

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id 294812

Component Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- QTS)

### DIAGNOSIS

#### Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample.

#### Wear

All component wear rates are normal.

#### Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

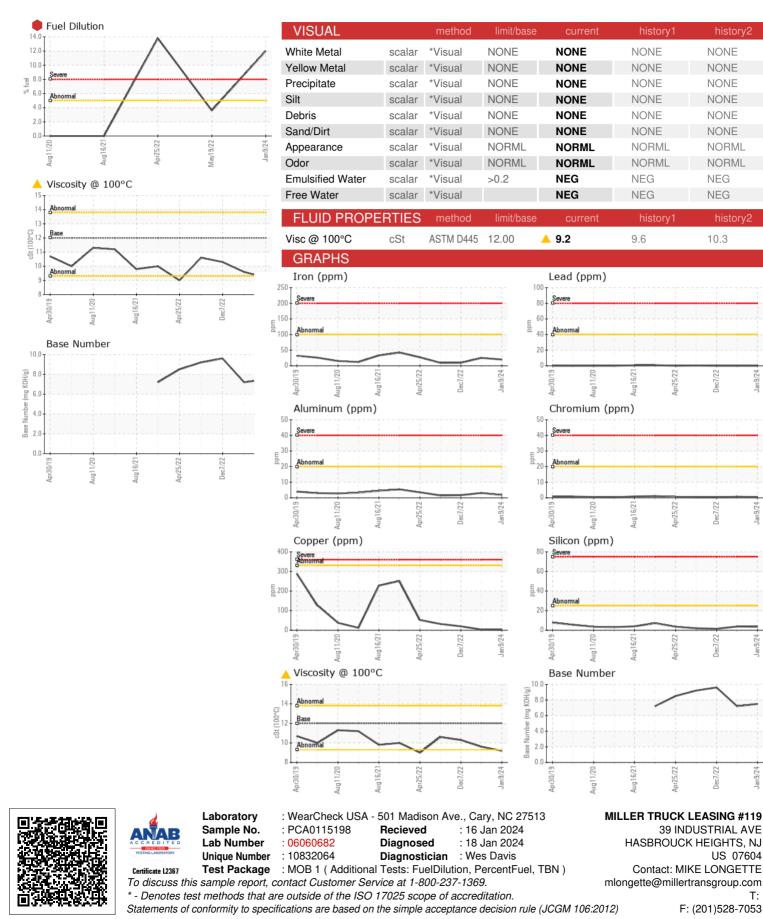
#### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

| Sample Number     Client Info     PCA0115198     PCA0104247     PCA003817       Sample Date     Client Info     09 Jan 2024     21 Aug 2023     07 Dec 2022       Machine Age     mis     Client Info     0     46159     36503       Oil Age     mis     Client Info     0     0     0     0       Oil Age     mis     Client Info     N/A     Changed     Changed     Changed       Sample Status     Imit Dase     EVERE     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     Imit/base     current     history1     history2       Water     WC Method     >0.2     NEG     NEG     NEG       Chromium     ppm     ASTM 05186m     >100     20     25     10       Chromium     ppm     ASTM 05186m     >30     0     0     1     1       Nickel     ppm     ASTM 05186m     >30     0     0     1     1       Nickel     ppm     ASTM 05186m     >30     2     <  |   |   |  |  |  |   |  |
|---|---|---|--|--|--|---|--|
| Sample Date     Client Info     09 Jan 2024     21 Aug 2023     07 Dec 2022       Machine Age     mis     Client Info     0     46159     36508       Oil Age     mis     Client Info     0     0     0     0       Sample Status     Client Info     N/A     Changed     Client Info     N/A     Changed     NORMAL       CONTAMINATION     method     Imit/base     current     history1     history2       Water     WC Method     >0.2     NEG     NEG     NEG       Chromium     ppm     ASTM 05185m     >100     20     25     10       Chromium     ppm     ASTM 05185m     >20     <1     <1     <1       Nickel     ppm     ASTM 05185m     >30     0     0     0     0       Silver     ppm     ASTM 05185m     >30     2     4     20     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0  | SAMPLE INFORM   | MATION  | method   | limit/base   | current  | history1  | history2   |
| Machine Age     mis     Client Info     0     46159     36508       Oil Age     mis     Client Info     0     0     0       Oil Changed     Client Info     N/A     Changed     Changed       Sample Status     Client Info     N/A     Changed     NEG     NEG       Quater     WC Method     >0.2     NEG     NEG     NEG       Water     WC Method     >0.2     NEG     NEG     NEG       WeAR METALS     method     Imit/base     current     history1     history2       Iron     ppm     ASTM 05185m     >100     20     25     10       Chromium     ppm     ASTM 05185m     >40     0     0     0       Nickel     ppm     ASTM 05185m     >30     0     0     0     0       Auminum     ppm     ASTM 05185m     >40     0     0     0     0       Vanadum     ppm     ASTM 05185m     >30     0     0     0     0     0  | Sample Number   |   | Client Info  |  | PCA0115198   | PCA0104247  | PCA0088110   |
| Oil Age     mis     Client Info     0     0     0     0       Oil Changed     Client Info     N/A     Changed     Changed     Changed       Sample Status     Imit/Dase     Current     NIstory1     Nistory2       Water     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     >0.2     NEG     NEG     NEG       Water     WC Method     >0.2     NEG     NEG     NEG       Water     WC Method     >0.2     NEG     NEG     NEG       Wickel     ppm     ASTM D5185m     >100     20     25     10       Chromium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >30     0     0     0       Aluminum     ppm     ASTM D5185m     >40     0     0     0       Copper     ppm     ASTM D5185m     >15     0     <1   | Sample Date   |   | Client Info  |  | 09 Jan 2024  | 21 Aug 2023   | 07 Dec 2022  |
| Oil Changed<br>Sample Status     Client Info     N/A     Changed<br>SEVERE     Changed<br>NORMAL     Changed<br>NORMAL       CONTAMINATION     method     Imit/base     current     history1     history2       Water     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     >0.2     NEG     NEG     NEG       WEAR METALS     method     Imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     20     25     10       Chromium     ppm     ASTM D5185m     >20     <1  | Machine Age   | mls   | Client Info  |  | 0  | 46159   | 36508  |
| Sample Status     SEVERE     NORMAL     NORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method     >0.2     NEG     NEG     NEG       Giyool     WC Method     >0.2     NEG     NEG     NEG       WEAR METALS     method     Imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     20     25     10       Chromium     ppm     ASTM D5185m     >40     0     0     0       Nickel     ppm     ASTM D5185m     >30     0     -11     1       Aluminum     ppm     ASTM D5185m     >40     0     0     0       Cadmium     ppm     ASTM D5185m     >40     0     0     0       Cadmium     ppm     ASTM D5185m     >15     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     1     1     2     1  | Oil Age   | mls   | Client Info  |  | 0  | 0   | 0  |
| CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method     >0.2     NEG     NEG     NEG     NEG       Glycol     WC Method     >0.2     NEG     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     20     25     10       Chromium     ppm     ASTM D5185m     >20     <1   | Oil Changed   |   | Client Info  |  | N/A  | Changed   | Changed  |
| Water     WC Method     >0.2     NEG     NEG     NEG       Glycol     WC Method     Imit/base     current     Inistory1     History2       WEAR METALS     method     Imit/base     current     Inistory1     History2       Iron     ppm     ASTM D5185m     >20     <1     <1     <1       Nickel     ppm     ASTM D5185m     >20     <1     <1     <1     <1       Nickel     ppm     ASTM D5185m     >3     0     0     0     0       Silver     ppm     ASTM D5185m     >40     0     0     0     0       Copper     ppm     ASTM D5185m     >15     0     <1     0       Vanadium     ppm     ASTM D5185m     >15     0     <1     0       Vanadium     ppm     ASTM D5185m     2     14     14     22       Barium     ppm     ASTM D5185m     5     5     5     100       Molybdenum     ppm     ASTM D5185m     50<  | Sample Status   |   |  |  | SEVERE   | NORMAL  | NORMAL   |
| Glycol     WC Method     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     20     25     10       Chromium     ppm     ASTM D5185m     >20     <1     <1     <1       Nickel     ppm     ASTM D5185m     >20     2     3     2       Aluminum     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >30     2     4     20       Copper     ppm     ASTM D5185m     >30     2     4     20       Tin     ppm     ASTM D5185m     >15     0     <1     0       Vanadium     ppm     ASTM D5185m     15     0     0     0       Cadmium     ppm     ASTM D5185m     15     0     0     1       Molybdenum     ppm     ASTM D5185m     50     56     57     100 <t< th=""><th>CONTAMINAT</th><th>ION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<> | CONTAMINAT  | ION   | method   | limit/base   | current  | history1  | history2   |
| WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >20     <1   | Water   |   | WC Method  | >0.2   | NEG  | NEG   | NEG  |
| Iron     ppm     ASTM D5185m     >100     20     25     10       Chromium     ppm     ASTM D5185m     >20     <1     <1     <1     <1       Nickel     ppm     ASTM D5185m     >4     0     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     <1     0       Aluminum     ppm     ASTM D5185m     >30     0     0     0     0       Copper     ppm     ASTM D5185m     >330     2     4     20     0 <t< th=""><th>Glycol</th><th></th><th>WC Method</th><th></th><th>NEG</th><th>NEG</th><th>NEG</th></t<>   | Glycol  |   | WC Method  |  | NEG  | NEG   | NEG  |
| Chromium     ppm     ASTM D5185m     >20     <1   | WEAR METAL  | S   | method   | limit/base   | current  | history1  | history2   |
| Nickel     ppm     ASTM D5185m     >4     0     0     0       Titanium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >20     2     3     2       Lead     ppm     ASTM D5185m     >20     2     3     2       Lead     ppm     ASTM D5185m     >20     2     3     2       Copper     ppm     ASTM D5185m     >330     2     4     20       Tin     ppm     ASTM D5185m     >330     2     4     20       Cadmium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0     0       Magnese     ppm     ASTM D5185m     0     56     57     100       Magnesium     ppm     ASTM D5185m     1050     1022     979     973       Phosphorus     ppm     ASTM D5185m     950     749  | Iron  | ppm   | ASTM D5185m  | >100   | 20   | 25  | 10   |
| Titanium     ppm     ASTM D5185m     0     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     <1   | Chromium  | ppm   | ASTM D5185m  | >20  | <1   | <1  | <1   |
| Silver     ppm     ASTM D5185m     >3     0     0     <1       Aluminum     ppm     ASTM D5185m     >20     2     3     2       Lead     ppm     ASTM D5185m     >40     0     0     0       Copper     ppm     ASTM D5185m     >330     2     4     20       Tin     ppm     ASTM D5185m     >15     0     <1  | Nickel  | ppm   | ASTM D5185m  | >4   | 0  | 0   | 0  |
| Aluminum     ppm     ASTM D5185m     >20     2     3     2       Lead     ppm     ASTM D5185m     >40     0     0     0       Copper     ppm     ASTM D5185m     >330     2     4     20       Tin     ppm     ASTM D5185m     >15     0     <1   | Titanium  | ppm   | ASTM D5185m  |  | 0  | 0   | 0  |
| Lead     ppm     ASTM D5185m     >40     0     0     0       Copper     ppm     ASTM D5185m     >330     2     4     20       Tin     ppm     ASTM D5185m     >15     0     <1  | Silver  | ppm   | ASTM D5185m  | >3   | 0  | 0   | <1   |
| Copper     ppm     ASTM D5185m     >330     2     4     20       Tin     ppm     ASTM D5185m     >15     0     <1   | Aluminum  | ppm   | ASTM D5185m  | >20  | 2  | 3   | 2  |
| Tin     ppm     ASTM D5185m     >15     0     <1     0       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     2     14     14     22       Barium     ppm     ASTM D5185m     0     0     0     1       Molyddenum     ppm     ASTM D5185m     0     <1   | Lead  | ppm   | ASTM D5185m  | >40  | 0  | 0   | 0  |
| Tin     ppm     ASTM D5185m     >15     0     <1     0       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     2     14     14     22       Barium     ppm     ASTM D5185m     0     0     0     1       Molyddenum     ppm     ASTM D5185m     0     <1   | Copper  |   | ASTM D5185m  | >330   | 2  | 4   | 20   |
| Vanadium     ppm     ASTM D5185m     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     2     14     14     22       Barium     ppm     ASTM D5185m     0     0     0     0     1       Molybdenum     ppm     ASTM D5185m     0     56     57     100       Magnese     ppm     ASTM D5185m     0     <1     <1     <1     <1       Magnesium     ppm     ASTM D5185m     0     <1     <1     <1     <1       Magnesium     ppm     ASTM D5185m     950     749     8433     801       Calcium     ppm     ASTM D5185m     950     915     921     924       Zinc     ppm     ASTM D5185m     950     2656     3361     3213       Sulfur     ppm     ASTM D5185m   | Tin   |   |  |  | 0  | <1  | 0  |
| Cadmium     ppm     ASTM D5185m     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     2     14     14     22       Barium     ppm     ASTM D5185m     0     0     0     1       Molybdenum     ppm     ASTM D5185m     50     56     57     100       Manganese     ppm     ASTM D5185m     0     <1     <1     <1     <1       Magnesium     ppm     ASTM D5185m     0     <102     979     973       Phosphorus     ppm     ASTM D5185m     950     749     843     801       Calcium     ppm     ASTM D5185m     950     915     921     924       Zinc     ppm     ASTM D5185m     995     915     921     924       Zinc     ppm     ASTM D5185m     2600     2656     3361     3213       Solium     ppm     ASTM D5185m     >20     <  | Vanadium  |   | ASTM D5185m  |  | 0  | 0   | 0  |
| Boron     ppm     ASTM D5185m     2     14     14     22       Barium     ppm     ASTM D5185m     0     0     0     1       Molybdenum     ppm     ASTM D5185m     50     56     57     100       Manganese     ppm     ASTM D5185m     0     <1  | Cadmium   |   |  |  | -  |   | 0  |
| Barium     ppm     ASTM D5185m     0     0     0     1       Molybdenum     ppm     ASTM D5185m     50     56     57     100       Manganese     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     950     749     843     801       Calcium     ppm     ASTM D5185m     1050     1022     979     973       Phosphorus     ppm     ASTM D5185m     1050     1022     979     973       Phosphorus     ppm     ASTM D5185m     1050     1022     979     973       Zinc     ppm     ASTM D5185m     180     1088     1149     1093       Sulfur     ppm     ASTM D5185m     2600     2656     3361     3213       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     0     2     9       Fuel     %     ASTM D5185m  | ADDITIVES   |   | method   | limit/base   | current  | history1  | history2   |
| Molybdenum     ppm     ASTM D5185m     50     56     57     100       Manganese     ppm     ASTM D5185m     0     <1  | Boron   | ppm   | ASTM D5185m  | 2  | 14   | 14  | 22   |
| Manganese     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     950     749     843     801       Calcium     ppm     ASTM D5185m     950     749     843     801       Calcium     ppm     ASTM D5185m     1050     1022     979     973       Phosphorus     ppm     ASTM D5185m     995     915     921     924       Zinc     ppm     ASTM D5185m     995     915     921     924       Zinc     ppm     ASTM D5185m     2600     2656     3361     3213       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     2       Sodium     ppm     ASTM D5185m     >20     0     2     9       Fuel     %     ASTM D5185m     >20     0     <1.0   | Barium  | ppm   | ASTM D5185m  | 0  | 0  | 0   | 1  |
