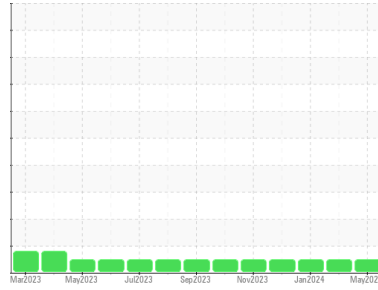




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**Huntington**  
 Machine Id  
**[Huntington] Oil - Starboard Genset**  
 Component  
**Starboard Genset**  
 Fluid  
**DIESEL ENGINE OIL SAE 15W40 (5 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>WC0874556</b>	WC0874745	WC0859837
Sample Date	Client Info		<b>08 May 2024</b>	19 Mar 2024	21 Jan 2024
Machine Age	hrs	Client Info	<b>19602</b>	18835	17881
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>Not Changed</b>	Not Changed	Not Changed
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>65</b>	69	36
Chromium	ppm	ASTM D5185m	>4	<b>2</b>	2	1
Nickel	ppm	ASTM D5185m	>2	<b>2</b>	1	1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	<1
Aluminum	ppm	ASTM D5185m	>12	<b>4</b>	3	3
Lead	ppm	ASTM D5185m	>17	<b>22</b>	27	25
Copper	ppm	ASTM D5185m	>70	<b>7</b>	15	8
Tin	ppm	ASTM D5185m	>15	<b>2</b>	1	1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Cadmium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1

## ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	250	<b>16</b>	17	27
Barium	ppm	ASTM D5185m	10	<b>&lt;1</b>	0	0
Molybdenum	ppm	ASTM D5185m	100	<b>83</b>	85	76
Manganese	ppm	ASTM D5185m		<b>1</b>	1	2
Magnesium	ppm	ASTM D5185m	450	<b>1422</b>	1403	1273
Calcium	ppm	ASTM D5185m	3000	<b>1391</b>	1410	1177
Phosphorus	ppm	ASTM D5185m	1150	<b>1039</b>	1074	881
Zinc	ppm	ASTM D5185m	1350	<b>1300</b>	1299	1158
Sulfur	ppm	ASTM D5185m	4250	<b>3164</b>	3310	2776

## CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>25	<b>8</b>	7	5
Sodium	ppm	ASTM D5185m	>158	<b>9</b>	10	6
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	3	5
Water	%	ASTM D6304	>0.1	<b>NEG</b>	NEG	NEG

## INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844		<b>0.9</b>	1	0.6
Nitration	Abs/cm	*ASTM D7624	>20	<b>12.8</b>	13.0	10.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>25.6</b>	26.5	23.3

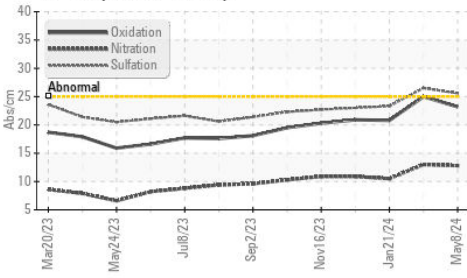
## FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>23.2</b>	25.0	20.8
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>9.50</b>	9.85	9.55

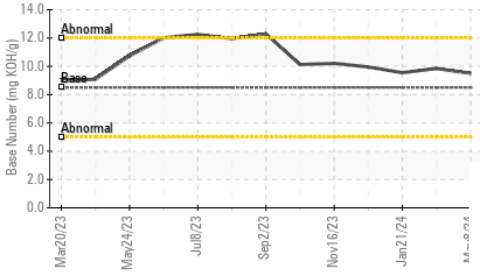


# OIL ANALYSIS REPORT

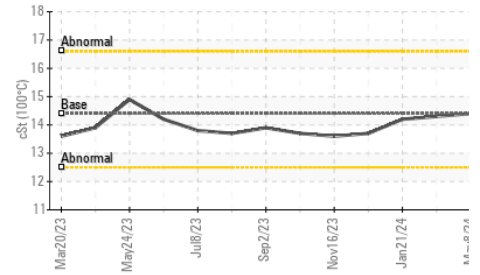
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

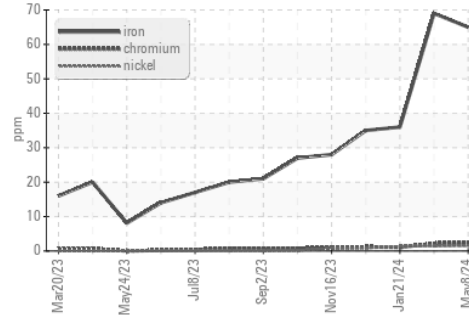


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

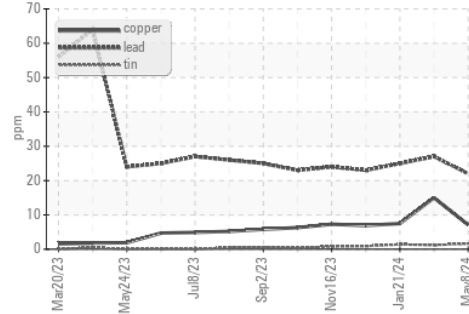
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	14.3	14.2

## GRAPHS

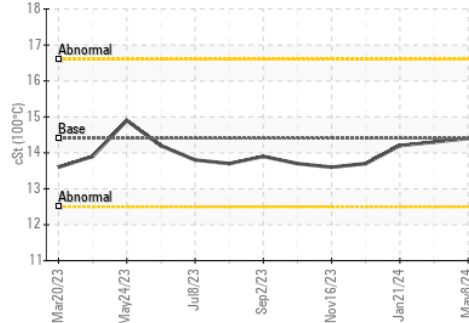
Ferrous Alloys



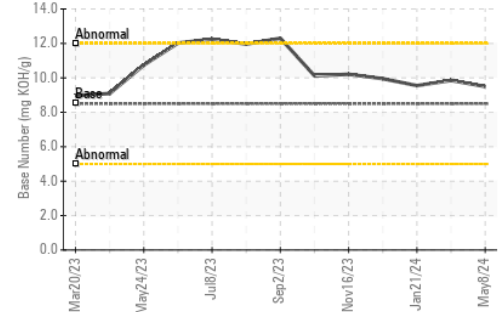
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0874556      **Received** : 16 May 2024  
**Lab Number** : 06181563      **Tested** : 20 May 2024  
**Unique Number** : 11032889      **Diagnosed** : 20 May 2024 - Sean Felton  
**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: