

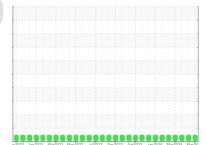
# **OIL ANALYSIS REPORT**



**MONTGOMERY MACK 420040** 

Diesel Engine

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



Sample Rating Trend



**NORMAL** 

# 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

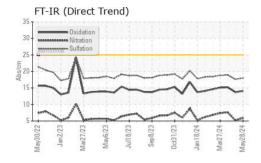
## **Fluid Condition**

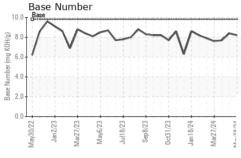
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

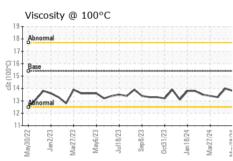
Sample Date	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   9996   9866   9742	Sample Number		Client Info		GFL0088025	GFL0118450	GFL0083556
Oil Age	Sample Date		Client Info		28 May 2024	19 Apr 2024	03 Apr 2024
Oil Changed   Client Info   Not Changd   Not Changd   NORMAL   NORMAL   NORMAL   NORMAL	Machine Age	hrs	Client Info		9996	9866	9742
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2   history2   history2   history2   history2   NEG   N	Oil Age	hrs	Client Info		789	659	535
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2   history2   history2   history2   history2   NEG   N	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Fuel	Sample Status				•		_
Water Glycol         WC Method         >0.2         NEG	CONTAMINAT	ΓΙΟΝ	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
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	4	4	8
Nickel	Chromium	ppm	ASTM D5185m	>20	<1	0	0
Titanium	Nickel		ASTM D5185m	>5	<1	0	<1
Silver	Titanium	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	Silver		ASTM D5185m	>2	0	0	0
Lead	Aluminum		ASTM D5185m	>20	1	2	2
Copper         ppm         ASTM D5185m         >330         <1         0         <1           Tin         ppm         ASTM D5185m         >15         <1					<1		
Tin							
Vanadium         ppm         ASTM D5185m         <1         0         0           Cadmium         ppm         ASTM D5185m         <1         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         <1         <1         2           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0         0           Manganese         ppm         ASTM D5185m         0         0         0         0           Magnesium         ppm         ASTM D5185m         1010         932         1047         1069           Calcium         ppm         ASTM D5185m         1070         1035         1145         1169           Phosphorus         ppm         ASTM D5185m         1270         1252         1327         1398           Sulfur         ppm         ASTM D5185m         2060         3331         3874         3992           CONTAMINANTS         method         limit/base         current         history1<							
Cadmium         ppm         ASTM D5185m         <1         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         <1				710			
ADDITIVES	Cadmium						
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         58         60         62           Manganese         ppm         ASTM D5185m         0         0         0         0           Magnesium         ppm         ASTM D5185m         1010         932         1047         1069           Calcium         ppm         ASTM D5185m         1070         1035         1145         1169           Phosphorus         ppm         ASTM D5185m         1270         1252         1327         1398           Sulfur         ppm         ASTM D5185m         2060         3331         3874         3992           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         2         2         2           Potassium         ppm         ASTM D5185m         >20         2         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         58         60         62           Manganese         ppm         ASTM D5185m         0         0         0         0           Magnesium         ppm         ASTM D5185m         1010         932         1047         1069           Calcium         ppm         ASTM D5185m         1070         1035         1145         1169           Phosphorus         ppm         ASTM D5185m         1150         1077         1103         1114           Zinc         ppm         ASTM D5185m         1270         1252         1327         1398           Sulfur         ppm         ASTM D5185m         2060         3331         3874         3992           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         22         2         2           Sodium         ppm         ASTM D5185m         20         2         2         2           Potassium         ppm         ASTM D5185m         20         2         2         2           Soot %         *ASTM D7844         >4         0.2         <	Boron	ppm	ASTM D5185m	0	<1	<1	2
Molybdenum         ppm         ASTM D5185m         60         58         60         62           Manganese         ppm         ASTM D5185m         0         0         0         0           Magnesium         ppm         ASTM D5185m         1010         932         1047         1069           Calcium         ppm         ASTM D5185m         1070         1035         1145         1169           Phosphorus         ppm         ASTM D5185m         1150         1077         1103         1114           Zinc         ppm         ASTM D5185m         1270         1252         1327         1398           Sulfur         ppm         ASTM D5185m         2060         3331         3874         3992           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         22         2         2           Sodium         ppm         ASTM D5185m         20         2         2         2           Potassium         ppm         ASTM D5185m         20         2         2         2         2           Soot %         *ASTM D7844         >4 <th< td=""><td>Barium</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>0</th><td>0</td><td>0</td></th<>	Barium	ppm	ASTM D5185m	0	0	0	0
Manganese         ppm         ASTM D5185m         0         0         0         0           Magnesium         ppm         ASTM D5185m         1010         932         1047         1069           Calcium         ppm         ASTM D5185m         1070         1035         1145         1169           Phosphorus         ppm         ASTM D5185m         1150         1077         1103         1114           Zinc         ppm         ASTM D5185m         1270         1252         1327         1398           Sulfur         ppm         ASTM D5185m         2060         3331         3874         3992           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         2         <1	Molybdenum		ASTM D5185m	60	58	60	62
Magnesium         ppm         ASTM D5185m         1010         932         1047         1069           Calcium         ppm         ASTM D5185m         1070         1035         1145         1169           Phosphorus         ppm         ASTM D5185m         1150         1077         1103         1114           Zinc         ppm         ASTM D5185m         1270         1252         1327         1398           Sulfur         ppm         ASTM D5185m         2060         3331         3874         3992           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         20         2         2         2           Potassium         ppm         ASTM D5185m         >20         2         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         5.9         5.2         7.6           Sulfation         Abs/.1mm         *ASTM D7414 <td>-</td> <td></td> <td>ASTM D5185m</td> <td>0</td> <th>0</th> <td>0</td> <td>0</td>	-		ASTM D5185m	0	0	0	0
Calcium         ppm         ASTM D5185m         1070         1035         1145         1169           Phosphorus         ppm         ASTM D5185m         1150         1077         1103         1114           Zinc         ppm         ASTM D5185m         1270         1252         1327         1398           Sulfur         ppm         ASTM D5185m         2060         3331         3874         3992           CONTAMINANTS         method         limit/base         current         history1         history2           Soliicon         ppm         ASTM D5185m         25         4         7         5           Soliicon         ppm         ASTM D5185m         20         2         2         2           Potassium         ppm         ASTM D5185m         >20         2         <1	•				932		1069
Phosphorus         ppm         ASTM D5185m         1150         1077         1103         1114           Zinc         ppm         ASTM D5185m         1270         1252         1327         1398           Sulfur         ppm         ASTM D5185m         2060         3331         3874         3992           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         2         2         2           Potassium         ppm         ASTM D5185m         >20         2         <1			ASTM D5185m	1070		1145	1169
Zinc         ppm         ASTM D5185m         1270         1252         1327         1398           Sulfur         ppm         ASTM D5185m         2060         3331         3874         3992           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         2         2         2           Potassium         ppm         ASTM D5185m         >20         2         <1						1103	
Sulfur         ppm         ASTM D5185m         2060         3331         3874         3992           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         2         <1							
Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         2         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.1         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.9         5.2         7.6           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.1         13.7         15.2	Sulfur				-		
Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         2         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.1         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.9         5.2         7.6           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         18.9           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.1         13.7         15.2	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         2         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.1         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.9         5.2         7.6           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         18.9           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.1         13.7         15.2	Silicon	ppm	ASTM D5185m	>25	4	7	5
Potassium         ppm         ASTM D5185m         >20         2         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.1         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.9         5.2         7.6           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.1         13.7         15.2	Sodium		ASTM D5185m		2	2	2
Soot %         %         *ASTM D7844 >4         0.2         0.1         0.3           Nitration         Abs/cm         *ASTM D7624 >20         5.9         5.2         7.6           Sulfation         Abs/.1mm         *ASTM D7415 >30         18.0         17.6         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         14.1         13.7         15.2	Potassium		ASTM D5185m	>20	2	<1	2
Nitration         Abs/cm         *ASTM D7624         >20         5.9         5.2         7.6           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         18.9           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.1         13.7         15.2	INFRA-RED		method	limit/base	current	history1	history2
Nitration         Abs/cm         *ASTM D7624         >20         5.9         5.2         7.6           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         18.9           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.1         13.7         15.2	Soot %	%	*ASTM D7844	>4	0.2	0.1	0.3
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.1         13.7         15.2	Nitration						
Oxidation Abs/.1mm *ASTM D7414 >25 <b>14.1</b> 13.7 15.2	Sulfation						
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.1	13.7	15,2
	Base Number (BN)	mg KOH/g			8.2	8.4	7.7



# **OIL ANALYSIS REPORT**





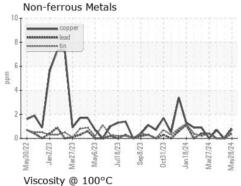


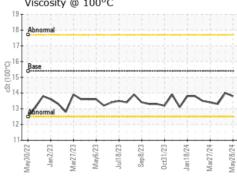
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	NONE
Sand/Dirt	scalar	*Visual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

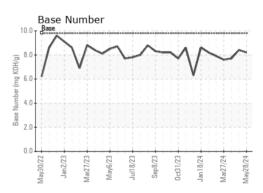
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	14.0	13.3

## **GRAPHS**

# Ferrous Alloys











Certificate 12367

Laboratory Sample No.

: GFL0088025 Lab Number : 06197364 Unique Number : 11059487 Test Package : FLEET

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

: 03 Jun 2024 **Tested** : 04 Jun 2024

Diagnosed : 04 Jun 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] 06197364 (Generated: 06/04/2024 09:46:23) Rev: 1

Submitted By: Lisa Reeves

T:

F: