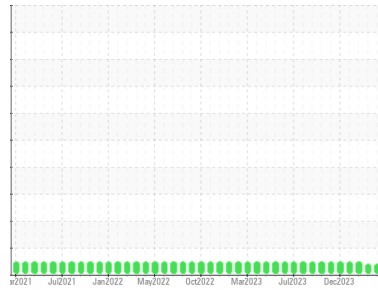




OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY



Area

Louisville

Machine Id

[Louisville] Oil - Port Reduction Gear

Component

Port Reduction Gear

Fluid

SAE 30W (35 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 oil viscosity is lower than normal. The AN level is acceptable for this fluid.

SAMPLE INFORMATION

| | method | limit/base | current | history1 | history2 |
|---------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | | WC0805408 | WC0898523 | WC0874761 |
| Sample Date | Client Info | | 01 Jul 2024 | 29 May 2024 | 28 Apr 2024 |
| Machine Age | hrs | Client Info | 1788 | 1356 | 950 |
| Oil Age | hrs | Client Info | 1788 | 356 | 950 |
| Oil Changed | Client Info | | N/A | N/A | N/A |
| Sample Status | | | ATTENTION | ATTENTION | NORMAL |

WEAR METALS

| | method | limit/base | current | history1 | history2 |
|----------|--------|------------------|--------------|----------|----------|
| Iron | ppm | ASTM D5185m >150 | 5 | 5 | 4 |
| Chromium | ppm | ASTM D5185m >10 | 0 | 0 | <1 |
| Nickel | ppm | ASTM D5185m >10 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | 0 | <1 | 0 |
| Silver | ppm | ASTM D5185m | 0 | <1 | 0 |
| Aluminum | ppm | ASTM D5185m >25 | <1 | <1 | 0 |
| Lead | ppm | ASTM D5185m >100 | 0 | <1 | 0 |
| Copper | ppm | ASTM D5185m >50 | 6 | 4 | 8 |
| Tin | ppm | ASTM D5185m >10 | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | 0 | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | 0 | 0 | 0 |

ADDITIVES

| | method | limit/base | current | history1 | history2 |
|------------|--------|-------------|-------------|----------|----------|
| Boron | ppm | ASTM D5185m | 10 | 6 | 13 |
| Barium | ppm | ASTM D5185m | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 45 | 46 | 50 |
| Manganese | ppm | ASTM D5185m | 0 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 688 | 698 | 776 |
| Calcium | ppm | ASTM D5185m | 785 | 810 | 868 |
| Phosphorus | ppm | ASTM D5185m | 802 | 831 | 861 |
| Zinc | ppm | ASTM D5185m | 890 | 913 | 951 |
| Sulfur | ppm | ASTM D5185m | 2753 | 2892 | 2903 |

CONTAMINANTS

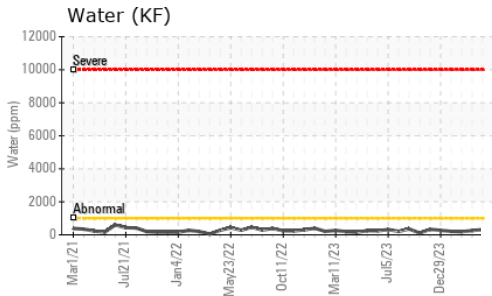
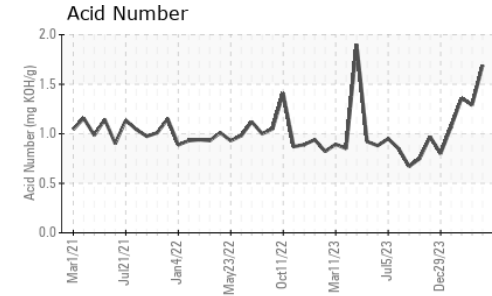
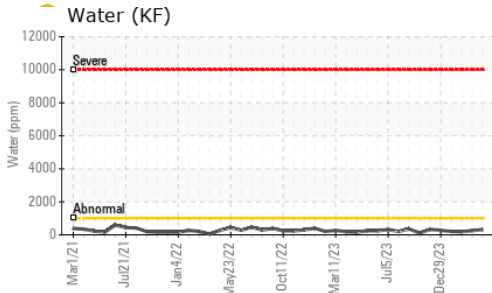
| | method | limit/base | current | history1 | history2 |
|-----------|--------|------------------|--------------|----------|----------|
| Silicon | ppm | ASTM D5185m >50 | 2 | 2 | 0 |
| Sodium | ppm | ASTM D5185m | 3 | 3 | 3 |
| Potassium | ppm | ASTM D5185m >20 | <1 | <1 | 0 |
| Water | % | ASTM D6304 >0.1 | 0.031 | 0.025 | 0.018 |
| ppm Water | ppm | ASTM D6304 >1000 | 317 | 259 | 189 |

FLUID DEGRADATION

| | method | limit/base | current | history1 | history2 |
|------------------|----------|------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.69 | 1.29 | 1.36 |



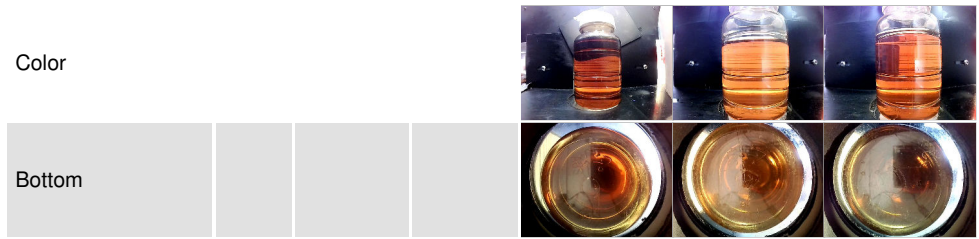
OIL ANALYSIS REPORT



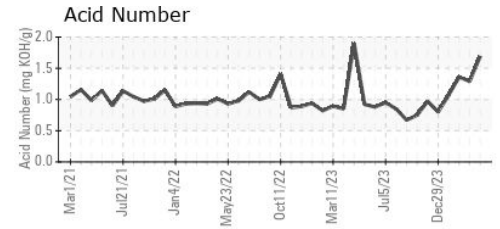
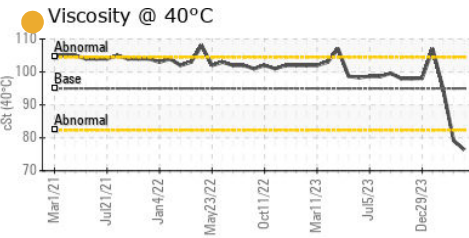
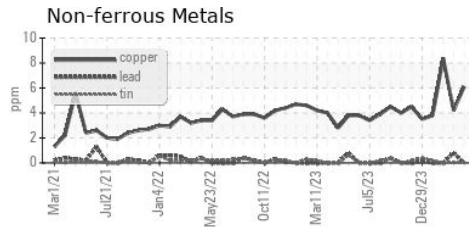
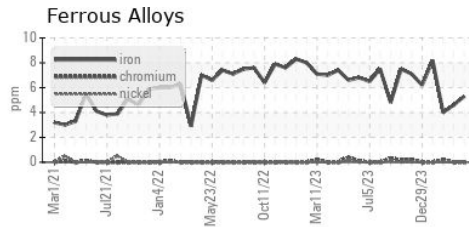
| VISUAL | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | NONE |
| Silt | scalar | *Visual | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|-------------|----------|----------|
| Visc @ 40°C | cSt | ASTM D445 | 95.0 ● 76.4 | 79.2 | 94.8 |

| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---------------|--------|------------|---------|----------|----------|
|---------------|--------|------------|---------|----------|----------|



GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0805408 **Received** : 15 Jul 2024
Lab Number : 06236083 **Tested** : 16 Jul 2024
Unique Number : 11124917 **Diagnosed** : 17 Jul 2024 - Don Baldrige
Test Package : IND 2 (Additional Tests: KF)

MARATHON PETROLEUM CO.
 101 12TH ST
 CATLETTSBURG, KY
 US 41169
 Contact: CORY GUMBERT
 cagumbert@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.

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

T: (606)585-3950

F: x: