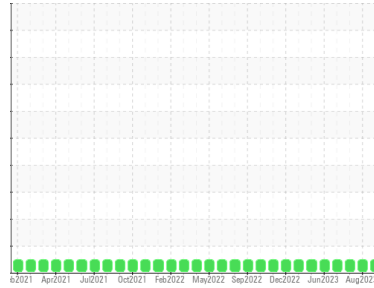




OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Area
Tri State
 Machine Id
[Tri State] Oil - Starboard Reduction Gear
 Component
Starboard Reduction Gear
 Fluid
DIESEL ENGINE OIL SAE 40 (8 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

The water content is negligible. 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		WC0846094	WC0805269	WC0769163
Sample Date	Client Info		30 Oct 2023	30 Aug 2023	27 Jul 2023
Machine Age	hrs	Client Info	19493	18404	0
Oil Age	hrs	Client Info	1812	723	4440
Oil Changed		Client Info	Changed	Oil Added	Changed
Sample Status			NORMAL	NORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >150	3	5	8
Chromium	ppm	ASTM D5185m >10	0	<1	<1
Nickel	ppm	ASTM D5185m >10	0	0	0
Titanium	ppm	ASTM D5185m	<1	2	4
Silver	ppm	ASTM D5185m	0	0	0
Aluminum	ppm	ASTM D5185m >25	0	<1	0
Lead	ppm	ASTM D5185m >100	0	0	<1
Copper	ppm	ASTM D5185m >50	1	1	2
Tin	ppm	ASTM D5185m >10	0	0	0
Vanadium	ppm	ASTM D5185m	0	0	<1
Cadmium	ppm	ASTM D5185m	0	0	<1

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 250	5	5	10
Barium	ppm	ASTM D5185m 10	0	0	0
Molybdenum	ppm	ASTM D5185m 100	38	37	34
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m 450	625	653	567
Calcium	ppm	ASTM D5185m 3000	858	975	1308
Phosphorus	ppm	ASTM D5185m 1150	800	838	817
Zinc	ppm	ASTM D5185m 1350	879	1003	954
Sulfur	ppm	ASTM D5185m 4250	2374	3171	3357

CONTAMINANTS

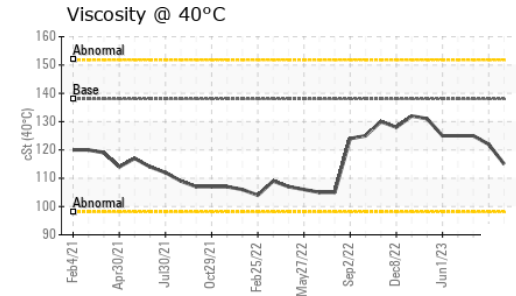
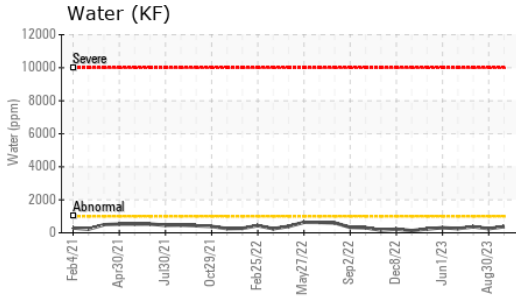
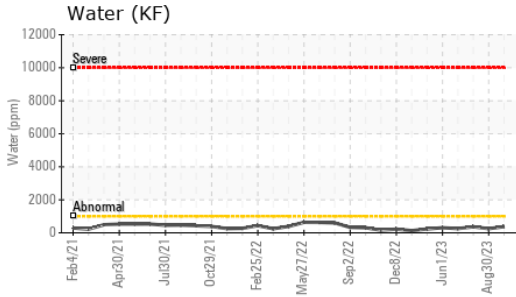
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	2	2	2
Sodium	ppm	ASTM D5185m >216	2	3	3
Potassium	ppm	ASTM D5185m >20	2	<1	2
Water	%	ASTM D6304 >0.1	0.037	0.025	0.036
ppm Water	ppm	ASTM D6304 >1000	375.0	251.2	365.3

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.91	1.24	1.16



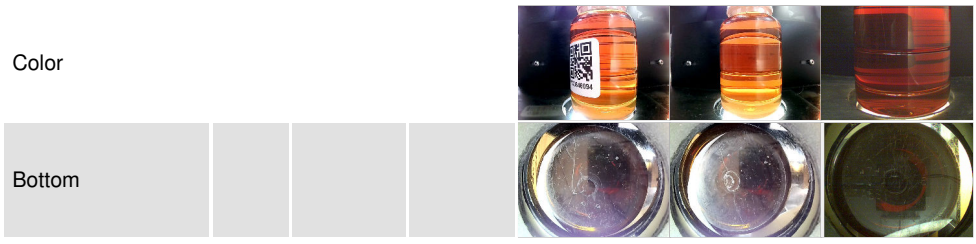
OIL ANALYSIS REPORT



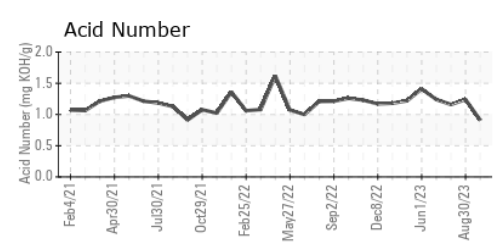
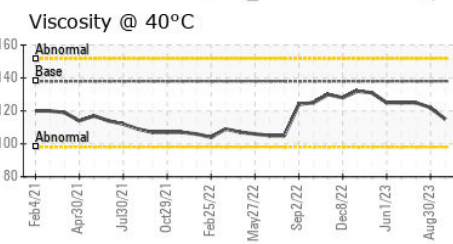
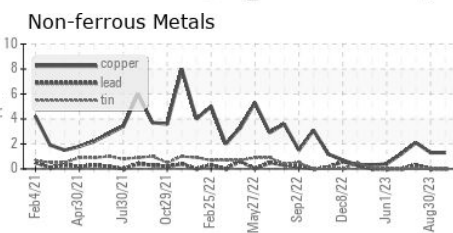
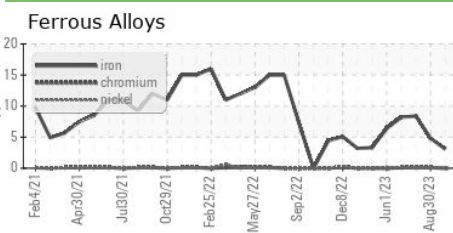
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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 138	115	122	125

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0846094 **Received** : 01 Nov 2023
Lab Number : 05995693 **Diagnosed** : 02 Nov 2023
Unique Number : 10724053 **Diagnostician** : Wes Davis
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:

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)