| Magnesium     ppm     ASTM D5185m     950     749     843     801       Calcium     ppm     ASTM D5185m     1050     1022     979     973       Phosphorus     ppm     ASTM D5185m     995     915     921     924       Zinc     ppm     ASTM D5185m     918     1088     1149     1093       Sulfur     ppm     ASTM D5185m     2600     2656     3361     3213       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     2       Sodium     ppm     ASTM D5185m     >20     0     2     9       Fuel     %     ASTM D5185m     >20     0     <1.0   | Molybdenum  | ppm   | ASTM D5185m  | 50   | 56   | 57  | 100  |
| Magnesium     ppm     ASTM D5185m     950     749     843     801       Calcium     ppm     ASTM D5185m     1050     1022     979     973       Phosphorus     ppm     ASTM D5185m     995     915     921     924       Zinc     ppm     ASTM D5185m     918     1088     1149     1093       Sulfur     ppm     ASTM D5185m     2600     2656     3361     3213       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     2       Sodium     ppm     ASTM D5185m     >20     0     2     9       Fuel     %     ASTM D5185m     >20     0     <1.0   | Manganese   | ppm   | ASTM D5185m  | 0  | <1   | <1  | <1   |
| Phosphorus     ppm     ASTM D5185m     995     915     921     924       Zinc     ppm     ASTM D5185m     1180     1088     1149     1093       Sulfur     ppm     ASTM D5185m     2600     2656     3361     3213       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     2       Sodium     ppm     ASTM D5185m     >25     4     4     2       Sodium     ppm     ASTM D5185m     >20     0     2     9       Fuel     %     ASTM D3524     >5     12.0     <1.0  | Magnesium   | ppm   | ASTM D5185m  | 950  | 749  | 843   | 801  |
| Zinc     ppm     ASTM D5185m     1180     1088     1149     1093       Sulfur     ppm     ASTM D5185m     2600     2656     3361     3213       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     2       Sodium     ppm     ASTM D5185m     >25     4     4     2       Sodium     ppm     ASTM D5185m     >20     0     2     9       Fuel     %     ASTM D3524     >5     12.0     <1.0   | Calcium   |   |  |  |  |   |  |
| Zinc     ppm     ASTM D5185m     1180     1088     1149     1093       Sulfur     ppm     ASTM D5185m     2600     2656     3361     3213       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     4     2       Sodium     ppm     ASTM D5185m     >25     4     4     2       Sodium     ppm     ASTM D5185m     >20     0     2     9       Fuel     %     ASTM D524     >5     12.0     <1.0  |   | ppm   | ASTM D5185m  | 1050   | 1022   | 979   | 973  |
| SulfurppmASTM D5185m2600265633613213CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25442SodiumppmASTM D5185m>20029Fuel%ASTM D5185m>20029Fuel%ASTM D5185m>200<1.0  |   |   |  |  | -  |   |  |
| Silicon     ppm     ASTM D5185m     >25     4     4     2       Sodium     ppm     ASTM D5185m     1     <1   | Phosphorus<br>Zinc  | ppm   | ASTM D5185m  | 995  | 915  | 921   | 924  |
| Sodium     ppm     ASTM D5185m     1     <1     <1     <1     <1     <1     <1     <1     Potassium     ppm     ASTM D5185m     >20     0     2     9     9       Fuel     %     ASTM D5185m     >20     0     2     9     10     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0     <1.0  | Phosphorus<br>Zinc  | ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m   | 995<br>1180  | 915<br>1088  | 921<br>1149   | 924<br>1093  |
| Potassium     ppm     ASTM D5185m     >20     0     2     9       Fuel     %     ASTM D3524     >5     12.0     <1.0     <1.0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.4     0.5     0.2       Nitration     Abs/cm     *ASTM D7624     >20     9.8     9.8     7.5       Sulfation     Abs/.1mm     *ASTM D7415     >30     19.0     18.9     19.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.8     16.5     15.6  | Phosphorus<br>Zinc<br>Sulfur  | ppm<br>ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 995<br>1180<br>2600  | 915<br>1088<br>2656  | 921<br>1149<br>3361   | 924<br>1093  |
| Fuel     %     ASTM D3524     >5     12.0     <1.0     <1.0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.4     0.5     0.2       Nitration     Abs/cm     *ASTM D7624     >20     9.8     9.8     7.5       Sulfation     Abs/.1mm     *ASTM D7415     >30     19.0     18.9     19.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.8     16.5     15.6  | Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN  | ppm<br>ppm<br>ppm<br>TS   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>method  | 995<br>1180<br>2600<br>limit/base  | 915<br>1088<br>2656<br>current   | 921<br>1149<br>3361<br>history1   | 924<br>1093<br>3213<br>history2  |
| INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.4     0.5     0.2       Nitration     Abs/cm     *ASTM D7624     >20     9.8     9.8     7.5       Sulfation     Abs/.1mm     *ASTM D7415     >30     19.0     18.9     19.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.8     16.5     15.6  | Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon   | ppm<br>ppm<br>ppm<br>TS   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m  | 995<br>1180<br>2600<br>limit/base  | 915<br>1088<br>2656<br>current<br>4  | 921<br>1149<br>3361<br>history1<br>4  | 924<br>1093<br>3213<br>history2<br>2   |
| Soot %     %     *ASTM D7844     >3     0.4     0.5     0.2       Nitration     Abs/cm     *ASTM D7624     >20     9.8     9.8     7.5       Sulfation     Abs/.1mm     *ASTM D7415     >30     19.0     18.9     19.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.8     16.5     15.6  | Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium   | ppm<br>ppm<br>ppm<br>TS<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m<br>ASTM D5185m   | 995<br>1180<br>2600<br>limit/base<br>>25   | 915<br>1088<br>2656<br>current<br>4<br>1   | 921<br>1149<br>3361<br>history1<br>4<br><1  | 924<br>1093<br>3213<br>history2<br>2<br><1   |
| Nitration     Abs/cm     *ASTM D7624     >20     9.8     9.8     7.5       Sulfation     Abs/.1mm     *ASTM D7415     >30     19.0     18.9     19.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.8     16.5     15.6  | Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium  | ppm<br>ppm<br>ppm<br>TS<br>ppm<br>ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 995<br>1180<br>2600<br><b>limit/base</b><br>>25<br>>20   | 915<br>1088<br>2656<br>current<br>4<br>1<br>0  | 921<br>1149<br>3361<br>history1<br>4<br><1<br>2   | 924<br>1093<br>3213<br>history2<br>2<br><1<br>9  |
| Sulfation     Abs/.1mm     *ASTM D7415     >30     19.0     18.9     19.8       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.8     16.5     15.6   | Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>Fuel  | ppm<br>ppm<br>ppm<br>TS<br>ppm<br>ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>Method<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D3524   | 995<br>1180<br>2600<br><b>limit/base</b><br>>25<br>>20<br>>5                                   | 915<br>1088<br>2656<br><u>current</u><br>4<br>1<br>0<br>0<br>12.0                                    | 921<br>1149<br>3361<br>history1<br>4<br><1<br>2<br><1.0   | 924<br>1093<br>3213<br>history2<br>2<br><1<br>9  |
| FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.8     16.5     15.6   | Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>Fuel<br>INFRA-RED   | ppm<br>ppm<br>ppm<br>TS<br>ppm<br>ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D3524<br>Method   | 995<br>1180<br>2600<br><b>limit/base</b><br>>25<br>>20<br>>5                                   | 915<br>1088<br>2656<br>current<br>4<br>1<br>0<br>12.0<br>current                                     | 921<br>1149<br>3361<br>history1<br>4<br><1<br>2<br><1.0<br>history1                                     | 924<br>1093<br>3213<br>history2<br>2<br><1<br>9<br><1.0<br>history2                            |
| Oxidation Abs/.1mm *ASTM D7414 >25 16.8 16.5 15.6   | Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>Fuel<br>INFRA-RED<br>Soot %   | ppm<br>ppm<br>ppm<br>TS<br>ppm<br>ppm<br>ppm<br>%                                     | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D3524<br>method<br>*ASTM D7844                                      | 995<br>1180<br>2600<br><b>limit/base</b><br>>25<br>>20<br>>5<br><b>limit/base</b><br>>3        | 915<br>1088<br>2656<br><b>current</b><br>4<br>1<br>0<br>12.0<br><b>turrent</b><br>0.4                | 921<br>1149<br>3361<br><b>history1</b><br>4<br><1<br>2<br><1.0<br><b>history1</b><br>0.5                | 924<br>1093<br>3213<br>history2<br>2<br><1<br>9<br><1.0<br>history2<br>0.2                     |
|   | Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>Fuel<br>INFRA-RED<br>Soot %<br>Nitration                              | ppm<br>ppm<br>ppm<br>TS<br>ppm<br>ppm<br>ppm<br>ppm<br>%                              | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D3524<br><b>method</b><br>*ASTM D7844<br>*ASTM D7624                | 995<br>1180<br>2600<br><b>limit/base</b><br>>25<br>>20<br>>5<br><b>limit/base</b><br>>3<br>>20 | 915<br>1088<br>2656<br><u>current</u><br>4<br>1<br>0<br>12.0<br><u>current</u><br>0.4<br>9.8         | 921<br>1149<br>3361<br><b>history1</b><br>4<br><1<br>2<br><1.0<br><b>history1</b><br>0.5<br>9.8         | 924<br>1093<br>3213<br>history2<br>2<br><1<br>9<br><1.0<br>history2<br>0.2<br>7.5              |
| Base Number (BN) mg KOH/g ASTM D2896 7.5 7.2 9.6  | Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>Fuel<br>INFRA-RED<br>Soot %<br>Nitration<br>Sulfation                 | ppm<br>ppm<br>ppm<br>TS<br>ppm<br>ppm<br>ppm<br>%                                     | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D3524<br>*ASTM D7844<br>*ASTM D7624                                 | 995<br>1180<br>2600<br>>25<br>>20<br>>5<br><u>limit/base</u><br>>3<br>>20<br>>30               | 915<br>1088<br>2656<br><u>current</u><br>4<br>1<br>0<br>12.0<br><u>current</u><br>0.4<br>9.8<br>19.0 | 921<br>1149<br>3361<br><b>history1</b><br>4<br><1<br>2<br><1.0<br><b>history1</b><br>0.5<br>9.8<br>18.9 | 924<br>1093<br>3213<br>history2<br>2<br><1<br>9<br><1.0<br>history2<br>0.2<br>7.5              |
|   | Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>Fuel<br>INFRA-RED<br>Soot %<br>Nitration<br>Sulfation<br>FLUID DEGRAE | ppm<br>ppm<br>ppm<br>TS<br>ppm<br>ppm<br>ppm<br>%<br>%<br>Abs/cm<br>Abs/cm<br>Abs/1mm | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D3524<br><b>method</b><br>*ASTM D7844<br>*ASTM D7844<br>*ASTM D7624 | 995<br>1180<br>2600<br>>25<br>>20<br>>5<br>imit/base<br>>3<br>>20<br>>30<br>>30<br>imit/base   | 915<br>1088<br>2656  | 921<br>1149<br>3361<br>4<br><1<br>2<br><1.0<br>history1<br>0.5<br>9.8<br>18.9<br>history1               | 924<br>1093<br>3213<br>2<br>2<br><1<br>9<br><1.0<br>history2<br>0.2<br>7.5<br>19.8<br>history2 |



# **OIL ANALYSIS REPORT**



Contact/Location: MIKE LONGETTE - MILRUT

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