

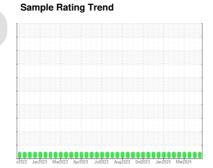
# **OIL ANALYSIS REPORT**



# MONTGOMERY Machine 10 Machine 10

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

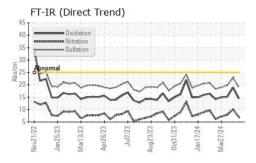
## **Fluid Condition**

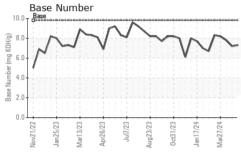
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

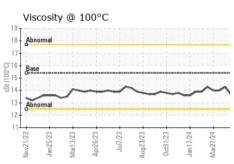
Sample Number   Client Info   CFL0118453   GFL0083570   GFL00835570   GFL0083559   Sample Date   Client Info   22 Apr 2024   11 Apr 2024   04 Apr 2024   Machine Age   hrs   Client Info   13292   2918   5046   Oil Age   hrs   Client Info   146   2918   341   Oil Changed   Client Info   Not Changd   NORMAL   NORMAL	SAMPLE INFORM	1ATIO <u>N</u>	method	limit/base	current	history1	history2	
Sample Date					GFL0118453	GFL0083570	GFL0083559	
Machine Age         hrs         Client Info         13292         2918         5046           Oil Age         hrs         Client Info         146         2918         341           Oil Changed         Client Info         Not Changd         Not Changd         Changed           Sample Status         NorMAL         NoRMAL         NoRMAL         NoRMAL           CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0								
Oil Age         hrs         Client Info         146         2918         341           Oil Changed Sample Status         Client Info         Not Changd         Not Changd         Changed           CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         3-0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0	·	hrs			•			
Client Info   Not Changd   NORMAL   NORMAL   NORMAL   NORMAL								
NORMAL   NORMAL   NORMAL   NORMAL	-				-			
Fuel	-					Ŭ	Ü	
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         15         6           Chromium         ppm         ASTM D5185m         >20         0         0         0           Nickel         ppm         ASTM D5185m         >5         0         0         0           Silver         ppm         ASTM D5185m         >2         1         0         0           Silver         ppm         ASTM D5185m         >20         2         1         0           Silver         ppm         ASTM D5185m         >40         0         0         0           Lead         ppm         ASTM D5185m         >40         0         0         0           Copper         ppm         ASTM D5185m         >15         0         <1         <1           Vanadium         ppm         ASTM D5185m         0         0         0         0	CONTAMINATION	ON	method	limit/base	current	history1	history2	
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0	
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG	
Irron	Glycol		WC Method		NEG	NEG	NEG	
Chromium         ppm         ASTM D5185m         >20         0         <1	WEAR METALS	5	method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>120	7	15	6	
Titanium	Chromium	ppm	ASTM D5185m	>20	0	<1	0	
Description	Nickel		ASTM D5185m	>5	0	0	0	
Silver	Titanium	• •		>2			0	
Aluminum	Silver				0	0	0	
Lead	Aluminum		ASTM D5185m	>20	2	1	0	
Copper         ppm         ASTM D5185m         >330         0         3         0           Tin         ppm         ASTM D5185m         >15         0         <1	Lead				0	0	0	
Tin	Copper	• •		>330		3	0	
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         4         2           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0         0           Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1033         998         935           Calcium         ppm         ASTM D5185m         1070         1162         11116         1042           Phosphorus         ppm         ASTM D5185m         1270         1318         1333         1169           Sulfur         ppm         ASTM D5185m         2060         3456         3541         3072           CONTAMINANTS         method         limit/base         current         history1         <					0	<1	<1	
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         4         2           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         60         64         59           Manganese         ppm         ASTM D5185m         0         0         <1	Vanadium							
Boron	Cadmium							
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         60         64         59           Manganese         ppm         ASTM D5185m         0         0         <1	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum         ppm         ASTM D5185m         60         60         64         59           Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1033         998         935           Calcium         ppm         ASTM D5185m         1070         1162         1116         1042           Phosphorus         ppm         ASTM D5185m         1150         1039         1121         999           Zinc         ppm         ASTM D5185m         1270         1318         1333         1169           Sulfur         ppm         ASTM D5185m         2060         3456         3541         3072           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         >20         <1	Boron	ppm	ASTM D5185m	0	2	4	2	
Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1033         998         935           Calcium         ppm         ASTM D5185m         1070         1162         1116         1042           Phosphorus         ppm         ASTM D5185m         1150         1039         1121         999           Zinc         ppm         ASTM D5185m         1270         1318         1333         1169           Sulfur         ppm         ASTM D5185m         2060         3456         3541         3072           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         >20         <1         <1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.4         0.7         0.6           Nitration         Abs/cm         *ASTM	Barium	ppm	ASTM D5185m	0	0	0	0	
Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1033         998         935           Calcium         ppm         ASTM D5185m         1070         1162         1116         1042           Phosphorus         ppm         ASTM D5185m         1150         1039         1121         999           Zinc         ppm         ASTM D5185m         1270         1318         1333         1169           Sulfur         ppm         ASTM D5185m         2060         3456         3541         3072           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         >20         <1         <1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         7.0         10.1         7.9           Sulfation         Abs/cmm         *AS	Molybdenum		ASTM D5185m	60	60	64	59	
Magnesium         ppm         ASTM D5185m         1010         1033         998         935           Calcium         ppm         ASTM D5185m         1070         1162         1116         1042           Phosphorus         ppm         ASTM D5185m         1150         1039         1121         999           Zinc         ppm         ASTM D5185m         1270         1318         1333         1169           Sulfur         ppm         ASTM D5185m         2060         3456         3541         3072           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         20         <1         <1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.4         0.7         0.6           Nitration         Abs/cm         *ASTM D7624         >20         7.0         10.1         7.9           Sulfation         Abs/.1mm         *ASTM D			ASTM D5185m	0	0	<1	<1	
Calcium         ppm         ASTM D5185m         1070         1162         1116         1042           Phosphorus         ppm         ASTM D5185m         1150         1039         1121         999           Zinc         ppm         ASTM D5185m         1270         1318         1333         1169           Sulfur         ppm         ASTM D5185m         2060         3456         3541         3072           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         >20         <1	<td>Magnesium</td> <td></td> <td>ASTM D5185m</td> <td>1010</td> <th>1033</th> <td>998</td> <td>935</td>	Magnesium		ASTM D5185m	1010	1033	998	935
Phosphorus         ppm         ASTM D5185m         1150         1039         1121         999           Zinc         ppm         ASTM D5185m         1270         1318         1333         1169           Sulfur         ppm         ASTM D5185m         2060         3456         3541         3072           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         >20         <1	,		ASTM D5185m	1070	1162	1116	1042	
Zinc         ppm         ASTM D5185m         1270         1318         1333         1169           Sulfur         ppm         ASTM D5185m         2060         3456         3541         3072           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         >20         <1	Phosphorus		ASTM D5185m	1150	1039	1121	999	
Sulfur         ppm         ASTM D5185m         2060         3456         3541         3072           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         >20         <1		• •		1270	1318	1333	1169	
Silicon         ppm         ASTM D5185m         >25         4         4         4           Sodium         ppm         ASTM D5185m         4         5         3           Potassium         ppm         ASTM D5185m         >20         <1         <1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.4         0.7         0.6           Nitration         Abs/cm         *ASTM D7624         >20         7.0         10.1         7.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         22.8         19.8           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         18.9         15.2								
Sodium         ppm         ASTM D5185m         4         5         3           Potassium         ppm         ASTM D5185m         >20         <1         <1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.4         0.7         0.6           Nitration         Abs/cm         *ASTM D7624         >20         7.0         10.1         7.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         22.8         19.8           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         18.9         15.2	CONTAMINANT	ΓS	method	limit/base	current	history1	history2	
Potassium         ppm         ASTM D5185m         >20         <1         <1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.4         0.7         0.6           Nitration         Abs/cm         *ASTM D7624         >20         7.0         10.1         7.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         22.8         19.8           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         18.9         15.2	Silicon	ppm	ASTM D5185m	>25	4	4	4	
INFRA-RED	Sodium	ppm	ASTM D5185m		4	5	3	
Soot %         %         *ASTM D7844         >4         0.4         0.7         0.6           Nitration         Abs/cm         *ASTM D7624         >20         7.0         10.1         7.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         22.8         19.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         18.9         15.2	Potassium	ppm	ASTM D5185m	>20	<1	<1	0	
Nitration         Abs/cm         *ASTM D7624         >20         7.0         10.1         7.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         22.8         19.8           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         18.9         15.2	INFRA-RED		method	limit/base	current	history1	history2	
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         22.8         19.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         18.9         15.2	Soot %	%	*ASTM D7844	>4	0.4	0.7	0.6	
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         22.8         19.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.5         18.9         15.2	Nitration	Abs/cm		>20				
Oxidation Abs/.1mm *ASTM D7414 >25 14.5 18.9 15.2								
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2	
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.5	18.9	15.2	



## **OIL ANALYSIS REPORT**



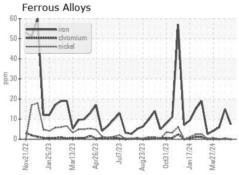


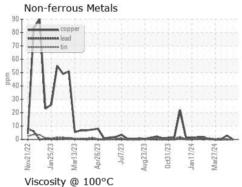


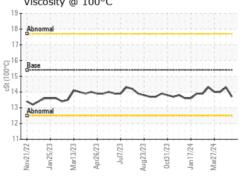
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

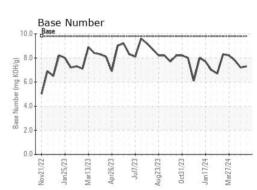
FLUID PROPE	RHES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	14.3	14.0

## **GRAPHS**













Certificate 12367

Laboratory Sample No.

: GFL0118453 Lab Number : 06160038 Unique Number : 10995461 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 25 Apr 2024

**Tested** : 25 Apr 2024 Diagnosed : 25 Apr 2024 - Wes Davis

GFL Environmental - 955 - Montgomery 1121 Wilbanks St

Montgomery, AL US 36108

Contact: LISA REEVES

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: GFL955 [WUSCAR] 06160038 (Generated: 04/25/2024 19:41:22) Rev: 1

Submitted By: Lisa Reeves

T:

F: