

OIL ANALYSIS REPORT

(EIB677) ALEXANDER CITY 10818 Component

Diesel Engine Elui

PETRO CANADA DURON SHP 15W40 (11 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

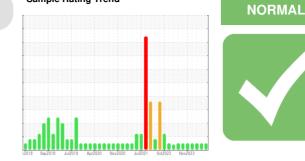
All component wear rates are normal.

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 Rating Trend

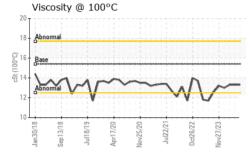


SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0080722	GFL0080721	GFL0080716
Sample Date		Client Info		04 Mar 2024	28 Feb 2024	19 Feb 2024
Machine Age	hrs	Client Info		16252	16229	16187
Oil Age	hrs	Client Info		0	1827	1785
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method		NEG	NEG	NEG
Glycol		WC Method	>0.2	NEG	NEG	NEG
-						
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	9	10	13
Chromium	ppm	ASTM D5185m	>5	0	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	3
Lead	ppm	ASTM D5185m	>25	0	0	1
Copper	ppm	ASTM D5185m	>100	<1	<1	<1
Tin	ppm	ASTM D5185m	>4	0	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 15	history1 14	history2 16
	ppm ppm		0			
Boron		ASTM D5185m	0	15	14	16
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	15 0	14 0	16 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	15 0 63	14 0 64	16 0 71
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	15 0 63 0	14 0 64 <1	16 0 71 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	15 0 63 0 885	14 0 64 <1 906	16 0 71 <1 1104
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	15 0 63 0 885 1065	14 0 64 <1 906 1086	16 0 71 <1 1104 1184
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	15 0 63 0 885 1065 943	14 0 64 <1 906 1086 979	16 0 71 <1 1104 1184 1165
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	15 0 63 0 885 1065 943 1136	14 0 64 <1 906 1086 979 1163	16 0 71 <1 1104 1184 1165 1533
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	15 0 63 0 885 1065 943 1136 2888	14 0 64 <1 906 1086 979 1163 2973	16 0 71 <1 1104 1184 1165 1533 3627
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	15 0 63 0 885 1065 943 1136 2888 current	14 0 64 <1 906 1086 979 1163 2973 history1	16 0 71 <1 1104 1184 1165 1533 3627 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	15 0 63 0 885 1065 943 1136 2888 current 5	14 0 64 <1 906 1086 979 1163 2973 history1 5	16 0 71 <1 1104 1184 1165 1533 3627 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 1010 1070 1150 1270 2060 limit/base >25	15 0 63 0 885 1065 943 1136 2888 current 5 24	14 0 64 <1 906 1086 979 1163 2973 history1 5 24	16 0 71 <1 1104 1184 1165 1533 3627 history2 7 24
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	15 0 63 0 885 1065 943 1136 2888 current 5 24 0 current	14 0 64 <1 906 1086 979 1163 2973 history1 5 24 0 history1	16 0 71 <1 1104 1184 1165 1533 3627 history2 7 24 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	15 0 63 0 885 1065 943 1136 2888 current 5 24 0 current 0.3	14 0 64 <1 906 1086 979 1163 2973 history1 5 24 0 history1 0.3	16 0 71 <1 1104 1184 1165 1533 3627 history2 7 24 <1 kistory2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	15 0 63 0 885 1065 943 1136 2888 current 5 24 0 current	14 0 64 <1 906 1086 979 1163 2973 history1 5 24 0 history1	16 0 71 <1 1104 1184 1165 1533 3627 history2 7 24 <1 history2
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 >25 imit/base >20	15 0 63 0 885 1065 943 1136 2888 <u>current</u> 5 24 0 <u>current</u> 0.3 6.9	14 0 64 <1 906 1086 979 1163 2973 history1 5 24 0 history1 0.3 6.8	16 0 71 <1 1104 1184 1165 1533 3627 history2 7 24 <1 ×1 history2 0.3 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 D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >6 >20 >30	15 0 63 0 885 1065 943 1136 2888 current 5 24 0 current 0.3 6.9 18.1	14 0 64 <1 906 1086 979 1163 2973 history1 5 24 0 history1 0.3 6.8 18.0 history1	16 0 71 <1 1104 1184 1165 1533 3627 history2 7 24 <1 vistory2 0.3 7.5 18.3 history2
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 imit/base >25 imit/base >20 imit/base >20	15 0 63 0 885 1065 943 1136 2888 <u>current</u> 5 24 0 <u>current</u> 0.3 6.9 18.1	14 0 64 <1 906 1086 979 1163 2973 history1 5 24 0 history1 0.3 6.8 18.0	16 0 71 <1 1104 1184 1165 1533 3627 history2 7 24 <1 history2 0.3 7.5 18.3



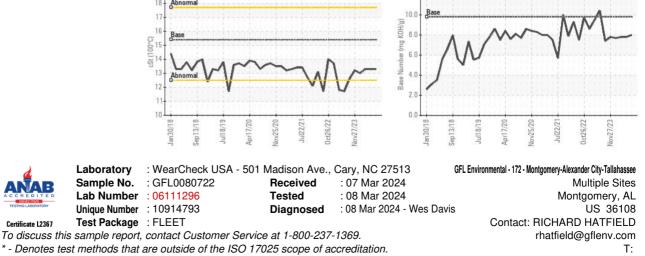
OIL ANALYSIS REPORT

Base Number 12.0 Base Number (mg KOH/g) 9.8 7.9 8 Bas 0ct26/22 Jov27/23 Jov25/20 an30/1 an13/1



VISUAL		method				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	13.3	13.3	13.3
GRAPHS						

Ferrous Alloys 80 70 60 50 H 40 30 20 10 Apr17/20 Inv75/71 ep 13/1 Jul18/1 Non-ferrous Metals 300 250 200 la 150 100 50 0 Apr17/20 Jul18/1 an 30 Sep 1 Viscosity @ 100°C Base Number 19 12.0 18 10. 17 16 8 (6.0



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

118/19

Sep13/18

Certificate L2367

cSt (100°C)

12

11 10

Laboratory

Sample No.

Lab Number : 06111296

Unique Number : 10914793

Test Package : FLEET

Jan30/

: GFL0080722

F: