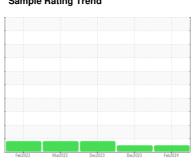


# **OIL ANALYSIS REPORT**

Sample Rating Trend



**NORMAL** 



Machine Id **945019-260276** 

Component

**Natural Gas Engine** 

PETRO CANADA DURON GEO LD 15W40

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

Metal levels are typical for a new component breaking in.

### Contamination

There is no indication of any contamination in the oil.

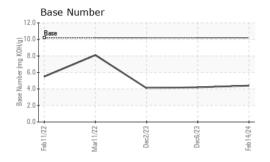
### **Fluid Condition**

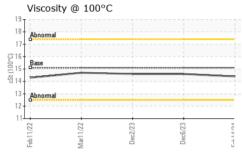
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number   Client Info   GFL0092062   GFL0092028   GFL0092028	GAL)		Feb 2022	Mar2022	Dec2023 Dec2023	Feb 2024	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         32182         33596         26463           Oil Age         hrs         Client Info         600         600         26282           Oil Changed         Client Info         Changed         Changed         Not Changed           Sample Status         NORMAL         NORMAL         ABNORMAL           CONTAMINATION         method         limit/base         current         history1           Water         WC Method         >0.1         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         14         54         22           Chromium         ppm         ASTM D5185m         >50         14         54         22           Chromium         ppm         ASTM D5185m         >2         0         <1	Sample Number		Client Info		GFL0092062	GFL0092028	GFL0092032
Dil Age	Sample Date		Client Info		14 Feb 2024	06 Dec 2023	02 Dec 2023
Contained   Client Info   Changed   Normal   Normal   Normal   Normal   Normal   Normal   Normal   Abnormal   Normal   Normal   Normal   Abnormal   Normal   Normal   Normal   Abnormal   Normal   Nor	Machine Age	hrs	Client Info		32182	33596	26463
NORMAL   NORMAL   ABNORMAL   CONTAMINATION   method   limit/base   current   history1   history2   history2	Oil Age	hrs	Client Info		600	600	26282
CONTAMINATION         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         14         54         22           Chromium         ppm         ASTM D5185m         >2         0         <1	Oil Changed		Client Info		Changed	Changed	Not Changd
Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         14         54         22           Chromium         ppm         ASTM D5185m         >4         <1         3         <1           Nickel         ppm         ASTM D5185m         >2         0         <1         0           Silver         ppm         ASTM D5185m         >3         0         0         <1           Silver         ppm         ASTM D5185m         >9         1         5         1           Lead         ppm         ASTM D5185m         >9         1         5         1           Lead         ppm         ASTM D5185m         >9         1         5         1           Lead         ppm         ASTM D5185m         >35         8         53         43         43           Copper         ppm         ASTM D5185m         >35         8         53         43         43           Tin         ppm         ASTM D5185m         >0         0         0 </td <td>Sample Status</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ABNORMAL</td>	Sample Status						ABNORMAL
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2
Chromium	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >4         <1         3         <1           Nickel         ppm         ASTM D5185m         >2         0         <1	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel	ron	ppm	ASTM D5185m	>50	14	54	22
Titanium	Chromium	ppm	ASTM D5185m	>4	<1	3	<1
Silver	Nickel		ASTM D5185m	>2	0	<1	0
Silver         ppm         ASTM D5185m         >3         0         0         <1           Aluminum         ppm         ASTM D5185m         >9         1         5         1           Lead         ppm         ASTM D5185m         >30         <1	Titanium		ASTM D5185m		<1	0	<1
Aluminum	Silver		ASTM D5185m	>3	0	0	<1
Lead         ppm         ASTM D5185m         >30         <1         <1         <1         <1         Clopper         ppm         ASTM D5185m         >35         8         53         ▲ 43         42         42         42         44         42         44	Aluminum		ASTM D5185m	>9	1	5	1
Copper	Lead				<1	<1	<1
Proceedings   Proceedings   Processes							
Vanadium         ppm         ASTM D5185m         <1         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         50         14         5         5           Barium         ppm         ASTM D5185m         50         46         64         51           Wanganese         ppm         ASTM D5185m         50         46         64         51           Manganese         ppm         ASTM D5185m         50         46         64         51           Manganesium         ppm         ASTM D5185m         560         560         723         560           Calcium         ppm         ASTM D5185m         780         698         822         656           Zinc         ppm         ASTM D5185m         780         941         1135         911           Sulfur         ppm         ASTM D5185m         2040         2362         2554         2576           CONTAMINANTS         method         limit/base         current         history1 <th< td=""><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td></th<>					-		
ADDITIVES							
Soron   ppm   ASTM D5185m   50   14   5   5   5							
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         50         46         64         51           Manganese         ppm         ASTM D5185m         0         0         <1	Boron	ppm	ASTM D5185m	50	14	5	5
Manganese         ppm         ASTM D5185m         0         0         <1         0           Magnesium         ppm         ASTM D5185m         560         560         723         560           Calcium         ppm         ASTM D5185m         1510         1566         1693         1396           Phosphorus         ppm         ASTM D5185m         780         698         822         656           Zinc         ppm         ASTM D5185m         870         941         1135         911           Sulfur         ppm         ASTM D5185m         2040         2362         2554         2576           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         13         5           Sodium         ppm         ASTM D5185m         >20         <1	Barium	ppm	ASTM D5185m	5	0	0	2
Magnesium         ppm         ASTM D5185m         560         560         723         560           Calcium         ppm         ASTM D5185m         1510         1566         1693         1396           Phosphorus         ppm         ASTM D5185m         780         698         822         656           Zinc         ppm         ASTM D5185m         870         941         1135         911           Sulfur         ppm         ASTM D5185m         2040         2362         2554         2576           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         13         5           Sodium         ppm         ASTM D5185m         5         10         6           Potassium         ppm         ASTM D5185m         >20         <1	Molybdenum	ppm	ASTM D5185m	50	46	64	51
Calcium         ppm         ASTM D5185m         1510         1566         1693         1396           Phosphorus         ppm         ASTM D5185m         780         698         822         656           Zinc         ppm         ASTM D5185m         870         941         1135         911           Sulfur         ppm         ASTM D5185m         2040         2362         2554         2576           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         13         5           Sodium         ppm         ASTM D5185m         5         10         6           Potassium         ppm         ASTM D5185m         >20         <1	Manganese	ppm	ASTM D5185m	0	0	<1	0
Calcium         ppm         ASTM D5185m         1510         1566         1693         1396           Phosphorus         ppm         ASTM D5185m         780         698         822         656           Zinc         ppm         ASTM D5185m         870         941         1135         911           Sulfur         ppm         ASTM D5185m         2040         2362         2554         2576           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         13         5           Sodium         ppm         ASTM D5185m         5         10         6           Potassium         ppm         ASTM D5185m         >20         <1	Magnesium	ppm	ASTM D5185m	560	560	723	560
Zinc   ppm   ASTM D5185m   870   941   1135   911	Calcium		ASTM D5185m	1510	1566	1693	1396
Zinc   ppm   ASTM D5185m   870   941   1135   911	Phosphorus	ppm	ASTM D5185m	780	698	822	656
Sulfur         ppm         ASTM D5185m         2040         2362         2554         2576           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         13         5           Sodium         ppm         ASTM D5185m         5         10         6           Potassium         ppm         ASTM D5185m         >20         <1	•		ASTM D5185m	870	941	1135	911
Silicon         ppm         ASTM D5185m         >+100         4         13         5           Sodium         ppm         ASTM D5185m         5         10         6           Potassium         ppm         ASTM D5185m         >20         <1         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         10.7         12.2         11.6           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.1         23.9         22.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.2         18.0         17.9	Sulfur			2040	2362	2554	2576
Sodium         ppm         ASTM D5185m         5         10         6           Potassium         ppm         ASTM D5185m         >20         <1         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         10.7         12.2         11.6           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.1         23.9         22.4           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.2         18.0         17.9	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         <1         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         10.7         12.2         11.6           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.1         23.9         22.4           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.2         18.0         17.9	Silicon	ppm	ASTM D5185m	>+100	4	13	5
INFRA-RED	Sodium	ppm	ASTM D5185m		5	10	6
Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         10.7         12.2         11.6           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.1         23.9         22.4           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.2         18.0         17.9	Potassium	ppm	ASTM D5185m	>20	<1	2	2
Nitration         Abs/cm         *ASTM D7624         >20         10.7         12.2         11.6           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.1         23.9         22.4           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.2         18.0         17.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         21.1         23.9         22.4           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.2         18.0         17.9	Soot %	%	*ASTM D7844		0	0	0
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 17.2 18.0 17.9	Nitration	Abs/cm	*ASTM D7624	>20	10.7	12.2	11.6
Oxidation Abs/.1mm *ASTM D7414 >25 <b>17.2</b> 18.0 17.9		Abs/.1mm		>30	21.1		
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.2	18.0	17.9
	Base Number (BN)	mg KOH/a	ASTM D2896	10.2			4.1



# **OIL ANALYSIS REPORT**

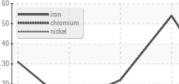


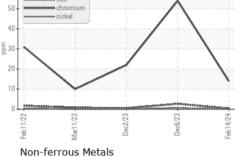


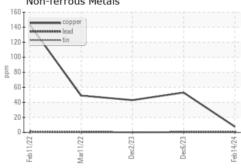
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

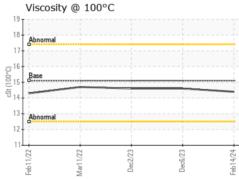
FLUID PROP	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.4	14.6	14.6

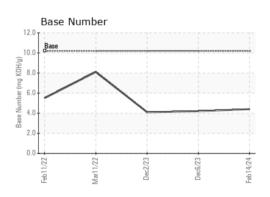
## **GRAPHS** Ferrous Alloys















Certificate L2367

Laboratory Sample No. Lab Number : 06093545

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0092062 Unique Number : 10886398

Received **Tested** Diagnosed

: 19 Feb 2024 : 20 Feb 2024 : 20 Feb 2024 - Wes Davis

GFL Environmental - 856 - Houston South

8515 Highway 6 South Houston, TX US 77083

Contact: Apolinar Zacarias pzacariascano@gflenv.com

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)

T:

F: