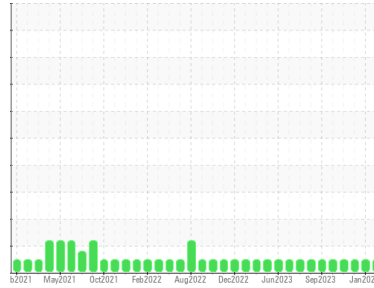




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
Tri State
 Machine Id
[Tri State] Oil - Port Main Engine
 Component
Port Main Engine
 Fluid
DIESEL ENGINE OIL SAE 15W40 (37 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	WC0859917	WC0845752	WC0769589
Sample Date	Client Info	26 Feb 2024	26 Jan 2024	22 Dec 2023
Machine Age	hrs	21950	21268	20619
Oil Age	hrs	663	561	1119
Oil Changed	Client Info	Changed	Oil Added	Changed
Sample Status		NORMAL	NORMAL	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 >75	4	3	0
Chromium	ppm	ASTM D5185m >8	0	<1	1
Nickel	ppm	ASTM D5185m >2	0	0	0
Titanium	ppm	ASTM D5185m >3	0	<1	0
Silver	ppm	ASTM D5185m >2	0	0	0
Aluminum	ppm	ASTM D5185m >15	0	<1	2
Lead	ppm	ASTM D5185m >18	0	<1	0
Copper	ppm	ASTM D5185m >80	2	2	0
Tin	ppm	ASTM D5185m >14	0	0	0
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 250	7	8	5
Barium	ppm	ASTM D5185m 10	0	0	4
Molybdenum	ppm	ASTM D5185m 100	57	60	65
Manganese	ppm	ASTM D5185m	0	<1	0
Magnesium	ppm	ASTM D5185m 450	1474	1463	1414
Calcium	ppm	ASTM D5185m 3000	1139	1111	1133
Phosphorus	ppm	ASTM D5185m 1150	946	1076	1073
Zinc	ppm	ASTM D5185m 1350	1228	1291	1247
Sulfur	ppm	ASTM D5185m 4250	3703	3513	3837

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >20	2	3	0
Sodium	ppm	ASTM D5185m >158	0	1	0
Potassium	ppm	ASTM D5185m >20	0	0	0
Water	%	ASTM D6304 >0.1	NEG	NEG	NEG

INFRA-RED

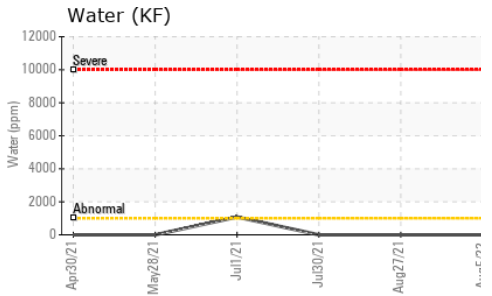
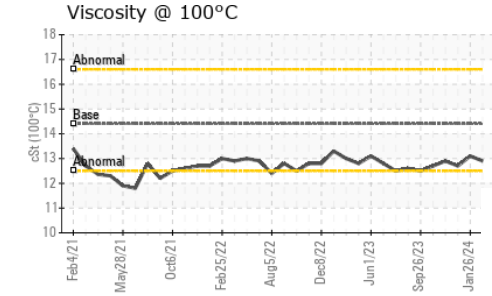
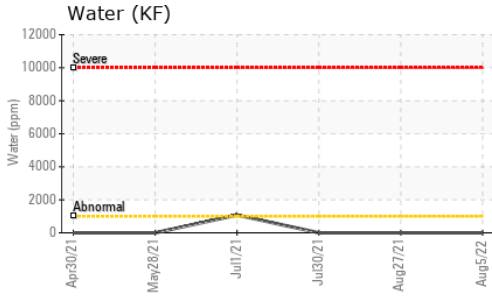
method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624 >20	10.5	8.4	10.2
Sulfation	Abs/.1mm	*ASTM D7415 >30	21.5	20.6	21.4

FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	20.6	17.8	20.2
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	11.86	12.54	12.64



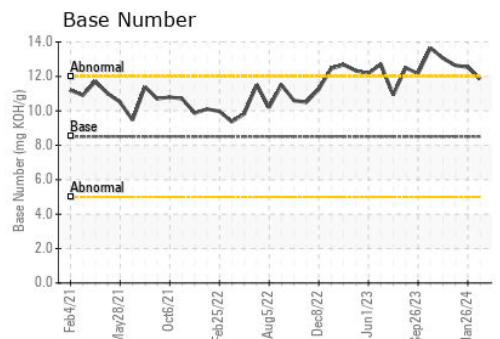
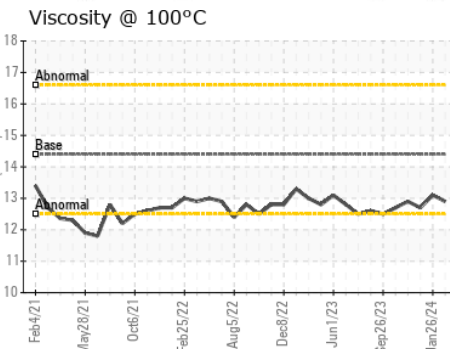
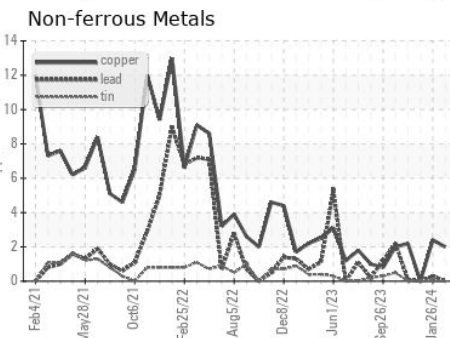
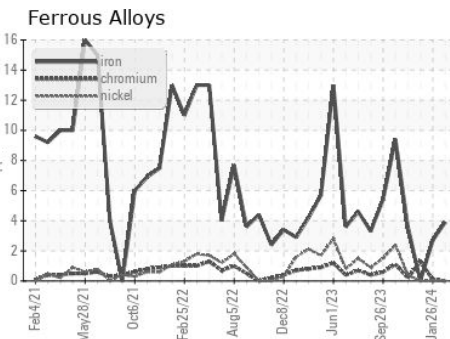
OIL ANALYSIS REPORT



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	14.4	12.9	13.1

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : WC0859917
 Lab Number : 06122619
 Unique Number : 10936770
 Test Package : IND 2 (Additional Tests: KF)

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 CATLETTSBURG, KY
 US 41169
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 cagumbert@marathonpetroleum.com
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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)