Sep2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0082786	GFL0082754	GFL0081242
Sample Date		Client Info		17 Sep 2023	11 Jul 2023	04 May 2023
Machine Age	hrs	Client Info		5360	4808	4183
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	12	13	3
Chromium	ppm	ASTM D5185m	>5	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>30	2	<1	3
Lead	ppm	ASTM D5185m	>30	0	0	0
Copper	ppm	ASTM D5185m	>150	<1	<1	0
Tin	ppm	ASTM D5185m	>5	<1	0	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				history2
	ppm		0	current	history1	
Boron	• • • • • • • • • • • • • • • • • • • •	ASTM D5185m	0	current 3	history1	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	current 3 0	history1 <1 0	5
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 3 0 60	history1 <1 0 60	5 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 3 0 60 <1	history1 <1 0 60 <1	5 0 63 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 3 0 60 <1 971	history1 <1 0 60 <1 922	5 0 63 <1 1002
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current 3 0 60 <1 971 1124	history1 <1 0 60 <1 922 1225	5 0 63 <1 1002 1097
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 ASTM D5185m	0 0 60 0 1010 1070 1150	current  3  0 60 <1 971 1124 1053	history1 <1 0 60 <1 922 1225 1033	5 0 63 <1 1002 1097 1107
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current  3  0 60 <1 971 1124 1053 1295	history1  <1 0 60 <1 922 1225 1033 1250	5 0 63 <1 1002 1097 1107 1418
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current  3  0 60 <1 971 1124 1053 1295 3693	history1  <1 0 60 <1 922 1225 1033 1250 3517	5 0 63 <1 1002 1097 1107 1418 4420
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current  3 0 60 <1 971 1124 1053 1295 3693 current	history1  <1 0 60 <1 922 1225 1033 1250 3517 history1	5 0 63 <1 1002 1097 1107 1418 4420 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current  3 0 60 <1 971 1124 1053 1295 3693 current	history1  <1 0 60 <1 922 1225 1033 1250 3517 history1 2	5 0 63 <1 1002 1097 1107 1418 4420 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current  3 0 60 <1 971 1124 1053 1295 3693 current 3 6	history1  <1 0 60 <1 922 1225 1033 1250 3517 history1 2 7	5 0 63 <1 1002 1097 1107 1418 4420 history2 3 13
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >20	current  3 0 60 <1 971 1124 1053 1295 3693  current 3 6 4	history1  <1 0 60 <1 922 1225 1033 1250 3517 history1 2 7 0	5 0 63 <1 1002 1097 1107 1418 4420 history2 3 13
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	0 0 0 0 1010 1070 1150 1270 2060 limit/base >20 	current  3 0 60 <1 971 1124 1053 1295 3693 current 3 6 4 current	history1  <1 0 60 <1 922 1225 1033 1250 3517 history1 2 7 0 history1	5 0 63 <1 1002 1097 1107 1418 4420 history2 3 13 1
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  Method  *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 0 1010 1150 1270 2060 limit/base >20 	current  3 0 60 <1 971 1124 1053 1295 3693 current 3 6 4 current 0.5	history1  <1 0 60 <1 922 1225 1033 1250 3517 history1 2 7 0 history1 0.4	5 0 63 <1 1002 1097 1107 1418 4420 history2 3 13 1 history2 0.1
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  method  *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  *ASTM D7844  *ASTM D7624  *ASTM D76145	0 0 0 0 1010 1150 1270 2060 limit/base >20 	current  3 0 60 <1 971 1124 1053 1295 3693 current 3 6 4 current 0.5 7.8	history1  <1 0 60 <1 922 1225 1033 1250 3517 history1 2 7 0 history1 0.4 8.7	5 0 63 <1 1002 1097 1107 1418 4420 history2 3 13 1 history2 0.1 5.7
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 ppm ppm	ASTM D5185m  method  *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  *ASTM D7844  *ASTM D7624  *ASTM D76145	0 0 0 0 1010 1070 1150 1270 2060 limit/base >20 >20 limit/base >3 >20 >3	current  3 0 60 <1 971 1124 1053 1295 3693  current 3 6 4  current 0.5 7.8 19.1	history1  <1 0 60 <1 922 1225 1033 1250 3517 history1 2 7 0 history1 0.4 8.7 19.3	5 0 63 <1 1002 1097 1107 1418 4420 history2 3 13 1 history2 0.1 5.7 18.5



## **OIL ANALYSIS REPORT**

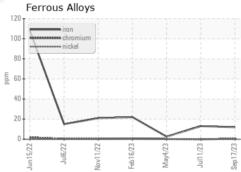


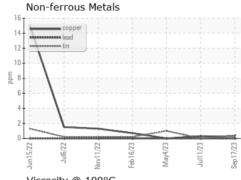


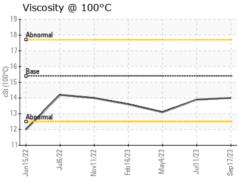
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

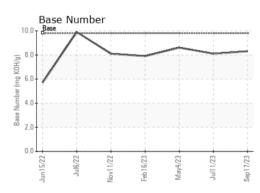
FLUID PROPERTIES		method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.9	13.1

## **GRAPHS**













Certificate L2367

Laboratory Sample No.

Lab Number Unique Number : 10658177 Test Package : FLEET

: GFL0082786 : 05956964

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 20 Sep 2023 Diagnosed : 21 Sep 2023

Diagnostician : Wes Davis

GFL Environmental - 465 - Pontiac 888 Baldwin Pontiac, MI US 48340

Contact: Ricky Matthews rickymathews@gflenv.com T: (586)825-9514

To discuss this sample report, contact Customer Service at 1-800-237-1369.

\* - 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)

Report Id: GFL465 [WUSCAR] 05956964 (Generated: 09/21/2023 17:52:08) Rev: 1

Submitted By: Ricky Matthews