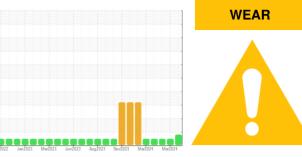


# **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id 731116

Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (--- GAL)

### DIAGNOSIS

#### Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

#### Wear

Cylinder, crank, or cam shaft wear is indicated.

#### Contamination

There is no indication of any contamination in the oil.

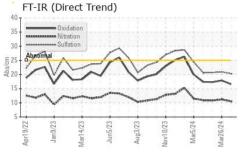
#### **Fluid Condition**

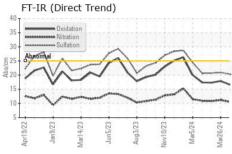
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

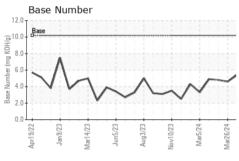
SAMPLE INFORMATION     method     limit/base     current     history1     history2       Sample Number     Client Info     GFL0114064     GFL0114077     GFL0114010     7 Mar 2024     26 Mar 2024     07 Mar 2024     7 Mar 2024     26 Mar 2024     07 Mar 2024     6851     6722     6611     0	( GAL) pd022 Jan2023 Mar2023 Jun2023 Nun2023 Nun2024 Mar2024 Mar2024								
Sample Date     Client Info     17 Apr 2024     26 Mar 2024     07 Mar 2024       Machine Age     hrs     Client Info     6851     6722     6611       Oil Age     hrs     Client Info     0     0     0     0       Oil Changed     Client Info     Not Changd     Nor Changd	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2		
Sample Date     Client Info     17 Apr 2024     26 Mar 2024     07 Mar 2024       Machine Age     hrs     Client Info     6881     6722     6611       Oil Age     hrs     Client Info     0     0     0       Oil Changed     Client Info     Not Changd     N	Sample Number		Client Info		GFL0114064	GFL0114077	GFL0114010		
Machine Age     hrs     Client Info     6851     6722     6611       Oil Age     hrs     Client Info     0     0     0       Oil Changed     Client Info     Not Changd     Not Changd     Not Changd       Sample Status     Image: Client Info     Not Changd     Not Changd     Not Changd       ABNORMAL     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method     90.1     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     4     61     43     9       Chromium     ppm     ASTM D5185m     >4     3     3     0     1     1     0     0     1     1     0     0     1     0     0     1     0     1     0     1     0     1     0     1     1     0			Client Info			26 Mar 2024	07 Mar 2024		
Oil Age     hrs     Client Info     Not Changd     Not Changd     Not Changd Not Changd Not Changd Not Changd Not Changd NorMAL     Not Changd NorMAL     Not Changd NorMAL	•	hrs			•				
Oil Changed Sample Status     Client Info Sample Status     Not Changd ABNORMAL     Not Changd NORMAL     Not Changd NORMAL     NORMA		hrs			0	0	0		
Sample Status     method     limit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     61     43     9       Chromium     ppm     ASTM D5185m     >4     3     3     0       Nickel     ppm     ASTM D5185m     >2     <1	-				Not Changd	Not Changd	Not Changd		
Water     WC Method     >0.1     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     ♠ 61     43     9       Chromium     ppm     ASTM D5185m     >2     <1	-					Ŭ	Ü		
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     ♣ 61     43     9       Chromium     ppm     ASTM D5185m     >4     3     3     0       Nickel     ppm     ASTM D5185m     >2     <1     2     0       Titanium     ppm     ASTM D5185m     >3     0     <1     0       Silver     ppm     ASTM D5185m     >3     0     <1     0       Aluminum     ppm     ASTM D5185m     >9     5     5     <1       Lead     ppm     ASTM D5185m     >9     5     5     <1       Lead     ppm     ASTM D5185m     >4     2     1     0       Copper     ppm     ASTM D5185m     >4     2     1     0       Vanadium     ppm     ASTM D5185m     50     4     14     1       Cadmium     ppm     ASTM D5185m     50     4     14 <t< th=""><th colspan="2">CONTAMINATION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINATION		method	limit/base	current	history1	history2		
Iron	Water		WC Method	>0.1	NEG	NEG	NEG		
Chromium     ppm     ASTM D5185m     >4     3     3     0       Nickel     ppm     ASTM D5185m     >2     <1     2     0       Tittanium     ppm     ASTM D5185m     >3     0     <1     0       Silver     ppm     ASTM D5185m     >3     0     <1     0       Aluminum     ppm     ASTM D5185m     >30     2     3     <1       Lead     ppm     ASTM D5185m     >35     1     2     0       Copper     ppm     ASTM D5185m     >4     2     1     0       Vanadium     ppm     ASTM D5185m     >4     2     1     0       Cadmium     ppm     ASTM D5185m     >4     2     1     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     4     14     11       Barium     ppm     ASTM D5185m     50     5     9	WEAR METAL	S	method	limit/base	current	history1	history2		
Nickel	Iron	ppm	ASTM D5185m	>50	<u>▲</u> 61	43	9		
Titanium     ppm     ASTM D5185m     <1	Chromium	ppm	ASTM D5185m	>4	3	3	0		
Silver	Nickel	ppm	ASTM D5185m	>2	<1	2	0		
Aluminum	Titanium	ppm	ASTM D5185m		<1	<1	0		
Lead	Silver	ppm	ASTM D5185m	>3	0	<1	0		
Copper     ppm     ASTM D5185m     >35     1     2     0       Tin     ppm     ASTM D5185m     >4     2     1     0       Vanadium     ppm     ASTM D5185m     <1     <1     0       Cadmium     ppm     ASTM D5185m     0     <1     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     4     14     11       Barium     ppm     ASTM D5185m     50     0     0     0       Molybdenum     ppm     ASTM D5185m     50     59     58     50       Manganese     ppm     ASTM D5185m     50     59     58     50       Magnesium     ppm     ASTM D5185m     560     542     508     481       Calcium     ppm     ASTM D5185m     780     740     755     626       Zinc     ppm     ASTM D5185m     870     963     980     863 <th>Aluminum</th> <th>ppm</th> <th>ASTM D5185m</th> <th>&gt;9</th> <th>5</th> <th>5</th> <th>&lt;1</th>	Aluminum	ppm	ASTM D5185m	>9	5	5	<1		
Tin     ppm     ASTM D5185m     >4     2     1     0       Vanadium     ppm     ASTM D5185m     <1	Lead	ppm	ASTM D5185m	>30	2	3	<1		
Vanadium     ppm     ASTM D5185m     <1	Copper	ppm	ASTM D5185m	>35	1	2	0		
Cadmium     ppm     ASTM D5185m     0     <1	Tin	ppm	ASTM D5185m	>4	2	1	0		
Marriage	Vanadium	ppm	ASTM D5185m		<1	<1	0		
Boron     ppm     ASTM D5185m     50     4     14     11       Barium     ppm     ASTM D5185m     5     0     0     0       Molybdenum     ppm     ASTM D5185m     50     59     58     50       Manganese     ppm     ASTM D5185m     50     59     58     50       Magnesium     ppm     ASTM D5185m     560     542     508     481       Calcium     ppm     ASTM D5185m     560     542     508     481       Calcium     ppm     ASTM D5185m     780     740     755     626       Zinc     ppm     ASTM D5185m     870     963     980     863       Sulfur     ppm     ASTM D5185m     2040     2917     2608     2243       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     >20	Cadmium	ppm	ASTM D5185m		0	<1	0		
Barium     ppm     ASTM D5185m     5     0     0     0       Molybdenum     ppm     ASTM D5185m     50     59     58     50       Manganese     ppm     ASTM D5185m     0     1     2     0       Magnesium     ppm     ASTM D5185m     560     542     508     481       Calcium     ppm     ASTM D5185m     1510     1784     1637     1579       Phosphorus     ppm     ASTM D5185m     780     740     755     626       Zinc     ppm     ASTM D5185m     870     963     980     863       Sulfur     ppm     ASTM D5185m     2040     2917     2608     2243       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     9     9     9     6       Potassium     ppm     ASTM D5185m	ADDITIVES		method	limit/base	current	history1	history2		
Molybdenum     ppm     ASTM D5185m     50     59     58     50       Manganese     ppm     ASTM D5185m     0     1     2     0       Magnesium     ppm     ASTM D5185m     560     542     508     481       Calcium     ppm     ASTM D5185m     1510     1784     1637     1579       Phosphorus     ppm     ASTM D5185m     780     740     755     626       Zinc     ppm     ASTM D5185m     870     963     980     863       Sulfur     ppm     ASTM D5185m     2040     2917     2608     2243       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     >20     <1     3     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624	Boron	ppm	ASTM D5185m	50	4	14	11		
Manganese     ppm     ASTM D5185m     0     1     2     0       Magnesium     ppm     ASTM D5185m     560     542     508     481       Calcium     ppm     ASTM D5185m     1510     1784     1637     1579       Phosphorus     ppm     ASTM D5185m     780     740     755     626       Zinc     ppm     ASTM D5185m     870     963     980     863       Sulfur     ppm     ASTM D5185m     2040     2917     2608     2243       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     >20     <1     3     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624	Barium	ppm	ASTM D5185m	5	0	0	0		
Magnesium     ppm     ASTM D5185m     560     542     508     481       Calcium     ppm     ASTM D5185m     1510     1784     1637     1579       Phosphorus     ppm     ASTM D5185m     780     740     755     626       Zinc     ppm     ASTM D5185m     870     963     980     863       Sulfur     ppm     ASTM D5185m     2040     2917     2608     2243       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     >20     <1	Molybdenum	ppm			59	58	50		
Calcium     ppm     ASTM D5185m     1510     1784     1637     1579       Phosphorus     ppm     ASTM D5185m     780     740     755     626       Zinc     ppm     ASTM D5185m     870     963     980     863       Sulfur     ppm     ASTM D5185m     2040     2917     2608     2243       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     9     9     9     6       Potassium     ppm     ASTM D5185m     >20     <1     3     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624     >20     10.5     11.2     10.8       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.3     20.9     20.7       FLUID DEGRADATION method <td< th=""><th>Manganese</th><th>ppm</th><th>ASTM D5185m</th><th>0</th><th>1</th><th>2</th><th>0</th></td<>	Manganese	ppm	ASTM D5185m	0	1	2	0		
Phosphorus     ppm     ASTM D5185m     780     740     755     626       Zinc     ppm     ASTM D5185m     870     963     980     863       Sulfur     ppm     ASTM D5185m     2040     2917     2608     2243       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     9     9     9     6       Potassium     ppm     ASTM D5185m     >20     <1     3     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624     >20     10.5     11.2     10.8       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.3     20.9     20.7       FLUID DEGRADATION     *astm D7414     >25     16.6     17.9     17.3	Magnesium	ppm	ASTM D5185m	560	542	508	481		
Zinc     ppm     ASTM D5185m     870     963     980     863       Sulfur     ppm     ASTM D5185m     2040     2917     2608     2243       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     9     9     6       Potassium     ppm     ASTM D5185m     >20     <1     3     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     10.5     11.2     10.8       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.3     20.9     20.7       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25	Calcium	ppm	ASTM D5185m	1510	1784	1637	1579		
Sulfur     ppm     ASTM D5185m     2040     2917     2608     2243       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     9     9     6       Potassium     ppm     ASTM D5185m     >20     <1     3     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     10.5     11.2     10.8       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.3     20.9     20.7       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.6     17.9     17.3	Phosphorus	ppm			740	755	626		
CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     9     9     6       Potassium     ppm     ASTM D5185m     >20     <1     3     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     10.5     11.2     10.8       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.3     20.9     20.7       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.6     17.9     17.3	Zinc	ppm	ASTM D5185m	870	963	980	863		
Silicon     ppm     ASTM D5185m     >+100     17     16     3       Sodium     ppm     ASTM D5185m     9     9     6       Potassium     ppm     ASTM D5185m     >20     <1	Sulfur	ppm	ASTM D5185m	2040	2917	2608	2243		
Sodium     ppm     ASTM D5185m     9     9     6       Potassium     ppm     ASTM D5185m     >20     <1	CONTAMINAN	TS	method	limit/base	current	history1	history2		
Potassium     ppm     ASTM D5185m     >20     <1	Silicon	ppm	ASTM D5185m	>+100	17	16	3		
INFRA-RED	Sodium	ppm	ASTM D5185m		9	9	6		
Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     10.5     11.2     10.8       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.3     20.9     20.7       FLUID DEGRADATION method limit/base current history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.6     17.9     17.3	Potassium	ppm	ASTM D5185m	>20	<1	3	0		
Nitration     Abs/cm     *ASTM D7624     >20     10.5     11.2     10.8       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.3     20.9     20.7       FLUID DEGRADATION method limit/base current history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.6     17.9     17.3	INFRA-RED		method	limit/base	current	history1	history2		
Sulfation     Abs/.1mm     *ASTM D7415     >30     20.3     20.9     20.7       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.6     17.9     17.3	Soot %	%	*ASTM D7844			0	0		
FLUID DEGRADATION method limit/base current history1 history2   Oxidation Abs/.1mm *ASTM D7414 *>25 16.6 17.9 17.3	Nitration	Abs/cm	*ASTM D7624	>20	10.5	11.2	10.8		
Oxidation     Abs/.1mm     *ASTM D7414     >25     16.6     17.9     17.3	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.3	20.9	20.7		
	FLUID DEGRAI	OATION	method	limit/base	current	history1	history2		
<b>Base Number (BN)</b> mg KOH/g ASTM D2896 10.2 <b>5.4</b> 4.6 4.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.6	17.9	17.3		
	Base Number (BN)	mg KOH/g	ASTM D2896	10.2	5.4	4.6	4.8		

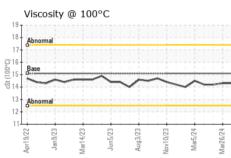


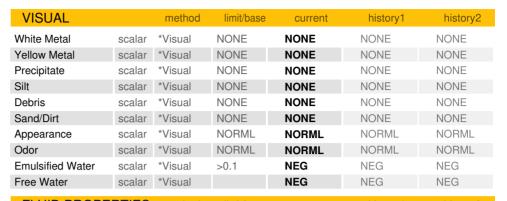
## OIL ANALYSIS REPORT





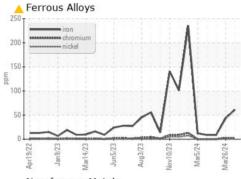


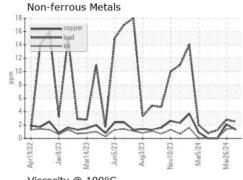


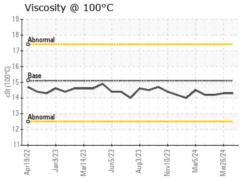


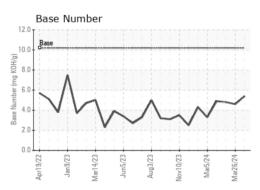
FLUID PROP	EHIIES	method	iiiiii/base	current	riistory i	HIStory
Visc @ 100°C	cSt	ASTM D445	15.1	14.3	14.3	14.2

#### **GRAPHS**













Laboratory Sample No. Lab Number : 06154113 Unique Number : 10989536

: GFL0114064

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

Received : 19 Apr 2024 **Tested** Diagnosed

: 23 Apr 2024 : 23 Apr 2024 - Sean Felton

7801 East Truman Road Kansas City, MO US 64126

GFL Environmental - 836 - Kansas City Hauling

Contact: Loyce Stewart loyce.stewart@gflenv.com

Test Package : FLEET Certificate 12367 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)

Report Id: GFL836 [WUSCAR] 06154113 (Generated: 04/23/2024 11:01:29) Rev: 1

Contact/Location: GFL823,834,836,837,840 - Loyce Stewart - GFL836

T:

F: