

# **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

## 929144 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.

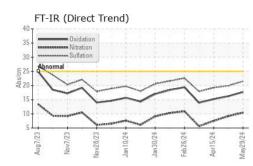
### Fluid Condition

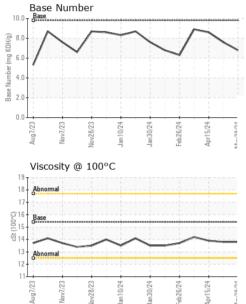
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0117943	GFL0117939	GFL0111951
Sample Date		Client Info		29 May 2024	06 May 2024	15 Apr 2024
Machine Age	hrs	Client Info		4202	4041	3907
Oil Age	hrs	Client Info		564	403	0
Oil Changed		Client Info		Changed	Not Changd	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	>110	26	27	11
Chromium	ppm	ASTM D5185m	>4	1	2	<1
Nickel	ppm	ASTM D5185m	>2	0	1	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>25	6	8	4
Lead	ppm	ASTM D5185m	>45	0	<1	0
Copper	ppm	ASTM D5185m	>85	2	3	<1
Tin	ppm	ASTM D5185m	>4	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 2	history1 1	history2 2
	ppm ppm					
Boron		ASTM D5185m	0	2	1	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 0	1 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 62	1 0 89	2 0 65
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 62 <1	1 0 89 <1	2 0 65 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 0 62 <1 951	1 0 89 <1 1392	2 0 65 0 976
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	2 0 62 <1 951 1132	1 0 89 <1 1392 1515	2 0 65 0 976 1166
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	2 0 62 <1 951 1132 1002	1 0 89 <1 1392 1515 1415	2 0 65 0 976 1166 1174
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	2 0 62 <1 951 1132 1002 1213	1 0 89 <1 1392 1515 1415 1775	2 0 65 0 976 1166 1174 1319
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	2 0 62 <1 951 1132 1002 1213 3156	1 0 89 <1 1392 1515 1415 1775 4565	2 0 65 0 976 1166 1174 1319 3164
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	2 0 62 <1 951 1132 1002 1213 3156 current	1 0 89 <1 1392 1515 1415 1415 1775 4565 history1	2 0 65 0 976 1166 1174 1319 3164 <b>history2</b>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	2 0 62 <1 951 1132 1002 1213 3156 current 9	1 0 89 <1 1392 1515 1415 1775 4565 history1 11	2 0 65 0 976 1166 1174 1319 3164 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m 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>	2 0 62 <1 951 1132 1002 1213 3156 <u>current</u> 9 7	1 0 89 <1 1392 1515 1415 1775 4565 history1 11 7	2 0 65 0 976 1166 1174 1319 3164 <b>history2</b> 6 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	2 0 62 <1 951 1132 1002 1213 3156 current 9 7 7	1 0 89 <1 1392 1515 1415 1775 4565 history1 11 7 9 <u>history1</u> 0.6	2 0 65 0 976 1166 1174 1319 3164 <b>history2</b> 6 3 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >30 >20 <b>Imit/base</b>	2 0 62 <1 951 1132 1002 1213 3156 current 9 7 7 7	1 0 89 <1 1392 1515 1415 1775 4565 history1 11 7 9 9 history1	2 0 65 0 976 1166 1174 1319 3164 <b>history2</b> 6 3 4 <b>history2</b>
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >30 >20 <b>Imit/base</b>	2 0 62 <1 951 1132 1002 1213 3156 <i>current</i> 9 7 7 7 <i>current</i> 0.7	1 0 89 <1 1392 1515 1415 1775 4565 history1 11 7 9 <u>history1</u> 0.6	2 0 65 0 976 1166 1174 1319 3164 <b>history2</b> 6 3 4 <b>history2</b> 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 220 imit/base >3 >20	2 0 62 <1 951 1132 1002 1213 3156 <i>current</i> 9 7 7 7 <i>current</i> 0.7 10.4	1 0 89 <1 1392 1515 1415 1775 4565 history1 11 7 9 history1 0.6 9.2	2 0 65 0 976 1166 1174 1319 3164 history2 6 3 4 history2 0.4 7.5
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >30 20 <b>Imit/base</b> >3 >20	2 0 62 <1 951 1132 1002 1213 3156 <u>current</u> 9 7 7 7 <u>current</u> 0.7 10.4 21.5	1 0 89 <1 1392 1515 1415 1775 4565 history1 11 7 9 <u>history1</u> 0.6 9.2 19.9	2 0 65 0 976 1166 1174 1319 3164 <b>history2</b> 6 3 4 <b>history2</b> 0.4 7.5 19.2



# **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
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.8	13.9
GRAPHS						

Ferrous Alloys 120 100 80 Md 60 40 20 0. Aug7/23 Apr15/24 Nov7/23 an10/74 Non-ferrous Metals 40 35 lead 30 25 ۲<u>ط</u> 20 15 10 5 0 Aug7/23 Nov7/23 C/6Cm Viscosity @ 100°C Base Number 19 10.0 18 17 8 (mg KOH/g) ()-16 ()-00 () 15 () 14 6 Number 4 ( Base 13 Abnorma 12 11-0.0 Aug7/23 -May29/24. Aug7/23 -Nov7/23 w28/23 an30/24 w28/23 Nov7/23 Jan 10/24 Feb26/24 Apr15/24 Feb26/24 Apr15/24 May29/24 Jan 10/24 Jan 30/24 Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 892 - Pauls Valley Hauling Sample No. : GFL0117943 Received : 30 May 2024 1910 S CHICKASAW STREET Lab Number : 06196141 Tested : 31 May 2024 Pauls Valley, OK US 73075 Unique Number : 11058264 Diagnosed : 31 May 2024 - Wes Davis Contact: Tony Graham

Certificate 12367 Test Package : FLEET 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)

Report Id: GFL892 [WUSCAR] 06196141 (Generated: 05/31/2024 16:36:49) Rev: 1

Contact/Location: Tony Graham - GFL892 Page 2 of 2

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