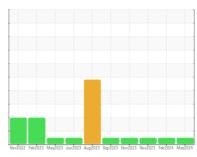


# **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id
813007
Component
Diesel Engine

PETRO CANADA DURON SHP 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

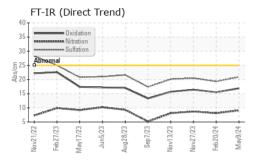
## **Fluid Condition**

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

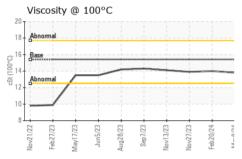
SAMPLE INFORMATION   method   limit/base   current   history1   history2	āAL)		Nov2022 Feb2	023 May2023 Jun2023 Aug2	023 Sep2023 Nov2023 Nov2023 Feb2	024 May2024	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		GFL0058104	GFL0058089	GFL0100173
Machine Age         hrs         Client Info         2910         2332         1996           Oil Age         hrs         Client Info         2910         343         542           Oil Changed         Client Info         Changed         NCBMAL         NORMAL	·		Client Info		09 May 2024	20 Feb 2024	27 Nov 2023
Oil Age         hrs         Client Info         2910         343         542           Oil Changed         Changed <t< th=""><th></th><th>hrs</th><th>Client Info</th><th></th><th>-</th><th>2332</th><th>1996</th></t<>		hrs	Client Info		-	2332	1996
Sample Status         MCRMAL         NORMAL         NORMAL         NORMAL         NORMAL         NORMAL         NORMAL         CONTAMINATION         method         Imitibase         current         history1         nistory2           Fuel         WC Method         >5         <1.0         <1.0         <1.0         <1.0           Water         WC Method         NEG         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         13         10         14           Chromium         ppm         ASTM D5185m         >20         <1         <1         <1         <1           Nickel         ppm         ASTM D5185m         >20         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1		hrs	Client Info		2910	343	542
Sample Status         MCRMAL         NORMAL         NORMAL         NORMAL         NORMAL         NORMAL         NORMAL         CONTAMINATION         method         Imitibase         current         history1         nistory2           Fuel         WC Method         >5         <1.0         <1.0         <1.0         <1.0           Water         WC Method         NEG         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         13         10         14           Chromium         ppm         ASTM D5185m         >20         <1         <1         <1         <1           Nickel         ppm         ASTM D5185m         >20         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1			Client Info		Changed	Changed	Changed
Fuel					NORMAL	NORMAL	_
Water Glycol         WC Method         >0.2         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         13         10         14           Chromium         ppm         ASTM D5185m         >20         <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >20         <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	13	10	14
Titanium         ppm         ASTM D5185m         0         0         <1	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>4	2	3	3
Aluminum         ppm         ASTM D5185m         >20         1         2            Lead         ppm         ASTM D5185m         >40         <1         0         <1           Copper         ppm         ASTM D5185m         >330         6         6         21           Tin         ppm         ASTM D5185m         >15         <1         0         <1           Vanadium         ppm         ASTM D5185m         0         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         3         2           Barium         ppm         ASTM D5185m         0         0         <1         0           Molybdenum         ppm         ASTM D5185m         0         4         0         <1           Magnesium         ppm         ASTM D5185m         0         <1         0         <1           Calcium         ppm         ASTM D5185m         1010         981         943	Titanium	ppm	ASTM D5185m		0	0	<1
Lead         ppm         ASTM D5185m         >40         <1	Silver	ppm	ASTM D5185m	>3	<1	0	0
Copper         ppm         ASTM D5185m         >330         6         6         21           Tin         ppm         ASTM D5185m         >15         <1         0         <1           Vanadium         ppm         ASTM D5185m         0         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         3         2           Barium         ppm         ASTM D5185m         0         0         <1         0           Molybdenum         ppm         ASTM D5185m         0         0         <1         0         <1           Magnesium         ppm         ASTM D5185m         0         <1         0         <1         0         <1           Magnesium         ppm         ASTM D5185m         1070         1109         992         1115         115         1064         845         1066         2inc         2inc         ppm         ASTM D5185m         1270         1283         1213         1299 <th>Aluminum</th> <th>ppm</th> <th>ASTM D5185m</th> <th>&gt;20</th> <th>1</th> <th>2</th> <th>&lt;1</th>	Aluminum	ppm	ASTM D5185m	>20	1	2	<1
Tin         ppm         ASTM D5185m         >15         <1	Lead	ppm	ASTM D5185m	>40	<1	0	<1
Vanadium         ppm         ASTM D5185m         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         3         2           Barium         ppm         ASTM D5185m         0         0         <1         0           Molybdenum         ppm         ASTM D5185m         0         61         62         61           Magnesium         ppm         ASTM D5185m         0         <1         0         <1           Magnesium         ppm         ASTM D5185m         1010         981         943         996           Calcium         ppm         ASTM D5185m         1070         1109         992         1115           Phosphorus         ppm         ASTM D5185m         1150         1064         845         1066           Zinc         ppm         ASTM D5185m         1270         1283         1213         1299           Sulfur         ppm         ASTM D5185m         2060         3259         2680	Copper	ppm	ASTM D5185m	>330	6	6	21
Cadmium         ppm         ASTM D5185m         0         0         0         0         0         0         0         0         0         0         0         0         1         history1         history2           Boron         ppm         ASTM D5185m         0         2         3         2           Barium         ppm         ASTM D5185m         0         0         <1	Tin	ppm	ASTM D5185m	>15	<1	0	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron         ppm         ASTM D5185m         0         2         3         2           Barium         ppm         ASTM D5185m         0         0         <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         0         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         61         62         61           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	0	2	3	
Manganese         ppm         ASTM D5185m         0         <1	Barium	ppm	ASTM D5185m	0	-		-
Magnesium         ppm         ASTM D5185m         1010         981         943         996           Calcium         ppm         ASTM D5185m         1070         1109         992         1115           Phosphorus         ppm         ASTM D5185m         1150         1064         845         1066           Zinc         ppm         ASTM D5185m         1270         1283         1213         1299           Sulfur         ppm         ASTM D5185m         2060         3259         2680         2721           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         >20         2         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         9.1         8.1         8.7           Sulfation         Abs/:nm         *ASTM D7415         >30         20.9         19.3         20.5           FLUID DEGRADATION	Molybdenum	ppm	ASTM D5185m	60		62	
Calcium         ppm         ASTM D5185m         1070         1109         992         1115           Phosphorus         ppm         ASTM D5185m         1150         1064         845         1066           Zinc         ppm         ASTM D5185m         1270         1283         1213         1299           Sulfur         ppm         ASTM D5185m         2060         3259         2680         2721           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         >20         2         2         0           Potassium         ppm         ASTM D5185m         >20         2         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         9.1         8.1         8.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.9         19.3         20.5           FLUID DEGRADATION	Manganese	ppm	ASTM D5185m	0	<1	0	
Phosphorus         ppm         ASTM D5185m         1150         1064         845         1066           Zinc         ppm         ASTM D5185m         1270         1283         1213         1299           Sulfur         ppm         ASTM D5185m         2060         3259         2680         2721           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         >20         2         2         0           Potassium         ppm         ASTM D5185m         >20         2         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         9.1         8.1         8.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.9         19.3         20.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm <t< th=""><th>-</th><th>ppm</th><th>ASTM D5185m</th><th></th><th></th><th></th><th></th></t<>	-	ppm	ASTM D5185m				
Zinc         ppm         ASTM D5185m         1270         1283         1213         1299           Sulfur         ppm         ASTM D5185m         2060         3259         2680         2721           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         >20         2         2         0           Potassium         ppm         ASTM D5185m         >20         2         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >3         0.6         0.4         0.5           Nitration         Abs/.1mm         *ASTM D7624         >20         9.1         8.1         8.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.9         19.3         20.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm <th>Calcium</th> <th>ppm</th> <th>ASTM D5185m</th> <th>1070</th> <th></th> <th>992</th> <th></th>	Calcium	ppm	ASTM D5185m	1070		992	
Sulfur         ppm         ASTM D5185m         2060         3259         2680         2721           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         >20         2         2         0           Potassium         ppm         ASTM D5185m         >20         2         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6         0.4         0.5           Nitration         Abs/.mm         *ASTM D7624         >20         9.1         8.1         8.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.9         19.3         20.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         15.5         16.4							
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         3         0         4           Potassium         ppm         ASTM D5185m         >20         2         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6         0.4         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.1         8.1         8.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.9         19.3         20.5           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         15.5         16.4	-	ppm					
Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         3         0         4           Potassium         ppm         ASTM D5185m         >20         2         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6         0.4         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.1         8.1         8.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.9         19.3         20.5           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         15.5         16.4			ASTM D5185m	2060	3259	2680	2721
Sodium         ppm         ASTM D5185m         3         0         4           Potassium         ppm         ASTM D5185m         >20         2         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6         0.4         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.1         8.1         8.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.9         19.3         20.5           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         15.5         16.4		ITS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         2         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6         0.4         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.1         8.1         8.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.9         19.3         20.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         15.5         16.4				>25			
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6         0.4         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.1         8.1         8.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.9         19.3         20.5           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         15.5         16.4		ppm			3	0	4
Soot %         %         *ASTM D7844 >3         0.6         0.4         0.5           Nitration         Abs/cm         *ASTM D7624 >20         9.1         8.1         8.7           Sulfation         Abs/.1mm         *ASTM D7415 >30         20.9         19.3         20.5           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         16.9         15.5         16.4	Potassium	ppm	ASTM D5185m	>20	2	2	0
Nitration         Abs/cm         *ASTM D7624         >20         9.1         8.1         8.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.9         19.3         20.5           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         15.5         16.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415 >30         20.9         19.3         20.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         16.9         15.5         16.4	Soot %	%	*ASTM D7844	>3	0.6		0.5
FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2516.915.516.4	Nitration	Abs/cm	*ASTM D7624	>20	9.1	8.1	8.7
Oxidation Abs/.1mm *ASTM D7414 >25 <b>16.9</b> 15.5 16.4	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.9	19.3	20.5
	FLUID DEGRAI	OATION	method	limit/base	current	history1	history2
<b>Base Number (BN)</b> mg KOH/g ASTM D2896 9.8 <b>6.9</b> 7.4 7.1	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.9	15.5	16.4
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.9	7.4	7.1



# **OIL ANALYSIS REPORT**



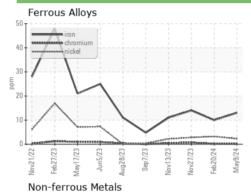
Bas	se Nu	ımbe	r						
1									
8.0 (mg KOH/g) 8.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4	/								
6.0 er					_				
W 4.0									
2.0									
0.0	23	23	23	23 -	23	23	23	24	2.4
Nov21/	Feb27/23	May17/2	Jun5/	Aug28/	Sep7/	Nov13/2	Nov27/	Feb20/2	A.A

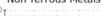


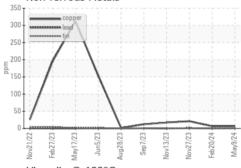
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

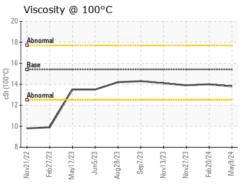
FLUID PROPE	RHES	method	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	14.0	13.9

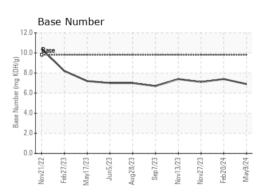
### **GRAPHS**















Certificate 12367

Laboratory

Sample No. : GFL0058104 Lab Number : 06175266 Unique Number : 11021319

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 10 May 2024

Tested : 13 May 2024 Diagnosed : 13 May 2024 - Wes Davis

GFL Environmental - 657 - Charlottesville Hauling

5498 Richmond Road Troy, VA US 22974

Contact: Brian Ulickas bulickas@gflenv.com T:

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: GFL657 [WUSCAR] 06175266 (Generated: 05/13/2024 07:17:32) Rev: 1

F: