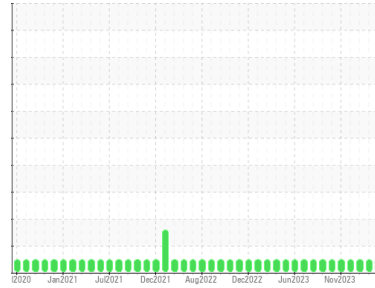




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
Kentucky
Machine Id
[Kentucky] Oil - Port Main Engine
Component
Port Main Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (216 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Top Up Amount: 28 GAL. Tyson Bias)

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	WC0874827	WC0859784	WC0859932
Sample Date	Client Info	16 Mar 2024	16 Feb 2024	20 Jan 2024
Machine Age	hrs	13560	12942	12457
Oil Age	hrs	1453	1171	350
Oil Changed	Client Info	Oil Added	N/A	Not Changd
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	8	5	4
Chromium	ppm	ASTM D5185m >8	<1	0	0
Nickel	ppm	ASTM D5185m >2	<1	0	<1
Titanium	ppm	ASTM D5185m >3	<1	0	0
Silver	ppm	ASTM D5185m >2	<1	0	<1
Aluminum	ppm	ASTM D5185m >15	2	<1	2
Lead	ppm	ASTM D5185m >18	3	2	4
Copper	ppm	ASTM D5185m >80	5	2	4
Tin	ppm	ASTM D5185m >14	1	0	1
Vanadium	ppm	ASTM D5185m	<1	0	<1
Cadmium	ppm	ASTM D5185m	<1	0	<1

ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m 250	19	21	23
Barium	ppm	ASTM D5185m 10	0	0	0
Molybdenum	ppm	ASTM D5185m 100	59	54	54
Manganese	ppm	ASTM D5185m	<1	<1	2
Magnesium	ppm	ASTM D5185m 450	1117	1104	1007
Calcium	ppm	ASTM D5185m 3000	1345	1383	1240
Phosphorus	ppm	ASTM D5185m 1150	1096	988	998
Zinc	ppm	ASTM D5185m 1350	1299	1278	1239
Sulfur	ppm	ASTM D5185m 4250	3230	3213	2993

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >20	4	2	6
Sodium	ppm	ASTM D5185m >158	4	3	5
Potassium	ppm	ASTM D5185m >20	2	0	4
Water	%	ASTM D6304 >0.1	NEG	NEG	NEG

INFRA-RED

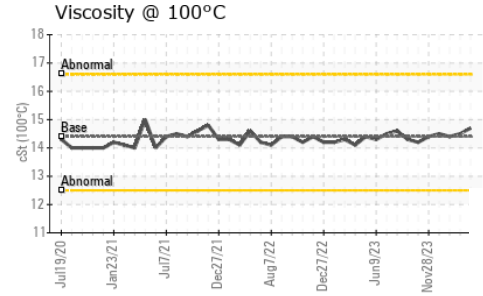
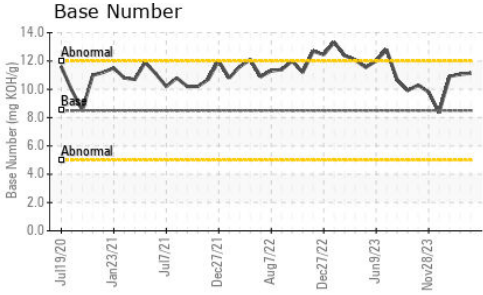
method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	0.2	0.1	0.1
Nitration	Abs/cm	*ASTM D7624 >20	10.1	9.1	8.3
Sulfation	Abs/.1mm	*ASTM D7415 >30	22.6	21.7	20.9

FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	21.6	19.1	18.0
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	11.14	11.06	10.92



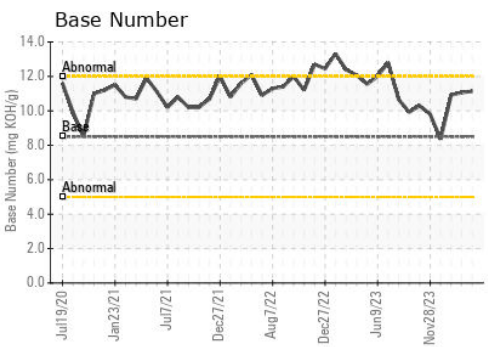
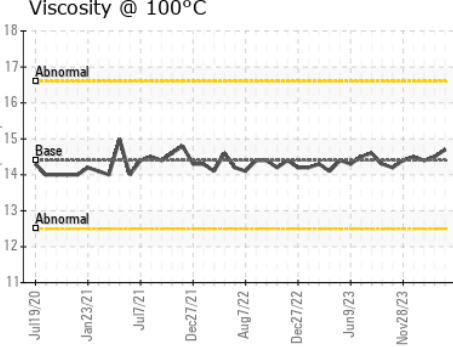
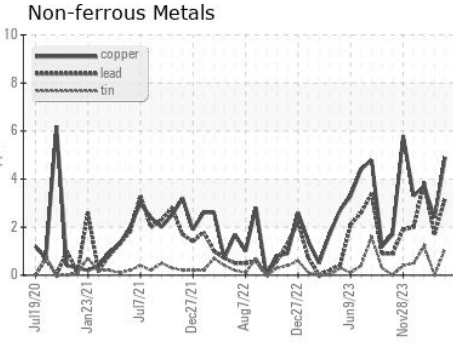
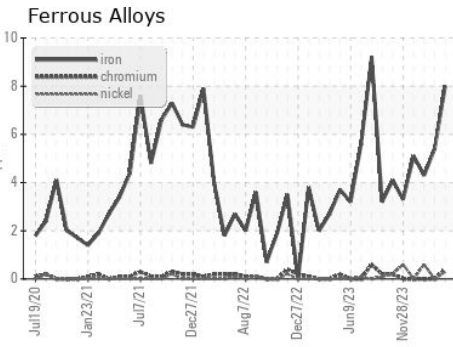
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	*Visual	NONE	MODER	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	14.4	14.7	14.5	14.4

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0874827 **Received** : 27 Mar 2024
Lab Number : **06130857** **Tested** : 01 Apr 2024
Unique Number : 10950322 **Diagnosed** : 01 Apr 2024 - Jonathan Hester
Test Package : IND 2 (Additional Tests: KF)

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 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)