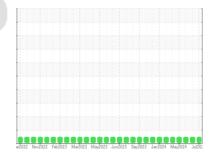


# **OIL ANALYSIS REPORT**

## Sample Rating Trend









Machine Id
429074-27
Component
Diesel Engine
Fluid

PETRO CANADA DURON SHP 15W40 (12 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

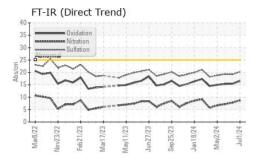
## **Fluid Condition**

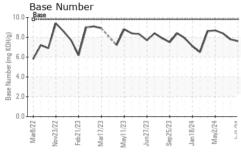
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

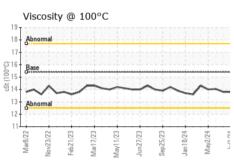
Machine Age         hrs         Client Info         13461         13203         13203           Oil Age         hrs         Client Info         450         600         200           Oil Changed         Client Info         Not Changd         Not Changd	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2	
Machine Age         hrs         Client Info         13461         13203         13203           Oil Age         hrs         Client Info         450         600         200           Oil Changed         Client Info         Not Changd         Not Changd	Sample Number		Client Info		GFL0125863	GFL0118681	GFL0118668	
Oil Age         hrs         Client Info         450         600         200           Oil Changed Sample Status         Client Info         Not Changed Not Changed Not Changed Not Changed Not Changed NormAL	Sample Date		Client Info		01 Jul 2024	13 Jun 2024	24 May 2024	
Oil Age         hrs         Client Info         450         600         200           Oil Changed Sample Status         Client Info         Not Changed Not Changed Not Changed Not Changed Not Changed NormAL	Machine Age	hrs	Client Info		13461	13203	13203	
Cilient Info	J.	hrs	Client Info		450	600	200	
NORMAL   NORMAL   NORMAL			Client Info		Not Changd	Not Changd	Not Changd	
Fuel								
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         Imit/base         current         history1         history2           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         7         5         5           Chromium         ppm         ASTM D5185m         >20         0         0         <1           Nickel         ppm         ASTM D5185m         >2         0         <1         <1           Silver         ppm         ASTM D5185m         >2         0         <1         <1           Aluminum         ppm         ASTM D5185m         >20         2         1         <1           Copper         ppm         ASTM D5185m         >40         1         1         <1         <1           Tin         ppm         ASTM D5185m         >15         <1         0         <1         <1           Vanadium         ppm         ASTM D5185m         0         0         0         0         <1           Vanadium         ppm         ASTM D5185m         0	CONTAMINATIO	NC	method	limit/base	current	history1	history2	
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0	
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         7         5         5           Chromium         ppm         ASTM D5185m         >20         0         0         <1	Water		WC Method	>0.2	NEG	NEG	NEG	
Iron	Glycol		WC Method		NEG	NEG	NEG	
Chromium         ppm         ASTM D5185m         >20         0         0         <1	WEAR METALS		method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>120	7	5	5	
Description	Chromium	ppm	ASTM D5185m	>20	0	0	<1	
Titanium			ASTM D5185m	>5	0	0	<1	
Silver			ASTM D5185m	>2	0	<1	<1	
Aluminum			ASTM D5185m	>2	<1	<1		
Lead			ASTM D5185m	>20	2	1	2	
Copper         ppm         ASTM D5185m         >330         2         <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			ASTM D5185m	>40	1	1	<1	
Tin			ASTM D5185m	>330	2	<1	<1	
Vanadium         ppm         ASTM D5185m         0         <1         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         0         0         0         <1           Molybdenum         ppm         ASTM D5185m         0         0         0         <1           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1010         1090         1040           Calcium         ppm         ASTM D5185m         1070         1120         1222         1134           Phosphorus         ppm         ASTM D5185m         1270         1347         1455         1292           Sulfur         ppm         ASTM D5185m         2060         3655         3794         3309           CONTAMINANTS         method         limit/base         current         history1					<1			
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         0         0         0         -1           Molybdenum         ppm         ASTM D5185m         0         -1         -1         -1           Magnesium         ppm         ASTM D5185m         0         -1         -1         -1           Magnesium         ppm         ASTM D5185m         1010         1010         1090         1040           Calcium         ppm         ASTM D5185m         1070         1120         1222         1134           Phosphorus         ppm         ASTM D5185m         1270         1347         1455         1292           Sulfur         ppm         ASTM D5185m         2060         3655         3794         3309           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         2<								
Boron   ppm   ASTM D5185m   0   0   0   0   0   0   0								
Barium         ppm         ASTM D5185m         0         0         0         <1	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum         ppm         ASTM D5185m         60         63         61         64           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1010         1090         1040           Calcium         ppm         ASTM D5185m         1070         1120         1222         1134           Phosphorus         ppm         ASTM D5185m         1150         1154         1144         1126           Zinc         ppm         ASTM D5185m         1270         1347         1455         1292           Sulfur         ppm         ASTM D5185m         2060         3655         3794         3309           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7844         >4	Boron	ppm	ASTM D5185m	0	0	0	0	
Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1010         1090         1040           Calcium         ppm         ASTM D5185m         1070         1120         1222         1134           Phosphorus         ppm         ASTM D5185m         1150         1154         1144         1126           Zinc         ppm         ASTM D5185m         1270         1347         1455         1292           Sulfur         ppm         ASTM D5185m         2060         3655         3794         3309           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         5         4         3         3           Potassium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         <	Barium	ppm	ASTM D5185m	0	0	0	<1	
Magnesium         ppm         ASTM D5185m         1010         1010         1090         1040           Calcium         ppm         ASTM D5185m         1070         1120         1222         1134           Phosphorus         ppm         ASTM D5185m         1150         1154         1144         1126           Zinc         ppm         ASTM D5185m         1270         1347         1455         1292           Sulfur         ppm         ASTM D5185m         2060         3655         3794         3309           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         5         4         3         3           Potassium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/cm         *ASTM D7415	Molybdenum	ppm	ASTM D5185m	60	63	61	64	
Calcium         ppm         ASTM D5185m         1070         1120         1222         1134           Phosphorus         ppm         ASTM D5185m         1150         1154         1144         1126           Zinc         ppm         ASTM D5185m         1270         1347         1455         1292           Sulfur         ppm         ASTM D5185m         2060         3655         3794         3309           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         5         4         3           Potassium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/cm         *ASTM D7415 <td>Manganese</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>&lt;1</th> <td>&lt;1</td> <td>&lt;1</td>	Manganese	ppm	ASTM D5185m	0	<1	<1	<1	
Calcium         ppm         ASTM D5185m         1070         1120         1222         1134           Phosphorus         ppm         ASTM D5185m         1150         1154         1144         1126           Zinc         ppm         ASTM D5185m         1270         1347         1455         1292           Sulfur         ppm         ASTM D5185m         2060         3655         3794         3309           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         5         4         3           Potassium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/cm         *ASTM D7415 <td>Magnesium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>1010</td> <th>1010</th> <td>1090</td> <td>1040</td>	Magnesium	ppm	ASTM D5185m	1010	1010	1090	1040	
Phosphorus         ppm         ASTM D5185m         1150         1154         1144         1126           Zinc         ppm         ASTM D5185m         1270         1347         1455         1292           Sulfur         ppm         ASTM D5185m         2060         3655         3794         3309           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         5         4         3           Potassium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         19.2         19.3           FLUID DEGRADATION         method         l	Calcium	ppm	ASTM D5185m	1070	1120	1222	1134	
Zinc         ppm         ASTM D5185m         1270         1347         1455         1292           Sulfur         ppm         ASTM D5185m         2060         3655         3794         3309           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         5         4         3           Potassium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         19.2         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D74			ASTM D5185m	1150	1154	1144	1126	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         5         4         3           Potassium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         19.2         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.5         15.4         15.3			ASTM D5185m	1270	1347	1455	1292	
Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         5         4         3           Potassium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         19.2         19.3           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.5         15.4         15.3	Sulfur	ppm	ASTM D5185m	2060	3655	3794	3309	
Sodium         ppm         ASTM D5185m         5         4         3           Potassium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         19.2         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.5         15.4         15.3	CONTAMINANT	·S	method	limit/base	current	history1	history2	
Potassium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         19.2         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.5         15.4         15.3	Silicon	ppm	ASTM D5185m	>25	4	4	4	
Potassium         ppm         ASTM D5185m         >20         2         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.2         0.2           Nitration         Abs/cm         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         19.2         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.5         15.4         15.3			ASTM D5185m		5	4	3	
Soot %         %         *ASTM D7844 >4         0.3         0.2         0.2           Nitration         Abs/cm         *ASTM D7624 >20         8.7         7.8         7.2           Sulfation         Abs/.1mm         *ASTM D7415 >30         20.2         19.2         19.3           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         16.5         15.4         15.3	Potassium	ppm	ASTM D5185m	>20		2	2	
Nitration         Abs/cm         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         19.2         19.3           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.5         15.4         15.3	INFRA-RED		method	limit/base	current	history1	history2	
Nitration         Abs/cm         *ASTM D7624         >20         8.7         7.8         7.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         19.2         19.3           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.5         15.4         15.3	Soot %	%	*ASTM D7844	>4	0.3	0.2	0.2	
Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         19.2         19.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.5         15.4         15.3		Abs/cm	*ASTM D7624	>20				
Oxidation Abs/.1mm *ASTM D7414 >25 <b>16.5</b> 15.4 15.3								
	FLUID DEGRADATION method limit/base current history1 history2							
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.5	15.4	15.3	
					7.6	7.8	8.4	



## **OIL ANALYSIS REPORT**



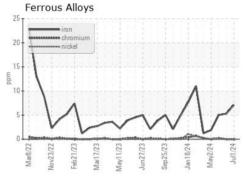


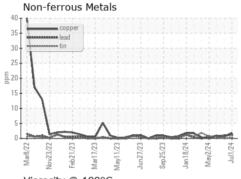


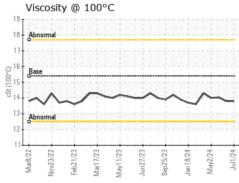
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

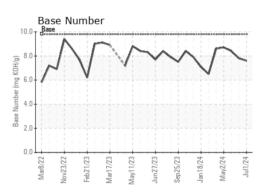
FLUID PROPE	RHES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.8	14.04

## **GRAPHS**













Certificate 12367

Laboratory Sample No.

Lab Number : 06231192

: GFL0125863 Unique Number : 11114685

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 09 Jul 2024

**Tested** : 10 Jul 2024 Diagnosed : 10 Jul 2024 - Wes Davis

18 Old Brickyard Rd Phenix City, AL

US 36869 Contact: DEAN PEACE JR dean.peace@gflenv.com

GFL Environmental - 166 - Phenix City

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: GFL166 [WUSCAR] 06231192 (Generated: 07/10/2024 04:36:20) Rev: 1

Submitted By: DEAN PEACE JR

T:

F: