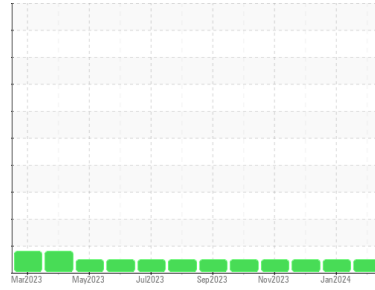




OIL ANALYSIS REPORT

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	WC0874745	WC0859837	WC0845904
Sample Date	Client Info	19 Mar 2024	21 Jan 2024	23 Dec 2023
Machine Age	hrs Client Info	18835	17881	17469
Oil Age	hrs Client Info	0	0	0
Oil Changed	Client Info	Not Chngd	Not Chngd	N/A
Sample Status		NORMAL	NORMAL	NORMAL

CONTAMINATION

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

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >50	69	36	35
Chromium	ppm ASTM D5185m >4	2	1	1
Nickel	ppm ASTM D5185m >2	1	1	<1
Titanium	ppm ASTM D5185m	<1	<1	<1
Silver	ppm ASTM D5185m >5	<1	<1	0
Aluminum	ppm ASTM D5185m >12	3	3	2
Lead	ppm ASTM D5185m >17	27	25	23
Copper	ppm ASTM D5185m >70	15	8	7
Tin	ppm ASTM D5185m >15	1	1	<1
Vanadium	ppm ASTM D5185m	<1	<1	0
Cadmium	ppm ASTM D5185m	<1	<1	<1

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 250	17	27	25
Barium	ppm ASTM D5185m 10	0	0	2
Molybdenum	ppm ASTM D5185m 100	85	76	77
Manganese	ppm ASTM D5185m	1	2	<1
Magnesium	ppm ASTM D5185m 450	1403	1273	1263
Calcium	ppm ASTM D5185m 3000	1410	1177	1229
Phosphorus	ppm ASTM D5185m 1150	1074	881	922
Zinc	ppm ASTM D5185m 1350	1299	1158	1133
Sulfur	ppm ASTM D5185m 4250	3310	2776	3269

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	7	5	5
Sodium	ppm ASTM D5185m >158	10	6	4
Potassium	ppm ASTM D5185m >20	3	5	2
Water	% ASTM D6304 >0.1	NEG	NEG	NEG

INFRA-RED

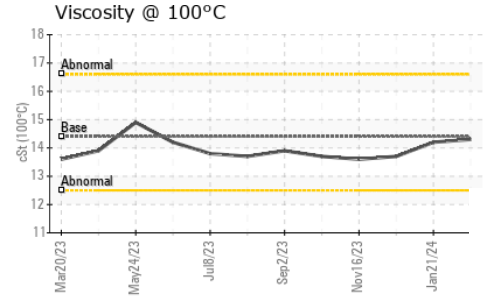
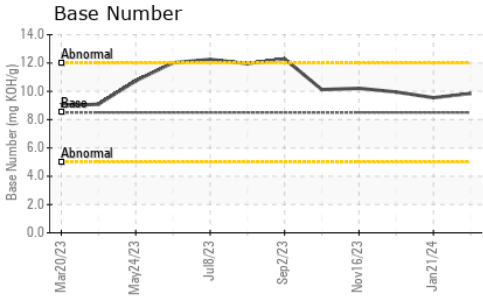
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844	1	0.6	0.6
Nitration	Abs/cm *ASTM D7624 >20	13.0	10.5	10.9
Sulfation	Abs/.1mm *ASTM D7415 >30	26.5	23.3	23.0

FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	25.0	20.8	20.9
Base Number (BN)	mg KOH/g ASTM D2896 8.5	9.85	9.55	9.95



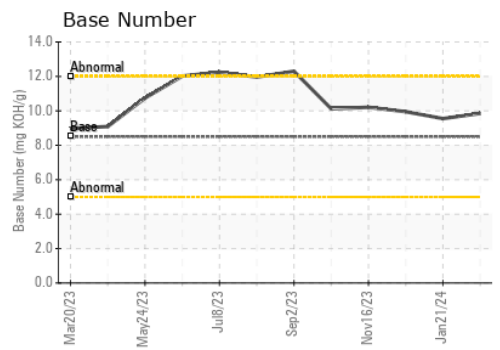
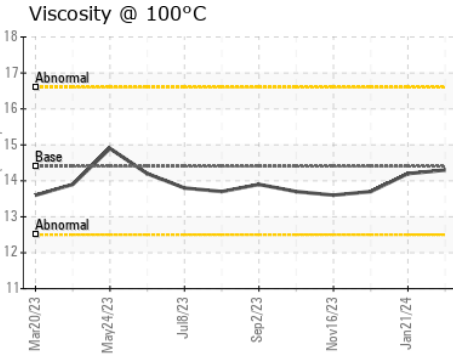
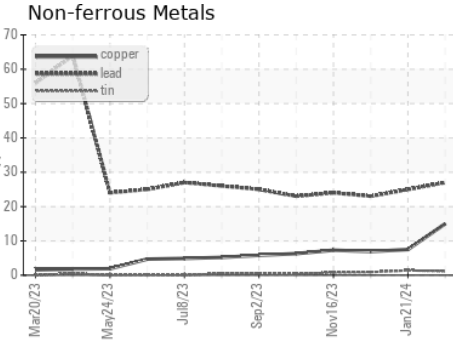
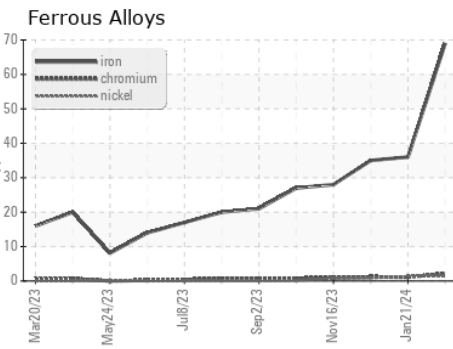
OIL ANALYSIS REPORT



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	14.4	14.3	14.2	13.7

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0874745 **Received** : 27 Mar 2024
Lab Number : **06130854** **Tested** : 01 Apr 2024
Unique Number : 10950319 **Diagnosed** : 01 Apr 2024 - Jonathan Hester
Test Package : IND 2 (Additional Tests: KF)

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 US 41169
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 cagumbert@marathonpetroleum.com
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Certificate L2367
 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)