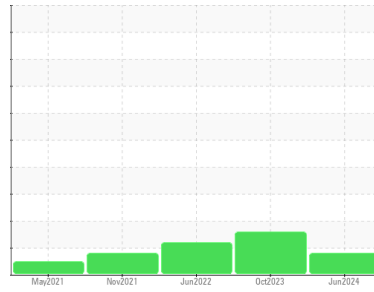




# OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id

**351071**

Component

**Diesel Engine**

Fluid

**PETRO CANADA 10W30 (--- GAL)**

## DIAGNOSIS

### Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

### Wear

Iron ppm levels are abnormal. Cylinder, crank, or cam shaft wear is indicated.

### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>GFL0100578</b>	GFL0077014	GFL0054685
Sample Date	Client Info		<b>05 Jun 2024</b>	07 Oct 2023	23 Jun 2022
Machine Age	kms	Client Info	<b>366563</b>	353072	316004
Oil Age	kms	Client Info	<b>63060</b>	0	0
Oil Changed	Client Info		<b>Changed</b>	N/A	N/A
Sample Status			<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

## CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<b>&lt;1.0</b>	1.6	▲ 6
Water	WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	WC Method		<b>NEG</b>	NEG	NEG

## WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		<b>90</b>	0	---
Iron	ppm	ASTM D5185(m) >100	▲ <b>106</b>	▲ 145	84
Chromium	ppm	ASTM D5185(m) >20	<b>2</b>	3	2
Nickel	ppm	ASTM D5185(m) >2	<b>3</b>	▲ 4	2
Titanium	ppm	ASTM D5185(m) >2	<b>0</b>	0	<1
Silver	ppm	ASTM D5185(m) >2	<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185(m) >25	<b>7</b>	9	4
Lead	ppm	ASTM D5185(m) >40	<b>6</b>	7	6
Copper	ppm	ASTM D5185(m) >330	<b>4</b>	6	3
Tin	ppm	ASTM D5185(m) >15	<b>&lt;1</b>	1	<1
Antimony	ppm	ASTM D5185(m)	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Beryllium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185(m)	<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	<b>3</b>	3	10
Barium	ppm	ASTM D5185(m)	<b>0</b>	<1	0
Molybdenum	ppm	ASTM D5185(m)	<b>72</b>	77	63
Manganese	ppm	ASTM D5185(m)	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185(m)	<b>1027</b>	1058	860
Calcium	ppm	ASTM D5185(m)	<b>1115</b>	1162	1294
Phosphorus	ppm	ASTM D5185(m)	<b>1036</b>	1091	1016
Zinc	ppm	ASTM D5185(m)	<b>1260</b>	1327	1211
Sulfur	ppm	ASTM D5185(m)	<b>2466</b>	2513	2786
Lithium	ppm	ASTM D5185(m)	<b>&lt;1</b>	<1	<1

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >25	<b>7</b>	11	7
Sodium	ppm	ASTM D5185(m)	<b>2</b>	4	2
Potassium	ppm	ASTM D5185(m) >20	<b>&lt;1</b>	<1	1

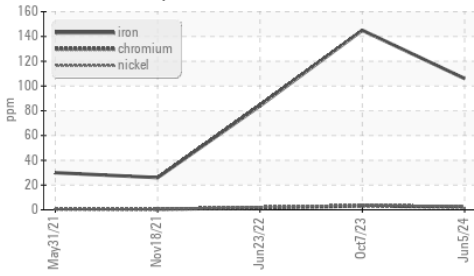
## INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844* >3	<b>0.1</b>	0.2	0
Nitration	Abs/cm	ASTM D7624* >20	<b>12.0</b>	13.0	11.3
Sulfation	Abs.1mm	ASTM D7415* >30	<b>23.6</b>	26.5	25.4

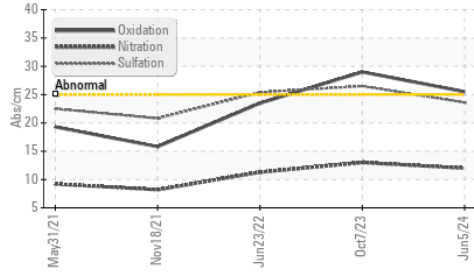


# OIL ANALYSIS REPORT

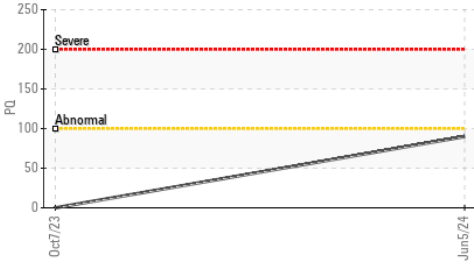
## ▲ Ferrous Alloys



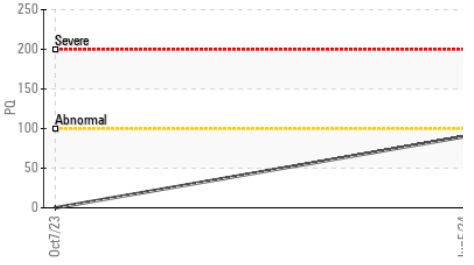
## FT-IR (Direct Trend)



## PQ



## PQ



## FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs./1mm ASTM D7414*	>25	25.5	29.0	23.5

## VISUAL

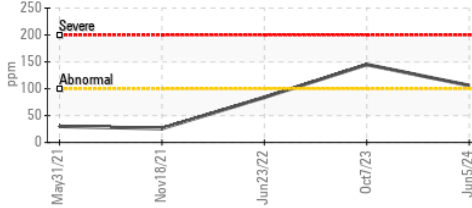
method	limit/base	current	history1	history2	
White Metal	scalar Visual*	NONE	NONE	---	---
Yellow Metal	scalar Visual*	NONE	NONE	---	---
Precipitate	scalar Visual*	NONE	NONE	---	---
Silt	scalar Visual*	NONE	NONE	---	---
Debris	scalar Visual*	NONE	NONE	---	---
Sand/Dirt	scalar Visual*	NONE	NONE	---	---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

## FLUID PROPERTIES

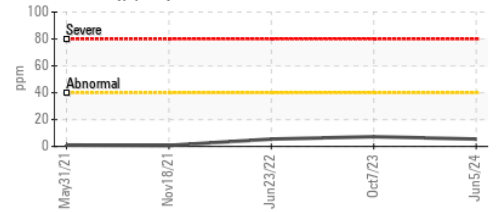
method	limit/base	current	history1	history2
Visc @ 100°C	cSt ASTM D7279(m)	10.2	11.1	▲ 10.3

## GRAPHS

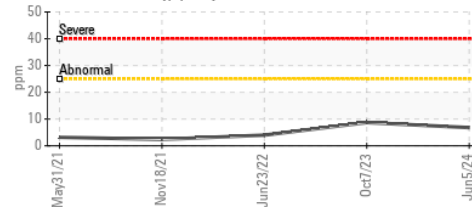
### ▲ Iron (ppm)



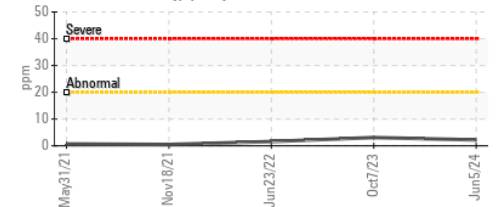
### Lead (ppm)



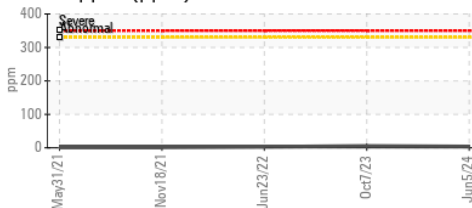
### Aluminum (ppm)



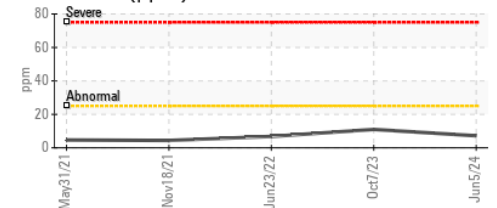
### Chromium (ppm)



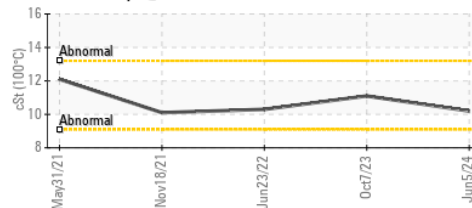
### Copper (ppm)



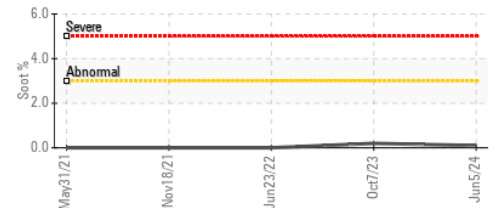
### Silicon (ppm)



### Viscosity @ 100°C



### Soot %



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : GFL0100578  
**Lab Number** : 02640403  
**Unique Number** : 5789565  
**Test Package** : MOB 1 ( Additional Tests: PQ, Visual )

**GFL Environmental - 575 - Squamish Hauling**  
 38950 Queens Way,  
 Squamish, BC  
 CA V8B 0K8  
 Contact: Dean Imbeau  
 dimbeau@gflenv.com  
 T: (604)892-5604  
 F: (604)892-5238

To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.