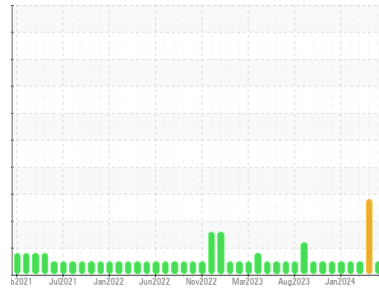




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area

**Detroit**

Machine Id

**[Detroit] Oil - Starboard Reduction Gear**

Component

**Starboard 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 AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>WC0859865</b>	WC0804765	WC0804784
Sample Date	Client Info		<b>03 Jun 2024</b>	20 May 2024	22 Apr 2024
Machine Age	hrs	Client Info	<b>30415</b>	30188	29587
Oil Age	hrs	Client Info	<b>5227</b>	4999	4398
Oil Changed	Client Info		<b>Not Chngd</b>	Not Chngd	N/A
Sample Status			<b>NORMAL</b>	ABNORMAL	NORMAL

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >150	<b>15</b>	16	14
Chromium	ppm	ASTM D5185m >10	<b>0</b>	<1	0
Nickel	ppm	ASTM D5185m >10	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m	<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >25	<b>1</b>	2	<1
Lead	ppm	ASTM D5185m >100	<b>0</b>	0	<1
Copper	ppm	ASTM D5185m >50	<b>14</b>	14	13
Tin	ppm	ASTM D5185m >10	<b>0</b>	<1	0
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	<1	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>31</b>	34	29
Barium	ppm	ASTM D5185m	<b>0</b>	<1	0
Molybdenum	ppm	ASTM D5185m	<b>16</b>	17	16
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	<b>243</b>	240	222
Calcium	ppm	ASTM D5185m	<b>3315</b>	3135	2990
Phosphorus	ppm	ASTM D5185m	<b>1037</b>	961	942
Zinc	ppm	ASTM D5185m	<b>1131</b>	1099	1028
Sulfur	ppm	ASTM D5185m	<b>8446</b>	7172	7576

## CONTAMINANTS

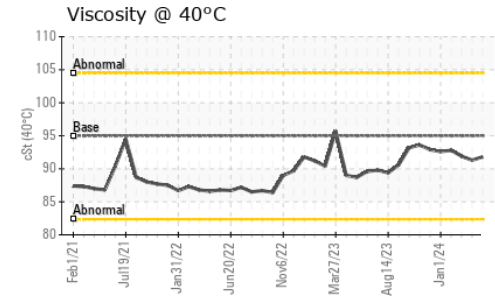
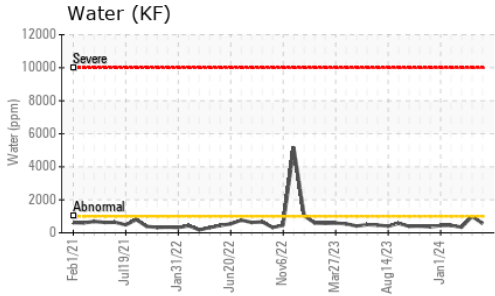
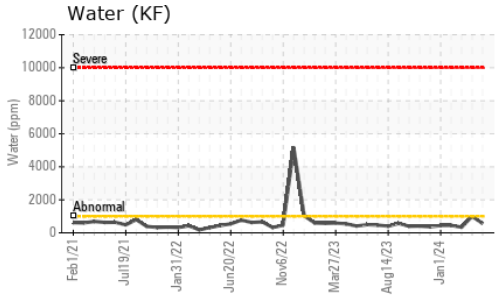
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	<b>4</b>	4	4
Sodium	ppm	ASTM D5185m	<b>4</b>	<1	2
Potassium	ppm	ASTM D5185m >20	<b>&lt;1</b>	2	0
Water	%	ASTM D6304 >0.1	<b>0.056</b>	▲ 0.100	0.033
ppm Water	ppm	ASTM D6304 >1000	<b>563</b>	▲ 1000	339

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>0.89</b>	▲ 2.19	0.89



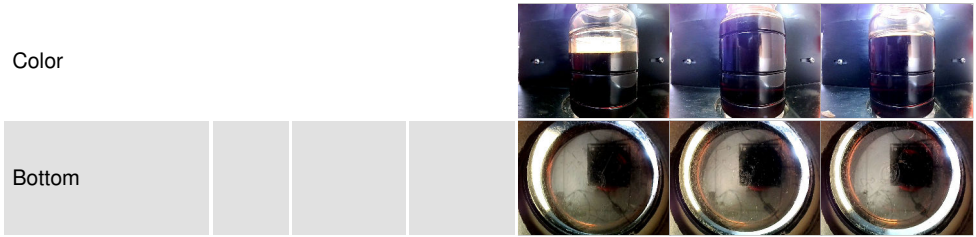
# OIL ANALYSIS REPORT



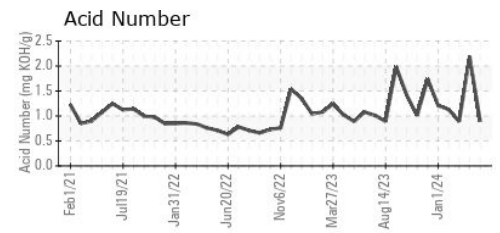
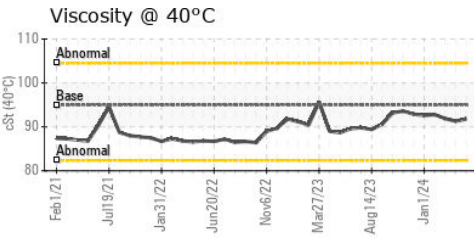
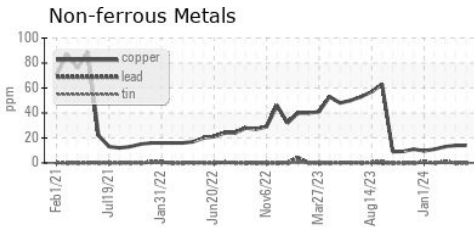
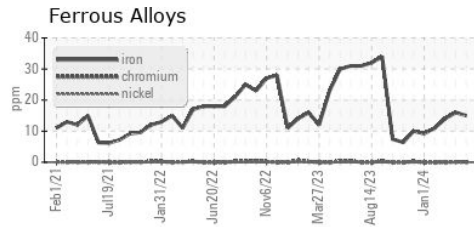
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	0.2%
Free Water	scalar	*Visual		<b>NEG</b>	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	95.0	<b>91.8</b>	91.3

SAMPLE IMAGES	method	limit/base	current	history1	history2
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## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0859865 **Received** : 25 Jun 2024  
**Lab Number** : 06219790 **Tested** : 26 Jun 2024  
**Unique Number** : 11097987 **Diagnosed** : 27 Jun 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)