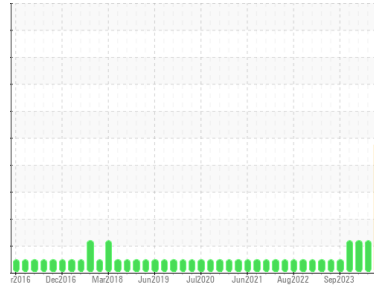




# OIL ANALYSIS REPORT

Sample Rating Trend



DIRT



Area (DQY489)

Machine Id 10558

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (9 GAL)

## DIAGNOSIS

### Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

### Wear

The copper level is abnormal. All other component wear rates are normal.

### Contamination

Sodium and/or potassium levels are high. Elemental level of silicon (Si) above normal indicating ingress of seal material.

### Fluid Condition

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>GFL0072071</b>	GFL0072031	GFL0072046
Sample Date	Client Info	<b>22 Mar 2024</b>	18 Dec 2023	19 Oct 2023
Machine Age	hrs	<b>25642</b>	25036	24275
Oil Age	hrs	<b>600</b>	600	0
Oil Changed	Client Info	<b>Changed</b>	Changed	N/A
Sample Status		<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

## CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >3.0	<b>&lt;1.0</b>	<1.0	<1.0
Water	WC Method >0.2	<b>NEG</b>	NEG	NEG

## WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >75	<b>48</b>	10	6
Chromium	ppm ASTM D5185m >5	<b>2</b>	<1	<1
Nickel	ppm ASTM D5185m >4	<b>&lt;1</b>	0	0
Titanium	ppm ASTM D5185m >2	<b>&lt;1</b>	0	<1
Silver	ppm ASTM D5185m >2	<b>0</b>	0	0
Aluminum	ppm ASTM D5185m >15	<b>8</b>	2	2
Lead	ppm ASTM D5185m >25	<b>3</b>	0	<1
Copper	ppm ASTM D5185m >100	<b>▲ 93</b>	<1	<1
Tin	ppm ASTM D5185m >4	<b>0</b>	0	0
Vanadium	ppm ASTM D5185m	<b>0</b>	0	<1
Cadmium	ppm ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	<b>21</b>	6	10
Barium	ppm ASTM D5185m 0	<b>0</b>	0	0
Molybdenum	ppm ASTM D5185m 60	<b>117</b>	68	69
Manganese	ppm ASTM D5185m 0	<b>&lt;1</b>	0	0
Magnesium	ppm ASTM D5185m 1010	<b>979</b>	1022	969
Calcium	ppm ASTM D5185m 1070	<b>1175</b>	1102	1135
Phosphorus	ppm ASTM D5185m 1150	<b>1063</b>	1066	1044
Zinc	ppm ASTM D5185m 1270	<b>1297</b>	1313	1302
Sulfur	ppm ASTM D5185m 2060	<b>3857</b>	3301	3271

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	<b>▲ 45</b>	8	7
Sodium	ppm ASTM D5185m	<b>▲ 1935</b>	<b>▲ 305</b>	<b>▲ 264</b>
Potassium	ppm ASTM D5185m >20	<b>▲ 13</b>	<1	4
Glycol	% *ASTM D2982	<b>NEG</b>	NEG	NEG

## INFRA-RED

method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >6	<b>0.4</b>	0.1	0.1
Nitration	Abs/cm *ASTM D7624 >20	<b>12.2</b>	6.4	6.1
Sulfation	Abs.1mm *ASTM D7415 >30	<b>22.6</b>	18.4	17.3

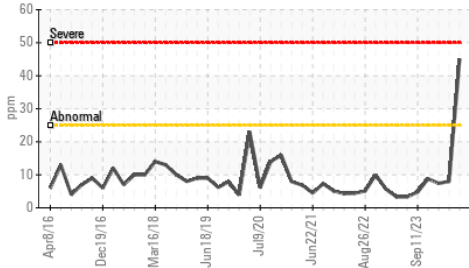
## FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs.1mm *ASTM D7414 >25	<b>15.7</b>	13.8	13.1
Base Number (BN)	mg KOH/g ASTM D2896 9.8	<b>13.6</b>	9.6	9.2

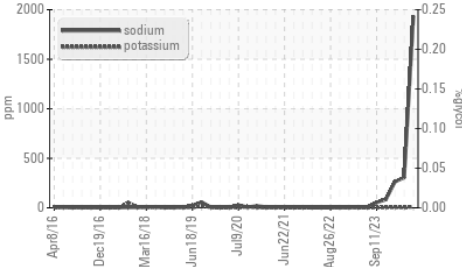


# OIL ANALYSIS REPORT

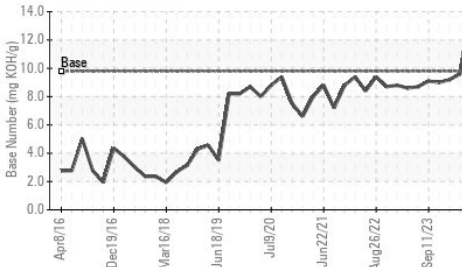
▲ Silicon (ppm)



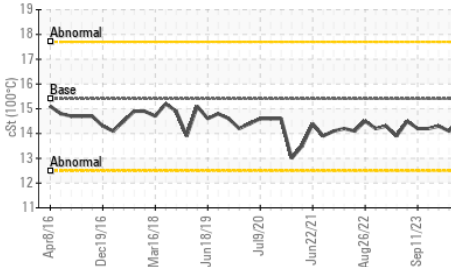
Glycol Contamination



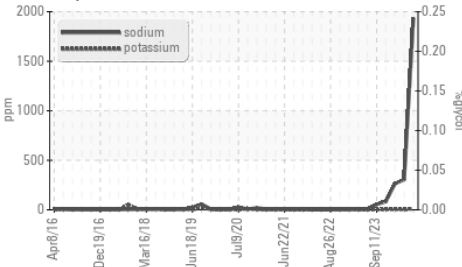
Base Number



Viscosity @ 100°C



Glycol Contamination



## VISUAL

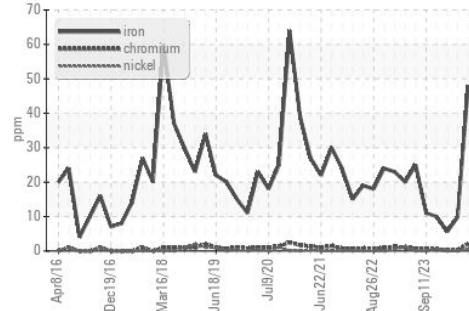
	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*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

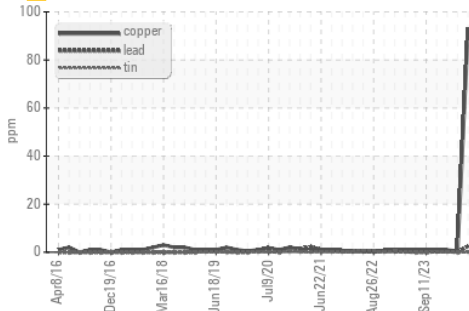
	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.5	14.1

## GRAPHS

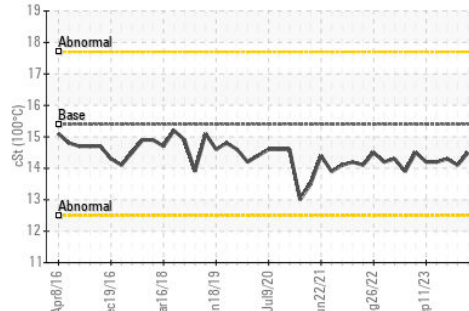
Ferrous Alloys



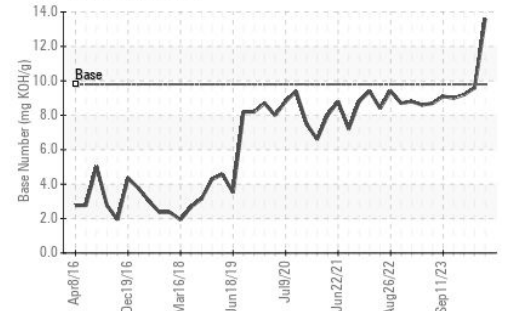
▲ Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : GFL0072071

Lab Number : 06127544

Unique Number : 10941695

Test Package : FLEET ( Additional Tests: Glycol )

Received : 25 Mar 2024

Tested : 27 Mar 2024

Diagnosed : 27 Mar 2024 - Jonathan Hester

GFL Environmental - 094 - Cedartown

2097 Buchanan Highway

Cedartown, GA

US 30125

Contact: WILLIAM FOSTER

william.foster@gflenv.com

T: (800)207-6618

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)