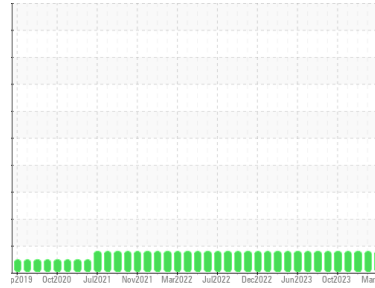




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Area

Patoka

Machine Id

[Patoka] Oil - Starboard Reduction Gear

Component

Starboard Reduction Gear

Fluid

{not provided} (35 GAL)

DIAGNOSIS

▲ Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor. (Customer Sample Comment: J. Harvey)

▲ Wear

The copper level is abnormal. All other component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0860088	WC0805574	WC0859904
Sample Date	Client Info		09 Mar 2024	26 Feb 2024	13 Jan 2024
Machine Age	hrs	Client Info	43662	0	42510
Oil Age	hrs	Client Info	9852	0	8796
Oil Changed		Client Info	N/A	N/A	N/A
Sample Status			ABNORMAL	ABNORMAL	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >150	11	10	10
Chromium	ppm	ASTM D5185m >10	0	0	0
Nickel	ppm	ASTM D5185m >10	0	0	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m	0	0	0
Aluminum	ppm	ASTM D5185m >25	1	<1	<1
Lead	ppm	ASTM D5185m >100	0	1	4
Copper	ppm	ASTM D5185m >50	▲ 320	▲ 279	▲ 263
Tin	ppm	ASTM D5185m >10	0	0	<1
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	17	14	15
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	51	47	48
Manganese	ppm	ASTM D5185m	0	0	<1
Magnesium	ppm	ASTM D5185m	593	591	603
Calcium	ppm	ASTM D5185m	1094	1123	1104
Phosphorus	ppm	ASTM D5185m	820	817	858
Zinc	ppm	ASTM D5185m	944	915	979
Sulfur	ppm	ASTM D5185m	2805	2713	2952

CONTAMINANTS

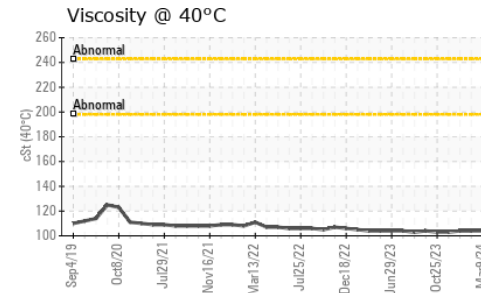
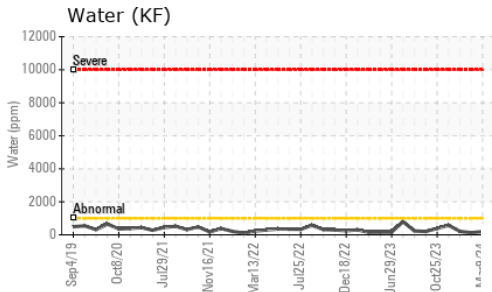
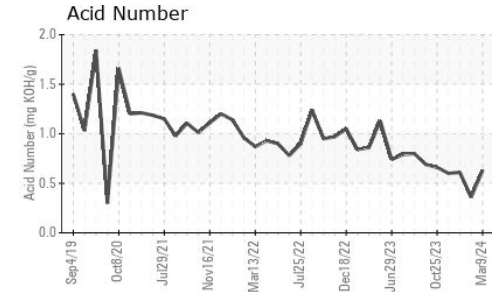
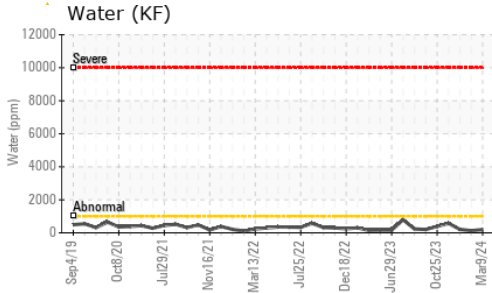
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	3	2	3
Sodium	ppm	ASTM D5185m	3	4	3
Potassium	ppm	ASTM D5185m >20	2	0	1
Water	%	ASTM D6304 >0.1	0.019	0.012	0.020
ppm Water	ppm	ASTM D6304 >1000	200	128	208

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.63	0.36	0.61



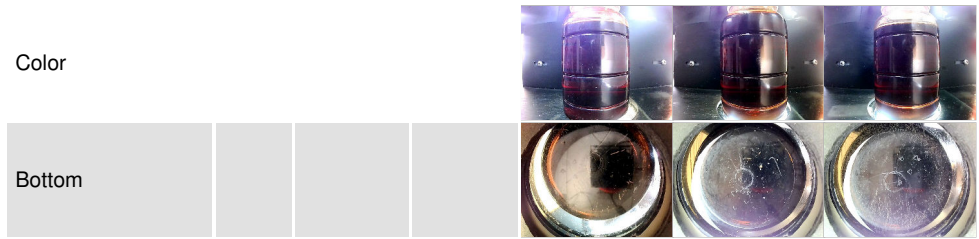
OIL ANALYSIS REPORT



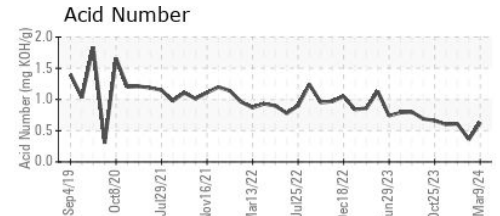
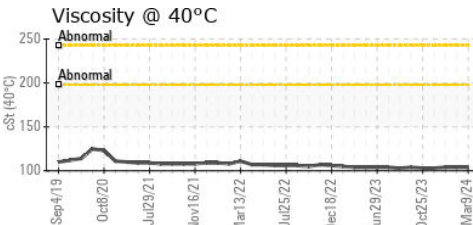
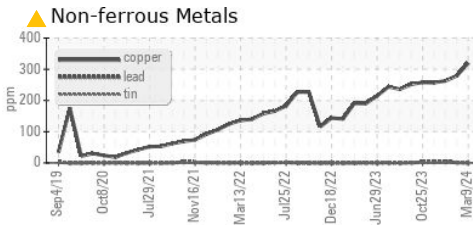
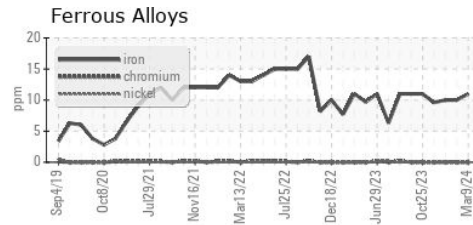
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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 @ 40°C	cSt	ASTM D445	104	104	104

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : WC0860088 Received : 27 Mar 2024
 Lab Number : 06130701 Tested : 28 Mar 2024
 Unique Number : 10950166 Diagnosed : 30 Mar 2024 - Don Baldrige
 Test Package : IND 2 (Additional Tests: KF)

MARATHON PETROLEUM CO.
 101 12TH ST
 CATLETTSBURG, KY
 US 41169
 Contact: CORY GUMBERT
 cagumbert@marathonpetroleum.com
 T: (606)585-3950
 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)