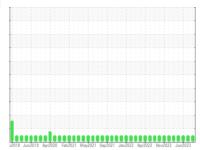


# **OIL ANALYSIS REPORT**

## **Sample Rating Trend**







Machine Id
3820
Component
Diesel Engin

**Diesel Engine** 

PETRO CANADA DURON UHP E6 10W40 (9 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

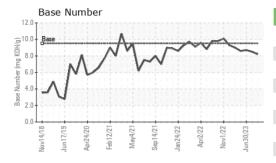
## **Fluid Condition**

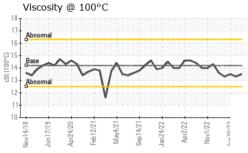
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION   method   imitibase   current   history1   history2	9 GAL)		v2018 Jun2015	Apr2020 Feb2021 May202	1 Sep2021 Jan2022 Apr2022 Nov20	22 Jun2023		
Sample Date         Client Info         16 Dec 2023         18 Sep 2023         30 Jun 2023           Machine Age         hrs         Client Info         20800         20027         19364           Oil Age         hrs         Client Info         600         500         800           Oil Changed         Client Info         Changed         Changed         Changed         Changed           Sample Status         Image: Control of Changed         Changed         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         Imit base         current         Inistory1         history2           Fuel         WC Method         >3.0         <1.0	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2	
Machine Age         hrs         Client Info         20800         20027         19364           Oil Age         hrs         Client Info         600         500         800           Oil Changed         Client Info         Changed         Changed         Changed           Sample Status         Ned         NoRMAL         NORMAL         NORMAL           CONTAMINATION           method         Imilibase         current         history1         history2           Fuel         WC Method         >3.0         <1.0	Sample Number		Client Info		GFL0058930	GFL0058938	GFL0027697	
Oil Age         hrs         Client Info         600         500         800           Oil Changed         Changed         Changed         Changed         Changed         Changed           Sample Status         NORMAL         NORMAL         NORMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Evuel         WC Method         3.0         <1.0         <1.0         <1.0         <1.0         <1.0           Water         WC Method         3.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0	Sample Date		Client Info		16 Dec 2023	18 Sep 2023	30 Jun 2023	
Oil Changed Sample Status         Client Info         Changed NORMAL         Change NEG         Change NEG         NEG         NEG	Machine Age	hrs	Client Info		20800	20027	19364	
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   imilibase   current   history1   history2	Oil Age	hrs	Client Info		600	500	800	
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0	Oil Changed		Client Info		Changed	Changed	Changed	
Fuel	Sample Status				NORMAL	NORMAL	NORMAL	
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limil/base         current         history1         history2           Iron         ppm         ASTM D5185m         >165         14         13         23           Chromium         ppm         ASTM D5185m         >5         <1         <1         <1           Nickel         ppm         ASTM D5185m         >4         0         <1         <1           Titanium         ppm         ASTM D5185m         >2         0         0         0           Sliver         ppm         ASTM D5185m         >20         2         2         4           Lead         ppm         ASTM D5185m         >90         0         <1         <1           Tin         ppm         ASTM D5185m         >90         0         <1         <1           Vanadium         ppm         ASTM D5185m         0         0         0         <1           Boron         ppm         ASTM D5185m         0         0         0         0 <td col<="" th=""><th>CONTAMINAT</th><th>ION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></td>	<th>CONTAMINAT</th> <th>ION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0	
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >165         14         13         23           Chromium         ppm         ASTM D5185m         >5         <1	Water		WC Method	>0.2	NEG	NEG	NEG	
Iron	Glycol		WC Method		NEG	NEG	NEG	
Chromium         ppm         ASTM D5185m         >5         <1         <1         <1           Nickel         ppm         ASTM D5185m         >4         0         <1	WEAR METAL	S	method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>165	14	13	23	
Titanium         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >20         2         2         4           Lead         ppm         ASTM D5185m         >150         0         1         2           Copper         ppm         ASTM D5185m         >90         0         <1	Chromium	ppm	ASTM D5185m	>5	<1	<1	<1	
Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >20         2         2         4           Lead         ppm         ASTM D5185m         >150         0         1         2           Copper         ppm         ASTM D5185m         >90         0         <1         <1           Tin         ppm         ASTM D5185m         >5         0         0         <1           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         11         12         12           Barium         ppm         ASTM D5185m         0         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         60         66         64         4           Mangnesium         ppm         ASTM D5185m         20         8	Nickel	ppm	ASTM D5185m	>4	0	<1	<1	
Aluminum         ppm         ASTM D5185m         >20         2         2         4           Lead         ppm         ASTM D5185m         >150         0         1         2           Copper         ppm         ASTM D5185m         >90         0         <1	Titanium	ppm	ASTM D5185m	>2	0	0	0	
Lead         ppm         ASTM D5185m         >150         0         1         2           Copper         ppm         ASTM D5185m         >90         0         <1         <1           Tin         ppm         ASTM D5185m         >5         0         0         <1           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         60         66         64           ADDITIVES         method         10         0         0         0	Silver	ppm	ASTM D5185m	>2	0	0	0	
Copper         ppm         ASTM D5185m         >90         0         <1         <1           Tin         ppm         ASTM D5185m         >5         0         0         <1	Aluminum	ppm	ASTM D5185m	>20	2	2	4	
Tin	Lead	ppm	ASTM D5185m	>150	0	1	2	
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         11         12         12           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         60         66         64           Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         0         862         858         807           Calcium         ppm         ASTM D5185m         2400         1032         1044         1133           Phosphorus         ppm         ASTM D5185m         2400         1032         1044         1133           Sulfur         ppm         ASTM D5185m         240         1168         1172         1134           Sulfur         ppm         ASTM D5185m         2130         2884         3064	Copper	ppm	ASTM D5185m	>90	0	<1	<1	
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         11         12         12           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         60         66         64           Manganese         ppm         ASTM D5185m         0         0         <1	Tin	ppm	ASTM D5185m	>5	0	0	<1	
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0	
Boron	Cadmium	ppm	ASTM D5185m		0	0	0	
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         60         66         64           Manganese         ppm         ASTM D5185m         0         0         <1	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum         ppm         ASTM D5185m         0         60         66         64           Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         80         862         858         807           Calcium         ppm         ASTM D5185m         2400         1032         1044         1133           Phosphorus         ppm         ASTM D5185m         750         1011         957         935           Zinc         ppm         ASTM D5185m         840         1168         1172         1134           Sulfur         ppm         ASTM D5185m         2130         2884         3064         3069           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >35         3         4         4           Sodium         ppm         ASTM D5185m         >20         1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7624         >20 <th< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>11</th><td>12</td><td>12</td></th<>	Boron	ppm	ASTM D5185m	0	11	12	12	
Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         80         862         858         807           Calcium         ppm         ASTM D5185m         2400         1032         1044         1133           Phosphorus         ppm         ASTM D5185m         750         1011         957         935           Zinc         ppm         ASTM D5185m         840         1168         1172         1134           Sulfur         ppm         ASTM D5185m         2130         2884         3064         3069           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >35         3         4         4           Sodium         ppm         ASTM D5185m         >0         <1	Barium	ppm	ASTM D5185m	0	0	0	0	
Magnesium         ppm         ASTM D5185m         80         862         858         807           Calcium         ppm         ASTM D5185m         2400         1032         1044         1133           Phosphorus         ppm         ASTM D5185m         750         1011         957         935           Zinc         ppm         ASTM D5185m         840         1168         1172         1134           Sulfur         ppm         ASTM D5185m         2130         2884         3064         3069           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >35         3         4         4           Sodium         ppm         ASTM D5185m         >20         1         <1         <1           Potassium         ppm         ASTM D5185m         >20         1         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         "ASTM D7844         >7.5         0.4         0.3         0.5           Nitration         Abs/:mm         "ASTM D7415	Molybdenum	ppm	ASTM D5185m	0	60	66	64	
Calcium         ppm         ASTM D5185m         2400         1032         1044         1133           Phosphorus         ppm         ASTM D5185m         750         1011         957         935           Zinc         ppm         ASTM D5185m         840         1168         1172         1134           Sulfur         ppm         ASTM D5185m         2130         2884         3064         3069           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >35         3         4         4           Sodium         ppm         ASTM D5185m         >0         <1	Manganese	ppm	ASTM D5185m	0	0	<1	<1	
Phosphorus         ppm         ASTM D5185m         750         1011         957         935           Zinc         ppm         ASTM D5185m         840         1168         1172         1134           Sulfur         ppm         ASTM D5185m         2130         2884         3064         3069           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >35         3         4         4           Sodium         ppm         ASTM D5185m         >30         1         <1	Magnesium	ppm	ASTM D5185m	80	862	858	807	
Zinc         ppm         ASTM D5185m         840         1168         1172         1134           Sulfur         ppm         ASTM D5185m         2130         2884         3064         3069           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >35         3         4         4           Sodium         ppm         ASTM D5185m         0         <1	Calcium	ppm	ASTM D5185m	2400	1032	1044	1133	
Sulfur         ppm         ASTM D5185m         2130         2884         3064         3069           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >35         3         4         4           Sodium         ppm         ASTM D5185m         0         <1	Phosphorus	ppm	ASTM D5185m	750	1011	957		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >35         3         4         4           Sodium         ppm         ASTM D5185m         0         <1	Zinc	ppm	ASTM D5185m	840	1168	1172	1134	
Silicon         ppm         ASTM D5185m         >35         3         4         4           Sodium         ppm         ASTM D5185m         0         <1         0           Potassium         ppm         ASTM D5185m         >20         1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >7.5         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624         >20         6.8         5.8         6.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         17.8         18.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         13.0         13.9	Sulfur	ppm	ASTM D5185m	2130	2884	3064	3069	
Sodium         ppm         ASTM D5185m         0         <1         0           Potassium         ppm         ASTM D5185m         >20         1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >7.5         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624         >20         6.8         5.8         6.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         17.8         18.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         13.0         13.9	CONTAMINAN	ITS	method	limit/base	current	history1	history2	
Potassium         ppm         ASTM D5185m         >20         1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >7.5         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624         >20         6.8         5.8         6.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         17.8         18.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         13.0         13.9		ppm		>35		4		
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >7.5         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624         >20         6.8         5.8         6.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         17.8         18.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         13.0         13.9	Sodium	ppm	ASTM D5185m		0	<1	0	
Soot %         %         *ASTM D7844 > 7.5         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624 > 20         6.8         5.8         6.7           Sulfation         Abs/.1mm         *ASTM D7415 > 30         19.0         17.8         18.4           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 > 25         14.7         13.0         13.9	Potassium	ppm	ASTM D5185m	>20	1	<1	<1	
Nitration         Abs/cm         *ASTM D7624         >20         6.8         5.8         6.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         17.8         18.4           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         13.0         13.9	INFRA-RED		method	limit/base	current	history1	history2	
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         17.8         18.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         13.0         13.9	Soot %	%	*ASTM D7844	>7.5	0.4	0.3	0.5	
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     14.7     13.0     13.9	Nitration	Abs/cm	*ASTM D7624	>20	6.8	5.8	6.7	
Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         13.0         13.9	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.0	17.8	18.4	
	FLUID DEGRAI	OATION	method	limit/base	current	history1	history2	
Base Number (BN)         mg KOH/g         ASTM D2896         9.5         8.2         8.5         8.7	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.7	13.0	13.9	
	Base Number (BN)	mg KOH/g	ASTM D2896	9.5	8.2	8.5	8.7	



## **OIL ANALYSIS REPORT**

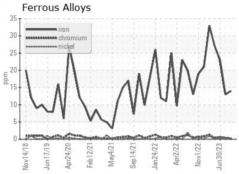


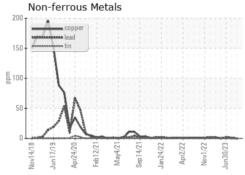


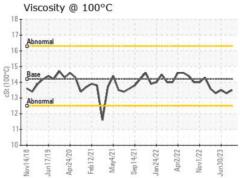
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

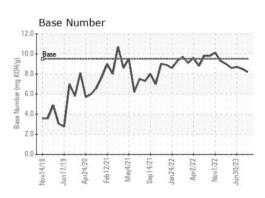
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	14.2	13.5	13.3	13.5

## **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10805041

: GFL0058930 : 06044433 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 26 Dec 2023 Diagnosed : 27 Dec 2023

Diagnostician : Wes Davis

GFL Environmental - 467 - Arbor Hills LF

10599 FIVE MILE RD NORTHVILLE, MI US 48168

Contact: ANGELA RILEY angela.riley@gflenv.com T: (248)412-0697

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)