

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend





#### Component Diesel Engine

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

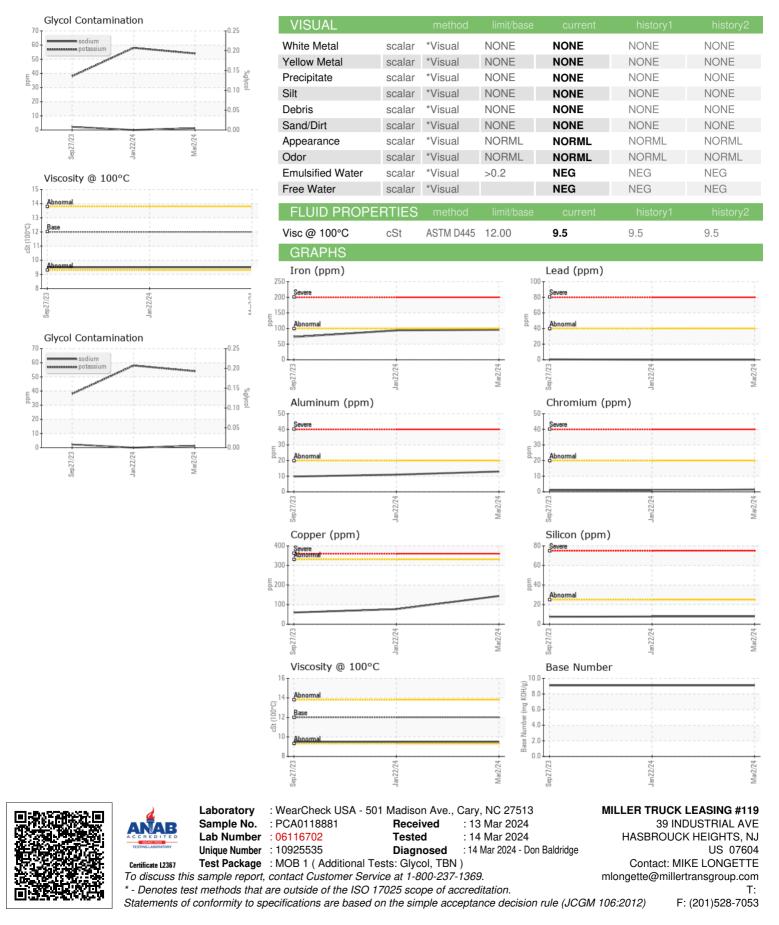
### Fluid Condition

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

	NATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0118881	PCA0117042	PCA0106288
Sample Date		Client Info		02 Mar 2024	22 Jan 2024	27 Sep 2023
Machine Age	mls	Client Info		0	8315	5378
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	96	94	73
Chromium	ppm	ASTM D5185m	>20	2	1	1
Nickel	ppm	ASTM D5185m	>4	<1	<1	1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	<1	<1	1
Aluminum	ppm	ASTM D5185m	>20	13	11	10
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	144	77	60
Tin	ppm	ASTM D5185m	>15	5	4	5
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
Boron	nnm	ASTM D5185m	2	50		<b>F</b> 4
20.00	ppm				57	54
Barium	ppm	ASTM D5185m	0	0	3	<1
Barium Molybdenum		ASTM D5185m ASTM D5185m	0 50	0 41	3 42	<1 41
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0	0 41 3	3 42 3	<1 41 3
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950	0 41 3 493	3 42 3 522	<1 41 3 579
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050	0 41 3 493 1596	3 42 3 522 1702	<1 41 3 579 1790
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 50 0 950 1050 995	0 41 3 493 1596 735	3 42 3 522 1702 870	<1 41 3 579 1790 873
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180	0 41 3 493 1596 735 898	3 42 3 522 1702 870 910	<1 41 3 579 1790 873 1062
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 50 0 950 1050 995 1180 2600	0 41 3 493 1596 735	3 42 3 522 1702 870 910 2742	<1 41 3 579 1790 873 1062 2757
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	0 50 0 950 1050 995 1180	0 41 3 493 1596 735 898	3 42 3 522 1702 870 910	<1 41 3 579 1790 873 1062
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 50 0 950 1050 995 1180 2600	0 41 3 493 1596 735 898 2283	3 42 3 522 1702 870 910 2742	<1 41 3 579 1790 873 1062 2757
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25	0 41 3 493 1596 735 898 2283 current	3 42 3 522 1702 870 910 2742 history1 8 0	<1 41 3 579 1790 873 1062 2757 history2 8 2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25	0 41 3 493 1596 735 898 2283 2283 current 8 1 54	3 42 3 522 1702 870 910 2742 history1 8 0 58	<1 41 3 579 1790 873 1062 2757 history2 8 2 38
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25	0 41 3 493 1596 735 898 2283 2283 current 8 1	3 42 3 522 1702 870 910 2742 history1 8 0	<1 41 3 579 1790 873 1062 2757 history2 8 2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25	0 41 3 493 1596 735 898 2283 current 8 1 54 NEG current	3 42 3 522 1702 870 910 2742 history1 8 0 58 NEG NEG history1	<1 41 3 579 1790 873 1062 2757 history2 8 2 38
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m ASTM D2982 ASTM D2982 Method	0 50 0 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i>	0 41 3 493 1596 735 898 2283 current 8 1 54 NEG 0.4	3 42 3 522 1702 870 910 2742 history1 8 0 58 NEG history1 0.3	<1 41 3 579 1790 873 1062 2757 history2 8 2 38 2 38 NEG history2 0.2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D2982 *ASTM D2982 at ASTM D7844	0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 >20 <b>limit/base</b> >3 >20	0 41 3 493 1596 735 898 2283 current 8 1 54 NEG 0.4 8.0	3 42 3 522 1702 870 910 2742 history1 8 0 58 NEG NEG 0.3 7.2	<1 41 3 579 1790 873 1062 2757 history2 8 2 38 2 38 NEG history2 0.2 6.1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m ASTM D2982 ASTM D2982 Method	0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 >20 <b>limit/base</b> >3 >20	0 41 3 493 1596 735 898 2283 current 8 1 54 NEG 0.4	3 42 3 522 1702 870 910 2742 history1 8 0 58 NEG history1 0.3	<1 41 3 579 1790 873 1062 2757 history2 8 2 38 2 38 NEG history2 0.2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D2982 *ASTM D2982 at ASTM D7844	0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 >20 <b>limit/base</b> >3 >20	0 41 3 493 1596 735 898 2283 current 8 1 54 NEG 0.4 8.0	3 42 3 522 1702 870 910 2742 history1 8 0 58 NEG NEG 0.3 7.2	<1 41 3 579 1790 873 1062 2757 history2 8 2 38 2 38 NEG history2 0.2 6.1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm 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 ASTM D5185m *ASTM D2982 <b>method</b> *ASTM D7844 *ASTM D7844	0 50 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20 >30 >30	0 41 3 493 1596 735 898 2283 current 8 1 54 NEG 0.4 8.0 23.2	3 42 3 522 1702 870 910 2742 history1 8 0 58 NEG 58 NEG 0.3 58 NEG 23.0	<1 41 3 579 1790 873 1062 2757 history2 8 2 38 2 38 NEG history2 0.2 6.1 21.7



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