

# **OIL ANALYSIS REPORT**

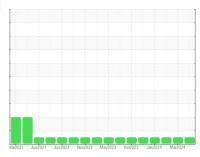
Sample Rating Trend



#### Area (24553UA) Bachine Id 811008 Component Diesel Engine Fluid PETRO CANADA

811008 Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION method



## 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.

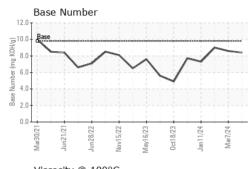
### Fluid Condition

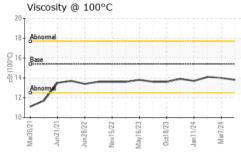
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR		method	limit/base	current	nistory i	nistory2
Sample Number		Client Info		GFL0111883	GFL0111860	GFL0108270
Sample Date		Client Info		29 Mar 2024	07 Mar 2024	06 Feb 2024
Machine Age	hrs	Client Info		8376	8231	8068
Oil Age	hrs	Client Info		8213	163	5080
Oil Changed		Client Info		Not Changd	Not Changd	Changed
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	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	c	method	limit/base	ourropt	history1	history?
				current	history1	history2
Iron	ppm	ASTM D5185m	>120	7	8	6
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	5	3	1
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	2	<1
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	<1	1	1
Tin	ppm	ASTM D5185m	>15	1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 14	history1 17	history2 10
	ppm ppm	ASTM D5185m			· · · · ·	
Boron		ASTM D5185m	0	14	17	10
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	14 0	17 0	10 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	14 0 57	17 0 59	10 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	14 0 57 <1	17 0 59 <1	10 0 61 <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	14 0 57 <1 992	17 0 59 <1 961	10 0 61 <1 981
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	14 0 57 <1 992 1206	17 0 59 <1 961 1148	10 0 61 <1 981 1139
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	14 0 57 <1 992 1206 1102	17 0 59 <1 961 1148 1072	10 0 61 <1 981 1139 1006
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	14 0 57 <1 992 1206 1102 1335	17 0 59 <1 961 1148 1072 1228	10 0 61 <1 981 1139 1006 1291
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	14 0 57 <1 992 1206 1102 1335 3987	17 0 59 <1 961 1148 1072 1228 3449	10 0 61 <1 981 1139 1006 1291 3083
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	0 0 60 1010 1070 1150 1270 2060	14 0 57 <1 992 1206 1102 1335 3987 current 6	17 0 59 <1 961 1148 1072 1228 3449 history1 7	10 0 61 <1 981 1139 1006 1291 3083 history2 6
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 <b>method</b>	0 0 60 1010 1070 1150 1270 2060 kimit/base	14 0 57 <1 992 1206 1102 1335 3987 current	17 0 59 <1 961 1148 1072 1228 3449 history1	10 0 61 <1 981 1139 1006 1291 3083 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base	14 0 57 <1 992 1206 1102 1335 3987 current 6 <	17 0 59 <1 961 1148 1072 1228 3449 history1 7 2	10 0 61 <1 981 1139 1006 1291 3083 history2 6 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	14 0 57 <1 992 1206 1102 1335 3987 current 6 <1 1 1	17 0 59 <1 961 1148 1072 1228 3449 history1 7 2 2 2 2 history1	10 0 61 <1 981 1139 1006 1291 3083 history2 6 0 2 2 history2
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 2060 225 >25 >20 <u>limit/base</u> >20	14 0 57 <1 992 1206 1102 1335 3987 current 6 <1 1 1 current 0.4	17 0 59 <1 961 1148 1072 1228 3449 history1 7 2 2 2 history1 0.2	10 0 61 <1 981 1139 1006 1291 3083 history2 6 0 2 <u>history2</u> 0.2
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 <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	14 0 57 <1 992 1206 1102 1335 3987 <i>current</i> 6 <1 1 <i>current</i> 0.4 6.7	17 0 59 <1 961 1148 1072 1228 3449 history1 7 2 2 2 history1 0.2 5.6	10 0 61 <1 981 1139 1006 1291 3083 history2 6 0 2 history2 0.2 5.7
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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >4 >20 >30	14 0 57 <1 992 1206 1102 1335 3987 <u>current</u> 6 <1 1 1 <u>current</u> 0.4 6.7 18.3	17 0 59 <1 961 1148 1072 1228 3449 history1 7 2 2 2 <u>history1</u> 0.2 5.6 17.6	10 0 61 <1 981 1139 1006 1291 3083 <b>history2</b> 6 0 2 <b>history2</b> 0.2 5.7 17.5
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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	14 0 57 <1 992 1206 1102 1335 3987 <i>current</i> 6 <1 1 <i>current</i> 0.4 6.7	17 0 59 <1 961 1148 1072 1228 3449 history1 7 2 2 2 history1 0.2 5.6	10 0 61 <1 981 1139 1006 1291 3083 history2 6 0 2 history2 0.2 5.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	0 0 0 1010 1070 1150 1270 2060 /////////////////////////////////	14 0 57 <1 992 1206 1102 1335 3987 current 6 <1 1 0.4 6.7 18.3 current 13.8	17 0 59 <1 961 1148 1072 1228 3449 history1 7 2 2 2 history1 0.2 5.6 17.6 history1 13.2	10 0 61 <1 981 1139 1006 1291 3083 history2 6 0 2 bistory2 0.2 5.7 17.5 history2 12.9
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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 /////////////////////////////////	14 0 57 <1 992 1206 1102 1335 3987 current 6 <1 1 current 0.4 6.7 18.3 current	17 0 59 <1 961 1148 1072 1228 3449 history1 7 2 2 2 history1 0.2 5.6 17.6 history1	10 0 61 <1 981 1139 1006 1291 3083 history2 6 0 2 history2 0.2 5.7 17.5 history2

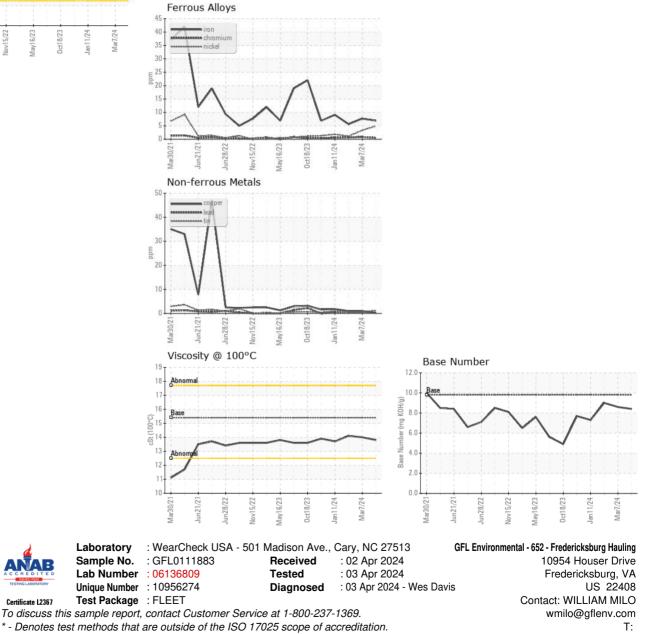


# **OIL ANALYSIS REPORT**





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	13.8	14.0	14.1
GRAPHS						



Certificate L2367 \* - 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)

Submitted By: TECHNICIAN ACCOUNT Page 2 of 2

F: