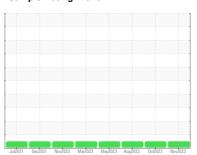


# **OIL ANALYSIS REPORT**

## Sample Rating Trend









Machine Id
567M
Component
Diesel Engine
Fluid

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

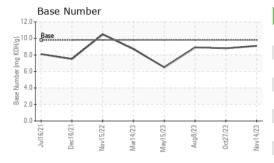
## **Fluid Condition**

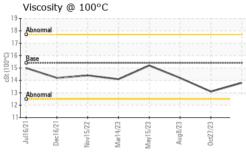
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date	14 3111 13 14 40 (	G., (=)	Jul2021 E	Dec2021 Nov2022 Mar20	23 May2023 Aug2023 Oct2023	Nov2023	
Company   Comp	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         18961         11324         10810           Oil Age         hrs         Client Info         11324         10810         10193           Oil Changed	Sample Number		Client Info		GFL0093140	GFL0093152	GFL0086658
Oil Age	Sample Date		Client Info		14 Nov 2023	27 Oct 2023	08 Aug 2023
Client Info   Changed   Changed   Changed   NORMAL   NORMAL   NORMAL   NORMAL	Machine Age	hrs	Client Info		18961	11324	10810
CONTAMINATION	Oil Age	hrs	Client Info		11324	10810	10193
CONTAMINATION   method   limit/base   current   history1   history2	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	_	
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >90         14         14         4           Chromium         ppm         ASTM D5185m         >20         1         1         0           Nickel         ppm         ASTM D5185m         >2         0         <1	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Description	ron	ppm	ASTM D5185m	>90	14	14	4
Nickel   ppm	Chromium		ASTM D5185m	>20	1	1	0
Silver						<1	
Salver	Titanium		ASTM D5185m				<1
Aluminum							
December   December							
Copper							
Time							
Vanadium         ppm         ASTM D5185m         <1         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         1         4         2           Barium         ppm         ASTM D5185m         0         0         4         0           Molybdenum         ppm         ASTM D5185m         60         53         57         58           Manganese         ppm         ASTM D5185m         0         <1         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         869         833         1008           Calcium         ppm         ASTM D5185m         1070         1022         900         1143           Phosphorus         ppm         ASTM D5185m         1270         1215         1120         1306           Sulfur         ppm         ASTM D5185m         2060         2825         2703         3781           CONTAMINANTS         method         limit/base         curr	• •				-		
ADDITIVES				710			
ADDITIVES							
Boron	ADDITIVES			limit/base	current	history1	history2
Barium		nom			1		
Molybdenum         ppm         ASTM D5185m         60         53         57         58           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         869         833         1008           Calcium         ppm         ASTM D5185m         1070         1022         900         1143           Phosphorus         ppm         ASTM D5185m         1150         959         1030         1016           Zinc         ppm         ASTM D5185m         1270         1215         1120         1306           Sulfur         ppm         ASTM D5185m         2060         2825         2703         3781           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         4           Godium         ppm         ASTM D5185m         >20         3         3         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844 </td <td></td> <td></td> <td></td> <td></td> <th></th> <td></td> <td></td>							
Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         869         833         1008           Calcium         ppm         ASTM D5185m         1070         1022         900         1143           Phosphorus         ppm         ASTM D5185m         1150         959         1030         1016           Zinc         ppm         ASTM D5185m         1270         1215         1120         1306           Sulfur         ppm         ASTM D5185m         2060         2825         2703         3781           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         4           Godium         ppm         ASTM D5185m         >25         5         5         <1							
Magnesium         ppm         ASTM D5185m         1010         869         833         1008           Calcium         ppm         ASTM D5185m         1070         1022         900         1143           Phosphorus         ppm         ASTM D5185m         1150         959         1030         1016           Zinc         ppm         ASTM D5185m         1270         1215         1120         1306           Sulfur         ppm         ASTM D5185m         2060         2825         2703         3781           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         4           Sodium         ppm         ASTM D5185m         >20         3         3         1           Potassium         ppm         ASTM D5185m         >20         3         3         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.3         0.3         0.1           Nitration         Abs/.1mm         *ASTM D	•						
Calcium         ppm         ASTM D5185m         1 070         1022         900         1143           Phosphorus         ppm         ASTM D5185m         1 150         959         1 030         1 016           Zinc         ppm         ASTM D5185m         1270         1215         1 120         1 306           Sulfur         ppm         ASTM D5185m         2060         2825         2703         3781           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         4           Sodium         ppm         ASTM D5185m         5         5         <1	-						
Phosphorus         ppm         ASTM D5185m         1150         959         1030         1016           Zinc         ppm         ASTM D5185m         1270         1215         1120         1306           Sulfur         ppm         ASTM D5185m         2060         2825         2703         3781           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         4           Sodium         ppm         ASTM D5185m         5         5         <1	-						
Zinc   ppm   ASTM D5185m   1270   1215   1120   1306     Sulfur   ppm   ASTM D5185m   2060   2825   2703   3781     CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >25   5   5   4     Sodium   ppm   ASTM D5185m   5   5   5   <1     Potassium   ppm   ASTM D5185m   >20   3   3   1     INFRA-RED   method   limit/base   current   history1   history2     Soot %   *ASTM D7844   >6   0.3   0.3   0.1     Nitration   Abs/cm   *ASTM D7624   >20   7.7   7.3   4.7     Sulfation   Abs/.1mm   *ASTM D7415   >30   18.8   17.4   17.0     FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm   *ASTM D7414   >25   15.3   14.1   12.8     Dxidation   Abs/.1mm   *ASTM D7414   >25   15.3   14.1   12.8     Contamination   Abs/.1mm   *ASTM D7414   >25   15.3   14.1   12.8							
Sulfur         ppm         ASTM D5185m         2060         2825         2703         3781           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         4           Sodium         ppm         ASTM D5185m         5         5         <1							
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         4           Sodium         ppm         ASTM D5185m         5         5         <1	-						
Silicon         ppm         ASTM D5185m         >25         5         4           Sodium         ppm         ASTM D5185m         5         5         <1           Potassium         ppm         ASTM D5185m         >20         3         3         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.3         0.3         0.1           Nitration         Abs/cm         *ASTM D7624         >20         7.7         7.3         4.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         17.4         17.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.1         12.8							
Sodium         ppm         ASTM D5185m         5         <1           Potassium         ppm         ASTM D5185m         >20         3         3         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.3         0.3         0.1           Nitration         Abs/cm         *ASTM D7624         >20         7.7         7.3         4.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         17.4         17.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.1         12.8			ASTM D5185m	>25	5		
Potassium         ppm         ASTM D5185m         >20         3         3         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.3         0.3         0.1           Nitration         Abs/cm         *ASTM D7624         >20         7.7         7.3         4.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         17.4         17.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.1         12.8							
Soot %         %         *ASTM D7844 > 6         0.3         0.3         0.1           Nitration         Abs/cm         *ASTM D7624 > 20         7.7         7.3         4.7           Sulfation         Abs/.1mm         *ASTM D7415 > 30         18.8         17.4         17.0           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 > 25         15.3         14.1         12.8				>20			
Nitration         Abs/cm         *ASTM D7624         >20         7.7         7.3         4.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         17.4         17.0           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.1         12.8	INFRA-RED		method	limit/base	current	history1	history2
Nitration         Abs/cm         *ASTM D7624         >20         7.7         7.3         4.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         17.4         17.0           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.1         12.8	Soot %	%	*ASTM D7844	>6	0.3	0.3	0.1
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.8         17.4         17.0           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         14.1         12.8	Nitration	Abs/cm	*ASTM D7624	>20			4.7
Oxidation							
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.3	14.1	12.8
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.1	8.8	8.9



## **OIL ANALYSIS REPORT**

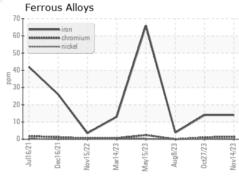


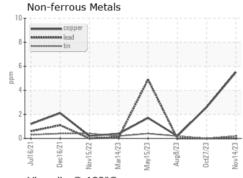


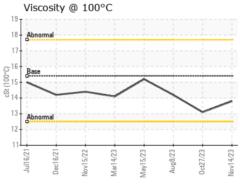
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	LIGHT
Sand/Dirt	scalar	*Visual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

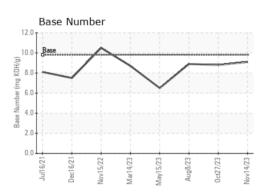
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.1	14.2	

## **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10749645 Test Package : FLEET

: GFL0093140 : 06010501

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 17 Nov 2023 Diagnosed : 17 Nov 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

\* - 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)