

## **OIL ANALYSIS REPORT**

Sample Rating Trend

**GLYCOL** 

### Machine Id 255004

Component Gasoline Engine Fluid PETRO CANADA DURON SHP 10W30 (--- GA

#### DIAGNOSIS

#### Recommendation

We advise that you check for the source of the coolant leak. We recommend that you drain the oil from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with oil. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

#### Wear

All component wear rates are normal.

#### Contamination

Test for glycol is positive. There is a light concentration of glycol present in the oil.

#### Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. The condition of the oil is acceptable for the time in service. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION     reade     failed     failed     failed     failed     failed       SAMPLE INFORMATION     Client Info     CFL00641118     GFL0039265       Sample Number     Client Info     250360     7024     1410       Oli Age     kms     Client Info     0     0     6600       Oli Age     Kms     Client Info     N/A     N/A     Changed       Sample Status     Imit/base     current     history1     History2       Fuel     WC Method     >4.0     <1.0     2.2     \$.3.6       VEAR METALS     method     imit/base     current     history1     history2       Fuel     WC Method     >4.0     <1.0     2.2     \$.3.6       VEAR METALS     method     imit/base     current     history1     history2       Fuel     WC Method     >4.0     <1.0      2.2     \$.3.6       Vearial     ppm     ASTM D5156m     >2.0     2     1     1     1     1     1     1	AL)						
Sample Number     Client Info     GFL0084118     GFL0073160     GFL003285       Sample Date     I     Client Info     250360     7024     1410       Dil Age     kms     Client Info     0     0     600       Dil Age     kms     Client Info     N/A     N/A     Changed       Sample Status     Imit base     current     history1     history2       Fuel     WC Method     imit base     current     history1     history2       Fuel     WC Method     s4.0     <1.0     2     A     3.6       WEAR METALS     method     imit base     current     history1     history2       Foronium     ppm     ASTM D5160     >50     1     1     1       Foronium     ppm     ASTM D5160     >2     1     0     0       Silver     ppm     ASTM D5160     >50     <1     1     1       Commum     ppm     ASTM D5160     >2     1     1     1       Silver     pp	•		method	-			history2
Sample Date     Client Info     26 Sep 2023     15 Mar 2023     23 Sep 2022       Machine Age     kms     Client Info     0     0     600       Dil Age     Kms     Client Info     0     0     600       Sample Status     Client Info     N/A     N/A     Changed     Control       CONTAMINATION     method     limi/base     current     history1     history2       Fuel     WC Method     >4.0     <1.0	Sample Number		Client Info		GFL0084118		
Machine Age     kms     Client Info     250360     7024     1410       Dil Age     kms     Client Info     0     600     600       Dil Age     Kms     Client Info     0     600     600       Sample Status     Client Info     ATTENTION     MARGINAL     ABNORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Fuel     WC Method     >4.0     <1.0							
Dail Age     kms     Client Info     0     0     600       Dil Changed     Client Info     N/A     N/A     N/A     Changed       Sample Status     Imaged     Client Info     N/A     N/A     ARTENTION     ABNORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Fuel     WC Method     >4.0     <1.0	•	kms			•		
Dil Changed Client Info N/A N/A Changed   Gample Status method limit/base current history1 history2   Guel WC Method >4.0. <1.0	0						
Sample Status     Image: Status     ATTENTION     MARGINAL     ABNORMAL       CONTAMINATION     method     limil/base     current     history1     history2       Fuel     WC Method     >4.0     <1.0	-				-		
Tuel     WC Method     >4.0     <1.0     2.2     ▲ 3.6       WEAR METALS     method     limit/base     current     history1     history2       ron     ppm     ASTM 05185(m)     >150     44     39     50       Chromium     ppm     ASTM 05185(m)     >20     2     1     2       Nickel     ppm     ASTM 05185(m)     >55     1     1     1       Silver     ppm     ASTM 05185(m)     >22     <1	0						
WEAR METALS     method     limit/base     current     history1     history2       ron     ppm     ASTM D5185(m)     >150     44     39     50       Dromium     ppm     ASTM D5185(m)     >5     1     1     2       Nickel     ppm     ASTM D5185(m)     >5     1     1     1       Fitanium     ppm     ASTM D5185(m)     >2     <1	CONTAMINAT	ΓΙΟΝ	method	limit/base	current	history1	history2
ron     ppm     ASTM D5185(m)     >150     44     39     50       Chromium     ppm     ASTM D5185(m)     >20     2     1     2       Nickel     ppm     ASTM D5185(m)     >5     1     1     1       Titanium     ppm     ASTM D5185(m)     >2     <1	Fuel		WC Method	>4.0	<1.0	<b>2</b> .2	<b>3</b> .6
Dromium     ppm     ASTM D5185(m)     >20     2     1     2       Nickel     ppm     ASTM D5185(m)     >5     1     1     1       Titanium     ppm     ASTM D5185(m)     >2     <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185(m)     >5     1     1     1       Fitanium     ppm     ASTM D5185(m)     >2     <1	ron	ppm	ASTM D5185(m)	>150	44	39	50
Nickel     ppm     ASTM D5185(m)     >5     1     1     1       Fitanium     ppm     ASTM D5185(m)     >2     <1	Chromium		. ,	>20	2	1	2
Fitanium     ppm     ASTM D5165(m)     7     0     <1       Silver     ppm     ASTM D5165(m)     >2     <1	Nickel				1	1	1
Silver     ppm     ASTM D5185(m)     >2     <1     0     0       Aluminum     ppm     ASTM D5185(m)     >40     6     4     5       ead     ppm     ASTM D5185(m)     >50     <1     <1     0       Copper     ppm     ASTM D5185(m)     >50     <1     <1     0       Antimony     ppm     ASTM D5185(m)     >10     0     0     0       Antimony     ppm     ASTM D5185(m)     <1     <1     <1     <1       Servitium     ppm     ASTM D5185(m)     <10     0     0     0     0       Addminum     ppm     ASTM D5185(m)     0     0     0     0     0       Addminum     ppm     ASTM D5185(m)     0     0     0     0     0       Addminum     ppm     ASTM D5185(m)     0     0     0     0     0       Barinum     ppm     ASTM D5185(m)     0     0     21     11 <th1< th="">     11     0</th1<>	Titanium					0	<1
Aluminum     ppm     ASTM D5185(m)     >40     6     4     5       ead     ppm     ASTM D5185(m)     >50     <1	Silver		· · ·	>2	<1	0	0
Lead     ppm     ASTM D5185(m)     >50     <1     <1     0       Copper     ppm     ASTM D5185(m)     >155     8     4     12       Tin     ppm     ASTM D5185(m)     >10     0     0     0       Antimony     ppm     ASTM D5185(m)     <1							
Copper     ppm     ASTM D5185(m)     >155     8     4     12       Tin     ppm     ASTM D5185(m)     >10     0     0     0       Antimony     ppm     ASTM D5185(m)     <1					-		
Fin     ppm     ASTM D5185(m)     >10     0     0     0       Antimony     ppm     ASTM D5185(m)     <11							
Antimony     ppm     ASTM D5185(m)     0     0     0       Vanadium     ppm     ASTM D5185(m)     <1							
Vanadium     ppm     ASTM D5185(m)     <1     <1     <1       Beryllium     ppm     ASTM D5185(m)     0     0     0       Cadmium     ppm     ASTM D5185(m)     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185(m)     2     19     11     10       Barium     ppm     ASTM D5185(m)     0     0     0     0       Maganese     ppm     ASTM D5185(m)     50     103     66     66       Magnese     ppm     ASTM D5185(m)     950     634     401     431       Calcium     ppm     ASTM D5185(m)     950     657     628     625       Cinc     ppm     ASTM D5185(m)     180     809     652     651       Sulfur     ppm     ASTM D5185(m)     2600     1972     1766     1737       Contradmina     pp     ASTM D5185(m)     >30     8     5     7<			. ,	210	-		
Baryllium     ppm     ASTM D5185(m)     O     O     O       Cadmium     pm     ASTM D5185(m)     O     O     O       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185(m)     2     19     11     10       Barium     ppm     ASTM D5185(m)     0     O     O     O       Magnesium     ppm     ASTM D5185(m)     50     103     66     66       Magnesium     ppm     ASTM D5185(m)     0     <1	,		. ,		-		
Cadmium     pm     ASTM D5185(m)     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185(m)     2     19     11     10       Barium     ppm     ASTM D5185(m)     0     0     0     0     0       Magnesium     ppm     ASTM D5185(m)     50     103     66     66       Magnesium     ppm     ASTM D5185(m)     0     <1     <1     <1       Calcium     ppm     ASTM D5185(m)     050     634     401     431       Calcium     ppm     ASTM D5185(m)     050     1292     1146     1453       Phosphorus     ppm     ASTM D5185(m)     995     657     628     622     651       Sulfur     ppm     ASTM D5185(m)     2600     1972     1766     1737       Lithium     ppm     ASTM D5185(m)     >30     8     5     7       Sodium     ppm     ASTM D51							
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185(m)     2     19     11     10       Barium     ppm     ASTM D5185(m)     0     0     0     0       Maganese     ppm     ASTM D5185(m)     50     103     66     66       Maganese     ppm     ASTM D5185(m)     0     <1							
Boron     ppm     ASTM D5185(m)     2     19     11     10       Barium     ppm     ASTM D5185(m)     0     0     0     0       Molybdenum     ppm     ASTM D5185(m)     50     103     66     66       Manganese     ppm     ASTM D5185(m)     0     <1		ppm		limit/base	-	-	
Barium     ppm     ASTM D5185(m)     0     0     0     0       Molybdenum     ppm     ASTM D5185(m)     50     103     66     66       Manganese     ppm     ASTM D5185(m)     0     <1							
Molybdenum     ppm     ASTM D5185(m)     50     103     66     66       Manganese     ppm     ASTM D5185(m)     0     <1							
Marganese     ppm     ASTM D5185(m)     0     <1     <1     <1     <1       Magnesium     ppm     ASTM D5185(m)     950     634     401     431       Calcium     ppm     ASTM D5185(m)     1050     1292     1146     1453       Calcium     ppm     ASTM D5185(m)     995     657     628     625       Zinc     ppm     ASTM D5185(m)     1180     809     652     651       Sulfur     ppm     ASTM D5185(m)     2600     1972     1766     1737       Lithium     ppm     ASTM D5185(m)     2600     1972     1766     1737       Silicon     ppm     ASTM D5185(m)     2600     1972     1766     1737       Solium     ppm     ASTM D5185(m)     >30     8     5     7       Solicon     ppm     ASTM D5185(m)     >400     24     21     40       Potassium     ppm     ASTM D5185(m)     >20     1     2     4       Sot %			. ,		-	•	
Magnesium     ppm     ASTM D5185(m)     950     634     401     431       Calcium     ppm     ASTM D5185(m)     1050     1292     1146     1453       Phosphorus     ppm     ASTM D5185(m)     1050     1292     1146     1453       Phosphorus     ppm     ASTM D5185(m)     995     657     628     625       Zinc     ppm     ASTM D5185(m)     1180     809     652     651       Sulfur     ppm     ASTM D5185(m)     2600     1972     1766     1737       Lithium     ppm     ASTM D5185(m)     2600     1972     1766     1737       Silicon     ppm     ASTM D5185(m)     2600     1972     1766     1737       Sodium     ppm     ASTM D5185(m)     >30     8     5     7       Sodium     ppm     ASTM D5185(m)     >400     24     21     40       Potassium     ppm     ASTM D784*     0     0.0     NEG       INFRA-RED     method	-						
Date     pp     ASTM D5185(m)     1050     1292     1146     1453       Phosphorus     ppm     ASTM D5185(m)     995     657     628     625       Zinc     ppm     ASTM D5185(m)     995     657     628     625       Sulfur     ppm     ASTM D5185(m)     1180     809     652     651       Sulfur     ppm     ASTM D5185(m)     2600     1972     1766     1737       Lithium     ppm     ASTM D5185(m)     2600     1972     1766     1737       Silicon     ppm     ASTM D5185(m)     2600     1972     1766     1737       Solicon     ppm     ASTM D5185(m)     2600     1972     1766     1707       Solicon     ppm     ASTM D5185(m)     >30     8     5     7       Solicon     ppm     ASTM D5185(m)     >400     24     21     40       Potassium     ppm     ASTM D782*     0.012     0.0     NEG       INFRA-RED     method     limi	0	ppm					
Phosphorus     ppm     ASTM D5185(m)     995     657     628     625       Zinc     ppm     ASTM D5185(m)     1180     809     652     651       Sulfur     ppm     ASTM D5185(m)     2600     1972     1766     1737       Lithium     ppm     ASTM D5185(m)     2600     1972     1766     1737       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185(m)     >30     8     5     7       Sodium     ppm     ASTM D5185(m)     >400     24     21     40       Potassium     ppm     ASTM D5185(m)     >20     1     2     4       Glycol     %     ASTM D7922*     0.012     0.0     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     ASTM D7624*     >20     16.1     12.6     15.7       Sulfation     Abs/.1mm     ASTM D7415* <t< td=""><td>0</td><td></td><td>. ,</td><td></td><td></td><td></td><td></td></t<>	0		. ,				
Zinc     ppm     ASTM D5185(m)     1180     809     652     651       Sulfur     ppm     ASTM D5185(m)     2600     1972     1766     1737       Lithium     ppm     ASTM D5185(m)     2600     1972     1766     1737       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185(m)     >30     8     5     7       Sodium     ppm     ASTM D5185(m)     >400     244     21     40       Potassium     ppm     ASTM D5185(m)     >20     1     2     4       Glycol     %     ASTM D5185(m)     >20     1     0.00     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     ASTM D7624*     >20     16.1     12.6     15.7       Sulfation     Abs/.1mm     ASTM D7414*     >30     30.3     28.5     29.8       FLUID DEGRADATION     Method		ppm			-		
SulfurppmASTM D5185(m)2600197217661737LithiumppmASTM D5185(m)<		ppm	( )		657		
LithiumppmASTM D5185(m)<1<1<1CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185(m)>30857SodiumppmASTM D5185(m)>400242140PotassiumppmASTM D5185(m)>20124Glycol%ASTM D5185(m)>2010.0NEGINFRA-REDmethodlimit/basecurrenthistory1history2Soot %%ASTM D7922*000NitrationAbs/cmASTM D7624*>2016.112.615.7SulfationAbs/1mmASTM D7415*>3030.328.529.8FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/1mmASTM D7414*>2530.420.726.6	-	ppm					
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185(m)>30857SodiumppmASTM D5185(m)>400242140PotassiumppmASTM D5185(m)>20124Glycol%ASTM D7922*▲ 0.0120.0NEGINFRA-REDmethodlimit/basecurrenthistory1history2Soot %%ASTM D7944*000NitrationAbs/cmASTM D7624*>2016.112.615.7SulfationAbs/.1mmASTM D7415*>3030.328.529.8FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mmASTM D7414*>2530.420.726.6		ppm		2600	1972	1766	1737
Silicon     ppm     ASTM D5185(m)     >30     8     5     7       Sodium     ppm     ASTM D5185(m)     >400     24     21     40       Potassium     ppm     ASTM D5185(m)     >20     1     2     4       Glycol     %     ASTM D5185(m)     >20     1     20.0     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     ASTM D7844*     0     0     0     0       Nitration     Abs/m     ASTM D7624*     >20     16.1     12.6     15.7       Sulfation     Abs/.1mm     ASTM D7415*     >30     30.3     28.5     29.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     ASTM D7414*     >25     30.4     20.7     26.6			ASTM D5185(m)		<1		
Sodium     ppm     ASTM D5185(m)     >400     24     21     40       Potassium     ppm     ASTM D5185(m)     >20     1     2     4       Glycol     %     ASTM D5185(m)     >20     1     2     4       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     ASTM D7922*     0     0     0     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     ASTM D7844*     0     0     0     0       Nitration     Abs/cm     ASTM D7614*     >20     16.1     12.6     15.7       Sulfation     Abs/.1mm     ASTM D7415*     >30     30.3     28.5     29.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     ASTM D7414*     >25     30.4     20.7     26.6	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium     ppm     ASTM D5185(m)     >20     1     2     4       Glycol     %     ASTM D7922*     Imit/base     current     history1     history2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     ASTM D7824*     >0     0     0     0       Nitration     Abs/cm     ASTM D7624*     >20     16.1     12.6     15.7       Sulfation     Abs/.1mm     ASTM D7415*     >30     30.3     28.5     29.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Dxidation     Abs/.1mm     ASTM D7414*     >25     30.4     20.7     26.6	Silicon	ppm	ASTM D5185(m)	>30	8	5	7
Glycol     %     ASTM D7922*     0.012     0.0     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     ASTM D7844*     0     0     0       Nitration     Abs/cm     ASTM D7624*     >20     16.1     12.6     15.7       Sulfation     Abs/.1mm     ASTM D7415*     >30     30.3     28.5     29.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Dxidation     Abs/.1mm     ASTM D7414*     >25     30.4     20.7     26.6	Sodium	ppm	ASTM D5185(m)	>400	<u> </u>	21	40
INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%ASTM D7844*000NitrationAbs/cmASTM D7624*>2016.112.615.7SulfationAbs/.1mmASTM D7415*>3030.328.529.8FLUID DEGRADATION methodlimit/basecurrenthistory1history2DxidationAbs/.1mmASTM D7414*>2530.420.726.6	Potassium	ppm	ASTM D5185(m)	>20	1	2	4
Soot %     %     ASTM D7844*     0     0     0       Nitration     Abs/cm     ASTM D7624*     >20     16.1     12.6     15.7       Sulfation     Abs/.1mm     ASTM D7415*     >30     30.3     28.5     29.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     ASTM D7414*     >25     30.4     20.7     26.6	Glycol	%	ASTM D7922*		<u> </u>	0.0	NEG
Nitration     Abs/cm     ASTM D7624*     >20     16.1     12.6     15.7       Sulfation     Abs/.1mm     ASTM D7624*     >30     30.3     28.5     29.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     ASTM D7414*     >25     30.4     20.7     26.6	INFRA-RED		method	limit/base	current	history1	history2
SulfationAbs/.1mmASTM D7415*>30 <b>30.3</b> 28.529.8FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mmASTM D7414*>25 <b>30.4</b> 20.726.6	Soot %	%	ASTM D7844*		0	0	0
FLUID DEGRADATION     method     limit/base     current     history1     history2       Dxidation     Abs/.1mm     ASTM D7414*     >25 <b>30.4</b> 20.7     26.6	Nitration	Abs/cm	ASTM D7624*	>20	16.1	12.6	15.7
Dxidation     Abs/.1mm     ASTM D7414*     >25     30.4     20.7     26.6	Sulfation	Abs/.1mm	ASTM D7415*	>30	30.3	28.5	29.8
	FLUID DEGRA		method	limit/base	current	history1	history2
2:04) Rev: 1 Contact/Location: Allison Adams - GFL57	Oxidation	Abs/.1mm	ASTM D7414*	>25	30.4	20.7	26.6
	12:04) Rev: 1				Contact/Lo	cation: Allison A	dams - GFL574



# **OIL ANALYSIS REPORT**

