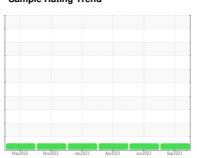


# **OIL ANALYSIS REPORT**

## Sample Rating Trend









Machine Id
4672M
Component
Diesel Engine
Fluid

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

# 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

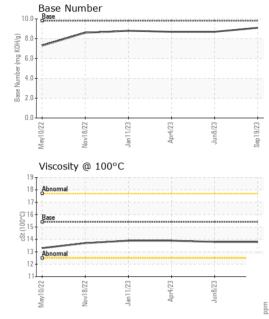
## **Fluid Condition**

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

		May2022	NovŽ022 JanŽ023	Apr2023 Jun2023	Sep2023	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0027545	GFL0071220	GFL0071165
Sample Date		Client Info		19 Sep 2023	08 Jun 2023	04 Apr 2023
Machine Age	hrs	Client Info		12704	12030	11441
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Not Changd	Changed	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	4	17	12
Chromium	ppm	ASTM D5185m	>5	0	<1	0
Nickel	ppm	ASTM D5185m	>2	0	1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>30	1	<1	<1
Lead	ppm	ASTM D5185m	>30	0	0	0
Copper	ppm	ASTM D5185m	>150	0	2	0
Tin	ppm	ASTM D5185m	>5	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
				•	-	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base			history2
			0	current	history1	
Boron	ppm	ASTM D5185m	0	current <b>0</b>	history1	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	current 0 0	history1 3 0	2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 0 0 54	history1 3 0 59	2 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 0 0 54 0	history1 3 0 59 <1	2 0 59 <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	current 0 0 54 0 908	history1  3  0 59 <1 951	2 0 59 <1 987
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	current 0 0 54 0 908 1019	history1  3  0 59 <1 951 1082	2 0 59 <1 987 1116
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 0 0 54 0 908 1019 982	history1  3  0 59 <1 951 1082 971	2 0 59 <1 987 1116 1008
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 0 0 54 0 908 1019 982 1220	history1  3  0 59 <1 951 1082 971 1211	2 0 59 <1 987 1116 1008
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 0 0 54 0 908 1019 982 1220 3668	history1  3  0 59 <1 951 1082 971 1211 3304	2 0 59 <1 987 1116 1008 1302 3313
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  0 0 54 0 908 1019 982 1220 3668 current	history1  3  0 59 <1 951 1082 971 1211 3304 history1	2 0 59 <1 987 1116 1008 1302 3313 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 0 0 54 0 908 1019 982 1220 3668 current	history1  3 0 59 <1 951 1082 971 1211 3304 history1 3	2 0 59 <1 987 1116 1008 1302 3313 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 0 0 54 0 908 1019 982 1220 3668 current 3 5	history1  3  0 59 <1 951 1082 971 1211 3304 history1 3	2 0 59 <1 987 1116 1008 1302 3313 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >20	current 0 0 0 54 0 908 1019 982 1220 3668 current 3 5	history1  3  0 59 <1 951 1082 971 1211 3304 history1  3 9	2 0 59 <1 987 1116 1008 1302 3313 history2 3 4
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 60 0 1010 1070 1150 1270 2060 limit/base >20	current  0  0  54  0  908  1019  982  1220  3668  current  3  5  6	history1  3 0 59 <1 951 1082 971 1211 3304 history1 3 9 1	2 0 59 <1 987 1116 1008 1302 3313 history2 3 4 0
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 60 0 1010 1070 1150 1270 2060 limit/base >20 >20	current 0 0 54 0 908 1019 982 1220 3668 current 3 5 6 current	history1  3  0 59 <1 951 1082 971 1211 3304 history1  3  9 1 history1 0.2	2 0 59 <1 987 1116 1008 1302 3313 history2 3 4 0 history2
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >20 >20 	current  0 0 0 54 0 908 1019 982 1220 3668 current 3 5 6 current 0.2 6.1	history1  3  0 59 <1 951 1082 971 1211 3304 history1 3 9 1 history1 0.2 6.7	2 0 59 <1 987 1116 1008 1302 3313 history2 3 4 0 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  Method  *ASTM D5185m ASTM D7844  *ASTM D7624  *ASTM D7415	0 0 60 0 1010 1070 1150 1270 2060 limit/base >20 >20 limit/base >3 >20 >30	current  0 0 54 0 908 1019 982 1220 3668 current 3 5 6 current 0.2 6.1 17.8	history1  3  0 59 <1 951 1082 971 1211 3304 history1 3 9 1 history1 0.2 6.7 19.5	2 0 59 <1 987 1116 1008 1302 3313 history2 3 4 0 history2 0.2 6.7 18.6



## **OIL ANALYSIS REPORT**



VISUAL		method				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 PROPE	RTIFS	method	limit/base	current	history1	history2
Odor Emulsified Water	scalar scalar scalar	*Visual *Visual	NORML	NORML NEG	NORML NEG	NORML NEG

I LOID I NOI	LITTILO					
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.8	13.9

ron (ppm)					80 T	(ppm)				
Severe					60 Severe					
Abnormal					Abnorm	al				
Nov18/22	Jan11/23 +	Apr4/23 -	Jun8/23 +	Sep19/23	May10/22	Nov18/22	Jan11/23	Apr4/23	Jun8/23	_
Juminum (				0,	Chror	nium (p				
evere					12 Severe					
Abnormal				-	8 Abnorm	al				
					2					
Nov18/22	Jan11/23 -	Apr4/23 -	Jun8/23	Sep19/23	May10/22	Nov18/22 +	Jan11/23 -	Apr4/23 -	Jun8/23	
opper (pp					Silico	n (ppm)	)			
evere					40 Severe					
Abnormal					E 20 Abnorm					

Base Number

10.0 (mg KOH/g)

Base Number 4.0 2.0 0.0





Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : MOB1+

: GFL0027545 : 05958355 : 10659568

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 22 Sep 2023 Diagnosed Diagnostician : Wes Davis

Jun8/23

Apr4/23 -

: 22 Sep 2023

Sep19/23

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)

Jan11/23

Viscosity @ 100°C