

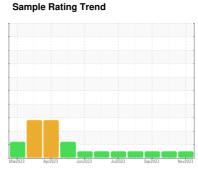
# **OIL ANALYSIS REPORT**



# ALEXANDER CITY 413057

Component **Diesel Engine** 

PETRO CANADA DURON SHP 15W40 (--- GAL)





### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

Metal levels are typical for a new component breaking in.

### Contamination

There is no indication of any contamination in the

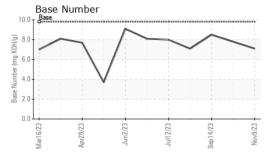
### **Fluid Condition**

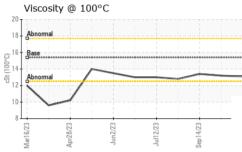
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		marara	TOTAL OUT OUT OUT	000000	11012020	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0089920	GFL0089921	GFL0078478
Sample Date		Client Info		09 Nov 2023	19 Oct 2023	14 Sep 2023
Machine Age	hrs	Client Info		1659	48096	1282
Oil Age	hrs	Client Info		1659	48096	1282
Oil Changed		Client Info		N/A	N/A	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	11	11	4
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	1	1	<1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	5	4	4
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	9	9	8
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
• • •		A OTH A DELOS				
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES	ppm	method	limit/base	<b>o</b> current	0 history1	0 history2
	ppm		limit/base			_
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current <b>7</b>	history1	history2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 7 0	history1 8 0	history2 16 0
ADDITIVES Boron Barium Molybdenum	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 7 0 58	history1  8 0 63	history2 16 0 64
ADDITIVES  Boron  Barium  Molybdenum  Manganese	ppm ppm ppm	method  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m	0 0 60 0	current 7 0 58 <1	history1  8 0 63	history2  16 0 64 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method  ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 7 0 58 <1 863	history1  8  0 63  0 866	history2  16  0 64 <1 964
ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc	ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070	current 7 0 58 <1 863 1014	history1  8  0 63  0 866 1065	history2  16 0 64 <1 964 1167 1034 1258
ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150	current  7  0  58  <1  863  1014  933	history1  8  0 63  0 866 1065 959	history2  16  0 64  <1 964  1167  1034
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current  7 0 58 <1 863 1014 933 1126 2609 current	history1  8  0 63  0 866 1065 959 1147 2987 history1	history2  16 0 64 <1 964 1167 1034 1258 3722 history2
ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc  Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current  7  0  58  <1  863  1014  933  1126  2609  current  8	history1  8  0 63  0 866 1065 959 1147 2987 history1 9	history2  16 0 64 <1 964 1167 1034 1258 3722 history2 6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current  7 0 58 <1 863 1014 933 1126 2609 current	history1  8  0 63  0 866 1065 959 1147 2987 history1 9	history2  16  0 64  <1 964  1167  1034  1258  3722  history2  6 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current  7  0  58  <1  863  1014  933  1126  2609  current  8	history1  8  0 63  0 866 1065 959 1147 2987 history1 9	history2  16 0 64 <1 964 1167 1034 1258 3722 history2 6
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 limit/base	current  7 0 58 <1 863 1014 933 1126 2609 current  8 4	history1  8  0 63  0 866 1065 959 1147 2987 history1 9	history2  16  0 64  <1 964  1167  1034  1258  3722  history2  6 2
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 limit/base >25	current  7  0  58  <1  863  1014  933  1126  2609  current  8  4	history1  8  0 63  0 866 1065 959 1147 2987 history1  9 2	history2  16  0  64  <1  964  1167  1034  1258  3722  history2  6  2  5
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 ppm	method  ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current  7 0 58 <1 863 1014 933 1126 2609 current  8 4 8	history1  8  0 63  0 866 1065 959 1147 2987 history1  9 2 9	history2  16  0 64 <1 964 1167 1034 1258 3722 history2  6 2 5
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  method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current 7 0 58 <1 863 1014 933 1126 2609 current 8 4 8 current	history1  8  0 63  0 866 1065 959 1147 2987 history1  9 2 9 history1 0.3	history2  16  0 64 <1 964 1167 1034 1258 3722 history2 6 2 5 history2
ADDITIVES 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	method  ASTM D5185m  method  ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current  7 0 58 <1 863 1014 933 1126 2609 current 8 4 8 current 0.4 8.1	history1  8  0 63  0 866 1065 959 1147 2987 history1  9 2 9 history1 0.3 7.4	history2  16  0 64  <1 964  1167 1034 1258 3722  history2  6 2 5  history2  0 6.9
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  method  *ASTM D5185m ASTM D7844  *ASTM D7624  *ASTM D7415	0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	current 7 0 58 <1 863 1014 933 1126 2609 current 8 4 8 current 0.4 8.1 19.5	history1  8  0 63  0 866 1065 959 1147 2987 history1  9 2 9 history1 0.3 7.4 18.9	history2  16  0 64 <1 964  1167 1034 1258 3722  history2  6 2 5  history2  0 6.9 21.2



## **OIL ANALYSIS REPORT**

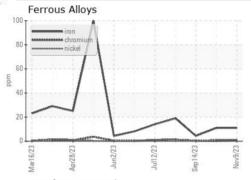


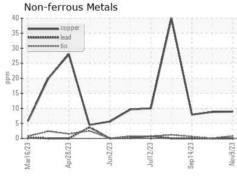


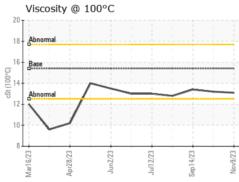
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

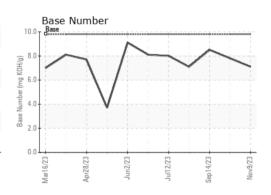
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	13.2	13.4	

### **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : FLEET

: 06008961 : 10742723

: GFL0089920

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 15 Nov 2023 Diagnosed Diagnostician : Wes Davis

: 17 Nov 2023

GFL Environmental - 172 - Montgomery-Alexander City-Tallahassee

Multiple Sites Montgomery, AL US 36108

Contact: BRANDON HURST brandonhurst@gflenv.com

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) T:

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