

Area Catlettsburg [Catlettsburg] Oil - Port Genset

Port Genset

MARATHON 15W40 (6 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal for time on oil.

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.



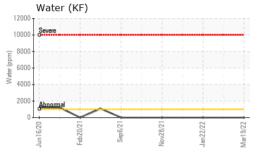
| SAMPLE INFORM | MATION | method | limit/base | current | history1 | history2 |
|---|--|--|---|---|--|--|
| Sample Number | | Client Info | | WC0898416 | WC0769478 | WC0769479 |
| Sample Date | | Client Info | | 09 Jul 2024 | 28 Mar 2024 | 08 Aug 2023 |
| Machine Age | hrs | Client Info | | 10257 | 9412 | 0 |
| Oil Age | hrs | Client Info | | 0 | 9412 | 0 |
| Oil Changed | | Client Info | | N/A | Changed | Changed |
| Sample Status | | | | NORMAL | ABNORMAL | NORMAL |
| CONTAMINATION | N | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METALS | | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >50 | 3 | 4 9 | 5 |
| Chromium | ppm | ASTM D5185m | >4 | 0 | <1 | <1 |
| Nickel | ppm | | >2 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >5 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >12 | 1 | 2 | 2 |
| Lead | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >70 | 0 | <1 | <1 |
| Tin | ppm | ASTM D5185m | | 0 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| ADDITIVES | | method | limit/base | | In the second | biotom/0 |
| NODITIVEO | | methou | | | | history2 |
| Boron | ppm | ASTM D5185m | IIIIII/Dase | 35 | nistory I 28 | 6 |
| | ppm ppm | | iiiii/base | | | |
| Boron | | ASTM D5185m | IIIII/Jase | 35 | 28 | 6 |
| Boron Barium | ppm | ASTM D5185m ASTM D5185m | | 35 0 | 28 0 | 6 0 |
| Boron Barium Molybdenum | ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | | 35 0 46 | 28 0 41 | 6 0 21 |
| Boron Barium Molybdenum Manganese | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | | 35 0 46 0 | 28 0 41 <1 | 6 0 21 <1 |
| Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | | 35 0 46 0 66 | 28 0 41 <1 250 | 6 0 21 <1 65 |
| Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | | 35 0 46 0 66 3402 | 28 0 41 <1 250 2977 | 6 0 21 <1 65 3858 |
| 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 ASTM D5185m | | 35 0 46 0 66 3402 44 | 28 0 41 <1 250 2977 193 | 6 0 21 <1 65 3858 56 |
| 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 | 35 0 46 0 66 3402 44 43 | 28 0 41 250 2977 193 222 | 6 0 21 <1 65 3858 56 42 |
| 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 | limit/base | 35 0 46 0 66 3402 44 43 3272 | 28 0 41 <1 250 2977 193 222 2857 | 6 0 21 <1 65 3858 56 42 4000 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS | 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 | 35 0 46 0 66 3402 44 43 3272 current | 28 0 41 250 2977 193 222 2857 history1 | 6 0 21 <1 65 3858 56 42 4000 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon | 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 | 35 0 46 0 66 3402 44 43 3272 current 4 | 28 0 41 <1 250 2977 193 222 2857 history1 7 | 6 0 21 <1 65 3858 56 42 4000 history2 6 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS 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 method ASTM D5185m | limit/base >25 | 35 0 46 0 66 3402 44 43 3272 current 4 < | 28 0 41 250 2977 193 222 2857 history1 7 8 | 6 0 21 <1 65 3858 56 42 4000 history2 6 3 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >25 >20 | 35 0 46 0 66 3402 44 43 3272 <u>current</u> 4 <1 <1 | 28 0 41 250 2977 193 222 2857 history1 7 8 0 | 6 0 21 <1 65 3858 56 42 4000 history2 6 3 <1 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >25 >20 >0.1 | 35 0 46 0 66 3402 44 43 3272 current 4 -1 <1 NEG | 28 0 41 250 2977 193 222 2857 history1 7 8 0 0 NEG | 6 0 21 <1 65 3858 56 42 4000 history2 6 3 <1 NEG |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED | ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >25 >20 >0.1 | 35 0 46 0 66 3402 44 43 3272 current 4 4 <1 <1 NEG Vurrent | 28 0 41 250 2977 193 222 2857 history1 7 8 0 0 NEG history1 | 6 0 21 <1 65 3858 56 42 4000 history2 6 3 <1 NEG history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >25 >20 >0.1 limit/base | 35 0 46 0 66 3402 44 43 3272 <i>current</i> 4 <1 <1 ×1 NEG <i>current</i> 0.1 | 28 0 41 250 2977 193 222 2857 history1 7 8 0 NEG history1 0.2 | 6 0 21 <1 65 3858 56 42 4000 history2 6 3 <1 NEG history2 0.1 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Vater INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >25 >20 >0.1 limit/base | 35 0 46 0 66 3402 44 43 3272 <u>current</u> 4 <1 <1 NEG 0.1 5.3 | 28 0 41 250 2977 193 222 2857 history1 7 8 0 NEG NEG NEG 0.2 13.0 | 6 0 21 <1 65 3858 56 42 4000 history2 6 3 <1 NEG NEG 0.1 8.4 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Vater INFRA-RED Soot % Nitration Sulfation | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >25 >20 >0.1 limit/base >20 >30 | 35 0 46 0 66 3402 44 43 3272 current 4 <1 <1 NEG 0.1 5.3 12.7 | 28 0 41 250 2977 193 222 2857 history1 7 8 0 0 NEG history1 0.2 13.0 18.1 | 6 0 21 <1 65 3858 56 42 4000 history2 6 3 <1 NEG 0.1 8.4 12.9 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >25 >20 >20 >0.1 limit/base >20 >30 | 35 0 46 0 66 3402 44 43 3272 <u>current</u> 4 <1 <1 NEG 0.1 5.3 12.7 | 28 0 41 250 2977 193 222 2857 history1 7 8 0 0 NEG history1 0.2 13.0 18.1 | 6 0 21 <1 65 3858 56 42 4000 history2 6 3 <1 NEG 6 3 <1 NEG 0.1 8.4 12.9 history2 |

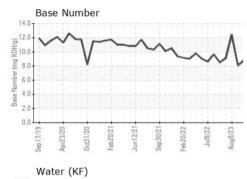
Sample Rating Trend

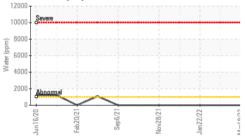


OIL ANALYSIS REPORT



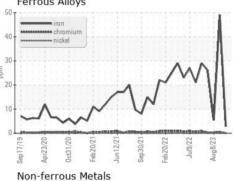


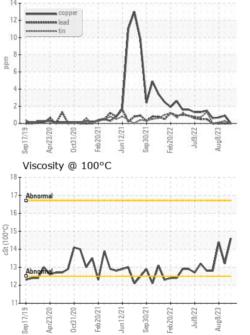


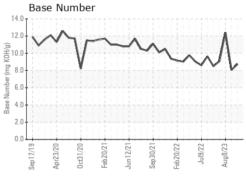


| VISUAL | | method | limit/base | current | history1 | history2 |
|------------------|--------|-----------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | NONE | NONE |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG | NEG |
| FLUID PROPERT | TIES | method | limit/base | current | history1 | history2 |
| Visc @ 100°C | cSt | ASTM D445 | | 14.6 | 13.2 | 14.4 |
| CDADUS | | | | | | |

Ferrous Alloys







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 MARATHON PETROLEUM CO. Sample No. : WC0898416 Received : 15 Jul 2024 101 12TH ST Lab Number : 06236292 Tested : 16 Jul 2024 CATLETTSBURG, KY Unique Number : 11125126 Diagnosed : 16 Jul 2024 - Sean Felton US 41169 Test Package : IND 2 (Additional Tests: KF) Contact: Barry Bridges Certificate 12367 babridges@marathonpetroleum.com To discuss this sample report, contact Customer Service at 1-800-237-1369. * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (731)607-4313 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: MARCAT [WUSCAR] 06236292 (Generated: 07/16/2024 15:18:22) Rev: 1

Submitted By: M/V CATLETTSBURG

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