

## **OIL ANALYSIS REPORT**

Sample Rating Trend

NORMAL



Component

Diesel Engine

## PETRO CANADA DURON SHP 15W40 (32 QTS)

## 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.

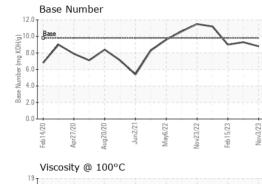
### Fluid Condition

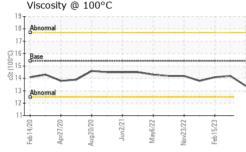
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0092727	GFL0071535	GFL0061697
Sample Date		Client Info		03 Nov 2023	26 Apr 2023	15 Feb 2023
Machine Age	hrs	Client Info		8116	8116	8116
Oil Age	hrs	Client Info		246	600	600
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	ABNORMAL	SEVERE
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	0.10
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	25	15	28
Chromium	ppm	ASTM D5185m	>5	1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>15	7	3	5
Lead	ppm	ASTM D5185m	>25	0	0	2
Copper	ppm	ASTM D5185m	>100	8	1	2
Tin	ppm	ASTM D5185m	>4	3	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
			l'and to find a second		In the second	biete m.O
ADDITIVES		method				history2
Boron	ppm	ASTM D5185m	limit/base	41	nistory i 4	12
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	41	4	12
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	41 0	4 0	12 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	41 0 50	4 0 69	12 0 87
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	41 0 50 <1	4 0 69 <1	12 0 87 <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	41 0 50 <1 730	4 0 69 <1 1028	12 0 87 <1 932
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	41 0 50 <1 730 1586	4 0 69 <1 1028 1171	12 0 87 <1 932 1171
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	41 0 50 <1 730 1586 921	4 0 69 <1 1028 1171 1081	12 0 87 <1 932 1171 1032
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	41 0 50 <1 730 1586 921 1174	4 0 69 <1 1028 1171 1081 1376	12 0 87 <1 932 1171 1032 1331
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	41 0 50 <1 730 1586 921 1174 2993	4 0 69 <1 1028 1171 1081 1376 3615	12 0 87 <1 932 1171 1032 1331 3809
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	41 0 50 <1 730 1586 921 1174 2993 current	4 0 69 <1 1028 1171 1081 1376 3615 history1	12 0 87 <1 932 1171 1032 1331 3809 history2
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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	41 0 50 <1 730 1586 921 1174 2993 current 18	4 0 69 <1 1028 1171 1081 1376 3615 history1 8	12 0 87 <1 932 1171 1032 1331 3809 history2 19
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 1010 1070 1150 1270 2060 kimit/base >25	41 0 50 <1 730 1586 921 1174 2993 current 18 7	4 0 69 <1 1028 1171 1081 1376 3615 history1 8 & 208	12 0 87 <1 932 1171 1032 1331 3809 history2 19 ▲ 591
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> >25 >20	41 0 50 <1 730 1586 921 1174 2993 current 18 7 6	4 0 69 <1 1028 1171 1081 1376 3615 history1 8 8 ▲ 208 ▲ 166	12 0 87 <1 932 1171 1032 1331 3809 history2 19 ▲ 591 ▲ 425
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	41 0 50 <1 730 1586 921 1174 2993 current 18 7 6 current 0.5	4 0 69 <1 1028 1171 081 1376 3615 history1 8 208 ▲ 208 ▲ 166 history1 0.3	12 0 87 <1 932 1171 1032 1331 3809 history2 19 ▲ 591 ▲ 591 ▲ 425 history2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	41 0 50 <1 730 1586 921 1174 2993 current 18 7 6 current	4 0 69 <1 1028 1171 1081 1376 3615 history1 8 ▲ 208 ▲ 166 history1	12 0 87 <1 932 1171 1032 1331 3809 history2 19 ▲ 591 ▲ 591 ▲ 591 ▲ 425 history2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >20	41 0 50 <1 730 1586 921 1174 2993 current 18 7 6 current 0.5 6.1	4 0 69 <1 1028 1171 081 1376 3615 history1 8 ▲ 208 ▲ 208 ▲ 166 history1 0.3 7.3	12 0 87 <1 932 1171 1032 1331 3809 history2 19 ▲ 591 ▲ 591 ▲ 425 history2 0.2 5.4
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 2060 225 20 220 220 20 1imit/base 20 20 20 20 20 20 20 20 20 20 20 20 20	41 0 50 <1 730 1586 921 1174 2993 current 18 7 6 current 0.5 6.1 20.9	4 0 69 <1 1028 1171 1081 1376 3615 history1 8 ▲ 208 ▲ 208 ▲ 166 history1 0.3 7.3 19.5	12 0 87 <1 932 1171 1032 1331 3809 history2 19 ▲ 591 ▲ 591 ▲ 425 history2 0.2 5.4 17.9
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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 1imit/base 20 20 20 20 20 20 20 20 20 20 20 20 20	41 0 50 <1 730 1586 921 1174 2993 Current 18 7 6 Current 0.5 6.1 20.9 Current	4 0 69 <1 1028 1171 1081 1376 3615 bistory1 8 ▲ 208 ▲ 208 ▲ 166 bistory1 0.3 7.3 19.5 bistory1	12 0 87 <1 932 1171 1032 1331 3809 history2 19 ▲ 591 ▲ 591 ▲ 425 history2 0.2 5.4 17.9

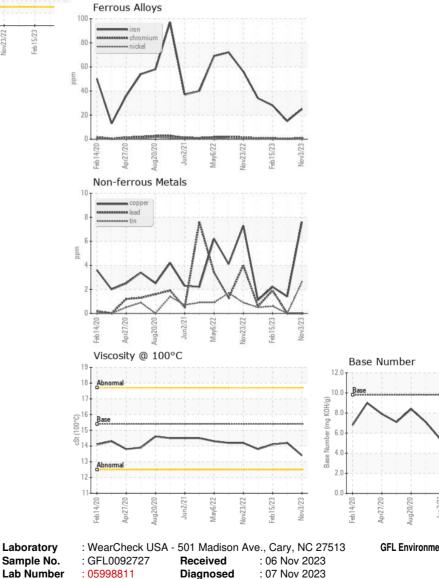


# **OIL ANALYSIS REPORT**

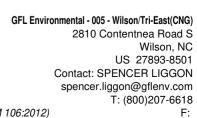




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	13.4	14.2	14.1
GRAPHS						



Diagnostician : Wes Davis



May6/22

Nov23/22



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)

Unique Number : 10727171

Test Package : FLEET

Certificate L2367

Nov3/23

Feb 15/23