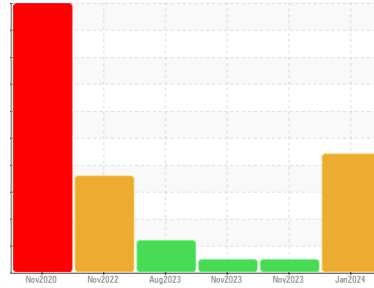




# OIL ANALYSIS REPORT

Sample Rating Trend



**WEAR**



Machine Id  
**723030-310078**

Component  
**Diesel Engine**

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

## DIAGNOSIS

### Recommendation

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

### Wear

Piston, ring and cylinder wear is indicated. Valve wear is indicated.

### Contamination

Light fuel dilution occurring.

### Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>GFL0099268</b>	GFL0080029	GFL0080033
Sample Date	Client Info	<b>30 Jan 2024</b>	21 Nov 2023	09 Nov 2023
Machine Age	hrs	<b>15487</b>	15159	15084
Oil Age	hrs	<b>0</b>	0	0
Oil Changed	Client Info	<b>Changed</b>	Changed	Not Changed
Sample Status		<b>ABNORMAL</b>	NORMAL	NORMAL

## CONTAMINATION

method	limit/base	current	history1	history2
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
Iron	ppm ASTM D5185m >100	<b>▲ 109</b>	15	11
Chromium	ppm ASTM D5185m >20	<b>▲ 17</b>	<1	<1
Nickel	ppm ASTM D5185m >4	<b>▲ 10</b>	0	<1
Titanium	ppm ASTM D5185m	<b>&lt;1</b>	0	<1
Silver	ppm ASTM D5185m >3	<b>0</b>	0	<1
Aluminum	ppm ASTM D5185m >20	<b>▲ 62</b>	9	9
Lead	ppm ASTM D5185m >40	<b>7</b>	0	0
Copper	ppm ASTM D5185m >330	<b>7</b>	<1	<1
Tin	ppm ASTM D5185m >15	<b>&lt;1</b>	0	0
Vanadium	ppm ASTM D5185m	<b>0</b>	0	<1
Cadmium	ppm ASTM D5185m	<b>&lt;1</b>	0	<1

## ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	<b>0</b>	0	0
Barium	ppm ASTM D5185m 0	<b>0</b>	3	0
Molybdenum	ppm ASTM D5185m 60	<b>60</b>	61	60
Manganese	ppm ASTM D5185m 0	<b>2</b>	0	<1
Magnesium	ppm ASTM D5185m 1010	<b>951</b>	897	919
Calcium	ppm ASTM D5185m 1070	<b>1000</b>	1038	1046
Phosphorus	ppm ASTM D5185m 1150	<b>942</b>	972	983
Zinc	ppm ASTM D5185m 1270	<b>1233</b>	1179	1199
Sulfur	ppm ASTM D5185m 2060	<b>2971</b>	3028	3033

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	<b>9</b>	3	3
Sodium	ppm ASTM D5185m	<b>0</b>	2	2
Potassium	ppm ASTM D5185m >20	<b>2</b>	19	17
Fuel	% ASTM D3524 >2.0	<b>▲ 2.1</b>	<1.0	<1.0

## INFRA-RED

method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	<b>0.9</b>	0.4	0.3
Nitration	Abs/cm *ASTM D7624 >20	<b>9.3</b>	8.9	8.2
Sulfation	Abs/.1mm *ASTM D7415 >30	<b>20.6</b>	20.6	20.3

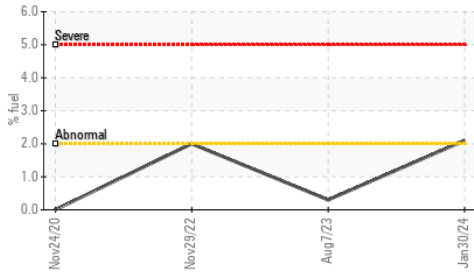
## FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	<b>16.7</b>	17.7	17.0
Base Number (BN)	mg KOH/g ASTM D2896 9.8	<b>8.1</b>	7.4	7.7

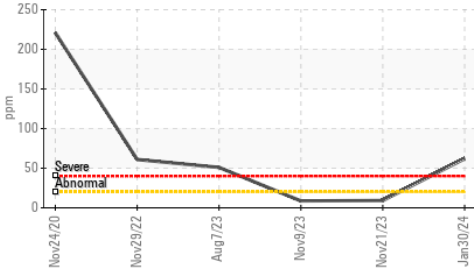


# OIL ANALYSIS REPORT

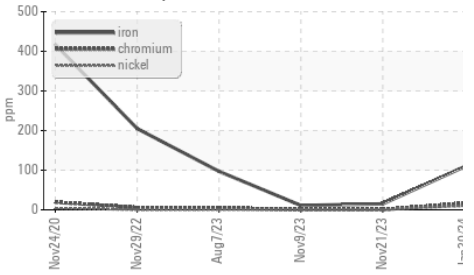
### ▲ Fuel Dilution



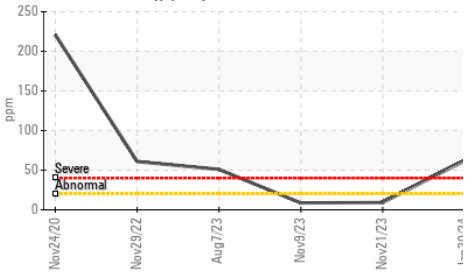
### ▲ Aluminum (ppm)



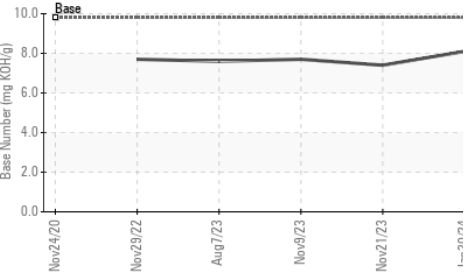
### ▲ Ferrous Alloys



### ▲ Aluminum (ppm)



### ▲ Base Number

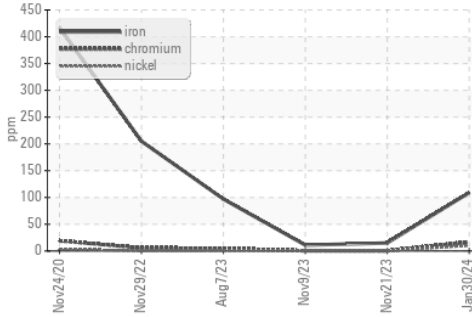


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

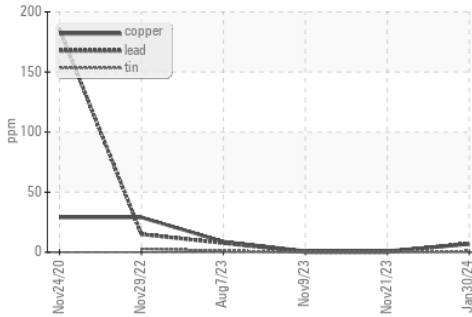
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 11.7	13.9

### GRAPHS

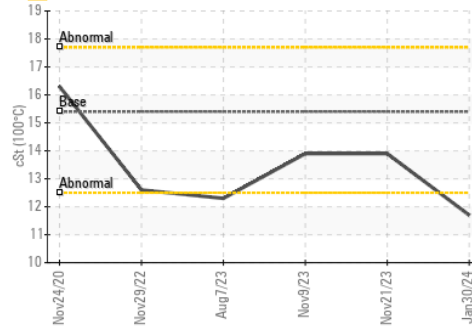
#### ▲ Ferrous Alloys



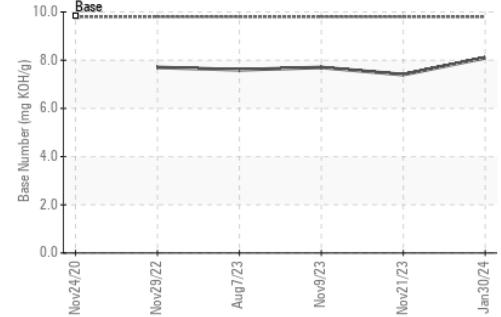
#### Non-ferrous Metals



#### ▲ Viscosity @ 100°C



#### Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0099268 **Received** : 02 Feb 2024  
**Lab Number** : 06078893 **Tested** : 06 Feb 2024  
**Unique Number** : 10860984 **Diagnosed** : 06 Feb 2024 - Jonathan Hester  
**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

**GFL Environmental - 844 - Princeton Hauling**  
 10129 Highway 62 West  
 Princeton, KY  
 US 42445  
 Contact: ROBERT THIBAUT  
 robert.thibault@gflenv.com  
 T: (931)237-6045  
 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)