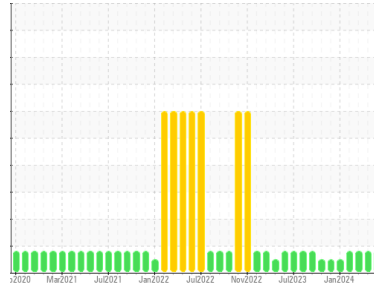




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Area

Map Runner

Machine Id

[Map Runner] Oil - Starboard Reduction Gear

Component

Starboard Reduction Gear

Fluid

SAE 30W (10 GAL)

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

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		WC0805471	WC0874625	WC0859924
Sample Date	Client Info		28 May 2024	22 Apr 2024	20 Mar 2024
Machine Age	hrs	Client Info	0	22960	22306
Oil Age	hrs	Client Info	0	529	1720
Oil Changed	Client Info		Changed	Not Changd	Changed
Sample Status			ABNORMAL	ABNORMAL	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >150	9	7	8
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	2	2	2
Lead	ppm	ASTM D5185m >100	2	2	0
Copper	ppm	ASTM D5185m >50	▲ 190	▲ 147	▲ 98
Tin	ppm	ASTM D5185m >10	1	<1	<1
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	0
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	43	44	45
Manganese	ppm	ASTM D5185m	<1	0	0
Magnesium	ppm	ASTM D5185m	750	772	747
Calcium	ppm	ASTM D5185m	794	807	833
Phosphorus	ppm	ASTM D5185m	793	811	800
Zinc	ppm	ASTM D5185m	861	887	909
Sulfur	ppm	ASTM D5185m	2627	2735	2382

CONTAMINANTS

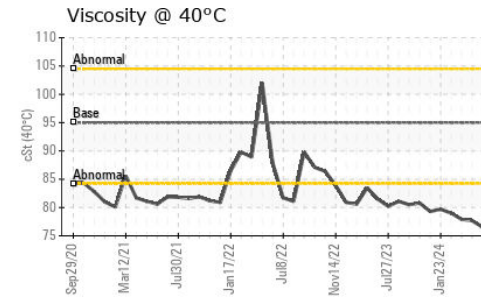
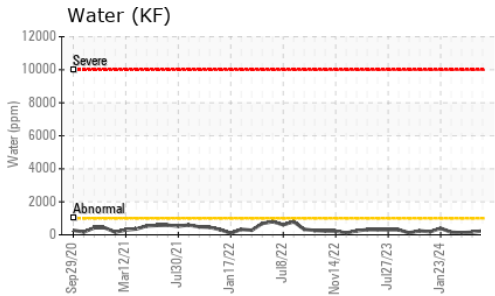
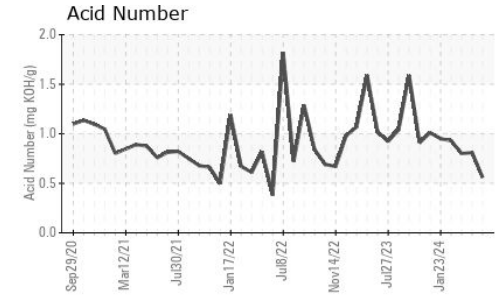
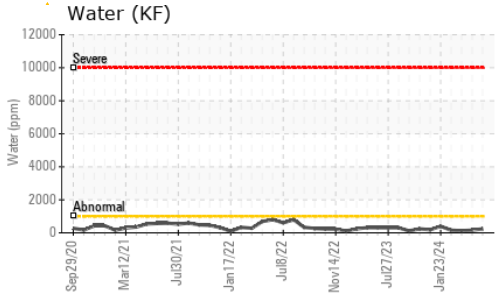
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	2	2	2
Sodium	ppm	ASTM D5185m	2	2	<1
Potassium	ppm	ASTM D5185m >20	0	0	2
Water	%	ASTM D6304 >0.1	0.024	0.015	0.012
ppm Water	ppm	ASTM D6304 >1000	243	159	129

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.56	0.81	0.80



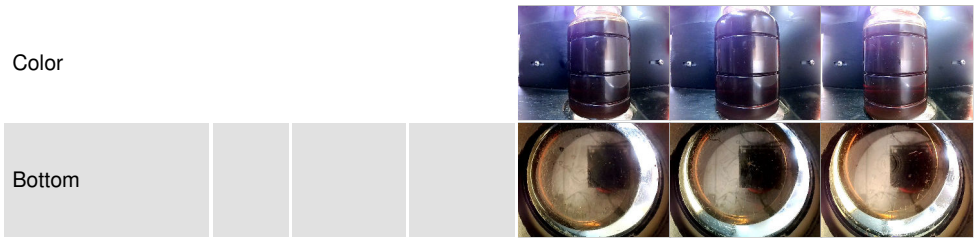
OIL ANALYSIS REPORT



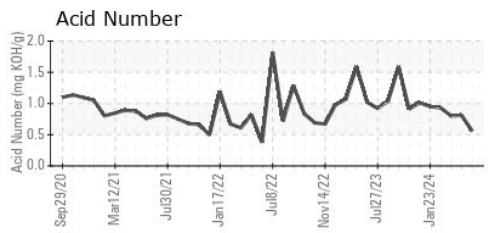
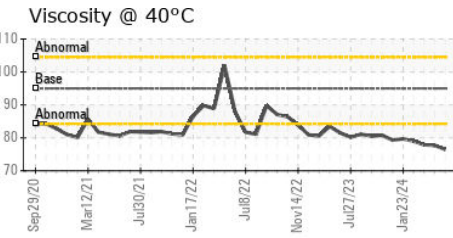
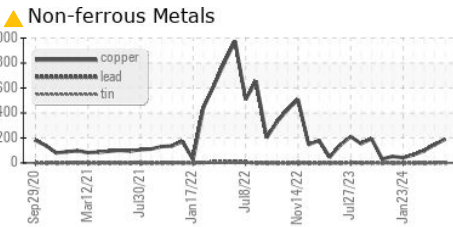
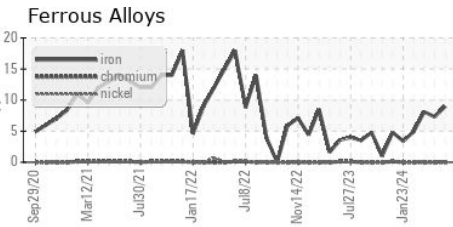
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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	95.0	76.5	77.7

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0805471 **Received** : 07 Jun 2024
Lab Number : 06202859 **Tested** : 10 Jun 2024
Unique Number : 11070320 **Diagnosed** : 10 Jun 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

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)