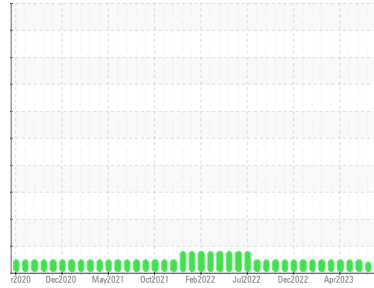




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
Findlay
 Machine Id
[Findlay] 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

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			WC0769017	WC0769466	WC0769464
Sample Date	Client Info			09 Aug 2023	15 Jul 2023	15 Jun 2023
Machine Age	hrs	Client Info		7115	6586	6340
Oil Age	hrs	Client Info		273	2964	2718
Oil Changed	Client Info			Filtered	Oil Added	Filtered
Sample Status				NORMAL	ATTENTION	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	>25	11	25	23
Chromium	ppm	ASTM D5185m	>5	<1	<1	1
Nickel	ppm	ASTM D5185m	>5	0	0	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>5	<1	0	<1
Aluminum	ppm	ASTM D5185m	>10	2	0	<1
Lead	ppm	ASTM D5185m	>10	<1	2	3
Copper	ppm	ASTM D5185m	>20	6	15	14
Tin	ppm	ASTM D5185m	>5	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		41	54	54
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		47	51	48
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		1118	982	954
Calcium	ppm	ASTM D5185m		1495	1855	1791
Phosphorus	ppm	ASTM D5185m		1040	1062	1075
Zinc	ppm	ASTM D5185m		1301	1320	1389
Sulfur	ppm	ASTM D5185m		3940	3770	4033

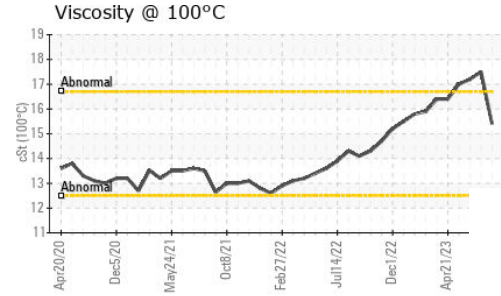
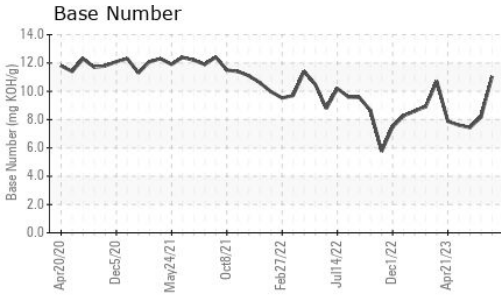
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	4	5	7
Sodium	ppm	ASTM D5185m		2	9	8
Potassium	ppm	ASTM D5185m	>20	2	4	7

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		0.2	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	11.6	16.9	16.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.0	29.3	29.7

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	24.5	37.1	37.9
Base Number (BN)	mg KOH/g	ASTM D2896		11.05	8.18	7.44



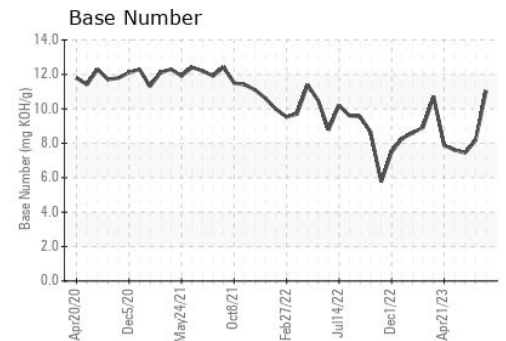
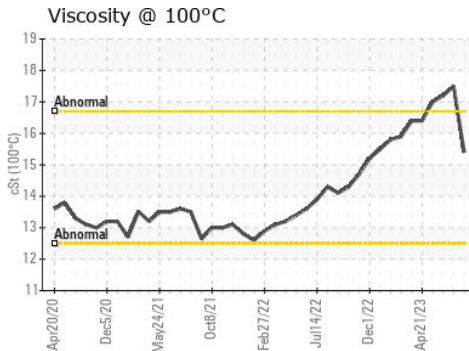
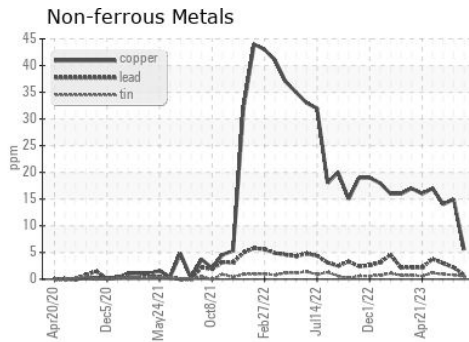
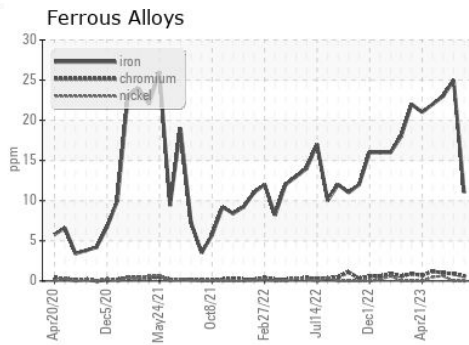
OIL ANALYSIS REPORT



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	15.4	▲ 17.5	17.2

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : WC0769017
 Lab Number : 05927450
 Unique Number : 10607397
 Test Package : IND 2

Received : 17 Aug 2023
 Diagnosed : 18 Aug 2023
 Diagnostician : Angela Borella

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

Contact: SHAWN MCCLASKEY
 stmcclasskey@marathonpetroleum.com

T: (606)739-2416

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)