

# **OIL ANALYSIS REPORT**

### Sample Rating Trend



Machine Id 731572 Component

# **Diesel Engine**

Fluid PETRO CANADA DURON SHP 10W30 (--- 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.

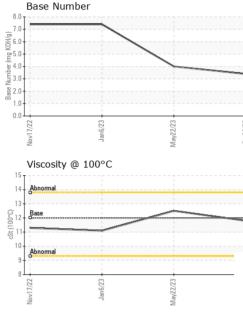
## Fluid Condition

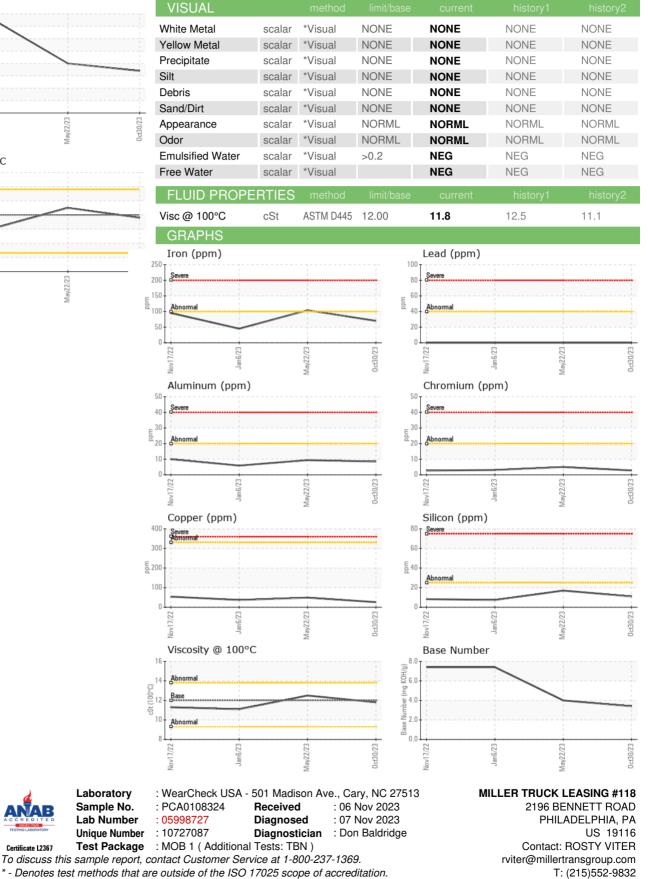
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0108324	PCA0095769	PCA0090150
Sample Date		Client Info		30 Oct 2023	22 May 2023	06 Jan 2023
Machine Age	mls	Client Info		282531	221264	170772
Oil Age	mls	Client Info		282531	221264	0
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>100	70	<b>1</b> 04	45
Chromium	ppm	ASTM D5185m	>20	3	5	3
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		5	32	31
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	8	9	6
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	26	49	37
Tin	ppm	ASTM D5185m	>15	0	1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
	1-1-		11 1. 11	-		history O
ADDITIVES		method	limit/base	current	historv1	nistorv2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 2	history1 7	history2 10
	ppm ppm			2		
Boron Barium	ppm	ASTM D5185m	2		7	10
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	2 0	7 0	10 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0	2 0 58	7 0 45	10 0 43
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	2 0 58 <1	7 0 45 2	10 0 43 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	2 0 58 <1 854	7 0 45 2 722	10 0 43 <1 745
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	2 0 58 <1 854 1194	7 0 45 2 722 1542	10 0 43 <1 745 1459
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	2 0 50 0 950 1050 995	2 0 58 <1 854 1194 940	7 0 45 2 722 1542 1014	10 0 43 <1 745 1459 960
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	2 0 50 950 1050 995 1180	2 0 58 <1 854 1194 940 1178	7 0 45 2 722 1542 1014 1257	10 0 43 <1 745 1459 960 1195
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	2 0 50 950 1050 995 1180 2600	2 0 58 <1 854 1194 940 1178 2126	7 0 45 2 722 1542 1014 1257 2909	10 0 43 <1 745 1459 960 1195 3350
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	2 0 50 950 1050 995 1180 2600	2 0 58 <1 854 1194 940 1178 2126 current	7 0 45 2 722 1542 1014 1257 2909 history1	10 0 43 <1 745 1459 960 1195 3350 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	2 0 50 950 1050 995 1180 2600 <b>limit/base</b> >25	2 0 58 <1 854 1194 940 1178 2126 current 11	7 0 45 2 722 1542 1014 1257 2909 history1 17	10 0 43 <1 745 1459 960 1195 3350 history2 7
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	2 0 50 950 1050 995 1180 2600 <b>limit/base</b> >25	2 0 58 <1 854 1194 940 1178 2126 <u>current</u> 11 4	7 0 45 2 722 1542 1014 1257 2909 history1 17 0	10 0 43 <1 745 1459 960 1195 3350 history2 7 2
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	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 -20 <b>imit/base</b>	2 0 58 <1 854 1194 940 1178 2126 current 11 4 11	7 0 45 2 722 1542 1014 1257 2909 history1 17 0 20	10 0 43 <1 745 1459 960 1195 3350 history2 7 2 8
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	2 0 50 0 950 1050 995 1180 2600 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3	2 0 58 <1 854 1194 940 1178 2126 current 11 4 11 21	7 0 45 2 722 1542 1014 1257 2909 history1 17 0 20 history1 1.8	10 0 43 <1 745 1459 960 1195 3350 history2 7 2 8 8 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 TS	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3	2 0 58 <1 854 1194 940 1178 2126 <b>current</b> 11 4 11 4 11 <b>current</b>	7 0 45 2 722 1542 1014 1257 2909 history1 17 0 20 20	10 0 43 <1 745 1459 960 1195 3350 history2 7 2 8 8 history2 0.6
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	2 0 50 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	2 0 58 <1 854 1194 940 1178 2126 <i>current</i> 11 4 11 4 11 <i>current</i> 1.5 15.0	7 0 45 2 722 1542 1014 1257 2909 history1 17 0 20 history1 1.8 1.8 16.9	10 0 43 <1 745 1459 960 1195 3350 history2 7 2 8 8 history2 0.6 9.1
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	2 0 50 0 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20 >30	2 0 58 <1 854 1194 940 1178 2126 <u>current</u> 11 4 11 11 <u>current</u> 1.5 15.0 28.1	7 0 45 2 722 1542 1014 1257 2909 history1 17 0 20 history1 1.8 1.8 16.9 31.2	10 0 43 <1 745 1459 960 1195 3350 <b>history2</b> 7 2 8 <b>history2</b> 0.6 9.1 20.9
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	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20 >30	2 0 58 <1 854 1194 940 1178 2126 <i>current</i> 11 4 11 <i>current</i> 1.5 15.0 28.1 <i>current</i>	7 0 45 2 722 1542 1014 1257 2909 history1 17 0 20 history1 1.8 16.9 31.2 history1	10 0 43 <1 745 1459 960 1195 3350 history2 7 2 8 history2 0.6 9.1 20.9 history2



# **OIL ANALYSIS REPORT**





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

Certificate L2367

F: (215)552-9892