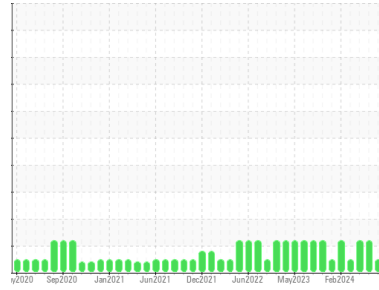




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area

Canton

Machine Id

[Canton] Oil - Starboard Genset

Component

Starboard Genset

Fluid

MARATHON 15W40 (35 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. 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	WC0874578	WC0874842	WC0805422	
Sample Date	Client Info	18 Jun 2024	22 Apr 2024	28 Mar 2024	
Machine Age	hrs	Client Info	0	0	17688
Oil Age	hrs	Client Info	0	0	2242
Oil Changed	Client Info	N/A	N/A	Oil Added	
Sample Status		NORMAL	ABNORMAL	ABNORMAL	

CONTAMINATION

method	limit/base	current	history1	history2
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

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

ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	125	128	153
Barium	ppm	ASTM D5185m	0	<1	0
Molybdenum	ppm	ASTM D5185m	84	103	104
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m	654	626	637
Calcium	ppm	ASTM D5185m	1516	1339	1325
Phosphorus	ppm	ASTM D5185m	779	722	688
Zinc	ppm	ASTM D5185m	916	853	830
Sulfur	ppm	ASTM D5185m	3223	2774	2934

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >25	6	5	5
Sodium	ppm	ASTM D5185m	5	5	4
Potassium	ppm	ASTM D5185m >20	2	2	2
Fuel	%	ASTM D3524 >4.0	2.1	▲ 4.3	▲ 5.1
Water	%	ASTM D6304 >0.1	NEG	NEG	NEG

INFRA-RED

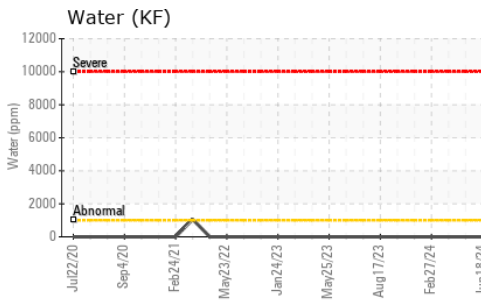
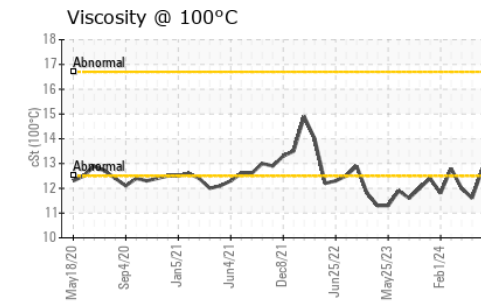
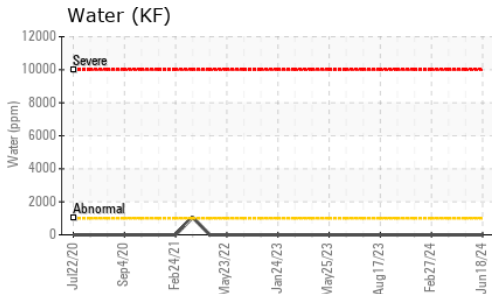
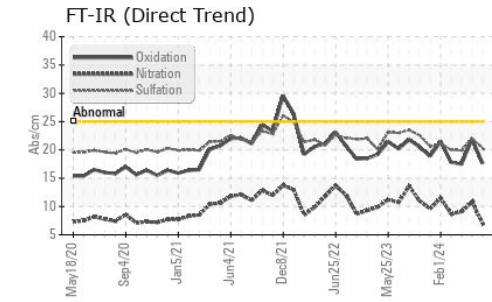
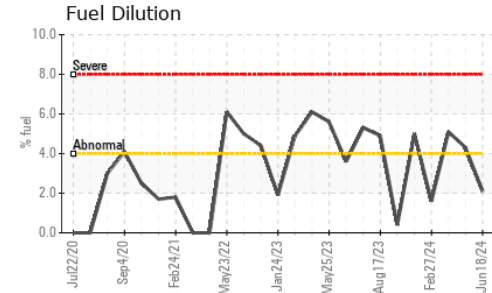
method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	0.1	0.2	0.1
Nitration	Abs/cm	*ASTM D7624 >20	7.0	10.8	9.1
Sulfation	Abs/.1mm	*ASTM D7415 >30	20.3	22.0	19.9

FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	17.6	21.9	17.5
Base Number (BN)	mg KOH/g	ASTM D2896	9.70	9.56	9.41



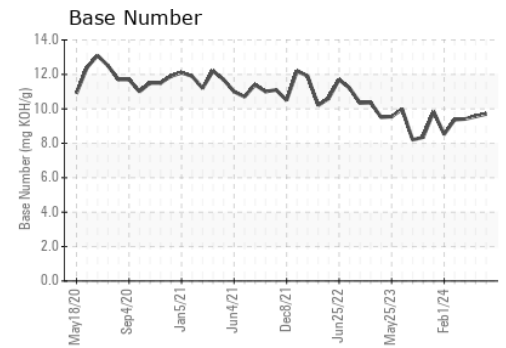
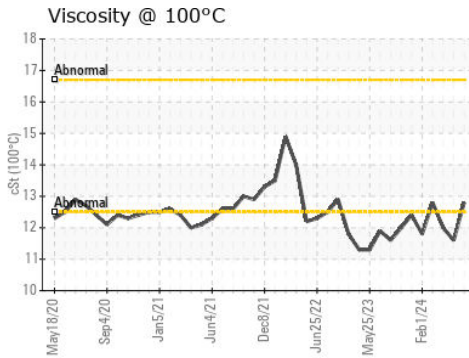
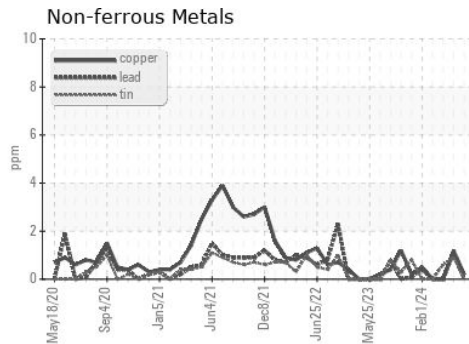
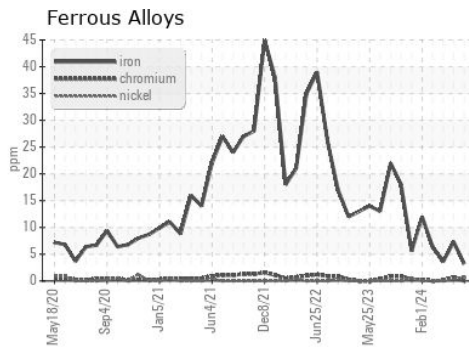
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	*Visual	NONE	NONE	LIGHT	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.8	▲ 11.6	▲ 12.0

GRAPHS



Certificate L2367

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

Sample No. : WC0874578

Lab Number : 06219924

Unique Number : 11098121

Test Package : IND 2 (Additional Tests: KF, PercentFuel)

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)

Received : 25 Jun 2024

Tested : 27 Jun 2024

Diagnosed : 27 Jun 2024 - Angela Borella

MARATHON PETROLEUM CO.

101 12TH ST

CATLETTSBURG, KY

US 41169

Contact: M/V CANTON

mvcanton@marathonpetroleum.com

T:

F: