



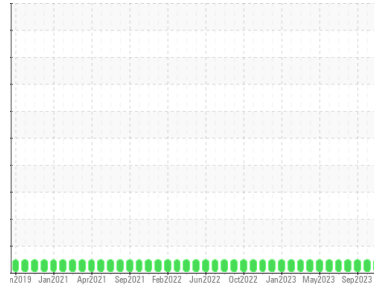
# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**Detroit**  
 Machine Id  
**[Detroit] Oil - Port Main Engine**  
 Component  
**Port Main Engine**  
 Fluid  
**MOBIL 15W40 (150 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			<b>WC0804901</b>	WC0769341	WC0769302
Sample Date	Client Info			<b>06 Nov 2023</b>	09 Oct 2023	11 Sep 2023
Machine Age	hrs Client Info			<b>16436</b>	15848	15322
Oil Age	hrs Client Info			<b>742</b>	7432	6906
Oil Changed	Client Info			<b>N/A</b>	Not Changd	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method		>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Glycol	WC Method			<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	<b>57</b>	61	63
Chromium	ppm	ASTM D5185m	>8	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m	>3	<b>0</b>	0	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	2	<1
Lead	ppm	ASTM D5185m	>18	<b>13</b>	14	13
Copper	ppm	ASTM D5185m	>80	<b>10</b>	11	11
Tin	ppm	ASTM D5185m	>14	<b>2</b>	2	2
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>57</b>	62	75
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>48</b>	55	56
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	1
Magnesium	ppm	ASTM D5185m		<b>824</b>	824	965
Calcium	ppm	ASTM D5185m		<b>1711</b>	1770	1843
Phosphorus	ppm	ASTM D5185m		<b>889</b>	968	1034
Zinc	ppm	ASTM D5185m		<b>1171</b>	1248	1382
Sulfur	ppm	ASTM D5185m		<b>2880</b>	3568	3244

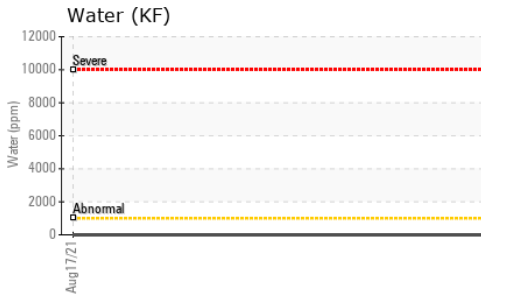
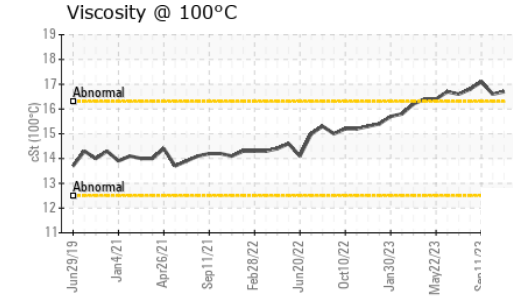
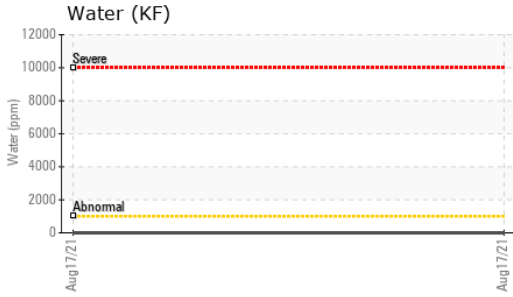
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	<b>3</b>	4	4
Sodium	ppm	ASTM D5185m	>118	<b>4</b>	4	4
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	3	2

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		<b>0.5</b>	0.4	0.5
Nitration	Abs/cm	*ASTM D7624	>20	<b>14.4</b>	13.5	14.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>29.4</b>	28.0	29.2

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>34.1</b>	31.9	34.1
Base Number (BN)	mg KOH/g	ASTM D2896		<b>11.12</b>	7.90	7.76



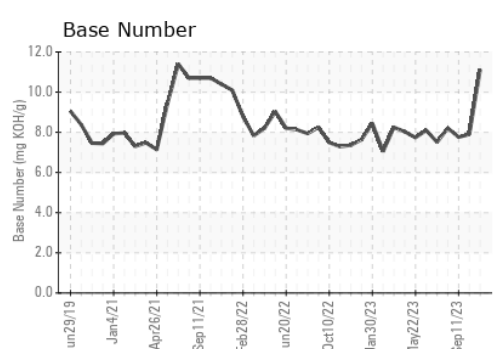
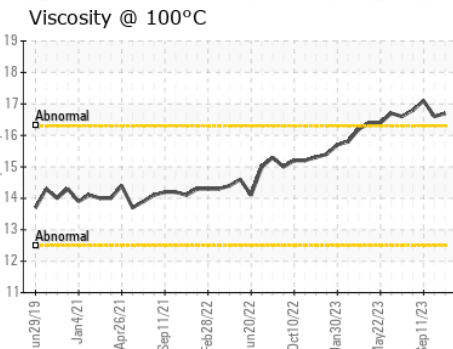
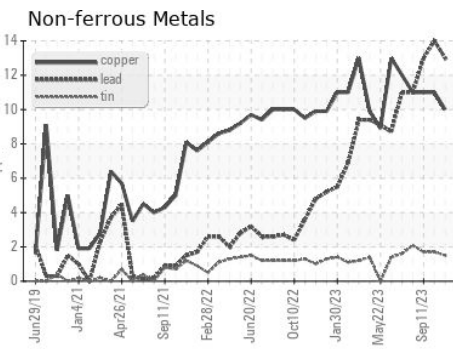
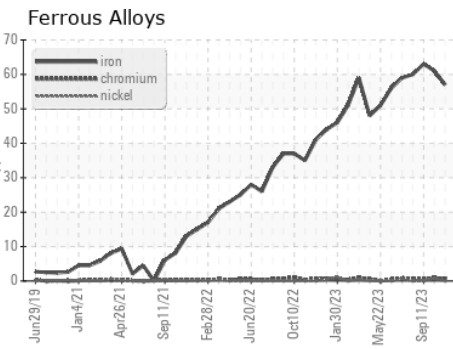
# OIL ANALYSIS REPORT



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	16.7	16.6	17.1

## GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : WC0804901  
 Lab Number : 06008539  
 Unique Number : 10742301  
 Test Package : IND 2 ( Additional Tests: KF )

**MARATHON PETROLEUM CO.**  
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 US 41169  
 Contact: CORY GUMBERT  
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 T: (606)585-3950  
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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)