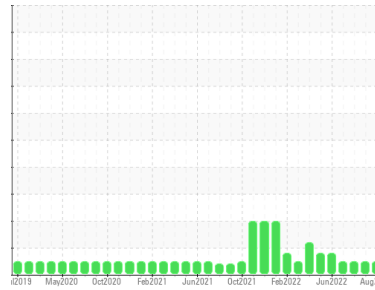




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**Catlettsburg**  
 Machine Id  
**[Catlettsburg] Oil - Starboard Genset**  
 Component  
**Starboard Genset**  
 Fluid  
**MARATHON 15W40 (--- 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 BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>WC0769473</b>	WC0731847	WC0683560
Sample Date	Client Info		<b>08 Aug 2023</b>	01 Oct 2022	03 Sep 2022
Machine Age	hrs	Client Info	<b>0</b>	0	0
Oil Age	hrs	Client Info	<b>131</b>	5463	0
Oil Changed	Client Info		<b>Changed</b>	N/A	N/A
Sample Status			<b>NORMAL</b>	NORMAL	NORMAL

## CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Glycol	WC Method		<b>NEG</b>	NEG	NEG

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >25	<b>8</b>	25	26
Chromium	ppm	ASTM D5185m >5	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m >5	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m	<b>0</b>	0	0
Silver	ppm	ASTM D5185m >5	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m >10	<b>3</b>	1	<1
Lead	ppm	ASTM D5185m >10	<b>0</b>	0	<1
Copper	ppm	ASTM D5185m >20	<b>1</b>	4	7
Tin	ppm	ASTM D5185m >5	<b>&lt;1</b>	0	1
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>3</b>	0	6
Barium	ppm	ASTM D5185m	<b>0</b>	0	<1
Molybdenum	ppm	ASTM D5185m	<b>20</b>	61	55
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	0	<1
Magnesium	ppm	ASTM D5185m	<b>28</b>	850	496
Calcium	ppm	ASTM D5185m	<b>4123</b>	2030	2233
Phosphorus	ppm	ASTM D5185m	<b>27</b>	603	394
Zinc	ppm	ASTM D5185m	<b>9</b>	761	468
Sulfur	ppm	ASTM D5185m	<b>4195</b>	3707	3035

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	<b>3</b>	4	4
Sodium	ppm	ASTM D5185m	<b>5</b>	11	10
Potassium	ppm	ASTM D5185m >20	<b>&lt;1</b>	0	0

## INFRA-RED

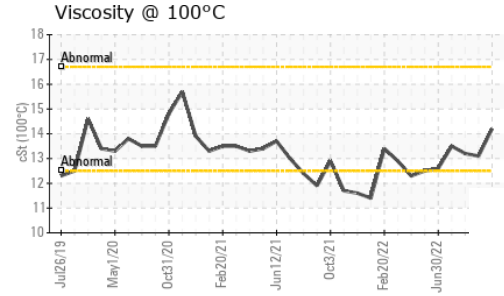
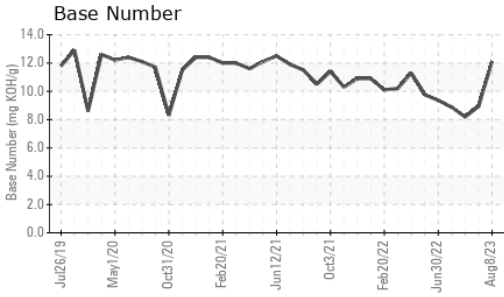
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	<b>0.1</b>	0.2	0.2
Nitration	Abs/cm	*ASTM D7624 >20	<b>10.5</b>	13.1	13.7
Sulfation	Abs/.1mm	*ASTM D7415 >30	<b>13.4</b>	21.5	21.0

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	<b>8.8</b>	21.0	20.8
Base Number (BN)	mg KOH/g	ASTM D2896	<b>12.10</b>	8.93	8.18



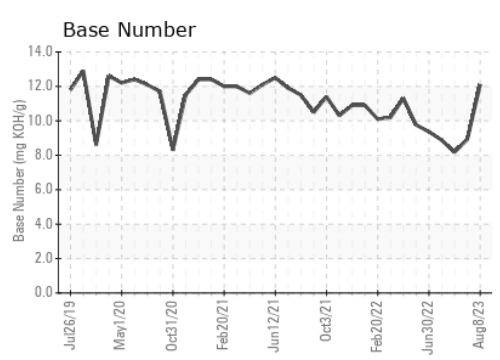
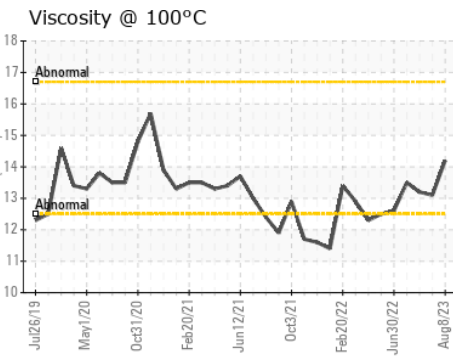
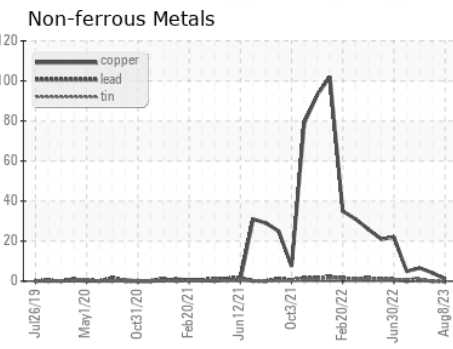
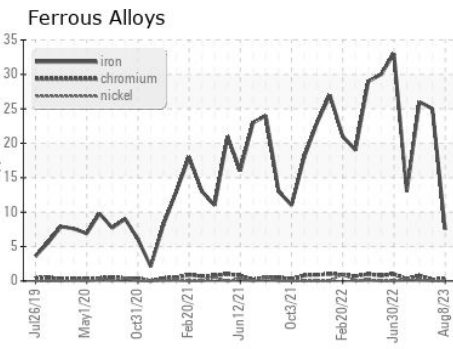
# OIL ANALYSIS REPORT



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 @ 100°C	cSt	ASTM D445	<b>14.2</b>	13.1	13.2

### GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0769473 **Received** : 23 Aug 2023  
**Lab Number** : 05932229 **Diagnosed** : 24 Aug 2023  
**Unique Number** : 10617500 **Diagnostician** : Don Baldrige  
**Test Package** : IND 2

**MARATHON PETROLEUM CO.**  
 101 12TH ST  
 CATLETTSBURG, KY  
 US 41169  
 Contact: M/V CATLETTSBURG  
 mvcburg@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)