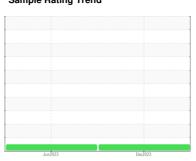


# **OIL ANALYSIS REPORT**

Sample Rating Trend



NORMAL



7828M Component

**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

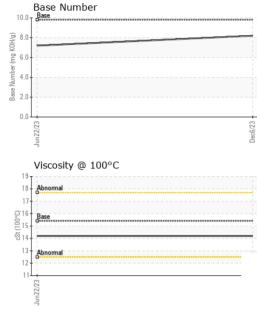
### **Fluid Condition**

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

SAMPLE INFORMATION   method   limit/base   current   history1   history2	iAL)			Jun2023	Dec2023			
Client Info	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2	
Machine Age   hrs   Client Info   0   60	Sample Number		Client Info		GFL0101467	GFL0069821		
Oil Changed	Sample Date		Client Info		06 Dec 2023	22 Jun 2023		
Contained   Client Info   Changed   NORMAL   NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2	Machine Age	hrs	Client Info		5876	0		
CONTAMINATION   method   mill/base   current   history1   history2	Oil Age	hrs	Client Info		0	600		
CONTAMINATION	Oil Changed		Client Info		Changed	Changed		
Water   WC Method   S5   C1.0   C1.	Sample Status				NORMAL	NORMAL		
Water Glycol         WC Method WC Method         >0.2         NEG NEG         NEG	CONTAMINATION	ON	method	limit/base	current	history1	history2	
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0		
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >80         6         22	Water		WC Method	>0.2	NEG	NEG		
Chromium	Glycol		WC Method		NEG	NEG		
Chromium   ppm   ASTM D5185m   >5   <1   <1	WEAR METALS	5	method	limit/base	current	history1	history2	
Nickel	ron	ppm	ASTM D5185m	>80	6	22		
Titanium	Chromium	ppm	ASTM D5185m	>5	<1	<1		
Silver	Nickel	ppm	ASTM D5185m	>2				
Aluminum	Titanium	ppm	ASTM D5185m		0	0		
Lead	Silver	ppm						
Copper         ppm         ASTM D5185m         >150         <1         <1            Tin         ppm         ASTM D5185m         >5         0         <1	Aluminum	ppm	ASTM D5185m	>30				
Tin								
Vanadium         ppm         ASTM D5185m         0         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         9         4            Barium         ppm         ASTM D5185m         0         0         0            Molybdenum         ppm         ASTM D5185m         0         0         0            Manganese         ppm         ASTM D5185m         0         <1         <1            Magnesium         ppm         ASTM D5185m         1010         905         970            Calcium         ppm         ASTM D5185m         1070         1133         1036            Phosphorus         ppm         ASTM D5185m         1270         1229         1313            Zinc         ppm         ASTM D5185m         2060         3039         2820            CONTAMINANTS         method         limit/base         current         history1	• •	ppm						
ADDITIVES				>5				
ADDITIVES		ppm			-			
Boron		ppm			0			
Barium	ADDITIVES						history2	
Molybdenum         ppm         ASTM D5185m         60         57         59            Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm						
Manganese         ppm         ASTM D5185m         0         <1         <1            Magnesium         ppm         ASTM D5185m         1010         905         970            Calcium         ppm         ASTM D5185m         1070         1133         1036            Phosphorus         ppm         ASTM D5185m         1150         1002         1053            Zinc         ppm         ASTM D5185m         1270         1229         1313            Sulfur         ppm         ASTM D5185m         2060         3039         2820            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         3         3            Sodium         ppm         ASTM D5185m         >20         2         1            Potassium         ppm         ASTM D5185m         >20         2         1            INFRA-RED         method         limit/base         current         history1         history2 <td colspan<="" td=""><td>Barium</td><td></td><td>ASTM D5185m</td><td></td><td>-</td><td></td><td></td></td>	<td>Barium</td> <td></td> <td>ASTM D5185m</td> <td></td> <td>-</td> <td></td> <td></td>	Barium		ASTM D5185m		-		
Magnesium         ppm         ASTM D5185m         1010         905         970            Calcium         ppm         ASTM D5185m         1070         1133         1036            Phosphorus         ppm         ASTM D5185m         1150         1002         1053            Zinc         ppm         ASTM D5185m         1270         1229         1313            Sulfur         ppm         ASTM D5185m         2060         3039         2820            CONTAMINANTS         method         limit/base         current         history1         history2           Solicon         ppm         ASTM D5185m         >20         3         3            Solicon         ppm         ASTM D5185m         >20         2         1            Potassium         ppm         ASTM D5185m         >20         2         1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         7.4         10.0            Sulfat	•							
Calcium         ppm         ASTM D5185m         1 070         1133         1036            Phosphorus         ppm         ASTM D5185m         1 150         1002         1 053            Zinc         ppm         ASTM D5185m         1 270         1 229         1 313            Sulfur         ppm         ASTM D5185m         2060         3039         2820            CONTAMINANTS         method         limit/base         current         history1         history2           Solium         ppm         ASTM D5185m         >20         3         3            Sodium         ppm         ASTM D5185m         >20         2         1            Potassium         ppm         ASTM D5185m         >20         2         1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1         0.3            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.8            FLUID DEGRADATION	•							
Phosphorus         ppm         ASTM D5185m         1150         1002         1053            Zinc         ppm         ASTM D5185m         1270         1229         1313            Sulfur         ppm         ASTM D5185m         2060         3039         2820            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         3         3            Sodium         ppm         ASTM D5185m         >20         2         1            Potassium         ppm         ASTM D5185m         >20         2         1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.4         10.0            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.8            FLUID DEGRADATION         method	-							
Zinc   ppm   ASTM D5185m   1270   1229   1313       Sulfur   ppm   ASTM D5185m   2060   3039   2820       CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >20   3   3       Sodium   ppm   ASTM D5185m   3   5       Potassium   ppm   ASTM D5185m   >20   2   1       INFRA-RED   method   limit/base   current   history1   history2     Soot %   *ASTM D7844   >3   0.1   0.3       Nitration   Abs/cm   *ASTM D7624   >20   7.4   10.0       Sulfation   Abs/.1mm *ASTM D7415   >30   19.4   20.8       FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm *ASTM D7414   >25   16.0   19.0								
Sulfur         ppm         ASTM D5185m         2060         3039         2820            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         3         3            Sodium         ppm         ASTM D5185m         3         5            Potassium         ppm         ASTM D5185m         >20         2         1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.4         10.0            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.8            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.0         19.0								
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         3         3            Sodium         ppm         ASTM D5185m         3         5            Potassium         ppm         ASTM D5185m         >20         2         1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.4         10.0            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.8            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.0         19.0	-				-			
Silicon   ppm   ASTM D5185m   >20   3   3								
Sodium         ppm         ASTM D5185m         3         5            Potassium         ppm         ASTM D5185m         >20         2         1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.4         10.0            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.8            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.0         19.0								
Potassium         ppm         ASTM D5185m         >20         2         1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.4         10.0            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.8            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.0         19.0				<i>&gt;</i> 20				
INFRA-RED				>20				
Soot %         %         *ASTM D7844 >3         0.1         0.3            Nitration         Abs/cm         *ASTM D7624 >20         7.4         10.0            Sulfation         Abs/.1mm         *ASTM D7415 >30         19.4         20.8            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         16.0         19.0	INFRA-RED		met <u>hod</u>	limi <u>t/base</u>	current_	history1	h <u>istory</u> 2	
Nitration         Abs/cm         *ASTM D7624         >20         7.4         10.0            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.8            FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.0         19.0		%						
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.8            FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.0         19.0								
Oxidation Abs/.1mm *ASTM D7414 >25 <b>16.0</b> 19.0								
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2	
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.0	19.0		
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.2	7.2		



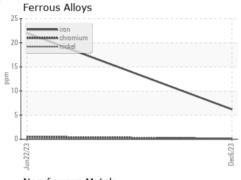
## **OIL ANALYSIS REPORT**

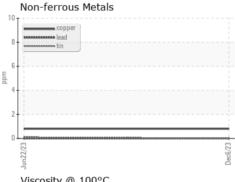


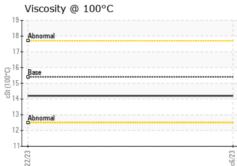
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	

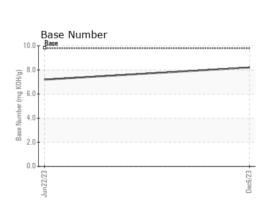
FLUID PROPE	ERITES	method	limit/base		history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.2	

### **GRAPHS**











Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10777183 Test Package : FLEET

: GFL0101467 : 06027392

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

: 07 Dec 2023 : 08 Dec 2023 Diagnostician : Wes Davis

GFL Environmental - 415 - Michigan East

6200 Elmridge Sterling Heights, MI US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

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)