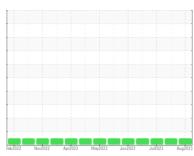


# **OIL ANALYSIS REPORT**

### Sample Rating Trend





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

## DIAGNOSIS

Machine Id 811045 Component Diesel Engine

### 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

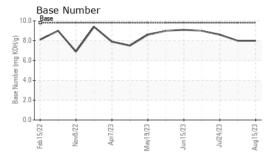
## **Fluid Condition**

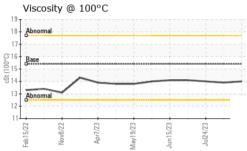
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method   limit/base   current   history1   history2   Sample Number   Cilient Info   GFL0082631   GFL0074722   GFL0074721   Sample Date   Cilient Info   15 Aug 2023   14 Aug 2023   24 Jul 2023   Aug 2023   Aug 2023   24 Jul 2023   Aug 2023   Aug 2023   Aug 2023   24 Jul 2023   Aug	February Novillaza Aprillaza Maydora Junitora Judora Aunglora Aunglora						
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		GFL0082631	GFL0074722	GFL0074721
Oil Age         hrs         Client Info         161         148         105           Oil Changed Sample Status         Client Info         Changed Changed Changed Changed Changed NORMAL NORMAL         Changed NORMAL NORMAL NORMAL         Changed Changed Changed Changed Changed NORMAL NORMAL           CONTAMINATION         method Imitibase current         bistory1         history2           Fuel Glycol         WC Method WC Method         NEG			Client Info		15 Aug 2023	14 Aug 2023	24 Jul 2023
Client Info   Changed   Changed   Changed   NORMAL   NORMAL   NORMAL	Machine Age	hrs	Client Info		5527		5366
Client Info   Changed   Changed   Changed   NORMAL   NORMAL   NORMAL	Oil Age	hrs	Client Info		161	148	105
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2   history2	-		Client Info		Changed	Changed	Changed
Fuel					NORMAL		NORMAL
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         34         38         27           Chromium         ppm         ASTM D5185m         >20         1         2         1           Nickel         ppm         ASTM D5185m         >20         1         0         -1         0           Silver         ppm         ASTM D5185m         >3         0         <1         0         -1         0           Aluminum         ppm         ASTM D5185m         >20         7         8         7         -1         -1         0         -1         0         -1         0         -1         0         -1         0         -1         -1         0         -1         -1         0         -1         -1         0         -1         -1         0         -1         -1         -1         0         -1	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Irron	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >20         1         2         1           Nickel         ppm         ASTM D5185m         >4         0         <1         0           Titanium         ppm         ASTM D5185m         >3         0         <1         0           Aluminum         ppm         ASTM D5185m         >20         7         8         7           Lead         ppm         ASTM D5185m         >40         <1         <1         0           Copper         ppm         ASTM D5185m         >40         <1         <1         0           Copper         ppm         ASTM D5185m         >330         <1         2         <1           Tin         ppm         ASTM D5185m         >15         0         <1         <1           Vanadium         ppm         ASTM D5185m         >15         0         <1         <1           Cadmium         ppm         ASTM D5185m         0         4         4         7           Barium         ppm         ASTM D5185m         0         4         4         7           Barium         ppm         ASTM D5185m         0         <1         <1 <t< th=""><th>WEAR METAL</th><th>S</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	WEAR METAL	S	method	limit/base	current	history1	history2
Chromium         ppm         ASTM D5185m         >20         1         2         1           Nickel         ppm         ASTM D5185m         >4         0         <1	Iron	maa	ASTM D5185m	>100	34	38	27
Nickel	Chromium		ASTM D5185m	>20	1	2	1
Description	Nickel		ASTM D5185m	>4	0	<1	0
Silver         ppm         ASTM D5185m         >3         0         <1         0           Aluminum         ppm         ASTM D5185m         >20         7         8         7           Lead         ppm         ASTM D5185m         >40         <1         <1         0           Copper         ppm         ASTM D5185m         >330         <1         2         <1           Tin         ppm         ASTM D5185m         >15         0         <1         <1           Vanadium         ppm         ASTM D5185m         <1         <1         0         <1           Cadmium         ppm         ASTM D5185m         0         0         <1         <1         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         4         4         7           Barium         ppm         ASTM D5185m         0         4         4         7           Barium         ppm         ASTM D5185m         0         7         78         80           Mangaesium         ppm         ASTM D5185m         1010         1016							
Aluminum         ppm         ASTM D5185m         >20         7         8         7           Lead         ppm         ASTM D5185m         >40         <1				>3			
Lead         ppm         ASTM D5185m         >40         <1         <1         0           Copper         ppm         ASTM D5185m         >330         <1         2         <1           Tin         ppm         ASTM D5185m         >15         0         <1         <1           Vanadium         ppm         ASTM D5185m         <1         <1         <1         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         4         4         7           Barium         ppm         ASTM D5185m         0         4         4         7           Barium         ppm         ASTM D5185m         0         0         0         0         0           Manganesium         ppm         ASTM D5185m         0         <1         <1         <1         <1           Magnesium         ppm         ASTM D5185m         0         <1         <1         <1         <1           Calcium         ppm         ASTM D5185m         <							
