



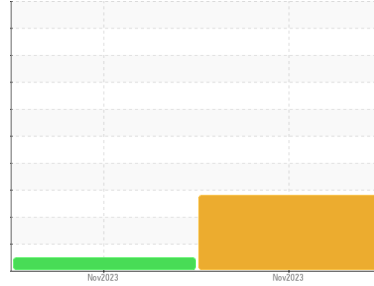
# OIL ANALYSIS REPORT

Sample Rating Trend

**DIRT**



Area  
**(BD49682)**  
Machine Id  
**913185**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (10 GAL)**



## DIAGNOSIS

### Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Resample at the next service interval to monitor. NOTE: one of two samples received with same ID and sampling date.

### Wear

Valve wear is indicated. All other component wear rates are normal.

### Contamination

Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of dirt/seal material.

### Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>GFL0041814</b>	GFL0104538	---
Sample Date	Client Info	<b>01 Nov 2023</b>	01 Nov 2023	---
Machine Age	mls	Client Info	<b>0</b>	0
Oil Age	mls	Client Info	<b>600</b>	600
Oil Changed	Client Info	<b>Changed</b>	Changed	---
Sample Status		<b>ABNORMAL</b>	NORMAL	---

## CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method	>0.2	<b>NEG</b>	NEG
Glycol	WC Method		<b>NEG</b>	NEG

## WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>120	<b>48</b>	10
Chromium	ppm	ASTM D5185m	>20	<b>1</b>	<1
Nickel	ppm	ASTM D5185m	>5	<b>▲ 10</b>	2
Titanium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0
Silver	ppm	ASTM D5185m	>2	<b>&lt;1</b>	1
Aluminum	ppm	ASTM D5185m	>20	<b>4</b>	1
Lead	ppm	ASTM D5185m	>40	<b>&lt;1</b>	<1
Copper	ppm	ASTM D5185m	>330	<b>210</b>	37
Tin	ppm	ASTM D5185m	>15	<b>4</b>	1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0

## ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	0	<b>128</b>	12
Barium	ppm	ASTM D5185m	0	<b>0</b>	0
Molybdenum	ppm	ASTM D5185m	60	<b>111</b>	65
Manganese	ppm	ASTM D5185m	0	<b>4</b>	<1
Magnesium	ppm	ASTM D5185m	1010	<b>734</b>	933
Calcium	ppm	ASTM D5185m	1070	<b>1376</b>	1043
Phosphorus	ppm	ASTM D5185m	1150	<b>762</b>	1072
Zinc	ppm	ASTM D5185m	1270	<b>896</b>	1218
Sulfur	ppm	ASTM D5185m	2060	<b>2177</b>	2911

## CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>25	<b>▲ 86</b>	11
Sodium	ppm	ASTM D5185m		<b>2</b>	1
Potassium	ppm	ASTM D5185m	>20	<b>5</b>	1
Fuel	%	ASTM D3524	>3.0	<b>0.4</b>	<1.0

## INFRA-RED

method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	>4	<b>0.6</b>	0.3
Nitration	Abs/cm	*ASTM D7624	>20	<b>10.7</b>	6.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>24.0</b>	19.3

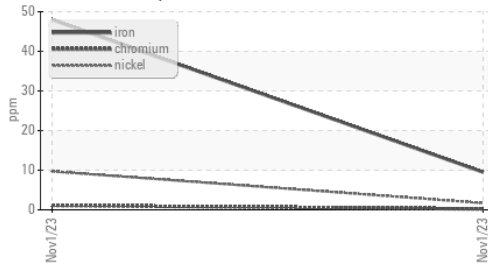
## FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>22.4</b>	15.0
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	<b>7.4</b>	8.2



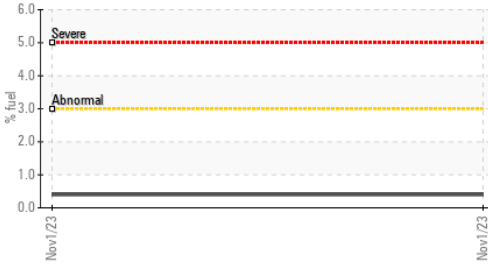
# OIL ANALYSIS REPORT

### ▲ Ferrous Alloys



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

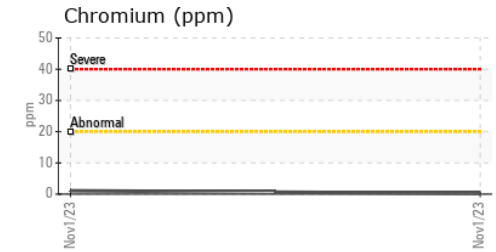
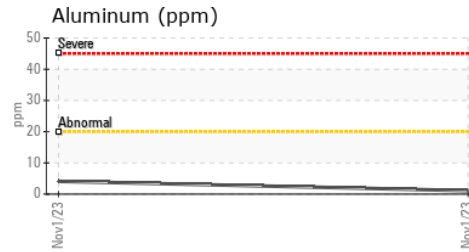
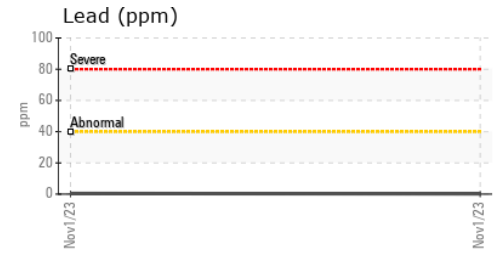
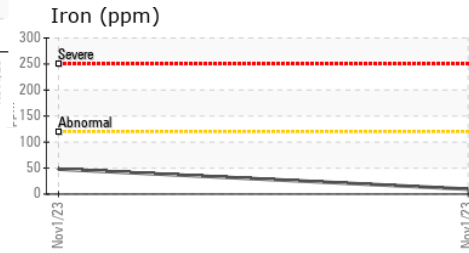
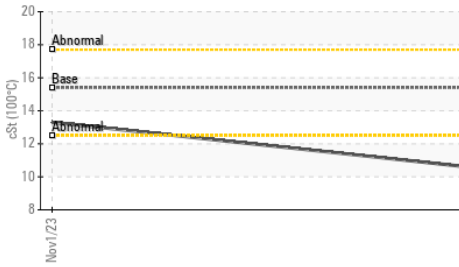
### ● Fuel Dilution



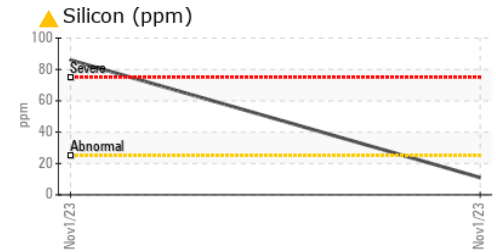
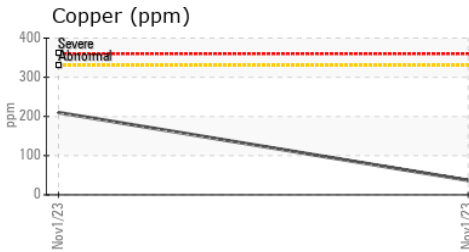
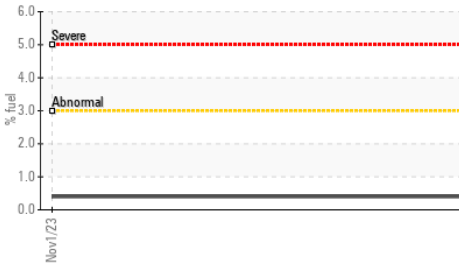
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4 ▲ 10.5	13.3	---

### GRAPHS

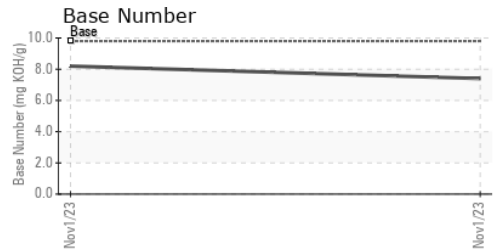
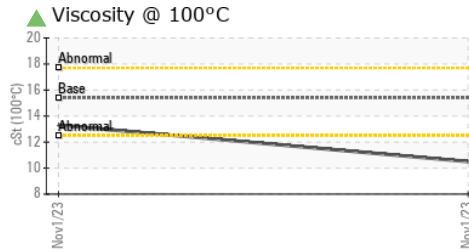
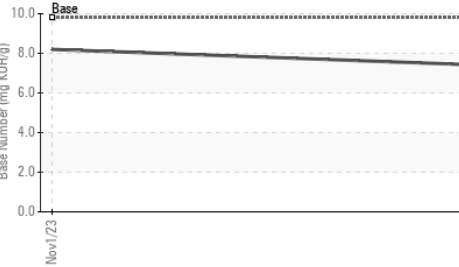
### ▲ Viscosity @ 100°C



### ● Fuel Dilution



### ● Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0041814 **Received** : 16 Jan 2024  
**Lab Number** : 06060770 **Diagnosed** : 18 Jan 2024  
**Unique Number** : 10832152 **Diagnostician** : Don Baldrige  
**Test Package** : MOB1+ ( Additional Tests: FuelDilution, PercentFuel )

**GFL Environmental - 461 - Smith Hauling**  
 3239 W. M 28  
 Brimley, MI  
 US 49715  
 Contact: Jim Smith  
 jim.smith@gflenv.com  
 T: (906)635-3380  
 F:

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)