

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (10 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.

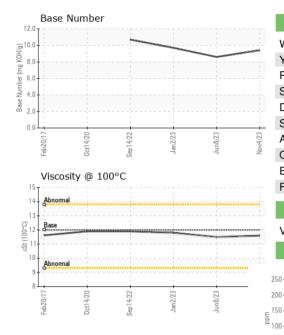
Fluid Condition

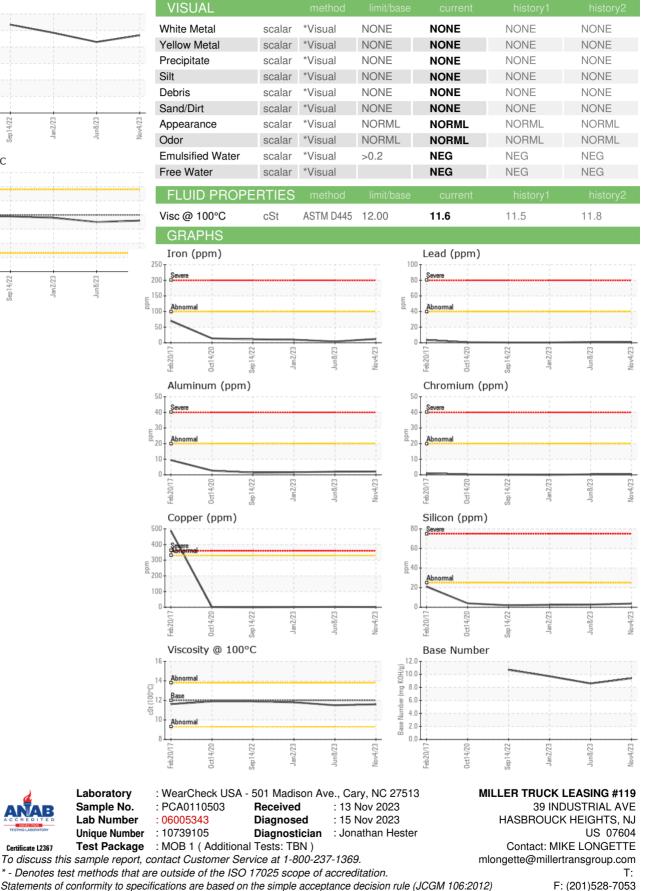
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFORI | MATION | method | limit/base | current | history1 | history2 |
|---|---|--|---|---|--|--|
| Sample Number | | Client Info | | PCA0110503 | PCA0098019 | PCA0089702 |
| Sample Date | | Client Info | | 04 Nov 2023 | 08 Jun 2023 | 02 Jan 2023 |
| Machine Age | mls | Client Info | | 153983 | 15806 | 152234 |
| Oil Age | mls | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | 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 | 12 | 4 | 10 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | 0 |
| Nickel | ppm | ASTM D5185m | >4 | <1 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | <1 | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | <1 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 2 | 2 | 2 |
| Lead | ppm | ASTM D5185m | >40 | <1 | 1 | <1 |
| Copper | ppm | ASTM D5185m | >330 | 1 | 2 | 1 |
| Tin | ppm | ASTM D5185m | >15 | <1 | 1 | <1 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| | | | | | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| ADDITIVES Boron | ppm | method ASTM D5185m | limit/base | current 4 | history1 18 | history2 19 |
| | ppm ppm | | | | | |
| Boron | | ASTM D5185m | 2 | 4 | 18 | 19 |
| Boron Barium | ppm | ASTM D5185m ASTM D5185m | 2 0 50 | 4 <1 | 18 0 | 19 <1 |
| Boron Barium Molybdenum | ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 | 4 <1 62 | 18 0 60 | 19 <1 62 |
| Boron Barium Molybdenum Manganese | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 | 4 <1 62 <1 | 18 0 60 1 | 19 <1 62 <1 |
| Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 950 | 4 <1 62 <1 937 | 18 0 60 1 943 | 19 <1 62 <1 885 |
| Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 2 0 50 0 950 1050 | 4 <1 62 <1 937 1070 | 18 0 60 1 943 1148 | 19 <1 62 <1 885 1114 989 1208 |
| 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 | 4 <1 62 <1 937 1070 1049 | 18 0 60 1 943 1148 1054 | 19 <1 62 <1 885 1114 989 |
| 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 | 4 <1 62 <1 937 1070 1049 1231 | 18 0 60 1 943 1148 1054 1308 | 19 <1 62 <1 885 1114 989 1208 |
| 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 | 4 <1 62 <1 937 1070 1049 1231 3028 | 18 0 60 1 943 1148 1054 1308 3995 | 19 <1 62 <1 885 1114 989 1208 3662 |
| 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 ASTM D5185m | 2 0 50 950 1050 995 1180 2600 | 4 <1 62 <1 937 1070 1049 1231 3028 current | 18 0 60 1 943 1148 1054 1308 3995 history1 | 19 <1 62 <1 885 1114 989 1208 3662 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 method | 2 0 50 950 1050 995 1180 2600 | 4 <1 62 <1 937 1070 1049 1231 3028 current 4 | 18 0 60 1 943 1148 1054 1308 3995 history1 3 | 19 <1 62 <1 885 1114 989 1208 3662 history2 2 |
| 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 | 2 0 50 950 1050 995 1180 2600 limit/base >25 | 4 <1 62 <1 937 1070 1049 1231 3028 <u>current</u> 4 0 | 18 0 60 1 943 1148 1054 1308 3995 history1 3 1 | 19 <1 62 <1 885 1114 989 1208 3662 history2 2 2 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 50 950 1050 995 1180 2600 limit/base >25 >20 | 4 <1 62 <1 937 1070 1049 1231 3028 current 4 0 2 | 18 0 60 1 943 1148 1054 1308 3995 history1 3 1 2 | 19 <1 62 <1 885 1114 989 1208 3662 history2 2 2 2 2 2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 2 0 50 0 950 1050 995 1180 2600 limit/base >25 -20 limit/base | 4 <1 62 <1 937 1070 1049 1231 3028 current 4 0 2 2 | 18 0 60 1 943 1148 1054 1308 3995 history1 3 1 2 history1 | 19 <1 62 <1 885 1114 989 1208 3662 history2 2 2 2 <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 ppm ppm ppm | ASTM D5185m ASTM D5185m | 2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >20 | 4 <1 62 <1 937 1070 1049 1231 3028 <u>current</u> 4 0 2 <u>current</u> 0.2 | 18 0 60 1 943 1148 1054 1308 3995 history1 3 1 2 history1 0.3 | 19 <1 62 <1 885 1114 989 1208 3662 history2 2 2 2 <1 history2 0.4 |
| 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>limit/base</i> >25 >20 <i>limit/base</i> | 4 <1 62 <1 937 1070 1049 1231 3028 current 4 0 2 current 0.2 6.1 | 18 0 60 1 943 1148 1054 1308 3995 history1 3 1 2 history1 0.3 6.4 | 19 <1 62 <1 885 1114 989 1208 3662 history2 2 2 2 2 2 <1 history2 0.4 6.8 |
| 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 imit/base >25 imit/base >3 >20 | 4 <1 62 <1 937 1070 1049 1231 3028 <u>current</u> 4 0 2 <u>current</u> 0.2 6.1 17.9 | 18 0 60 1 943 1148 1054 1308 3995 history1 3 1 2 <u>history1</u> 0.3 6.4 18.4 | 19 <1 62 <1 885 1114 989 1208 3662 history2 2 2 2 <1 2 <1 history2 0.4 6.8 18.2 |
| 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 | ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 | 2 0 0 50 0 950 1050 995 1180 2600 2600 25 20 220 20 20 20 20 20 20 20 20 20 20 20 | 4 <1 62 <1 937 1070 1049 1231 3028 Current 4 0 2 Current 0.2 6.1 17.9 Current | 18 0 60 1 943 1148 1054 1308 3995 history1 3 1 2 history1 0.3 6.4 18.4 history1 | 19 <1 62 <1 885 1114 989 1208 3662 history2 2 2 2 2 <1 history2 0.4 6.8 18.2 history2 |



OIL ANALYSIS REPORT





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

50

400

-St (100°C)

Laboratory

Sample No.

Lab Number

Unique Number

Certificate L2367

Contact/Location: MIKE LONGETTE - MILRUT