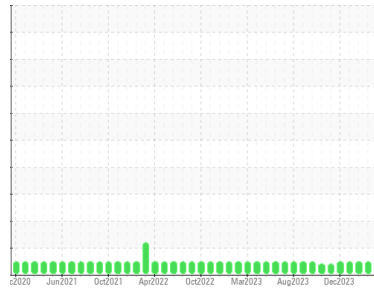




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area

**Tampa**

Machine Id

**[Tampa] Oil - Starboard Genset**

Component

**Starboard Genset**

Fluid

**MOBIL 15W40 (7 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>WC0805297</b>	WC0805294	WC0805288
Sample Date	Client Info		<b>11 Apr 2024</b>	13 Mar 2024	14 Feb 2024
Machine Age	hrs	Client Info	<b>18905</b>	9056	18357
Oil Age	hrs	Client Info	<b>250</b>	3589	80
Oil Changed	Client Info		<b>Not Chngd</b>	Not Chngd	Not Chngd
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	>50	<b>&lt;1</b>	2	3
Chromium	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	0
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m		<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	>5	<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185m	>12	<b>2</b>	2	2
Lead	ppm	ASTM D5185m	>17	<b>0</b>	<1	0
Copper	ppm	ASTM D5185m	>70	<b>0</b>	<1	3
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	<1	0

## ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		<b>68</b>	84	100
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>57</b>	53	84
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Magnesium	ppm	ASTM D5185m		<b>548</b>	502	580
Calcium	ppm	ASTM D5185m		<b>1727</b>	1567	1626
Phosphorus	ppm	ASTM D5185m		<b>759</b>	736	703
Zinc	ppm	ASTM D5185m		<b>897</b>	838	833
Sulfur	ppm	ASTM D5185m		<b>3033</b>	2717	3060

## CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>25	<b>3</b>	9	3
Sodium	ppm	ASTM D5185m	>118	<b>2</b>	3	2
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	2	0
Water	%	ASTM D6304	>0.1	<b>NEG</b>	NEG	NEG

## INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844		<b>0.1</b>	0	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>6.9</b>	5.2	7.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.7</b>	20.7	20.0

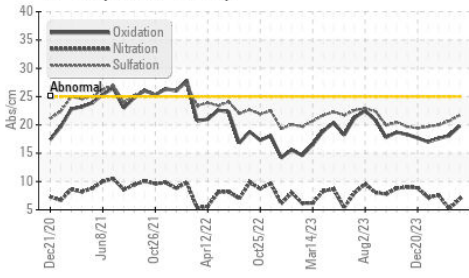
## FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>19.8</b>	18.1	17.6
Base Number (BN)	mg KOH/g	ASTM D2896		<b>9.71</b>	10.41	9.30

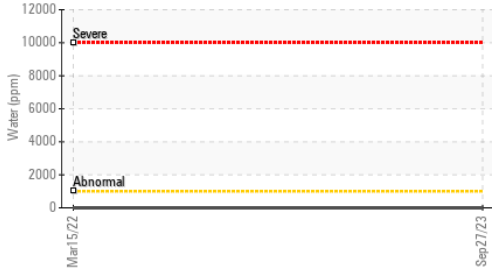


# OIL ANALYSIS REPORT

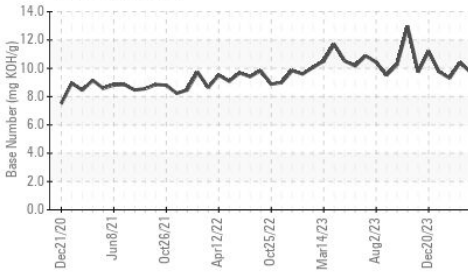
FT-IR (Direct Trend)



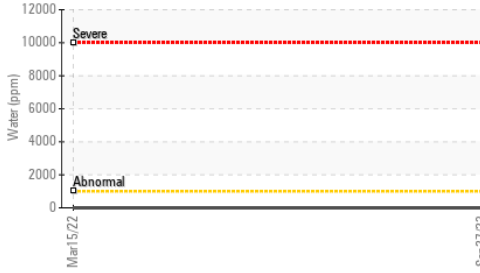
Water (KF)



Base Number



Water (KF)

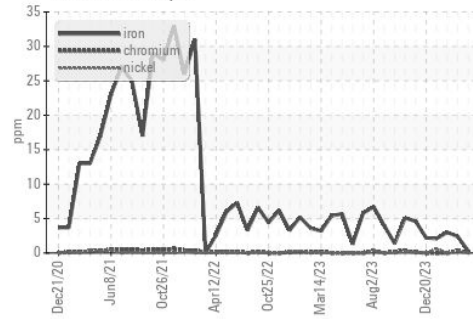


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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

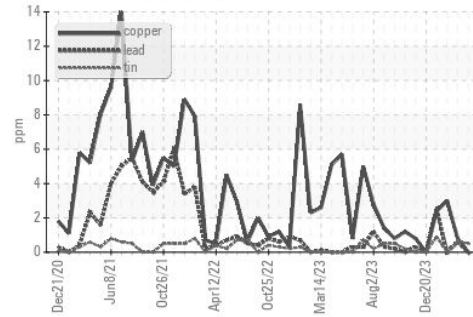
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.5	14.0	12.4

## GRAPHS

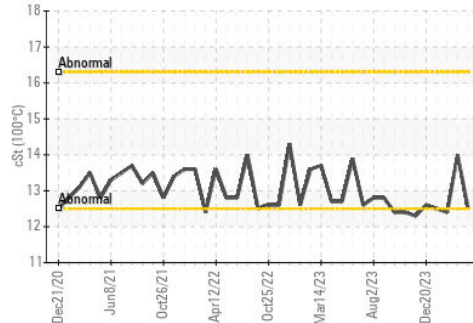
Ferrous Alloys



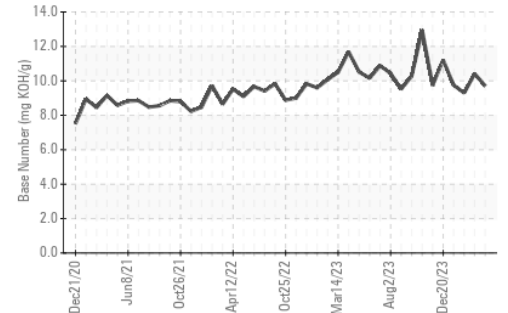
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : WC0805297

Lab Number : 06157862

Unique Number : 10993285

Test Package : IND 2 ( Additional Tests: KF )

Received : 23 Apr 2024

Tested : 25 Apr 2024

Diagnosed : 25 Apr 2024 - Sean Felton

MARATHON PETROLEUM CO.

101 12TH ST

CATLETTSBURG, KY

US 41169

Contact: CORY GUMBERT

cagumbert@marathonpetroleum.com

T: (606)585-3950

F: x:

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)