

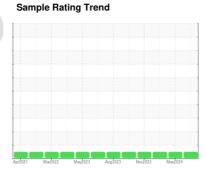
# **OIL ANALYSIS REPORT**



(43330HA) 911012 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- LTR)





## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

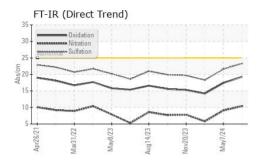
## **Fluid Condition**

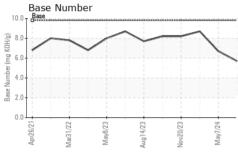
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

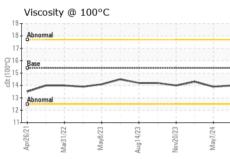
Sample Number   Client Info   CFL0091873   GFL0091849   GFL0101279   Sample Date   Client Info   Client Info   Client Info   20727   11168   10346	SAMPLE INFORM	IATIO <u>N</u>	method	limit/base	current	history1	history2
Comparison   Citent Info   N/A   Not Changd   NORMAL   NOR					GFL0091873	GFI 0091849	GFI 0101279
Machine Age   hrs   Client Info   20727   11168   10346   Oil Age   hrs   Client Info   30704   11168   0   Oil Changed   Client Info   N/A   Not Changd   Not							
Dil Age		hrs			•	,	
Colient Info	J						
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   nistory1   nistory2	-	1110					ū
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0	-		Olichi iilio			Ŭ	
Fuel		NC	method	limit/hase			
Water Glycol         WC Method WC Method         >0.2         NEG NEG         NEG NEG         NEG NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >12.0         17         13         3           Chromium         ppm         ASTM D5185m         >2.0         <1							
WEAR METALS							
WEAR METALS				>0.2			
Irron			WC Method		NEG	NEG	NEG
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	-	ppm	ASTM D5185m	>120			
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Silver	Nickel	ppm	ASTM D5185m	>5		1	0
Aluminum         ppm         ASTM D5185m         >20         2         2         <1           Lead         ppm         ASTM D5185m         >40         5         3         0           Copper         ppm         ASTM D5185m         >330         5         17         3           Tin         ppm         ASTM D5185m         >15         1         1         <1	Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Lead	Silver	ppm	ASTM D5185m	>2	<1		0
Copper         ppm         ASTM D5185m         >330         5         17         3           Tin         ppm         ASTM D5185m         >15         1         1         <1	Aluminum	ppm	ASTM D5185m	>20	2	2	<1
Tin	Lead	ppm	ASTM D5185m	>40	5	3	0
Vanadium         ppm         ASTM D5185m         <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         <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         <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	Copper	ppm	ASTM D5185m	>330	5	17	3
Cadmium         ppm         ASTM D5185m         <1         <1         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         2         3           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         <1	Tin	ppm	ASTM D5185m	>15	1	1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	<1	<1
Boron   ppm   ASTM D5185m   0   2   2   3	Cadmium	ppm	ASTM D5185m		<1	<1	0
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         60         60         59           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         881         887         987           Calcium         ppm         ASTM D5185m         1070         1232         1115         1089           Phosphorus         ppm         ASTM D5185m         1150         1010         1006         1076           Zinc         ppm         ASTM D5185m         1270         1211         1245         1294           Sulfur         ppm         ASTM D5185m         2060         2946         3149         3310           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         3           Sodium         ppm         ASTM D5185m         >20         2         5         0           INFRA-RED         method         limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         60         60         59           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	0	2	2	3
Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         881         887         987           Calcium         ppm         ASTM D5185m         1070         1232         1115         1089           Phosphorus         ppm         ASTM D5185m         1150         1010         1006         1076           Zinc         ppm         ASTM D5185m         1270         1211         1245         1294           Sulfur         ppm         ASTM D5185m         2060         2946         3149         3310           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         3           Sodium         ppm         ASTM D5185m         >20         2         5         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1         0.7         0.2           Nitration         Abs/cmm         *ASTM D7	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium         ppm         ASTM D5185m         1010         881         887         987           Calcium         ppm         ASTM D5185m         1070         1232         1115         1089           Phosphorus         ppm         ASTM D5185m         1150         1010         1006         1076           Zinc         ppm         ASTM D5185m         1270         1211         1245         1294           Sulfur         ppm         ASTM D5185m         2060         2946         3149         3310           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         3           Sodium         ppm         ASTM D5185m         7         4         2           Potassium         ppm         ASTM D5185m         >20         2         5         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1         0.7         0.2           Nitration         Abs/cm         *ASTM D7415         >3	Molybdenum	ppm	ASTM D5185m	60	60	60	59
Calcium         ppm         ASTM D5185m         1070         1232         1115         1089           Phosphorus         ppm         ASTM D5185m         1150         1010         1006         1076           Zinc         ppm         ASTM D5185m         1270         1211         1245         1294           Sulfur         ppm         ASTM D5185m         2060         2946         3149         3310           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         3           Sodium         ppm         ASTM D5185m         >20         2         5         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1         0.7         0.2           Nitration         Abs/.1mm         *ASTM D7624         >20         10.4         9.1         5.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.3         21.6         18.3           FLUID DEGRADATION<	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus         ppm         ASTM D5185m         1150         1010         1006         1076           Zinc         ppm         ASTM D5185m         1270         1211         1245         1294           Sulfur         ppm         ASTM D5185m         2060         2946         3149         3310           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         3           Sodium         ppm         ASTM D5185m         >20         2         5         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1         0.7         0.2           Nitration         Abs/cm         *ASTM D7624         >20         10.4         9.1         5.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.3         21.6         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/	Magnesium	ppm	ASTM D5185m	1010	881	887	987
Zinc         ppm         ASTM D5185m         1270         1211         1245         1294           Sulfur         ppm         ASTM D5185m         2060         2946         3149         3310           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         3           Sodium         ppm         ASTM D5185m         7         4         2           Potassium         ppm         ASTM D5185m         >20         2         5         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1         0.7         0.2           Nitration         Abs/cm         *ASTM D7624         >20         10.4         9.1         5.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.3         21.6         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm <t< td=""><td>Calcium</td><td>ppm</td><td>ASTM D5185m</td><td>1070</td><th>1232</th><td>1115</td><td>1089</td></t<>	Calcium	ppm	ASTM D5185m	1070	1232	1115	1089
Sulfur         ppm         ASTM D5185m         2060         2946         3149         3310           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         3           Sodium         ppm         ASTM D5185m         7         4         2           Potassium         ppm         ASTM D5185m         >20         2         5         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1         0.7         0.2           Nitration         Abs/cm         *ASTM D7624         >20         10.4         9.1         5.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.3         21.6         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.3         17.4         14.2	Phosphorus	ppm	ASTM D5185m	1150	1010	1006	1076
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         3           Sodium         ppm         ASTM D5185m         7         4         2           Potassium         ppm         ASTM D5185m         >20         2         5         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1         0.7         0.2           Nitration         Abs/cm         *ASTM D7624         >20         10.4         9.1         5.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.3         21.6         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.3         17.4         14.2	Zinc	ppm	ASTM D5185m	1270	1211	1245	1294
Silicon         ppm         ASTM D5185m         >25         6         6         3           Sodium         ppm         ASTM D5185m         7         4         2           Potassium         ppm         ASTM D5185m         >20         2         5         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1         0.7         0.2           Nitration         Abs/cm         *ASTM D7624         >20         10.4         9.1         5.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.3         21.6         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.3         17.4         14.2	Sulfur	ppm	ASTM D5185m	2060	2946	3149	3310
Sodium         ppm         ASTM D5185m         7         4         2           Potassium         ppm         ASTM D5185m         >20         2         5         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1         0.7         0.2           Nitration         Abs/cm         *ASTM D7624         >20         10.4         9.1         5.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.3         21.6         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.3         17.4         14.2	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         2         5         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1         0.7         0.2           Nitration         Abs/cm         *ASTM D7624         >20         10.4         9.1         5.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.3         21.6         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.3         17.4         14.2	Silicon	ppm	ASTM D5185m	>25	6	6	3
INFRA-RED	Sodium	ppm	ASTM D5185m		7	4	2
Soot %         %         *ASTM D7844 >4         1         0.7         0.2           Nitration         Abs/cm         *ASTM D7624 >20         10.4         9.1         5.8           Sulfation         Abs/.1mm         *ASTM D7415 >30         23.3         21.6         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         19.3         17.4         14.2	Potassium	ppm	ASTM D5185m	>20	2	5	0
Nitration         Abs/cm         *ASTM D7624         >20         10.4         9.1         5.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.3         21.6         18.3           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.3         17.4         14.2	INFRA-RED		method	limit/base	current	history1	history2
Nitration         Abs/cm         *ASTM D7624         >20         10.4         9.1         5.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.3         21.6         18.3           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.3         17.4         14.2	Soot %	%	*ASTM D7844	>4	1	0.7	0.2
Sulfation         Abs/.1mm         *ASTM D7415         >30         23.3         21.6         18.3           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.3         17.4         14.2							
Oxidation							
	FLUID DEGRADA	ATIO <u>N</u>	method_	limit/base	current	history1	history2
	Oxidation	Ahs/.1mm	*ASTM D7414	>25	19.3	17.4	14.2
		mg KOH/g	ASTM D2896	9.8	5.7	6.7	8.7



# **OIL ANALYSIS REPORT**



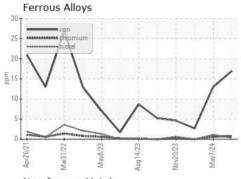


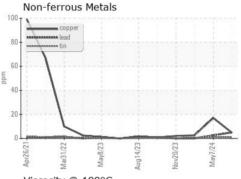


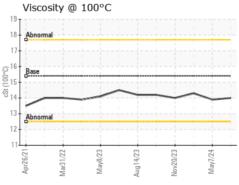
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

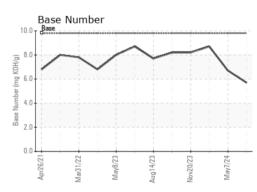
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.9	14.3

### **GRAPHS**













Certificate 12367

Sample No.

: GFL0091873 Lab Number : 06194850 Unique Number : 11056973 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 29 May 2024

**Tested** : 30 May 2024 Diagnosed : 30 May 2024 - Wes Davis

GFL Environmental - 654 - Richmond Hauling

11800 Lewis Road Chester, VA US 23831

Contact: Jimmy Mayes jmayes@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)

Report Id: GFL654 [WUSCAR] 06194850 (Generated: 05/30/2024 17:38:09) Rev: 1

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