

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine Fluid

PETRO CANADA DURON HP 15W40 (--- 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.

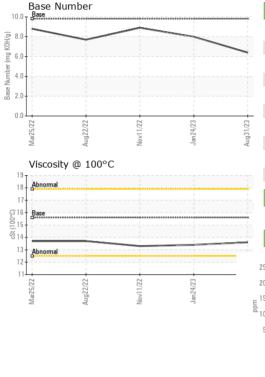
Fluid Condition

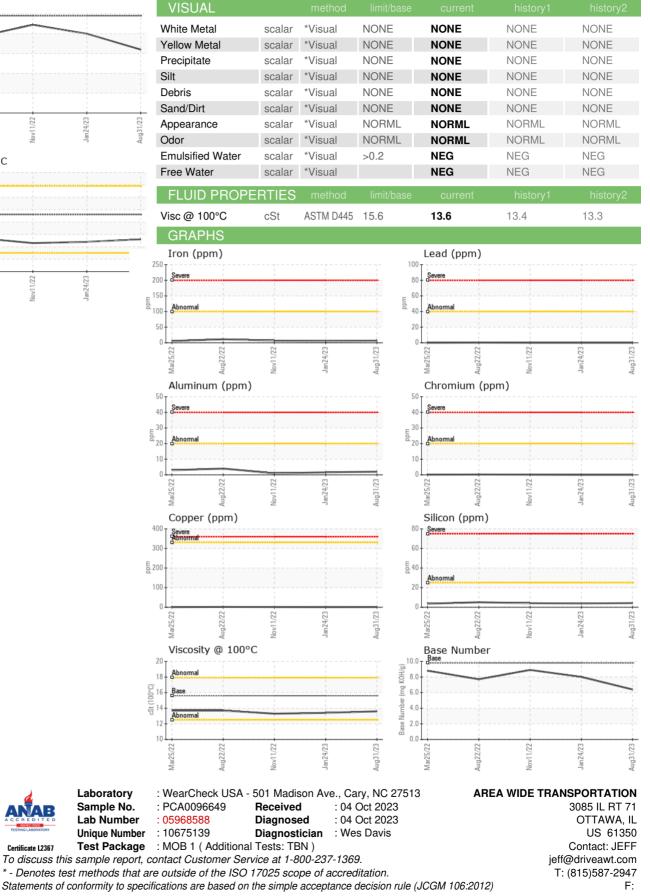
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFOR | MATION | method | limit/base | current | history1 | history2 |
|---|---|--|---|--|--|--|
| Sample Number | | Client Info | | PCA0096649 | PCA0088247 | PCA0080665 |
| Sample Date | | Client Info | | 31 Aug 2023 | 24 Jan 2023 | 11 Nov 2022 |
| Machine Age | mls | Client Info | | 312357 | 287484 | 267561 |
| Oil Age | mls | Client Info | | 20000 | 19923 | 24222 |
| 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 | 7 | 5 | 7 |
| Chromium | ppm | ASTM D5185m | >20 | 0 | 0 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 2 | 2 | 1 |
| Lead | ppm | ASTM D5185m | >40 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >330 | <1 | <1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | 0 | <1 | 0 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| ADDITIVES | | mathad | limit/booo | | 1 C | biotom (O |
| //BBIIIVE0 | | method | limit/base | current | history1 | history2 |
| Boron | ppm | ASTM D5185m | IIIII/base | 0 | history1 6 | nistory2 6 |
| | ppm ppm | | iimi/base | | | |
| Boron | | ASTM D5185m | IIIII/base | 0 | 6 | 6 |
| Boron Barium | ppm | ASTM D5185m ASTM D5185m | IIMI/base | 0 0 | 6 0 | 6 0 |
| Boron Barium Molybdenum | ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | | 0 0 67 | 6 0 57 | 6 0 56 <1 881 |
| Boron Barium Molybdenum Manganese | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | | 0 0 67 <1 | 6 0 57 <1 873 1163 | 6 0 56 <1 881 1314 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | | 0 0 67 <1 1110 1248 1142 | 6 0 57 <1 873 1163 997 | 6 0 56 <1 881 1314 1049 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | | 0 0 67 <1 1110 1248 1142 1415 | 6 0 57 <1 873 1163 997 1157 | 6 0 56 <1 881 1314 1049 1278 |
| 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 67 <1 1110 1248 1142 | 6 0 57 <1 873 1163 997 | 6 0 56 <1 881 1314 1049 |
| 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 | limit/base | 0 0 67 <1 1110 1248 1142 1415 | 6 0 57 <1 873 1163 997 1157 | 6 0 56 <1 881 1314 1049 1278 |
| 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 67 <1 1110 1248 1142 1415 3135 | 6 0 57 <1 873 1163 997 1157 3476 | 6 0 56 <1 881 1314 1049 1278 3432 |
| 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 | limit/base | 0 0 67 <1 1110 1248 1142 1415 3135 current | 6 0 57 <1 873 1163 997 1157 3476 history1 | 6 0 56 <1 881 1314 1049 1278 3432 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 | limit/base | 0 0 67 <1 1110 1248 1142 1415 3135 current 4 | 6 0 57 <1 873 1163 997 1157 3476 history1 4 | 6 0 56 <1 881 1314 1049 1278 3432 history2 4 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium | 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 method ASTM D5185m | limit/base >25 | 0 0 67 <1 1110 1248 1142 1415 3135 <u>current</u> 4 2 | 6 0 57 <1 873 1163 997 1157 3476 history1 4 2 | 6 0 56 <1 881 1314 1049 1278 3432 history2 4 0 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >25 >20 | 0 0 67 <1 1110 1248 1142 1415 3135 current 4 2 4 | 6 0 57 <1 873 1163 997 1157 3476 history1 4 2 2 <1 | 6 0 56 <1 881 1314 1049 1278 3432 history2 4 0 3 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185m ASTM D5185m | limit/base >25 >20 limit/base | 0 0 67 <1 1110 1248 1142 1415 3135 current 4 2 4 2 4 | 6 0 57 <1 873 1163 997 1157 3476 history1 4 2 <1 ×1 history1 | 6 0 56 <1 881 1314 1049 1278 3432 history2 4 0 3 3 |
| 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 ppm | ASTM D5185m ASTM D5185m | limit/base >25 >20 limit/base >3 | 0 0 67 <1 1110 1248 1142 1415 3135 <u>current</u> 4 2 4 2 4 <u>current</u> | 6 0 57 <1 873 1163 997 1157 3476 history1 4 2 <1 4 2 <1 history1 0.3 | 6 0 56 <1 881 1314 1049 1278 3432 history2 4 0 3 <u>history2</u> 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 | limit/base >25 >20 limit/base >3 >20 | 0 0 67 <1 1110 1248 1142 1415 3135 <i>current</i> 4 2 4 2 4 <i>current</i> 0.4 10.0 | 6 0 57 <1 873 1163 997 1157 3476 history1 4 2 <1 4 2 <1 history1 0.3 8.7 | 6 0 56 <1 881 1314 1049 1278 3432 history2 4 0 3 <u>history2</u> 0.4 9.5 |
| 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 ppm ppm | ASTM D5185m ASTM D5185m | Imit/base >25 >20 Imit/base >3 >20 >30 | 0 0 67 <1 1110 1248 1142 1415 3135 <i>current</i> 4 2 4 2 4 <i>current</i> 0.4 10.0 20.9 <i>current</i> | 6 0 57 <1 873 1163 997 1157 3476 history1 4 2 <1 4 2 <1 history1 0.3 8.7 19.3 history1 | 6 0 56 <1 881 1314 1049 1278 3432 history2 4 0 3 3 history2 0.4 9.5 21.8 |
| 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 D7844 *ASTM D7624 *ASTM D7415 | limit/base >25 >20 limit/base >3 >20 >30 >30 | 0 0 67 <1 1110 1248 1142 1415 3135 <u>current</u> 4 2 4 2 4 <u>current</u> 0.4 10.0 20.9 | 6 0 57 <1 873 1163 997 1157 3476 history1 4 2 <1 4 2 <1 0.3 8.7 19.3 | 6 0 56 <1 881 1314 1049 1278 3432 history2 4 0 3 history2 0.4 9.5 21.8 history2 |



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Certificate L2367

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