

# **OIL ANALYSIS REPORT**

(P633836) 3763C

Component

**Natural Gas Engine** 

PETRO CANADA DURON GEO LD 15W40 (30 QTS)

# Sample Rating Trend



## **DIAGNOSIS**

### Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

# Wear

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

### Contamination

There is no indication of any contamination in the

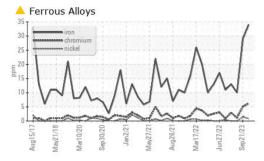
# **Fluid Condition**

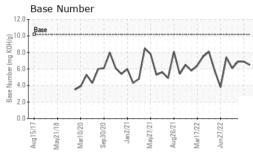
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

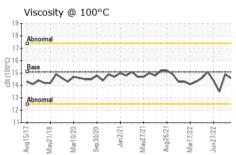
	30 Q1S)		g2017 May201	8 Mar2020 Sep2020 Jan20	21 May2021 Aug2021 Mar2022 Jun	2022 Sep2023	
Client Info   24 Jan 2024   21 Sep 2023   06 Dec 2022   Machine Age   hrs   Client Info   21125   20979   20913   060   Age   hrs   Client Info   600   60	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age Oil Age         hrs         Client Info         21125         20979         20913           Oil Age         hrs         Client Info         600         600         600         600           Oil Changed         Client Info         Changed         Changed         Changed         Changed           Sample Status         Method         birth Info         Land Machine         Land Machine <td< td=""><td>Sample Number</td><td></td><td>Client Info</td><td></td><td>GFL0101777</td><td>GFL0081014</td><td>GFL0058565</td></td<>	Sample Number		Client Info		GFL0101777	GFL0081014	GFL0058565
Machine Age         hrs         Client Info         21125         20979         20913           Oil Age         hrs         Client Info         600         600         600         600           Oil Changed         Client Info         Changed         Change         Change         Change         Change         Change <td< td=""><td>Sample Date</td><td></td><td>Client Info</td><td></td><td>24 Jan 2024</td><td>21 Sep 2023</td><td>06 Dec 2022</td></td<>	Sample Date		Client Info		24 Jan 2024	21 Sep 2023	06 Dec 2022
Oil Age         hrs         Client Info         600         600         600           Oil Changed Sample Status         Client Info         Changed Changed Changed Changed Changed Changed Changed NORMAL NORMAL         CONTAMINATION         method Imitibase current         Mistory1         history2           Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method Imitibase current         history1         history2           Iron         ppm ASTM D5185m         >50         34         29         10           Chromium         ppm ASTM D5185m         >50         34         29         10           Chromium         ppm ASTM D5185m         >50         34         29         10           Chromium         ppm ASTM D5185m         >2         <1         1         0           Nickel         ppm ASTM D5185m         >3         0         0         0         0           Alluminum         ppm ASTM D5185m         >3         0         0         0         0           Lead         ppm ASTM D5185m         >3         4         7         0           Copper         ppm ASTM D5185m         >3         4         1         <1	Machine Age	hrs	Client Info		21125		20913
Contamped   Client Info		hrs	Client Info		600	600	600
ABNORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2	-		Client Info			Changed	Changed
Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         34         29         10           Chromium         ppm         ASTM D5185m         >4         6         5         1           Nickel         ppm         ASTM D5185m         >2         -1         1         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >9         4         7         0           Lead         ppm         ASTM D5185m         >9         4         7         0           Lead         ppm         ASTM D5185m         >33         4         20         <1         <1         <1         0           Copper         ppm         ASTM D5185m         >35         4         20         <1         <1         0           Cadmium         ppm         ASTM D5185m         >35         4         20         <1         1         1         <1         0	-				_		_
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2
Description	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >4         ♠ 6         5         1           Nickel         ppm         ASTM D5185m         >2         <1	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel	ron	ppm	ASTM D5185m	>50	34	29	10
Nicke    ppm   ASTM D5185m   >2   <1   1   0	Chromium	ppm	ASTM D5185m	>4	<u>^</u> 6	5	1
Silver	Nickel		ASTM D5185m	>2	<1	1	0
Silver	Titanium					<1	0
Aluminum				>3			
Lead							
Copper					-		
Tin							
Vanadium         ppm         ASTM D5185m         <1         <1         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         50         9         23         4           Barium         ppm         ASTM D5185m         50         0         0         2           Molybdenum         ppm         ASTM D5185m         50         50         51         36           Manganese         ppm         ASTM D5185m         50         50         51         36           Manganesium         ppm         ASTM D5185m         560         539         545         516           Calcium         ppm         ASTM D5185m         780         742         772         571           Zinc         ppm         ASTM D5185m         870         894         957         709           Sulfur         ppm         ASTM D5185m         >+100         1890         2653         2146           CONTAMINANTS         method         limit/base         current         history1	• •						
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         50         9         23         4           Barium         ppm         ASTM D5185m         5         0         0         2           Molybdenum         ppm         ASTM D5185m         50         50         51         36           Manganese         ppm         ASTM D5185m         50         50         51         36           Magnesium         ppm         ASTM D5185m         560         539         545         516           Calcium         ppm         ASTM D5185m         780         742         772         571           Phosphorus         ppm         ASTM D5185m         70         894         957         709           Sulfur         ppm         ASTM D5185m         2040         1890         2653         2146           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         <1				<b>7</b> 4			
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         50         9         23         4           Barium         ppm         ASTM D5185m         50         0         0         2           Molybdenum         ppm         ASTM D5185m         50         50         51         36           Manganese         ppm         ASTM D5185m         560         539         545         516           Magnesium         ppm         ASTM D5185m         560         539         545         516           Calcium         ppm         ASTM D5185m         780         742         772         571           Zinc         ppm         ASTM D5185m         780         742         772         571           Zinc         ppm         ASTM D5185m         870         894         957         709           Sulfur         ppm         ASTM D5185m         2040         1890         2653         2146           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Boron		рріп		limit/hase			
Barium		nnm					
Molybdenum         ppm         ASTM D5185m         50         50         51         36           Manganese         ppm         ASTM D5185m         0         1         1         <1           Magnesium         ppm         ASTM D5185m         560         539         545         516           Calcium         ppm         ASTM D5185m         560         539         545         516           Calcium         ppm         ASTM D5185m         780         742         772         571           Phosphorus         ppm         ASTM D5185m         780         742         772         571           Zinc         ppm         ASTM D5185m         870         894         957         709           Sulfur         ppm         ASTM D5185m         2040         1890         2653         2146           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         21         13         4           Sodium         ppm         ASTM D5185m         >20         <1         15         <1           INFRA-RED         method         limit/base							
Manganese         ppm         ASTM D5185m         0         1         1         <1           Magnesium         ppm         ASTM D5185m         560         539         545         516           Calcium         ppm         ASTM D5185m         1510         1577         1592         615           Phosphorus         ppm         ASTM D5185m         780         742         772         571           Zinc         ppm         ASTM D5185m         870         894         957         709           Sulfur         ppm         ASTM D5185m         2040         1890         2653         2146           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         21         13         4           Sodium         ppm         ASTM D5185m         >20         <1					-		
Magnesium         ppm         ASTM D5185m         560         539         545         516           Calcium         ppm         ASTM D5185m         1510         1577         1592         615           Phosphorus         ppm         ASTM D5185m         780         742         772         571           Zinc         ppm         ASTM D5185m         870         894         957         709           Sulfur         ppm         ASTM D5185m         2040         1890         2653         2146           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         21         13         4           Sodium         ppm         ASTM D5185m         7         7         2           Potassium         ppm         ASTM D5185m         >20         <1	•						
Calcium         ppm         ASTM D5185m         1510         1577         1592         615           Phosphorus         ppm         ASTM D5185m         780         742         772         571           Zinc         ppm         ASTM D5185m         870         894         957         709           Sulfur         ppm         ASTM D5185m         2040         1890         2653         2146           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         21         13         4           Sodium         ppm         ASTM D5185m         >+100         21         13         4           Potassium         ppm         ASTM D5185m         7         7         2           Potassium         ppm         ASTM D5185m         >20         <1	-						
Phosphorus         ppm         ASTM D5185m         780         742         772         571           Zinc         ppm         ASTM D5185m         870         894         957         709           Sulfur         ppm         ASTM D5185m         2040         1890         2653         2146           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         21         13         4           Sodium         ppm         ASTM D5185m         >+100         21         13         4           Sodium         ppm         ASTM D5185m         >20         <1							
Zinc         ppm         ASTM D5185m         870         894         957         709           Sulfur         ppm         ASTM D5185m         2040         1890         2653         2146           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         21         13         4           Sodium         ppm         ASTM D5185m         7         7         2           Potassium         ppm         ASTM D5185m         >20         <1							
Sulfur         ppm         ASTM D5185m         2040         1890         2653         2146           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         21         13         4           Sodium         ppm         ASTM D5185m         7         7         2           Potassium         ppm         ASTM D5185m         >20         <1							
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         21         13         4           Sodium         ppm         ASTM D5185m         7         7         2           Potassium         ppm         ASTM D5185m         >20         <1							
Silicon         ppm         ASTM D5185m         >+100         21         13         4           Sodium         ppm         ASTM D5185m         7         7         2           Potassium         ppm         ASTM D5185m         >20         <1         15         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.1         0         0.1           Nitration         Abs/cm         *ASTM D7624         >20         11.9         8.2         10.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         19.1         23.1           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.4         16.6         18.3					1890		
Sodium         ppm         ASTM D5185m         7         7         2           Potassium         ppm         ASTM D5185m         >20         <1		ITS	method	limit/base			
Potassium         ppm         ASTM D5185m         >20         <1         15         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.1         0         0.1           Nitration         Abs/cm         *ASTM D7624         >20         11.9         8.2         10.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         19.1         23.1           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.4         16.6         18.3		ppm		>+100	21	13	
INFRA-RED	Sodium	ppm	ASTM D5185m		7		
Soot %         %         *ASTM D7844         0.1         0         0.1           Nitration         Abs/cm         *ASTM D7624         >20         11.9         8.2         10.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         19.1         23.1           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.4         16.6         18.3	Potassium	ppm	ASTM D5185m	>20	<1	15	<1
Nitration         Abs/cm         *ASTM D7624         >20         11.9         8.2         10.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         19.1         23.1           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.4         16.6         18.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         19.1         23.1           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.4         16.6         18.3	Soot %	%	*ASTM D7844		0.1	0	0.1
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 18.4 16.6 18.3	Nitration	Abs/cm	*ASTM D7624	>20	11.9	8.2	10.5
Oxidation Abs/.1mm *ASTM D7414 >25 <b>18.4</b> 16.6 18.3	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.9	19.1	23.1
	FLUID DEGRAI	NOITAC	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 10.2 <b>6.5</b> 6.9 6.9	Oxidation	Abs/.1mm	*ASTM D7414	>25	18.4	16.6	18.3
	Base Number (BN)	mg KOH/q	ASTM D2896	10.2	6.5	6.9	6.9



# **OIL ANALYSIS REPORT**



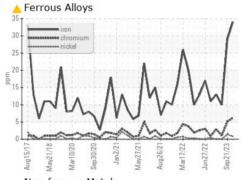


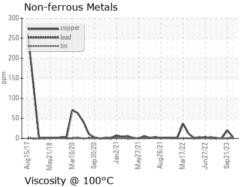


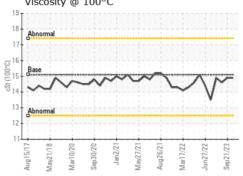
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

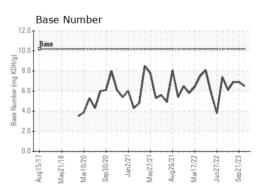
FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.9	14.9	14.6

### **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : FLEET

: GFL0101777 : 06071473 : 10848150

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 26 Jan 2024 : 30 Jan 2024 Diagnosed Diagnostician : Sean Felton

GFL Environmental - 030 - Conway Myrtle Beach

3010 HWY 378 Conway, SC US 29527

Contact: ARCILIO RUEZ

aruiz@gflenv.com T:

\* - 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)

F: