

# **OIL ANALYSIS REPORT**

Sample Rating Trend

Jun 2023 May 2024





Machine Id **948000** 

Natural Gas Engine

PETRO CANADA DURON GEO LD 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.

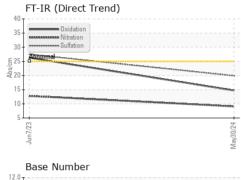
### **Fluid Condition**

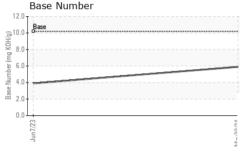
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

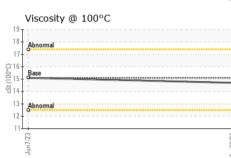
Sample Date Client Info 30 May 2024 07 Jun 2023	GAL)			Jun2023	May2024		
Sample Date         Client Info         30 May 2024         07 Jun 2023	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         7511         5254	Sample Number		Client Info		GFL0113974	GFL0071275	
Oil Age         hrs         Client Info         7511         5254	Sample Date		Client Info		30 May 2024	07 Jun 2023	
Contamped Sample Status	Machine Age	hrs	Client Info		7511	5254	
CONTAMINATION	Oil Age	hrs	Client Info		7511	5254	
CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.1         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         12         11            Chromium         ppm         ASTM D5185m         >4         <1	Oil Changed		Client Info		Changed	Not Changd	
Water         WC Method         >0.1         NEG         NEG	Sample Status				NORMAL	ABNORMAL	
WEAR METALS	CONTAMINATIO	NC	method	limit/base	current	history1	history2
Pron	Water		WC Method	>0.1	NEG	NEG	
Chromium         ppm         ASTM D5185m         >4         <1         1            Nickel         ppm         ASTM D5185m         2         0         0            Titanium         ppm         ASTM D5185m         >3         0         0            Silver         ppm         ASTM D5185m         >3         0         0            Aluminum         ppm         ASTM D5185m         >30         8         8            Aluminum         ppm         ASTM D5185m         >30         8         8            Lead         ppm         ASTM D5185m         >30         8         8            Copper         ppm         ASTM D5185m         >35         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>50	12	11	
Description	Chromium	ppm	ASTM D5185m	>4	<1	1	
Silver	Nickel	ppm	ASTM D5185m	>2	0	0	
Aluminum	Titanium	ppm	ASTM D5185m		0	0	
Lead	Silver	ppm	ASTM D5185m	>3	0	0	
Copper         ppm         ASTM D5185m         >35         <1         1            Tin         ppm         ASTM D5185m         >4         0         <1	Aluminum	ppm	ASTM D5185m	>9	2	2	
Tin	Lead	ppm	ASTM D5185m	>30	8	8	
Vanadium         ppm         ASTM D5185m         0         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         50         12         13            Barium         ppm         ASTM D5185m         50         0         0            Molybdenum         ppm         ASTM D5185m         50         54         58            Manganese         ppm         ASTM D5185m         0         <1         <1            Magnesium         ppm         ASTM D5185m         560         583         841            Calcium         ppm         ASTM D5185m         780         792         816            Phosphorus         ppm         ASTM D5185m         780         792         816            Zinc         ppm         ASTM D5185m         870         1015         1073            Sulfur         ppm         ASTM D5185m         2040         2714         3113 <td>Copper</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;35</td> <th>&lt;1</th> <td>1</td> <td></td>	Copper	ppm	ASTM D5185m	>35	<1	1	
Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         50         12         13            Barium         ppm         ASTM D5185m         5         0         0            Molybdenum         ppm         ASTM D5185m         50         54         58            Magnesium         ppm         ASTM D5185m         0         <1	Γin	ppm	ASTM D5185m	>4	0	<1	
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         50         12         13            Barium         ppm         ASTM D5185m         5         0         0            Molybdenum         ppm         ASTM D5185m         50         54         58            Magnesium         ppm         ASTM D5185m         50         54         58            Magnesium         ppm         ASTM D5185m         560         583         841            Calcium         ppm         ASTM D5185m         1510         1777         1579            Phosphorus         ppm         ASTM D5185m         780         792         816            Zinc         ppm         ASTM D5185m         870         1015         1073            Sulfur         ppm         ASTM D5185m         2040         2714         3113            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m	Vanadium	ppm	ASTM D5185m		0	0	
Boron	Cadmium	ppm	ASTM D5185m		0	0	
Sarium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         50         54         58            Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	50	12	13	
Manganese         ppm         ASTM D5185m         0         <1         <1            Magnesium         ppm         ASTM D5185m         560         583         841            Calcium         ppm         ASTM D5185m         1510         1777         1579            Phosphorus         ppm         ASTM D5185m         780         792         816            Zinc         ppm         ASTM D5185m         870         1015         1073            Sulfur         ppm         ASTM D5185m         2040         2714         3113            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         7         36            Sodium         ppm         ASTM D5185m         9         6            Potassium         ppm         ASTM D5185m         >20         <1	Barium	ppm	ASTM D5185m	5	0	0	
Magnesium         ppm         ASTM D5185m         560         583         841            Calcium         ppm         ASTM D5185m         1510         1777         1579            Phosphorus         ppm         ASTM D5185m         780         792         816            Zinc         ppm         ASTM D5185m         870         1015         1073            Sulfur         ppm         ASTM D5185m         2040         2714         3113            CONTAMINANTS         method         limit/base         current         history1         history2           Solicon         ppm         ASTM D5185m         >+100         7         ▲ 36            Solicon         ppm         ASTM D5185m         9         6            Potassium         ppm         ASTM D5185m         9         6            Potassium         ppm         ASTM D5185m         >20         <1	Molybdenum	ppm			54	58	
Calcium         ppm         ASTM D5185m         1510         1777         1579            Phosphorus         ppm         ASTM D5185m         780         792         816            Zinc         ppm         ASTM D5185m         870         1015         1073            Sulfur         ppm         ASTM D5185m         2040         2714         3113            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         7         ▲ 36            Sodium         ppm         ASTM D5185m         >20         <1	Manganese	ppm	ASTM D5185m	0	<1	<1	
Phosphorus         ppm         ASTM D5185m         780         792         816            Zinc         ppm         ASTM D5185m         870         1015         1073            Sulfur         ppm         ASTM D5185m         2040         2714         3113            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         7         ▲ 36            Sodium         ppm         ASTM D5185m         9         6            Potassium         ppm         ASTM D5185m         >20         <1	Magnesium	ppm	ASTM D5185m	560	583	841	
Zinc	Calcium	ppm	ASTM D5185m	1510	1777	1579	
Sulfur         ppm         ASTM D5185m         2040         2714         3113            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         7         ▲ 36            Sodium         ppm         ASTM D5185m         9         6            Potassium         ppm         ASTM D5185m         >20         <1	Phosphorus	ppm	ASTM D5185m	780	792	816	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         7         ▲ 36            Sodium         ppm         ASTM D5185m         9         6            Potassium         ppm         ASTM D5185m         >20         <1	Zinc	ppm	ASTM D5185m	870	1015	1073	
Silicon   ppm   ASTM D5185m   >+100   7   A 36			ASTM D5185m	2040	2714	3113	
Sodium   ppm   ASTM D5185m   9   6	CONTAMINANT	S			current	history1	history2
Potassium         ppm         ASTM D5185m         >20         <1         2            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.5         0.1            Nitration         Abs/cm         *ASTM D7624         >20         9.1         12.8            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         27.5            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         26.3	Silicon	ppm	ASTM D5185m	>+100	7	<b>△</b> 36	
INFRA-RED	Sodium	ppm	ASTM D5185m		9		
Soot %         %         *ASTM D7844         0.5         0.1            Nitration         Abs/cm         *ASTM D7624         >20         9.1         12.8            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         27.5            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         26.3	Potassium	ppm	ASTM D5185m	>20	<1	2	
Nitration         Abs/cm         *ASTM D7624         >20         9.1         12.8            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         27.5            FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         26.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         27.5            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         26.3			*ASTM D7844		0.5	0.1	
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 14.7 26.3	Nitration	Abs/cm	*ASTM D7624	>20	9.1	12.8	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.9	27.5	
	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.7	26.3	
	Base Number (BN)	mg KOH/g	ASTM D2896	10.2	5.9	<b>▲</b> 3.9	

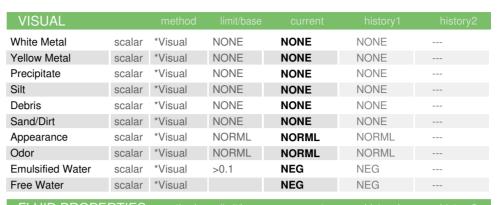


# **OIL ANALYSIS REPORT**



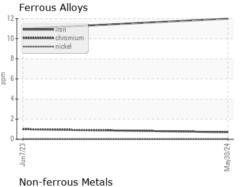


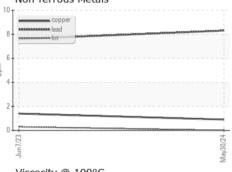


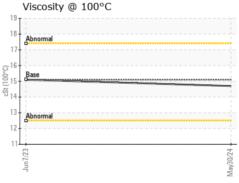


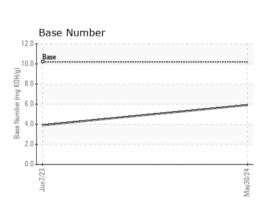
FLUID PROP	ERTIES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.7	15.1	

### **GRAPHS**













Laboratory Sample No.

: GFL0113974 Lab Number : 06199857 Unique Number : 11061980

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 05 Jun 2024 **Tested** : 06 Jun 2024

Diagnosed : 06 Jun 2024 - Wes Davis

GFL Environmental - 932 - Muskego HC

W144 S6400 College Ct. Muskego, WI US 53150

Contact: Brian Schlomann brian.schlomann@gflenv.com T: (262)510-4586

Certificate 12367

Test Package : FLEET

To discuss this sample report, contact Customer Service at 1-800-237-1369.  $^st$  - 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) Report Id: GFL932 [WUSCAR] 06199857 (Generated: 06/06/2024 05:06:08) Rev: 1

Submitted By: GFL932, GFL414 - BECKY FLETCHER