

## **OIL ANALYSIS REPORT**

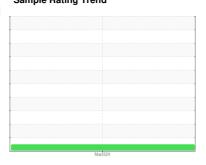
## Sample Rating Trend

# NORMAL



Machine Id **413003** Component **Diesel Engine** 

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





# 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

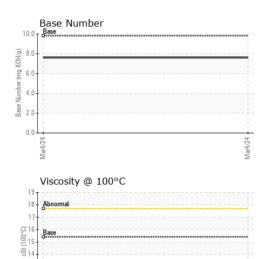
## **Fluid Condition**

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   GFL0104322	•	,			Mar2024		
Client Info	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   600	Sample Number		Client Info		GFL0104322		
Machine Age   hrs   Client Info   600	Sample Date		Client Info		04 Mar 2024		
Contamped   Client Info   Changed   Client Info   NORMAL   Contamped   Conta	Machine Age	hrs	Client Info		1390		
CONTAMINATION	Oil Age	hrs	Client Info		600		
CONTAMINATION	Oil Changed		Client Info		Changed		
Water	Sample Status				NORMAL		
Water         WC Method         >0.2         NEG	CONTAMINATI	ON	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0		
WEAR METALS	Water		WC Method	>0.2	NEG		
Chromium	Glycol		WC Method		NEG		
Chromium	WEAR METALS	5	method	limit/base	current	history1	history2
Chromium	Iron	ppm	ASTM D5185m	>120	9		
Nickel	Chromium		ASTM D5185m	>20	0		
Description	Nickel				0		
Silver							
Aluminum					-		
Lead							
Copper					_		
Tin							
Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         10             Barium         ppm         ASTM D5185m         0         0             Molybdenum         ppm         ASTM D5185m         0         60         60             Manganese         ppm         ASTM D5185m         0         <-1             Magnesium         ppm         ASTM D5185m         1070         977             Calcium         ppm         ASTM D5185m         1150         956             Phosphorus         ppm         ASTM D5185m         1270         1129             Sulfur         ppm         ASTM D5185m         2060         2728             CONTAMINANTS         method         limit/base         current <td>• •</td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td>	• •				-		
ADDITIVES				710			
ADDITIVES					-		
Boron		ррпп		lineit/lenen			
Barium						nistory i	nistory2
Molybdenum         ppm         ASTM D5185m         60         60             Manganese         ppm         ASTM D5185m         0         <1					_		
Manganese         ppm         ASTM D5185m         0         <1             Magnesium         ppm         ASTM D5185m         1010         871             Calcium         ppm         ASTM D5185m         1070         977             Phosphorus         ppm         ASTM D5185m         1150         956             Zinc         ppm         ASTM D5185m         1270         1129             Sulfur         ppm         ASTM D5185m         2060         2728             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         2             Potassium         ppm         ASTM D5185m         20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4					-		
Magnesium         ppm         ASTM D5185m         1010         871             Calcium         ppm         ASTM D5185m         1070         977             Phosphorus         ppm         ASTM D5185m         1150         956             Zinc         ppm         ASTM D5185m         1270         1129             Sulfur         ppm         ASTM D5185m         2060         2728             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         2             Potassium         ppm         ASTM D5185m         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         6.4             Sulfation         Abs/.1mm         *ASTM D7414         >25 <td></td> <td>ppm</td> <td></td> <td></td> <td></td> <td></td> <td></td>		ppm					
Calcium         ppm         ASTM D5185m         1070         977             Phosphorus         ppm         ASTM D5185m         1150         956             Zinc         ppm         ASTM D5185m         1270         1129             Sulfur         ppm         ASTM D5185m         2060         2728             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         2             Potassium         ppm         ASTM D5185m         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.7             FLUID DEGRADATION         *ASTM D7414         >25	-	ppm			<1		
Phosphorus         ppm         ASTM D5185m         1 150         956             Zinc         ppm         ASTM D5185m         1 270         1 129             Sulfur         ppm         ASTM D5185m         2060         2728             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         2             Potassium         ppm         ASTM D5185m         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2             Nitration         Abs/cm         *ASTM D7415         >30         18.7             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 <t< td=""><td>Magnesium</td><td>ppm</td><td></td><td></td><td>871</td><td></td><td></td></t<>	Magnesium	ppm			871		
Zinc	Calcium	ppm	ASTM D5185m	1070	977		
Sulfur         ppm         ASTM D5185m         2060         2728             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         2              Potassium         ppm         ASTM D5185m         >20         4             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2             Sulfation         Abs/.1mm         *ASTM D7624         >20         6.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.1	Phosphorus	ppm	ASTM D5185m	1150	956		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         9             Sodium         ppm         ASTM D5185m         2             Potassium         ppm         ASTM D5185m         >20         4            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2             Nitration         Abs/cm         *ASTM D7624         >20         6.4             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.7             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.1	Zinc	ppm	ASTM D5185m	1270	1129		
Solicon   ppm   ASTM D5185m   >25   9	Sulfur	ppm	ASTM D5185m	2060	2728		
Sodium	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium   ppm   ASTM D5185m   >20   4         INFRA-RED   method   limit/base   current   history1   history2     Soot %	Silicon	ppm		>25			
INFRA-RED	Sodium	ppm	ASTM D5185m				
Soot %         *ASTM D7844         >4         0.2             Nitration         Abs/cm         *ASTM D7624         >20         6.4             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.7             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.1	Potassium	ppm	ASTM D5185m	>20	4		
Nitration         Abs/cm         *ASTM D7624         >20         6.4             Sulfation         Abs/.1mm         *ASTM D7415         >30         18.7             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.7             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.1	Soot %	%	*ASTM D7844	>4	0.2		
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 15.1	Nitration	Abs/cm	*ASTM D7624	>20	6.4		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.7		
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 7.6	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.1		
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.6		



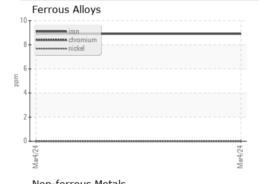
## **OIL ANALYSIS REPORT**



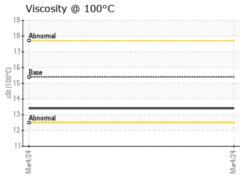
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE		
Yellow Metal	scalar	*Visual	NONE	NONE		
Precipitate	scalar	*Visual	NONE	NONE		
Silt	scalar	*Visual	NONE	NONE		
Debris	scalar	*Visual	NONE	NONE		
Sand/Dirt	scalar	*Visual	NONE	NONE		
Appearance	scalar	*Visual	NORML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

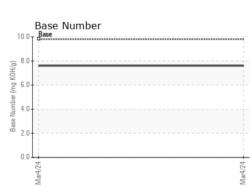
FLUID PROPE	ERITES	method	limit/base		nistory1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.4		

## **GRAPHS**



	••• lead						
2-	m tin	J					
0							
8							
6							
4							
2							
Mar4/24			 	 	 	 	







Laboratory Sample No.

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

Test Package : FLEET

: GFL0104322 Lab Number : 06109913 Unique Number : 10913410

Received **Tested** Diagnosed

: 06 Mar 2024 : 07 Mar 2024

: 07 Mar 2024 - Wes Davis

GFL Environmental - 410 - Michigan West 39000 Van Born Rd

Wayne, MI US 48184 Contact: Belal Dgheish

bdgheish@gflenv.com T: (734)714-2340

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)