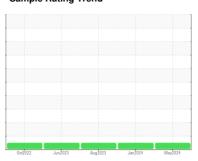


# **OIL ANALYSIS REPORT**

Sample Rating Trend



NORMAL



Machine Id
924040
Component

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

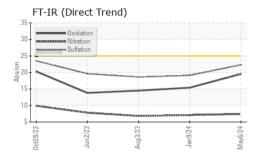
## **Fluid Condition**

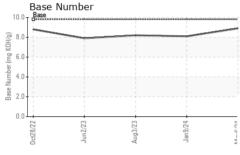
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

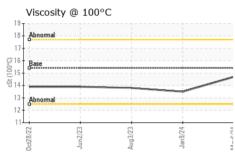
Cample Number   Client Info   GFL0120598   GFL0108524   GFL006605   Gample Date   Client Info   O	iAL)		0ct2022	Jun2023	Aug2023 Jan2024	May2024	
Client Info	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age   hrs	Sample Number		Client Info		GFL0120598	GFL0108524	GFL0066056
Dil Changed	Sample Date		Client Info		06 May 2024	09 Jan 2024	03 Aug 2023
Dil Changed   Client Info   N/A   N/A   N/A   NORMAL	Machine Age	hrs	Client Info		0	0	0
NORMAL   NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2   history2   Nater   WC Method   >5   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0	Oil Age	hrs	Client Info		0	0	0
CONTAMINATION   method   limit/base   current   history1   history2	Oil Changed		Client Info		N/A	N/A	N/A
Water	Sample Status				NORMAL	NORMAL	NORMAL
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         Imitibase         Current         history1         history2           WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185m         >110         14         2         3           Chromium         ppm         ASTM D5185m         >4         <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
NEG   Neg	-uel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185m         >110         14         2         3           Chromium         ppm         ASTM D5185m         >4         <1	Nater		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Sirickel	ron	ppm	ASTM D5185m	>110	14	2	3
Description	Chromium	ppm	ASTM D5185m	>4		0	
Silver	Nickel	ppm	ASTM D5185m	>2	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		0	0	
Lead	Silver	ppm	ASTM D5185m	>2			0
Copper	Aluminum	ppm	ASTM D5185m	>25	2		<1
Tin	Lead	ppm	ASTM D5185m	>45	0	<1	<1
Vanadium         ppm         ASTM D5185m         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         12         10           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         62         58         54           Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         1070         1173         1081         1212           Phosphorus         ppm         ASTM D5185m         1070         1173         1081         1212           Phosphorus         ppm         ASTM D5185m         1270         1271         1272         1221           Sulfur         ppm         ASTM D5185m         2060         3860         3118         3633           CONTAMINANTS         method         limit/base         current         history1 <td>Copper</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;85</td> <td>&lt;1</td> <td>&lt;1</td> <td>&lt;1</td>	Copper	ppm	ASTM D5185m	>85	<1	<1	<1
ADDITIVES		ppm	ASTM D5185m	>4			<1
ADDITIVES	/anadium	ppm	ASTM D5185m		0		<1
Boron   ppm   ASTM D5185m   0   0   12   10   10   10   10   10	Cadmium	ppm	ASTM D5185m		0	0	<1
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         62         58         54           Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1040         950         906           Calcium         ppm         ASTM D5185m         1070         1173         1081         1212           Phosphorus         ppm         ASTM D5185m         1150         1105         1095         990           Zinc         ppm         ASTM D5185m         1270         1271         1272         1221           Sulfur         ppm         ASTM D5185m         2060         3860         3118         3633           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         6         7           Sodium         ppm         ASTM D5185m         16         4         4         4           Potassium         ppm         ASTM D7844         >3         0.2         0.1         0.1           Soot %         *ASTM D7844         >3	Boron	ppm	ASTM D5185m	0	0	12	10
Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1040         950         906           Calcium         ppm         ASTM D5185m         1070         1173         1081         1212           Phosphorus         ppm         ASTM D5185m         1150         1105         1095         990           Zinc         ppm         ASTM D5185m         1270         1271         1272         1221           Sulfur         ppm         ASTM D5185m         2060         3860         3118         3633           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         6         7           Sodium         ppm         ASTM D5185m         >20         2         <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium         ppm         ASTM D5185m         1010         1040         950         906           Calcium         ppm         ASTM D5185m         1070         1173         1081         1212           Phosphorus         ppm         ASTM D5185m         1150         1105         1095         990           Zinc         ppm         ASTM D5185m         1270         1271         1272         1221           Sulfur         ppm         ASTM D5185m         2060         3860         3118         3633           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         6         7           Sodium         ppm         ASTM D5185m         >20         2         <1	Molybdenum	ppm	ASTM D5185m	60	62	58	54
Calcium         ppm         ASTM D5185m         1070         1173         1081         1212           Phosphorus         ppm         ASTM D5185m         1150         1105         1095         990           Zinc         ppm         ASTM D5185m         1270         1271         1272         1221           Sulfur         ppm         ASTM D5185m         2060         3860         3118         3633           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         6         7           Sodium         ppm         ASTM D5185m         >30         4         4         4           Potassium         ppm         ASTM D5185m         >20         2         <1	Manganese	ppm	ASTM D5185m	0	0	<1	<1
Phosphorus         ppm         ASTM D5185m         1150         1105         1095         990           Zinc         ppm         ASTM D5185m         1270         1271         1272         1221           Sulfur         ppm         ASTM D5185m         2060         3860         3118         3633           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         6         7           Sodium         ppm         ASTM D5185m         >30         4         4         4           Potassium         ppm         ASTM D5185m         >20         2         <1	Magnesium	ppm	ASTM D5185m	1010	1040	950	906
Zinc         ppm         ASTM D5185m         1270         1271         1272         1221           Sulfur         ppm         ASTM D5185m         2060         3860         3118         3633           CONTAMINANTS         method         limit/base         current         history1         history2           Gilicon         ppm         ASTM D5185m         >30         4         6         7           Sodium         ppm         ASTM D5185m         16         4         4           Potassium         ppm         ASTM D5185m         >20         2         <1	Calcium	ppm	ASTM D5185m	1070	1173	1081	1212
Sulfur         ppm         ASTM D5185m         2060         3860         3118         3633           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         6         7           Sodium         ppm         ASTM D5185m         16         4         4           Potassium         ppm         ASTM D5185m         >20         2         <1	Phosphorus	ppm	ASTM D5185m	1150	1105	1095	990
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         6         7           Sodium         ppm         ASTM D5185m         16         4         4           Potassium         ppm         ASTM D5185m         >20         2         <1	Zinc	ppm	ASTM D5185m	1270	1271	1272	1221
Silicon         ppm         ASTM D5185m         >30         4         6         7           Sodium         ppm         ASTM D5185m         16         4         4           Potassium         ppm         ASTM D5185m         >20         2         <1         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         7.4         7.1         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.3         19.1         18.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.5         15.4         14.5	Sulfur	ppm	ASTM D5185m	2060	3860	3118	3633
Sodium         ppm         ASTM D5185m         16         4         4           Potassium         ppm         ASTM D5185m         >20         2         <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         2         <1         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         7.4         7.1         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.3         19.1         18.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.5         15.4         14.5	Silicon	ppm	ASTM D5185m	>30	4	6	7
INFRA-RED	Sodium	ppm	ASTM D5185m		16	4	4
Soot %         %         *ASTM D7844 >3         0.2         0.1         0.1           Nitration         Abs/cm         *ASTM D7624 >20         7.4         7.1         6.8           Sulfation         Abs/.1mm         *ASTM D7415 >30         22.3         19.1         18.6           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         19.5         15.4         14.5	Potassium	ppm	ASTM D5185m	>20	2	<1	3
Nitration         Abs/cm         *ASTM D7624         >20         7.4         7.1         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.3         19.1         18.6           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.5         15.4         14.5	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         22.3         19.1         18.6           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.5         15.4         14.5	Soot %	%	*ASTM D7844	>3	0.2	0.1	0.1
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 19.5 15.4 14.5	Vitration	Abs/cm	*ASTM D7624	>20	7.4	7.1	6.8
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	22.3	19.1	18.6
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.9 8.1 8.2	Oxidation	Abs/.1mm	*ASTM D7414	>25	19.5	15.4	14.5
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.9	8.1	8.2



# **OIL ANALYSIS REPORT**



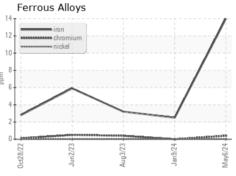


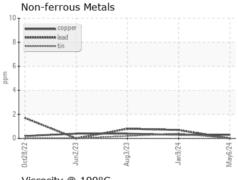


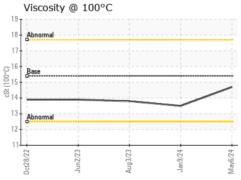
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

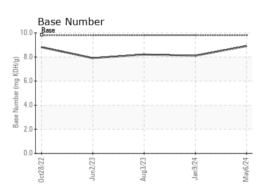
FLUID PROPI	ERIIES	method			History i	nistoryz
Visc @ 100°C	cSt	ASTM D445	15.4	14.7	13.5	13.8

## **GRAPHS**













Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Lab Number : 06178362

: GFL0120598 Unique Number : 11029688

Received **Tested** Diagnosed

: 14 May 2024 : 14 May 2024

: 14 May 2024 - Wes Davis

GFL Environmental - 904 - Chippewa Falls HC 11888 & 11863 30th Avenue Chippewa Falls, WI

US 54729

T: (715)202-3420

Contact: Andy Kane

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)

Submitted By: See also GFL904,A,B,C, 927, 938 - Andy Kane

Report Id: GFL904 [WUSCAR] 06178362 (Generated: 05/14/2024 18:36:32) Rev: 1