Copper         ppm         ASTM D5185m         >330         <1							
Tin							
Vanadium         ppm         ASTM D5185m         <1	• •						
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         4         4         7           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         <1				710			
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         4         4         7           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         77         78         80           Manganese         ppm         ASTM D5185m         0         <1							
Boron		le le		limit/hase	-		
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         77         78         80           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1016         962         995           Calcium         ppm         ASTM D5185m         1070         1097         1081         1100           Phosphorus         ppm         ASTM D5185m         1150         1032         969         1069           Zinc         ppm         ASTM D5185m         1270         1213         1325           Sulfur         ppm         ASTM D5185m         2060         3504         3365         3799           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         8         6           Sodium         ppm         ASTM D5185m         >20         13         17         13           INFRA-RED         method         limit/base         c		nnm					
Molybdenum         ppm         ASTM D5185m         60         77         78         80           Manganese         ppm         ASTM D5185m         0         <1							
Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1016         962         995           Calcium         ppm         ASTM D5185m         1070         1097         1081         1100           Phosphorus         ppm         ASTM D5185m         1150         1032         969         1069           Zinc         ppm         ASTM D5185m         1270         1270         1213         1325           Sulfur         ppm         ASTM D5185m         2060         3504         3365         3799           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         8         6           Sodium         ppm         ASTM D5185m         >20         13         17         13           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1         1.3         0.9           Nitration         Abs/cm         *ASTM D7624					-		
Magnesium         ppm         ASTM D5185m         1010         1016         962         995           Calcium         ppm         ASTM D5185m         1070         1097         1081         1100           Phosphorus         ppm         ASTM D5185m         1150         1032         969         1069           Zinc         ppm         ASTM D5185m         1270         1270         1213         1325           Sulfur         ppm         ASTM D5185m         2060         3504         3365         3799           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         8         6           Sodium         ppm         ASTM D5185m         5         6         5           Potassium         ppm         ASTM D5185m         >20         13         17         13           INFRA-RED         method         limit/base         current         history1         history2           Soot %         "ASTM D7624         >20         7.5         8.3         7.4           Sulfation         Abs/:mm         "ASTM D7415         >30	-						
Calcium         ppm         ASTM D5185m         1070         1097         1081         1100           Phosphorus         ppm         ASTM D5185m         1150         1032         969         1069           Zinc         ppm         ASTM D5185m         1270         1270         1213         1325           Sulfur         ppm         ASTM D5185m         2060         3504         3365         3799           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         8         6           Sodium         ppm         ASTM D5185m         5         6         5           Potassium         ppm         ASTM D5185m         >20         13         17         13           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1         1.3         0.9           Nitration         Abs/.1mm         *ASTM D7415         >30         19.2         19.8         19.4           FLUID DEGRADATION         *ASTM D7414         <	-						
Phosphorus         ppm         ASTM D5185m         1150         1032         969         1069           Zinc         ppm         ASTM D5185m         1270         1270         1213         1325           Sulfur         ppm         ASTM D5185m         2060         3504         3365         3799           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         8         6           Sodium         ppm         ASTM D5185m         5         6         5           Potassium         ppm         ASTM D5185m         >20         13         17         13           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1         1.3         0.9           Nitration         Abs/cm         *ASTM D7624         >20         7.5         8.3         7.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         19.8         19.4           FLUID DEGRADATION         *ASTM D7414							
Zinc         ppm         ASTM D5185m         1270         1270         1213         1325           Sulfur         ppm         ASTM D5185m         2060         3504         3365         3799           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         8         6           Sodium         ppm         ASTM D5185m         5         6         5           Potassium         ppm         ASTM D5185m         >20         13         17         13           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1         1.3         0.9           Nitration         Abs/cm         *ASTM D7624         >20         7.5         8.3         7.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         19.8         19.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7							
Sulfur         ppm         ASTM D5185m         2060         3504         3365         3799           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         8         6           Sodium         ppm         ASTM D5185m         5         6         5           Potassium         ppm         ASTM D5185m         >20         13         17         13           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1         1.3         0.9           Nitration         Abs/cm         *ASTM D7624         >20         7.5         8.3         7.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         19.8         19.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.8         14.4         14.2							
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         8         6           Sodium         ppm         ASTM D5185m         5         6         5           Potassium         ppm         ASTM D5185m         >20         13         17         13           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1         1.3         0.9           Nitration         Abs/cm         *ASTM D7624         >20         7.5         8.3         7.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         19.8         19.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.8         14.4         14.2							
Silicon         ppm         ASTM D5185m         >25         7         8         6           Sodium         ppm         ASTM D5185m         5         6         5           Potassium         ppm         ASTM D5185m         >20         13         17         13           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1         1.3         0.9           Nitration         Abs/cm         *ASTM D7624         >20         7.5         8.3         7.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         19.8         19.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.8         14.4         14.2							
Sodium         ppm         ASTM D5185m         5         6         5           Potassium         ppm         ASTM D5185m         >20         13         17         13           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1         1.3         0.9           Nitration         Abs/cm         *ASTM D7624         >20         7.5         8.3         7.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         19.8         19.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.8         14.4         14.2						•	
Potassium         ppm         ASTM D5185m         >20         13         17         13           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1         1.3         0.9           Nitration         Abs/cm         *ASTM D7624         >20         7.5         8.3         7.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         19.8         19.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.8         14.4         14.2				>25			
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1         1.3         0.9           Nitration         Abs/cm         *ASTM D7624         >20         7.5         8.3         7.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         19.8         19.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.8         14.4         14.2							
Soot %         %         *ASTM D7844 >3         1         1.3         0.9           Nitration         Abs/cm         *ASTM D7624 >20         7.5         8.3         7.4           Sulfation         Abs/.1mm         *ASTM D7415 >30         19.2         19.8         19.4           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         13.8         14.4         14.2	Potassium	ppm	ASTM D5185m	>20	13	17	13
Nitration         Abs/cm         *ASTM D7624         >20         7.5         8.3         7.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         19.8         19.4           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.8         14.4         14.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         19.8         19.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.8         14.4         14.2	Soot %		*ASTM D7844	>3			
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     13.8     14.4     14.2	Nitration	Abs/cm	*ASTM D7624	>20	7.5		7.4
Oxidation Abs/.1mm *ASTM D7414 >25 <b>13.8</b> 14.4 14.2	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.2	19.8	19.4
	FLUID DEGRAI	OITAC	method	limit/base	current	history1	history2
Base Number (BN)         mg KOH/g         ASTM D2896         9.8         8.0         8.6	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.8	14.4	14.2
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.0	8.0	8.6



# **OIL ANALYSIS REPORT**

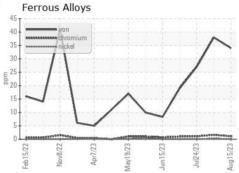


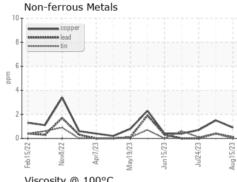


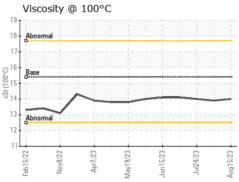
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

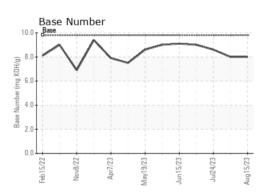
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.9	14.0	

## **GRAPHS**













Certificate L2367

Laboratory Sample No.

Lab Number **Unique Number** Test Package : FLEET

: GFL0082631 : 05931367

: 10616638

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 22 Aug 2023

Diagnosed : 23 Aug 2023 Diagnostician : Wes Davis

GFL Environmental - 814 - Little Rock Hauling

4005 Hwy 161 N. Little Rock, AR US 72117

Contact: Brad Manager

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: