

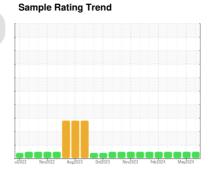
# **OIL ANALYSIS REPORT**



# **MONTGOMERY MACK 420055**

**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

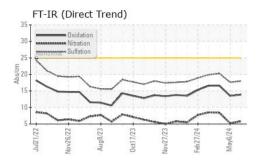
### **Fluid Condition**

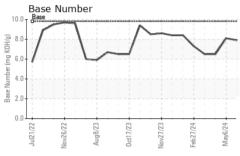
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

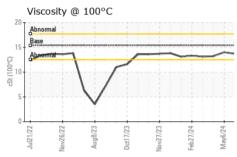
Sample Number   Client Info   CFL0088021   GFL0118430   GFL0118449   Sample Date   Client Info   23 May 2024   06 May 2024   18 Apr 2024   Machine Age   hrs   Client Info   211   126   1135   10909   Oli Age   hrs   Client Info   211   126   1135   10909   Oli Age   hrs   Client Info   211   126   1131   Oli Changed   NORMAL   NORMA	SAMPLE INFORM	ATI <u>ON</u>	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		GFL0088021	GFL0118430	GFL0118449
Machine Age   hrs   Client Info   211   120   11035   10909   1014   1026   1131   126   1131   126   1131   126   1131   126   1131   126   1131   126   1131   126   1131   126   1131   126   1131   126   1211   126   1131   126   1211							
Oil Changed		hrs			_	,	
Contained   Client Info   Not Changd   NorMAL   NorMAL					-		
NORMAL   NORMAL   NORMAL   NORMAL	-						
Fuel	-					Ŭ	Ü
Water Glycol         WC Method         >0.2         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         5         3         11           Chromium         ppm         ASTM D5185m         >20         <1         0         0           Nickel         ppm         ASTM D5185m         >5         <1         0         0           Silver         ppm         ASTM D5185m         >2         1         0         0           Aluminum         ppm         ASTM D5185m         >2         1         0         0           Aluminum         ppm         ASTM D5185m         >20         2         <1         1           Copper         ppm         ASTM D5185m         >40         <1         <1         <1           Copper         ppm         ASTM D5185m         >15         1         0         <1           Vanadium         ppm         ASTM D5185m         <1         0         <1         0         <1           Cadmium         ppm         ASTM D5185m         0         <1	CONTAMINATIO	NC	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         <1         0         0           Nickel         ppm         ASTM D5185m         >5         <1         0         0           Titanium         ppm         ASTM D5185m         >2         <1         0         <1           Silver         ppm         ASTM D5185m         >2         1         0         0           Aluminum         ppm         ASTM D5185m         >2         1         0         0           Aluminum         ppm         ASTM D5185m         >40         <1         <1         <1           Lead         ppm         ASTM D5185m         >40         <1         <1         <1         <1           Copper         ppm         ASTM D5185m         >40         <1         <1         <0         <1           Vanadium         ppm         ASTM D5185m         <1         0         <1         <0         <1           Cadmium         ppm         ASTM D5185m         <1         0         <1          <1         <0         <1           ADDITIVES         method         limit/base         current         history1         history2         <1 <th< td=""><td>WEAR METALS</td><td></td><td>method</td><td>limit/base</td><th>current</th><td>history1</td><td>history2</td></th<>	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	5	3	11
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	0	0
Description				>5	<1	0	
Silver			ASTM D5185m	>2	<1	0	<1
Aluminum							0
Lead			ASTM D5185m	>20	2	<1	1
Copper         ppm         ASTM D5185m         >330         1         0         2           Tin         ppm         ASTM D5185m         >15         1         0         <1					<1		<1
Tin							
Vanadium         ppm         ASTM D5185m         <1         0         <1           Cadmium         ppm         ASTM D5185m         <1         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         <1         0         <1           Barium         ppm         ASTM D5185m         0         <1         0         0           Molybdenum         ppm         ASTM D5185m         0         <1         0         0           Manganese         ppm         ASTM D5185m         0         <1         0         <1           Magnesium         ppm         ASTM D5185m         1010         932         1026         886           Calcium         ppm         ASTM D5185m         1070         1022         1094         1035           Phosphorus         ppm         ASTM D5185m         1270         1189         1328         1094           Sulfur         ppm         ASTM D5185m         2060         2975         3847         2792           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				7.0			
Boron   ppm   ASTM D5185m   0   <1   0   0   0							
Barium         ppm         ASTM D5185m         0         <1         0         0           Molybdenum         ppm         ASTM D5185m         60         61         61         59           Manganese         ppm         ASTM D5185m         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         61         61         59           Manganese         ppm         ASTM D5185m         0         <1         0         <1           Magnesium         ppm         ASTM D5185m         1010         932         1026         886           Calcium         ppm         ASTM D5185m         1070         1022         1094         1035           Phosphorus         ppm         ASTM D5185m         1150         952         1115         873           Zinc         ppm         ASTM D5185m         1270         1189         1328         1094           Sulfur         ppm         ASTM D5185m         2060         2975         3847         2792           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         2         5           Sodium         ppm         ASTM D5185m         >20         3         <1         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         "ASTM D7844         >4	Boron	ppm	ASTM D5185m	0	<1	0	<1
Manganese         ppm         ASTM D5185m         0         <1         0         <1           Magnesium         ppm         ASTM D5185m         1010         932         1026         886           Calcium         ppm         ASTM D5185m         1070         1022         1094         1035           Phosphorus         ppm         ASTM D5185m         1150         952         11115         873           Zinc         ppm         ASTM D5185m         1270         1189         1328         1094           Sulfur         ppm         ASTM D5185m         2060         2975         3847         2792           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         2         5           Sodium         ppm         ASTM D5185m         >20         3         1         4           Potassium         ppm         ASTM D5185m         >20         3         <1	Barium	ppm	ASTM D5185m	0	<1	0	0
Manganese         ppm         ASTM D5185m         0         <1         0         <1           Magnesium         ppm         ASTM D5185m         1010         932         1026         886           Calcium         ppm         ASTM D5185m         1070         1022         1094         1035           Phosphorus         ppm         ASTM D5185m         1150         952         11115         873           Zinc         ppm         ASTM D5185m         1270         1189         1328         1094           Sulfur         ppm         ASTM D5185m         2060         2975         3847         2792           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         2         5           Sodium         ppm         ASTM D5185m         >20         3         1         4           Potassium         ppm         ASTM D5185m         >20         3         <1	Molybdenum	ppm	ASTM D5185m	60	61	61	59
Magnesium         ppm         ASTM D5185m         1010         932         1026         886           Calcium         ppm         ASTM D5185m         1070         1022         1094         1035           Phosphorus         ppm         ASTM D5185m         1150         952         1115         873           Zinc         ppm         ASTM D5185m         1270         1189         1328         1094           Sulfur         ppm         ASTM D5185m         2060         2975         3847         2792           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         2         5           Sodium         ppm         ASTM D5185m         3         1         4           Potassium         ppm         ASTM D5185m         >20         3         <1			ASTM D5185m	0	<1	0	<1
Calcium         ppm         ASTM D5185m         1070         1022         1094         1035           Phosphorus         ppm         ASTM D5185m         1150         952         1115         873           Zinc         ppm         ASTM D5185m         1270         1189         1328         1094           Sulfur         ppm         ASTM D5185m         2060         2975         3847         2792           CONTAMINANTS         method         limit/base         current         history1         history2           Solicon         ppm         ASTM D5185m         >25         4         2         5           Solium         ppm         ASTM D5185m         >20         3         1         4           Potassium         ppm         ASTM D5185m         >20         3         <1			ASTM D5185m	1010	932	1026	886
Phosphorus         ppm         ASTM D5185m         1150         952         1115         873           Zinc         ppm         ASTM D5185m         1270         1189         1328         1094           Sulfur         ppm         ASTM D5185m         2060         2975         3847         2792           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         2         5           Sodium         ppm         ASTM D5185m         3         1         4           Potassium         ppm         ASTM D5185m         >20         3         <1			ASTM D5185m	1070	1022	1094	1035
Zinc         ppm         ASTM D5185m         1270         1189         1328         1094           Sulfur         ppm         ASTM D5185m         2060         2975         3847         2792           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         2         5           Sodium         ppm         ASTM D5185m         3         1         4           Potassium         ppm         ASTM D5185m         >20         3         <1					952	1115	
Sulfur         ppm         ASTM D5185m         2060         2975         3847         2792           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         2         5           Sodium         ppm         ASTM D5185m         3         1         4           Potassium         ppm         ASTM D5185m         >20         3         <1				1270			
Silicon         ppm         ASTM D5185m         >25         4         2         5           Sodium         ppm         ASTM D5185m         3         1         4           Potassium         ppm         ASTM D5185m         >20         3         <1         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.1         0.1         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.8         5.2         8.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         20.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.9         13.5         16.6							
Sodium         ppm         ASTM D5185m         3         1         4           Potassium         ppm         ASTM D5185m         >20         3         1         4           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.1         0.1         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.8         5.2         8.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         20.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.9         13.5         16.6	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         3         <1         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.1         0.1         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.8         5.2         8.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         20.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.9         13.5         16.6	Silicon	ppm	ASTM D5185m	>25	4	2	5
INFRA-RED	Sodium	ppm	ASTM D5185m		3	1	4
Soot %         %         *ASTM D7844 >4         0.1         0.1         0.3           Nitration         Abs/cm         *ASTM D7624 >20         5.8         5.2         8.4           Sulfation         Abs/.1mm         *ASTM D7415 >30         18.0         17.6         20.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         13.9         13.5         16.6	Potassium	ppm	ASTM D5185m	>20	3	<1	1
Nitration         Abs/cm         *ASTM D7624         >20         5.8         5.2         8.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         20.3           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.9         13.5         16.6	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         20.3           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.9         13.5         16.6	Soot %	%	*ASTM D7844	>4	0.1	0.1	0.3
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         17.6         20.3           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.9         13.5         16.6		Abs/cm	*ASTM D7624	>20			
Oxidation							
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.9	13.5	16.6
			ASTM D2896	9.8	7.9	8.1	6.5



## **OIL ANALYSIS REPORT**



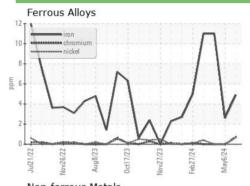


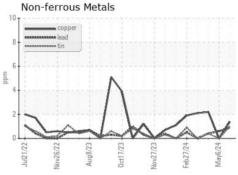


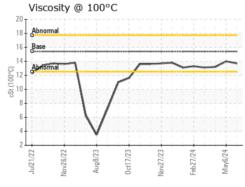
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

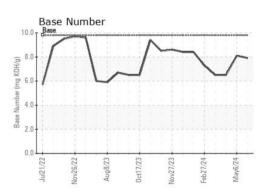
FLUID PROP	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	14.0	13.2

### **GRAPHS**













Laboratory Sample No. Unique Number : 11048608

: GFL0088021 Lab Number : 06191856

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 28 May 2024

**Tested** : 29 May 2024 Diagnosed : 30 May 2024 - Sean Felton

GFL Environmental - 955 - Montgomery 1121 Wilbanks St

Montgomery, AL US 36108

Contact: LISA REEVES

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)

T:

F: