

## **OIL ANALYSIS REPORT**

Sample Rating Trend



### Machine Id

#### 720074 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 Number     Client Info     GFL0104833     GFL0104835     GFL01048435     GFL0104949       Sample Date     Client Info     04 Apr 2024     19 Mar 2024     14 Feb 2024       Machine Age     mls     Client Info     0     242842     11355       Dil Age     mls     Client Info     0     242842     0       Dil Changed     Client Info     Not Changd     N/A     N/A       Sample Status     Imit/base     current     history1     history2       Fuel     WC Method     >5     <1.0     1.7       Vater     WC Method     >0     21.0     1.7       Vater     WC Method     >0     21.0     1.7       Vater     WC Method     >0     1.0     1.7       Vater     WC Method     >0     1.0     1.7       Vater     WC Method     >0     1.0     1.7       Vater     MEG     NEG     NEG     NEG       Vickel     ppm     ASTM D5185m     >10     <1     0
Machine Age     mis     Client Info     250687     242842     11355       Dil Age     mis     Client Info     0     242842     0       Dil Changed     Client Info     Not Changd     N/A     N/A       Sample Status     Imit/base     current     history1     history2       Fuel     WC Method     >5     <1.0     <1.0     1.7       Water     WC Method     >0.2     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       ron     ppm     ASTM D5185m     >100     17     46     30       Chromium     ppm     ASTM D5185m     >20     0     4     3       Silver     ppm     ASTM D5185m     >20     0     <1     0       Silver     ppm     ASTM D5185m     >20     <1     6     5       ead     ppm     ASTM D5185m     >30     0     0     0       Copper     ppm     ASTM D5185m
Dil Age   mis   Client Info   0   242842   0     Dil Changed   Client Info   Not Changd   N/A   N/A     Sample Status   method   limit/base   current   history1   history2     Fuel   WC Method   >5   <1.0   <1.0   1.7     Water   WC Method   >0   2.2   NEG   NEG   NEG     Silycol   WC Method   >0.2   NEG   NEG   NEG   Sample     WEAR METALS   method   limit/base   current   history1   history2     ron   ppm   ASTM D5185m   >100   17   46   30     Chromium   ppm   ASTM D5185m   >20   0   4   3     Vickel   ppm   ASTM D5185m   >3   0   0   0     Silver   ppm   ASTM D5185m   >30   0   0   0     Cadmium   ppm   ASTM D5185m   >30   0   0   0     Cadadium   ppm   ASTM D5185m   >330   0   2   1   0
Dil Changed Client Info Not Changd N/A N/A   Sample Status NORMAL NORMAL NORMAL NORMAL NORMAL   CONTAMINATION method limit/base current history1 history2   Fuel WC Method >5 <1.0 <1.0 1.7   Mater WC Method >0.2 NEG NEG NEG   Silycol WC Method >0.2 NEG NEG NEG   WEAR METALS method limit/base current history1 history2   ron ppm ASTM D5185m >100 17 46 30   Chromium ppm ASTM D5185m >20 0 4 3   Nickel ppm ASTM D5185m >20 0 <1 <1   Silver ppm ASTM D5185m >3 0 0 0   Copper ppm ASTM D5185m >330 0 2 1 1   Silver ppm ASTM D5185m >330 0 0 0   Cadadu ppm ASTM D5185m >330 0 2 1 0   Cadadu ppm ASTM D5185m >330 0 0
Sample Status     normation     NORMAL     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Fuel     WC Method     >5     <1.0     <1.0     1.7       Water     WC Method     >0.2     NEG     NEG     NEG       Silycol     WC Method     >0.2     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       ron     ppm     ASTM D5185m     >100     17     46     30       Chromium     ppm     ASTM D5185m     >20     0     4     3       Vickel     ppm     ASTM D5185m     >20     o     1     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Auminum     ppm     ASTM D5185m     >30     0     2     1       Copper     ppm     ASTM D5185m     >30     0     2     1       A
CONTAMINATION     method     limit/base     current     history1     history2       Fuel     WC Method     >5     <1.0     <1.0     1.7       Water     WC Method     >0.2     NEG     NEG     NEG       Silycol     WC Method     NEG     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       ron     ppm     ASTM D5185m     >100     17     46     30       Chromium     ppm     ASTM D5185m     >20     0     4     3       Vickel     ppm     ASTM D5185m     >20     0     <1     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Auminum     ppm     ASTM D5185m     >30     0     2     1       Solper     ppm     ASTM D5185m     >30     0     2     1       Copper     ppm     ASTM D5185m     0     0     0     0       Arandi
Fuel     WC Method     >5     <1.0
Water     WC Method     >0.2     NEG     NEG     NEG     NEG       Silycol     WC Method     NEG     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       ron     ppm     ASTM D5185m     >100     17     46     30       Chromium     ppm     ASTM D5185m     >20     0     4     3       Nickel     ppm     ASTM D5185m     >4     0     <1     0       Itanium     ppm     ASTM D5185m     >4     0     <1     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     0     2     1       Copper     ppm     ASTM D5185m     >330     0     2     1       Araadium     ppm     ASTM D5185m     >330     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0
Silycol     WC Method     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       ron     ppm     ASTM D5185m     >100     17     46     30       Chromium     ppm     ASTM D5185m     >20     0     4     3       Nickel     ppm     ASTM D5185m     >4     0     <1     0       Fitanium     ppm     ASTM D5185m     >4     0     <1     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     <1     6     5       Lead     ppm     ASTM D5185m     >20     <1     0     0       Copper     ppm     ASTM D5185m     >330     0     2     1       Cadmium     ppm     ASTM D5185m     >15     0     <1     0       Cadmium     ppm     ASTM D5185m     0     0     0     0
WEAR METALS     method     limit/base     current     history1     history2       ron     ppm     ASTM D5185m     >100     17     46     30       Chromium     ppm     ASTM D5185m     >20     0     4     3       Nickel     ppm     ASTM D5185m     >4     0     <1     0       Fitanium     ppm     ASTM D5185m     >4     0     <1     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Auminum     ppm     ASTM D5185m     >20     <1     6     5       Lead     ppm     ASTM D5185m     >20     <1     0     0       Copper     ppm     ASTM D5185m     >330     0     2     1     0       Vanadium     ppm     ASTM D5185m     >15     0     <1     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0     0       Soron     ppm     ASTM D5185m <t< th=""></t<>
ron     ppm     ASTM D5185m     >100     17     46     30       Chromium     ppm     ASTM D5185m     >20     0     4     3       Nickel     ppm     ASTM D5185m     >4     0     <1     0       Fitanium     ppm     ASTM D5185m     >4     0     <1     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Auminum     ppm     ASTM D5185m     >20     <1     6     5       Lead     ppm     ASTM D5185m     >20     <1     0     0       Copper     ppm     ASTM D5185m     >330     0     2     1       Cin     ppm     ASTM D5185m     >15     0     <1     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       Boron     ppm     ASTM D5185m     0     0     0     0
Ppm     ASTM D5185m     >20     0     4     3       Nickel     ppm     ASTM D5185m     >4     0     <1     0       Fitanium     ppm     ASTM D5185m     >4     0     <1     0       Fitanium     ppm     ASTM D5185m     >3     0     0     <1     <1       Silver     ppm     ASTM D5185m     >3     0     0     0     0       Aluminum     ppm     ASTM D5185m     >20     <1     6     5     -       ead     ppm     ASTM D5185m     >20     <1     0     0     0       Copper     ppm     ASTM D5185m     >40     0     <1     0     0       Cadmium     ppm     ASTM D5185m     >330     0     2     1     0       Cadmium     ppm     ASTM D5185m     >15     0     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0     0     0
Nickel     ppm     ASTM D5185m     >4     0     <1
Image: Pipe of the stress o
Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     <1
Aluminum     ppm     ASTM D5185m     >20     <1
Lead     ppm     ASTM D5185m     >40     0     <1
Copper     ppm     ASTM D5185m     >330     0     2     1       Fin     ppm     ASTM D5185m     >15     0     <1     0       Vanadium     ppm     ASTM D5185m     >15     0     0     0       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     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       Barium     ppm     ASTM D5185m     0     0     0     0       Maganese     ppm     ASTM D5185m     0     0     <1     <1       Magnesium     ppm     ASTM D5185m     1010     948     961     899       Calcium     ppm     ASTM D5185m     1070     1148     1101
Fin     ppm     ASTM D5185m     >15     0     <1
Vanadium     ppm     ASTM D5185m     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       Barium     ppm     ASTM D5185m     0     0     0     0     0       Barium     ppm     ASTM D5185m     0     0     0     0     0       Barium     ppm     ASTM D5185m     0     0     0     0     0       Malganese     ppm     ASTM D5185m     0     0     <1     <1       Magnesium     ppm     ASTM D5185m     1010     948     961     899       Calcium     ppm     ASTM D5185m     1070     1148     1101     985       Phosphorus     ppm     ASTM D5185m     1270     1324     1280     1129
Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     0     0     0       Boron     ppm     ASTM D5185m     0     0     0     0     0     0       Barium     ppm     ASTM D5185m     0     0     0     0     0     0       Barium     ppm     ASTM D5185m     0     0     0     0     0     0       Molybdenum     ppm     ASTM D5185m     0     0     0     <11
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     0     0     0       Barium     ppm     ASTM D5185m     0     0     0     0     0       Barium     ppm     ASTM D5185m     0     0     0     0     0       Molybdenum     ppm     ASTM D5185m     60     58     63     58       Manganese     ppm     ASTM D5185m     0     0     <1     <1       Magnesium     ppm     ASTM D5185m     1010     948     961     899       Calcium     ppm     ASTM D5185m     1070     1148     1101     985       Phosphorus     ppm     ASTM D5185m     1270     1324     1280     1129
Boron     ppm     ASTM D5185m     0     <1
Barium     ppm     ASTM D5185m     0     0     0     0     0       Molybdenum     ppm     ASTM D5185m     60 <b>58</b> 63     58       Manganese     ppm     ASTM D5185m     0 <b>0</b> <1     <1       Magnesium     ppm     ASTM D5185m     1010 <b>948</b> 961     899       Calcium     ppm     ASTM D5185m     1070 <b>1148</b> 1101     985       Phosphorus     ppm     ASTM D5185m     1270 <b>1024</b> 1280     1129
Molybdenum     ppm     ASTM D5185m     60     58     63     58       Manganese     ppm     ASTM D5185m     0     0     <1     <1       Magnesium     ppm     ASTM D5185m     1010     948     961     899       Calcium     ppm     ASTM D5185m     1070     1148     1101     985       Phosphorus     ppm     ASTM D5185m     1150     1056     1106     982       Zinc     ppm     ASTM D5185m     1270     1324     1280     1129
Manganese     ppm     ASTM D5185m     0     0     <1
Magnesium     ppm     ASTM D5185m     1010     948     961     899       Calcium     ppm     ASTM D5185m     1070     1148     1101     985       Phosphorus     ppm     ASTM D5185m     1150     1056     1106     982       Zinc     ppm     ASTM D5185m     1270     1324     1280     1129
Dalcium     ppm     ASTM D5185m     1070     1148     1101     985       Phosphorus     ppm     ASTM D5185m     1150     1056     1106     982       Zinc     ppm     ASTM D5185m     1270     1324     1280     1129
Phosphorus     ppm     ASTM D5185m     1150 <b>1056</b> 1106     982       Zinc     ppm     ASTM D5185m     1270 <b>1324</b> 1280     1129
Zinc ppm ASTM D5185m 1270 <b>1324</b> 1280 1129
Sulfur ppm ASTM D5185m 2060 <b>3679</b> 2021 2724
Sulfur ppm ASIM D5185m 2060 <b>3678</b> 3031 2734
CONTAMINANTS method limit/base current history1 history2
Silicon ppm ASTM D5185m >25 2 6 6
Sodium     ppm     ASTM D5185m     5     25     23
Potassium     ppm     ASTM D5185m     >20     2     8     5
INFRA-RED method limit/base current history1 history2
Soot % *ASTM D7844 >3 0.7 0.7 0.6
Nitration     Abs/cm     *ASTM D7624     >20     7.9     10.4     9.0
Nitration     Abs/cm     *ASTM D7624     >20     7.9     10.4     9.0       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.4     21.8     20.8
Sulfation     Abs/.1mm     *ASTM D7415     >30     20.4     21.8     20.8

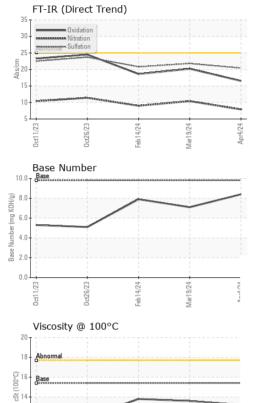


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Dct26/23

# **OIL ANALYSIS REPORT**



d)		VISUAL		method	limit/base	current	history1	histo	ory2		
		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE	-		
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	-		
	and a second second have been down to be set	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	-		
		Silt	scalar	*Visual	NONE	NONE	NONE	NONE	-		
Guines and a data day in the	To be a state of the local division of the l	Debris	scalar	*Visual	NONE	NONE	NONE	NONE	-		
	A STATISTICS	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	-		
Feb14/24	Mar19/24 Apr4/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORM	ЛL		
음	Mar	Odor	scalar	*Visual	NORML	NORML	NORML	NORM	ΛL		
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG			
		Free Water	scalar	*Visual		NEG	NEG	NEG			
		FLUID PROF		method	limit/base	current	history1	histo	ory2		
		Visc @ 100°C	cSt	ASTM D445	15.4	13.2	13.6	13.8			
		GRAPHS									
		Ferrous Alloys									
Feb 14/24 •	Mar19/24 .	40 - iron chromium		$\wedge$							
Fet	w W	30 -		$\langle \rangle$							
		mqq									
		20-									
1		10-									
		0		CONSCIENCTION OF THE OWNER	and the second se						
	_	0ct11/23	4/24 -	9/24 -	Apr4/24						
		0ct1 0ct2	Feb14/24	Mar19/24	Apr						
		Non-ferrous Me	tals								
Feb14/24	Mar19/24	10 copper									
旧	Ma	8 - tin									
		8- 8-									
		4									
		2									
		53 53 0	/24	124	124						
		0ct11/23 0ct26/23	Feb 14/24	Mar19/24	Apr4/24						
		Viscosity @ 100	°C			Base Number					
		19 18 <b>Abnormal</b>		   	10.0		1				
		17-			8.0		~		and the second se		
		Base			6.0 6.0 8ase Mumber (mg KOH(d) 8ase 20						
		0 15			E 6.0						
			/			) <b>-</b>					
		13 Abnormal			2.0						
		11									
			24	24	0.0		24 -	- 24			
		0ct11/23 0ct26/23	Feb14/24	Mar19/24	Apr4/24	0ct11/23 0ct26/23	Feb14/24	Mar19/24	2 Cl 9 - V		
		5 5	LC.	2		0 0	Ľ	2			
d	Laboratory		: WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 820 - Joplin Hauling								
ANAB	Sample No.		: GFL0104893 Received : 24 Apr 2024 3700 West 7th								
CONFOLLED	Lab Number			1					Joplin, M US 6480		
TESTING LABORATORY	Unique Number	: 10994161									
TESTING LABORATORY	Unique Number Test Package		Diagi	103eu . 20		Co Davio	Contac				

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: GFL820 [WUSCAR] 06158738 (Generated: 04/25/2024 11:40:40) Rev: 1

Submitted By: VINCE ASTI Page 2 of 2

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