

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

| PROBLEMATIC TEST RESULTS | | | | | | | |
|--------------------------|-----|-----------|------|-----------|-----------|-------------|--|
| Sample Status | | | | ATTENTION | ATTENTION | ATTENTION | |
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | <u> </u> | 11.7 | 11.2 | |

Customer Id: GFL844 Sample No.: GFL0087088 Lab Number: 05903017 Test Package: FLEET

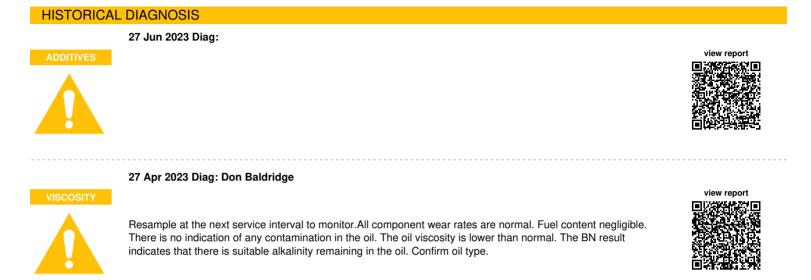


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To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

| RECOMMEND | ED ACTIONS | | | |
|---------------|------------|------|---------|---|
| Action | Status | Date | Done By | Description |
| Change Fluid | | | ? | Oil and filter change at the time of sampling has been noted. |
| Change Filter | | | ? | Oil and filter change at the time of sampling has been noted. |





OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 913155 Component **Diesel Engine**

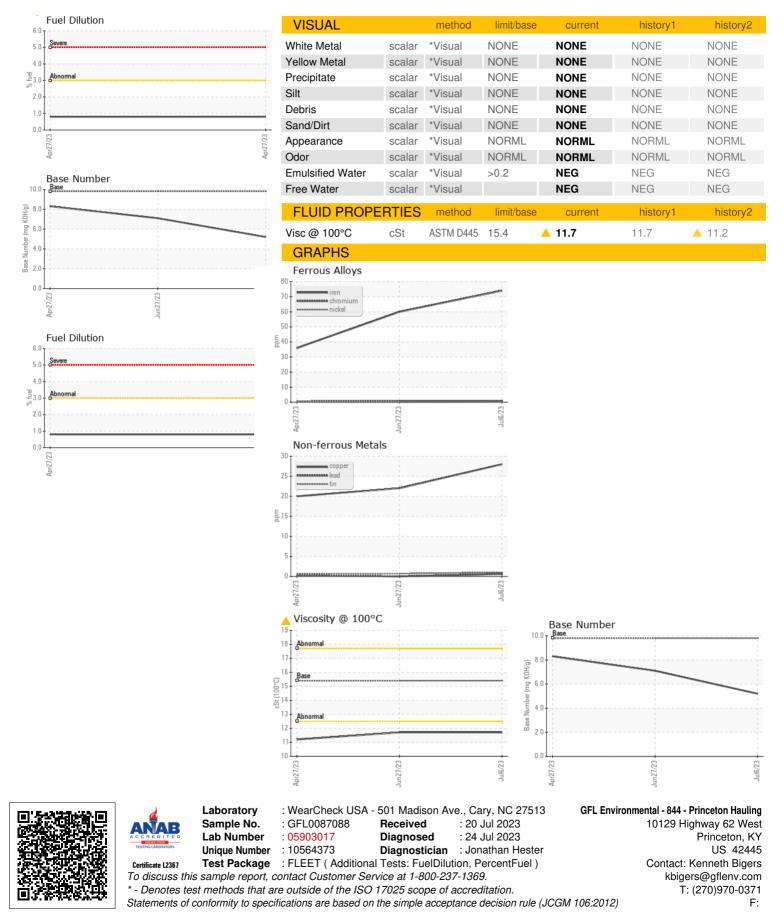
Fluid

PETRO CANADA DURON SHP 15W40 (--- QTS)

| Recommendation Sample Number Client Info GF L087088 GF L087088 <thgf l087088<="" th=""> GF L087088 <thg< th=""><th>DIAGNOSIS</th><th>SAMPLE INFOR</th><th></th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></thg<></thgf> | DIAGNOSIS | SAMPLE INFOR | | method | limit/base | current | history1 | history2 |
|--|--|--------------|------|-------------|-------------|---------|----------|----------|
| II and filter change at the time of sampling has the next service interval. Cilent Info 0 0 0 Area Cilent Info 0 0 0 0 Area Cilent Info Cilent Info 0 0 0 0 Area Cilent Info Changed Nice Cilent Info Changed Nice C | | | | | | | | |
| Periodic. Resample at the next service intervice int | | | | | | | | |
| Of Mage Ins Client Info 0 0 0 Ager Clionanged Client Info Changed Net Changed Net Changed Sample Status Client Info Changed ATTENTION Net Changed Net Changed Full Condition net lies to infoldation of any contamination in the Immediate status Immediate Status NEG NEG NEG NEG Full Condition net of source is subable alkalinity remaining in the oil inclusase Current Netory Netory <td>been noted. Resample at the next service interval</td> <td></td> <td>hrs</td> <td></td> <td></td> <td></td> <td></td> <td></td> | been noted. Resample at the next service interval | | hrs | | | | | |
| Appendix Circli | to monitor. | - | | | | | | |
| Id component wear rates are normal. Sample Status Image of the set of indication of any contamination in the is in of indication of any contamination in the is in of indication of any contamination in the is in officiated in that investory is lower than normal. The BN result dicates that there is so utable alkalinity remaining in e oil. Confirm oil type. Method Status method Nucles NEG NEG <t< td=""><td>Wear</td><td>-</td><td>1110</td><td></td><td></td><td></td><td></td><td></td></t<> | Wear | - | 1110 | | | | | |
| Order Matrix CONTAMINATION method limitbase current history1 history2 IFUId Condition Fuid Condition NCG NEG NEG <td>All component wear rates are normal.</td> <td>-</td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td>-</td> | All component wear rates are normal. | - | | | | - | | - |
| Bit of Nuccessford NEG NEG NEG NEG NEG <td>Contamination</td> <td></td> <td></td> <td>method</td> <td>limit/base</td> <td></td> <td>history1</td> <td>history2</td> | Contamination | | | method | limit/base | | history1 | history2 |
| Fluid Condition Nume Nume Nume Nume Nume Nume the oil viscosity is lower than normal. The BN result dicates that there is suitable alkalimity remaining in e oil. Confirm oil type. MCR METALS method Imm/Dase ourmet history1 history2 the oil. Confirm oil type. Norma ppm ASTM D5156n >5 -1 0 -1 -1 -1 -1 Nickel ppm ASTM D5156n >5 -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 | There is no indication of any contamination in the bil. | | | | in the base | | | |
| vverkrive instruction | | - | 0 | | 11 | - | | - |
| contrirm oil type. Chromium ppm ASTM DS185m >20 <1 | The oil viscosity is lower than normal. The BN result | | .S | method | limit/base | current | | , |
| Nickel ppm ASTM D5185m >5 <1 0 <1 Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 62 44.4 20 Lead ppm ASTM D5185m >30.0 28 22 200 Tin ppm ASTM D5185m >30.0 28 22 200 Cardmium ppm ASTM D5185m >1 <1 | ndicates that there is suitable alkalinity remaining in | Iron | ppm | | | | 60 | |
| Titanium ppm ASTM D5185m >20 <1 <1 <1 Silver ppm ASTM D5185m >20 0 0 0 Alum ppm ASTM D5185m >20 62 44.4 20 Lead ppm ASTM D5185m >40 <1 | ne oil. Confirm oil type. | | ppm | ASTM D5185m | >20 | <1 | | <1 |
| Silver ppm ASTM 2588m >2 0 0 0 Aluminum ppm ASTM 2588m >20 62 44.4 20 Copper ppm ASTM 05188m >20 28 22.0 20 Tin ppm ASTM 05188m >15 1 -1 -1 -1 Cadmium ppm ASTM 05188m >15 1 -1 -1 -1 Cadmium ppm ASTM 05188m >15 1 -1 -1 -1 Cadmium ppm ASTM 05188m 0 0 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM 05188m 0 0 0 0 0 Molybdenum ppm ASTM 05188m 0 0 3 3 2 Magnesse ppm ASTM 05188m 1010 777 823 784 Calcium ppm ASTM 05188m 1070 3425 784 343 | | Nickel | ppm | ASTM D5185m | >5 | <1 | 0 | <1 |
| Atuminum ppm ASTM D5186m >20 62 444 20 Lead ppm ASTM D5186m >330 28 22 20 Tin ppm ASTM D5186m >15 1 <1 | | Titanium | ppm | ASTM D5185m | >2 | <1 | <1 | <1 |
| LeadppmASTM D516sm>40<10<1CooperppmASTM D516sm>330282220TinppmASTM D516sm>151<1 | | Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Copper prm ASTM D5185m >330 28 22 20 Tin ppm ASTM D5185m >15 1 <1 | | Aluminum | ppm | ASTM D5185m | >20 | 62 | 44 | 20 |
| Tin ppm ASTM D5185m >15 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <td></td> <td>Lead</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>40</td> <td><1</td> <td>0</td> <td><1</td> | | Lead | ppm | ASTM D5185m | >40 | <1 | 0 | <1 |
| Vanadium ppm ASTM D5185m <1 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 16 40 76 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 3 3 2 Magnesium ppm ASTM D5185m 1010 777 823 784 Calcium ppm ASTM D5185m 1070 1425 1484 1435 Phosphorus ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 226 13 | | Copper | ppm | ASTM D5185m | >330 | 28 | 22 | 20 |
| Cadmium pm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 16 400 76 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 13 11 13 Manganese ppm ASTM D5185m 1010 777 823 784 Calcium ppm ASTM D5185m 1010 777 823 784 Calcium ppm ASTM D5185m 1010 777 823 784 Calcium ppm ASTM D5185m 1010 762 756 743 Zinc ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 260 3458 3663 3431 CONTAMINANTS method limit/base current <t< td=""><td></td><td>Tin</td><td>ppm</td><td>ASTM D5185m</td><td>>15</td><td>1</td><td><1</td><td><1</td></t<> | | Tin | ppm | ASTM D5185m | >15 | 1 | <1 | <1 |
| ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5165m 0 16 40 76 Barium ppm ASTM D5165m 0 0 0 0 Molybdenum ppm ASTM D5165m 60 13 11 13 Manganese ppm ASTM D5165m 1010 777 823 784 Calcium ppm ASTM D5165m 1010 777 823 784 Calcium ppm ASTM D5165m 1150 762 756 743 Zinc ppm ASTM D5165m 1270 899 934 880 Sulfur ppm ASTM D5165m 2060 3458 3663 3431 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5165m 206 154 107 46 Fuel % ASTM D5165m 20 | | Vanadium | ppm | ASTM D5185m | | <1 | 0 | <1 |
| Boron ppm ASTM D518sm 0 16 400 76 Barium ppm ASTM D518sm 0 0 0 0 Molybdenum ppm ASTM D518sm 60 13 11 13 Manganese ppm ASTM D518sm 0 3 3 2 Magnesium ppm ASTM D518sm 1010 777 823 784 Calcium ppm ASTM D518sm 1070 1425 1484 1435 Calcium ppm ASTM D518sm 1070 1425 1484 880 Sulfur ppm ASTM D518sm 1270 899 934 880 Sulfur ppm ASTM D518sm 1270 899 934 880 Sulfur ppm ASTM D518sm 1270 899 934 840 Sulfur ppm ASTM D518sm 1270 899 934 840 Sulfur ppm ASTM D518sm 2600 133 22 14 Socifurm ppm ASTM D518sm | | Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 13 11 13 Marganese ppm ASTM D5185m 0 3 3 2 Magnesium ppm ASTM D5185m 1010 777 823 784 Calcium ppm ASTM D5185m 1010 772 823 743 Calcium ppm ASTM D5185m 1010 772 823 743 Calcium ppm ASTM D5185m 1070 1425 1484 1435 Phosphorus ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 2060 3458 3663 3431 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 154 107 46 Fuel % ASTM D51 | | ADDITIVES | | method | limit/base | current | history1 | history2 |
| Molybdenum ppm ASTM D5185n 60 13 11 13 Manganese ppm ASTM D5185n 0 3 3 2 Magnesium ppm ASTM D5185n 1010 777 823 784 Calcium ppm ASTM D5185n 1070 1425 1484 1435 Phosphorus ppm ASTM D5185n 1150 762 756 743 Zinc ppm ASTM D5185n 1270 899 934 880 Sulfur ppm ASTM D5185n 2060 3458 3663 3431 CONTAMINANTS ppm ASTM D5185n 225 13 22 14 Sodium ppm ASTM D5185n >255 13 22 14 Sodium ppm ASTM D5185n >20 154 107 46 Fuel % ASTM D5185n >20 154 10.0 0.8 INFRA-RED method limit/base current history1 history1 history2 Soot % % <td></td> <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <td>16</td> <td>40</td> <td>76</td> | | Boron | ppm | ASTM D5185m | 0 | 16 | 40 | 76 |
| Manganesse ppm ASTM D5185m 0 3 3 2 Magnesium ppm ASTM D5185m 1010 777 823 784 Calcium ppm ASTM D5185m 1070 1425 ▲ 1484 1435 Phosphorus ppm ASTM D5185m 1150 762 756 743 Zinc ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 2060 3458 3663 3431 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 13 22 14 Sodium ppm ASTM D5185m >20 154 107 46 Fuel % ASTM D3185m >20 154 10.2 0.8 Sodi % % YASTM D5185m >20 11.0 10.4 8.6 Soto % % YASTM D7624 >3.0 current history1 history2 Soto % % | | Barium | ppm | ASTM D5185m | 0 | 0 | 0 | 0 |
| Magnesium prm ASTM D5185m 1010 777 823 784 Calcium ppm ASTM D5185m 1070 1425 ▲ 1484 1435 Phosphorus ppm ASTM D5185m 1150 762 756 743 Zinc ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 2060 3458 3663 3431 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 154 107 46 Sodium ppm ASTM D5185m >20 154 107 46 Sodium ppm ASTM D5185m >20 154 107 46 Potassium ppm ASTM D5185m >20 154 107 46 Fuel method limit/base current history1 history2 Sodium ppm ASTM D7844 >4 0.5 0.3 0.1 Nitration Abs/mm | | Molybdenum | ppm | ASTM D5185m | 60 | 13 | 🔺 11 | 13 |
| Calcium ppm ASTM D5185m 1070 1425 1484 1435 Phosphorus ppm ASTM D5185m 1150 762 756 743 Zinc ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 2060 3458 3663 3431 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 13 22 14 Sodium ppm ASTM D5185m >20 154 107 46 Potassium ppm ASTM D5185m >20 154 107 46 Fuel % ASTM D5185m >20 154 107 46 Sodium ppm ASTM D5185m >20 154 107 46 Fuel % ASTM D5185m >20 154 107 46 Sodium ppm ASTM D5185m >20 154 107 46 Sotor % *ASTM D7844 | | Manganese | ppm | ASTM D5185m | 0 | 3 | 3 | 2 |
| Phosphorus ppm ASTM D5185m 1150 762 756 743 Zinc ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 2060 3458 3663 3431 CONTAMINANTS method limit/bass current history1 history2 Silicon ppm ASTM D5185m >25 13 22 14 Sodium ppm ASTM D5185m >25 13 22 14 Sodium ppm ASTM D5185m >20 154 107 46 Fuel % ASTM D5185m >20 154 107 46 Fuel % ASTM D5185m >20 154 0.3 0.1 INFRA-RED method limit/base current history1 history2 Soot % % ^ASTM D7844 >4 0.5 0.3 0.1 Nitration Abs/cm 'ASTM D7445 >30 24.7 23.2 19.0 FLUID DEGRADTION Method lim | | Magnesium | ppm | ASTM D5185m | 1010 | 777 | 823 | 784 |
| Zinc ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 2060 3458 3663 3431 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 13 22 14 Sodium ppm ASTM D5185m >26 154 4 4 Potassium ppm ASTM D5185m >20 154 107 46 Fuel % ASTM D524 >3.0 <1.0 | | Calcium | ppm | ASTM D5185m | 1070 | 1425 | <u> </u> | 1435 |
| Zinc ppm ASTM D5185m 1270 899 934 880 Sulfur ppm ASTM D5185m 2060 3458 3663 3431 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 13 22 14 Sodium ppm ASTM D5185m >26 154 4 4 Potassium ppm ASTM D5185m >20 154 107 46 Fuel % ASTM D524 >3.0 <1.0 | | Phosphorus | ppm | ASTM D5185m | 1150 | 762 | 756 | 743 |
| Note that the set of the se | | | ppm | ASTM D5185m | 1270 | 899 | 934 | 880 |
| Silicon ppm ASTM D5185m >25 13 22 14 Sodium ppm ASTM D5185m 5 4 4 Potassium ppm ASTM D5185m >20 154 107 46 Fuel % ASTM D524 >3.0 <1.0 | | Sulfur | ppm | ASTM D5185m | 2060 | 3458 | 3663 | 3431 |
| SodiumppmASTM D5185m544PotassiumppmASTM D5185m>2015410746Fuel%ASTM D3524>3.0<1.0 | | CONTAMINAN | ITS | method | limit/base | current | history1 | history2 |
| PotassiumppmASTM D5185m>2015410746Fuel%ASTM D3524>3.0<1.0<1.00.8INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>40.50.30.1NitrationAbs/cm*ASTM D7624>2011.010.48.6SulfationAbs/1mm*ASTM D7415>3024.723.219.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/1mm*ASTM D7414>2519.819.414.6 | | Silicon | ppm | ASTM D5185m | >25 | 13 | 22 | 14 |
| PotassiumppmASTM D5185m>2015410746Fuel%ASTM D3524>3.0<1.0<1.00.8INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>40.50.30.1NitrationAbs/cm*ASTM D7624>2011.010.48.6SulfationAbs/1mm*ASTM D7415>3024.723.219.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/1mm*ASTM D7414>2519.819.414.6 | | Sodium | ppm | ASTM D5185m | | 5 | 4 | 4 |
| Fuel%ASTM D3524>3.0<1.0<1.00.8INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>40.50.30.1NitrationAbs/cm*ASTM D7624>2011.010.48.6SulfationAbs/.1mm*ASTM D7415>3024.723.219.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2519.819.414.6 | | Potassium | | | | 154 | 107 | |
| Soot % % *ASTM D7844 >4 0.5 0.3 0.1 Nitration Abs/cm *ASTM D7624 >20 11.0 10.4 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.2 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.8 19.4 14.6 | | Fuel | | ASTM D3524 | >3.0 | <1.0 | <1.0 | 0.8 |
| Nitration Abs/cm *ASTM D7624 >20 11.0 10.4 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.2 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.8 19.4 14.6 | | INFRA-RED | | method | limit/base | current | history1 | history2 |
| NitrationAbs/cm*ASTM D7624>2011.010.48.6SulfationAbs/.1mm*ASTM D7415>3024.723.219.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2519.819.414.6 | | Soot % | % | *ASTM D7844 | >4 | 0.5 | 0.3 | 0.1 |
| SulfationAbs/.1mm*ASTM D7415>3024.723.219.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2519.819.414.6 | | | | | | | | |
| Oxidation Abs/.1mm *ASTM D7414 >25 19.8 19.4 14.6 | | | | | | | | |
| Oxidation Abs/.1mm *ASTM D7414 >25 19.8 19.4 14.6 | | FLUID DEGRAI | | method | limit/base | current | history1 | history2 |
| | | | | | >25 | 19.8 | 19.4 | 14.6 |
| | | | | | | 5.2 | 7.1 | 8.3 |



OIL ANALYSIS REPORT



Contact/Location: Kenneth Bigers - GFL844