

### **OIL ANALYSIS REPORT**

Sample Rating Trend



# Machine Id 921010-560

#### 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

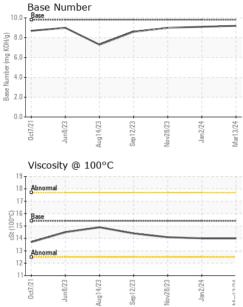
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI		method	limit/base	current	history1	history2
			mmbasc		· · · · · · · · · · · · · · · · · · ·	
Sample Number		Client Info		GFL0100956	GFL0100873	GFL0086827
Sample Date	and a	Client Info		13 Mar 2024	02 Jan 2024	28 Nov 2023
Machine Age	mls	Client Info		283235	273951	272190
Oil Age	mls	Client Info		283235	0	272190
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	7	7	12
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	1
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
Oudinium	ppm	AO INI DO IOUIII		51	0	0
ADDITIVES	ppin	method	limit/base		history1	history2
	ppm		limit/base			
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 4	history1 6	history2 4
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 4 0	history1 6 0	history2 4 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 4 0 64	history1 6 0 61	history2 4 0 60
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	Current 4 0 64 <1	history1 6 0 61 <1	history2 4 0 60 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	Current 4 0 64 <1 899	history1 6 0 61 <1 910	history2 4 0 60 0 877
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 4 0 64 <1 899 1066	history1 6 0 61 <1 910 1039	history2 4 0 60 0 877 1063
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 4 0 64 <1 899 1066 995	history1 6 0 61 <1 910 1039 1029	history2 4 0 60 0 877 1063 956
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	Current 4 0 64 <1 899 1066 995 1152	history1 6 0 61 <1 910 1039 1029 1225	history2 4 0 60 0 877 1063 956 1132
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 4 0 64 <1 899 1066 995 1152 2998	history1 6 0 61 <1 910 1039 1029 1225 3025	history2 4 0 60 0 877 1063 956 1132 2823
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 4 0 64 <1 899 1066 995 1152 2998 Current 12	history1 6 0 61 <1 910 1039 1029 1029 1225 3025 history1	history2 4 0 60 0 877 1063 956 1132 2823 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	Current 4 0 64 <1 899 1066 995 1152 2998 Current	history1         6         0         61         <1         910         1039         1029         1225         3025         history1         3	history2           4           0           60           0           877           1063           956           1132           2823           history2           8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	Current 4 0 64 <1 899 1066 995 1152 2998 Current 12 0 1	history1         6         0         61         <1         910         1039         1029         1225         3025         history1         3         3         3	history2           4           0           60           0           877           1063           956           1132           2823           history2           8           5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	Current 4 0 64 <1 899 1066 995 1152 2998 Current 12 0 1 1 Current	history1         6         0         61         <1         910         1039         1029         1225         3025         history1         3         3         0	history2           4           0           60           0           877           1063           956           1132           2823           history2           8           5           0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	Current         4         0         64         <1         899         1066         995         1152         2998         current         12         0         1         current         0         1         current         0.6	history1         6         0         61         <1         910         1039         1029         1225         3025         history1         3         3         0         history1         0.5	history2           4           0           60           0           877           1063           956           1132           2823           history2           8           5           0           history2           0           0.6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	Current 4 0 64 <1 899 1066 995 1152 2998 Current 12 0 1 1 Current	history1         6         0         61         <1         910         1039         1029         1225         3025         history1         3         3         0         history1	history2         4         0         60         0         877         1063         956         1132         2823         history2         8         5         0         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 320 20 33 20 20	4         0         64         <1         899         1066         995         1152         2998         current         12         0         1         current         0.6         5.4         17.9	history1         6         0         61         <1         910         1039         1029         1225         3025         history1         3         0         history1         0.5         6.1         18.5	history2         4         0         60         0         877         1063         956         1132         2823         history2         8         5         0         history2         0         history2         0.6         6.4         19.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm	method           ASTM D5185m           ASTM D7844           *ASTM D7624           *ASTM D7415           method	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 33 220 330 20 330	Current 4 0 64 <1 899 1066 995 1152 2998 Current 12 0 1 1 0 1 0 1 0 1 0 5.4 1 7.9 Current	history1         6         0         61         <1         910         1039         1029         1225         3025         history1         3         3         0         history1         0.5         6.1         18.5         history1	history2         4         0         60         0         877         1063         956         1132         2823         history2         8         5         0         history2         0         history2         0.6         6.4         19.1         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 320 20 33 20 20	Current         4         0         64         <1         899         1066         995         1152         2998         current         12         0         1         current         0.6         5.4         17.9	history1         6         0         61         <1         910         1039         1029         1225         3025         history1         3         0         history1         0.5         6.1         18.5	history2         4         0         60         0         877         1063         956         1132         2823         history2         8         5         0         history2         0         history2         0.6         6.4         19.1



## **OIL ANALYSIS REPORT**

VISUAL



Laboratory Sample No. Lab Number Unique Number Test Package To discuss this sample report,	: GFL0100956 : <mark>06119291</mark> : 10928124	Recei Teste	Received: 15 Mar 2024Tested: 15 Mar 2024Diagnosed: 15 Mar 2024 - Wes Davis				onmental - 419 - Metro Saginav 6950 N Michigar Saginaw, M US 48604 Contact: Jeremy Hines jhines@gflenv.con T: (800)684-1277		
		Base (0,0001) 15 14 13 12 11 12 11 12 11 12 12 11 12 12 11 12 12	Sep12/23	Nov28/23 Jan2/24	4.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Jun8/23	Aug 17/23 Sep 12/23	1002/01/2 Jan2/24	
		Viscosity @ 100°( Abnormal Base	2		10.0 (B) HOX Br 6.0	Base Number	<u> </u>		
		2 0 12/0 12/0 0 12/0 0 0 12/0 0 0	Sep12/23	Nov28/23	Mar13/24				
		8 - tin							
		Non-ferrous Meta		Nov	Mar				
		Jun8/23	Sep 12/23	Vov28/23	Mar13/24				
Sep 12/23 Nov28/23	42/2mbL مرديت	35- 30- 15-							
23	24	GRAPHS Ferrous Alloys		1					
		FLUID PROPE Visc @ 100°C	cSt	method ASTM D445	limit/base 15.4	current 14.0	history1 14.0	history2 14.1	
	Free Water	scalar	*Visual		NEG	NEG	NEG		
	Odor Emulsified Water	scalar scalar	*Visual *Visual	NORML >0.2	NORML NEG	NORML NEG	NORML NEG		
Sep 12/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML		
	Debris Sand/Dirt	scalar scalar	*Visual *Visual	NONE	NONE	NONE	NONE NONE		
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE		
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE		
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE		