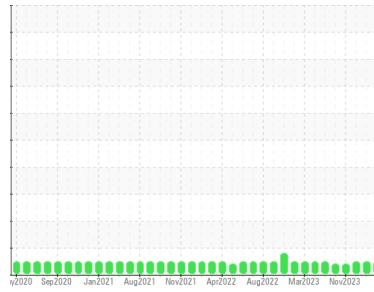




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area

**Kenova**

Machine Id

**[Kenova] Oil - Starboard Genset**

Component

**Starboard Genset**

Fluid

**DIESEL ENGINE OIL SAE 15W40 (8 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>WC0859756</b>	WC0859751	WC0805217
Sample Date	Client Info		<b>06 May 2024</b>	10 Apr 2024	16 Jan 2024
Machine Age	hrs	Client Info	<b>2000</b>	1526	490
Oil Age	hrs	Client Info	<b>2000</b>	1526	490
Oil Changed	Client Info		<b>Not Chngd</b>	N/A	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>38</b>	38	18
Chromium	ppm	ASTM D5185m	>4	<b>2</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	<1
Aluminum	ppm	ASTM D5185m	>12	<b>2</b>	2	2
Lead	ppm	ASTM D5185m	>17	<b>10</b>	8	8
Copper	ppm	ASTM D5185m	>70	<b>11</b>	7	6
Tin	ppm	ASTM D5185m	>15	<b>2</b>	2	2
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1

## ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	250	<b>67</b>	93	131
Barium	ppm	ASTM D5185m	10	<b>1</b>	0	<1
Molybdenum	ppm	ASTM D5185m	100	<b>76</b>	74	63
Manganese	ppm	ASTM D5185m		<b>4</b>	4	5
Magnesium	ppm	ASTM D5185m	450	<b>483</b>	468	410
Calcium	ppm	ASTM D5185m	3000	<b>1806</b>	1837	1772
Phosphorus	ppm	ASTM D5185m	1150	<b>893</b>	961	1017
Zinc	ppm	ASTM D5185m	1350	<b>1183</b>	1218	1254
Sulfur	ppm	ASTM D5185m	4250	<b>2798</b>	3337	3134

## CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>25	<b>11</b>	11	10
Sodium	ppm	ASTM D5185m	>158	<b>7</b>	7	8
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	<1	3
Water	%	ASTM D6304	>0.1	<b>NEG</b>	NEG	NEG

## INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844		<b>0.2</b>	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.3</b>	8.1	5.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.3</b>	20.3	19.0

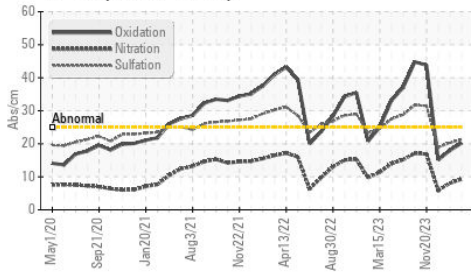
## FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>20.2</b>	18.0	15.1
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>8.35</b>	8.86	9.33

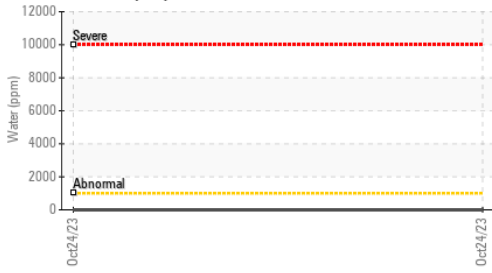


# OIL ANALYSIS REPORT

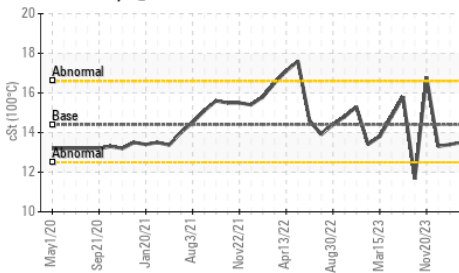
FT-IR (Direct Trend)



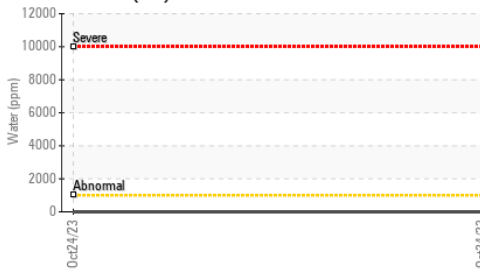
Water (KF)



Viscosity @ 100°C



Water (KF)

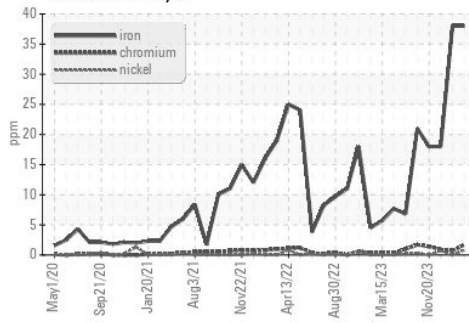


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

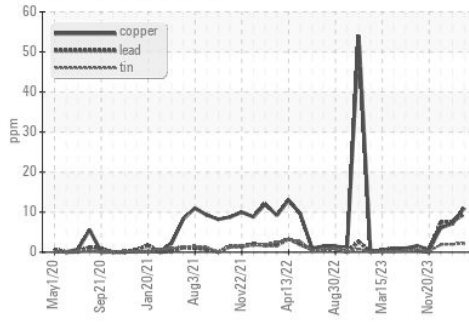
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.5	13.4

## GRAPHS

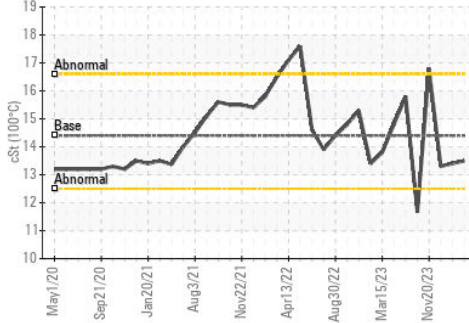
Ferrous Alloys



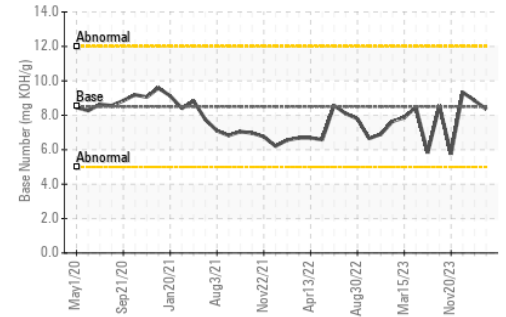
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0859756  
**Lab Number** : 06181558  
**Unique Number** : 11032884  
**Test Package** : IND 2 ( Additional Tests: KF )

**Received** : 16 May 2024  
**Tested** : 20 May 2024  
**Diagnosed** : 20 May 2024 - Sean Felton

**MARATHON PETROLEUM CO.**  
 101 12TH ST  
 CATLETTSBURG, KY  
 US 41169

Contact: CORY GUMBERT  
 cagumbert@marathonpetroleum.com  
 T: (606)585-3950

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)

F: x: