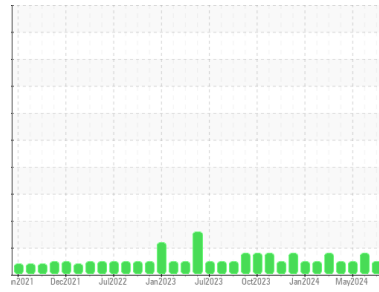




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**Martinsville**  
 Machine Id  
**[Martinsville] Hydraulic - Steering**  
 Component  
**Hydraulic System**  
 Fluid  
**AW HYDRAULIC OIL ISO 46 (35 GAL)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor. ( Customer Sample Comment: George Willis )

### Wear

All component wear rates are normal.

### Contamination

The amount and size of particulates present in the system are acceptable. 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			<b>WC0735272</b>	WC0845890	WC0845888
Sample Date	Client Info			<b>06 Jul 2024</b>	07 Jun 2024	11 May 2024
Machine Age	hrs	Client Info		<b>13696</b>	13260	14736
Oil Age	hrs	Client Info		<b>13696</b>	13260	14730
Oil Changed	Client Info			<b>Not Chngd</b>	Filtered	Not Chngd
Sample Status				<b>NORMAL</b>	ATTENTION	NORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	<b>6</b>	6	6
Chromium	ppm	ASTM D5185m	>20	<b>1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>2</b>	<1	0
Lead	ppm	ASTM D5185m	>20	<b>0</b>	0	<1
Copper	ppm	ASTM D5185m	>20	<b>22</b>	19	22
Tin	ppm	ASTM D5185m	>20	<b>0</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	5	<b>&lt;1</b>	2	0
Barium	ppm	ASTM D5185m	5	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	5	<b>&lt;1</b>	1	1
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	25	<b>8</b>	0	5
Calcium	ppm	ASTM D5185m	200	<b>56</b>	51	70
Phosphorus	ppm	ASTM D5185m	300	<b>248</b>	219	271
Zinc	ppm	ASTM D5185m	370	<b>274</b>	231	262
Sulfur	ppm	ASTM D5185m	2500	<b>1154</b>	1224	1443

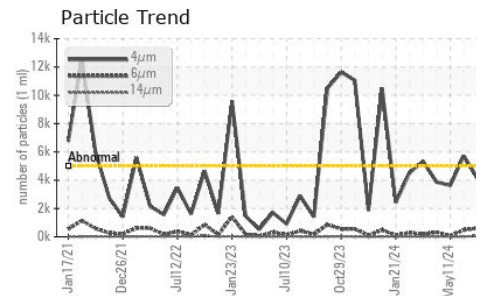
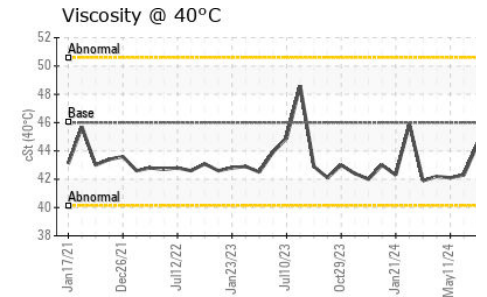
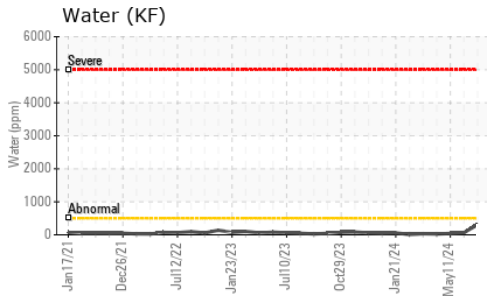
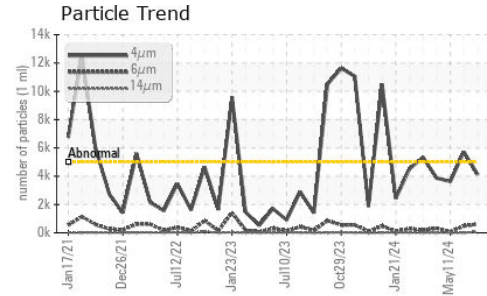
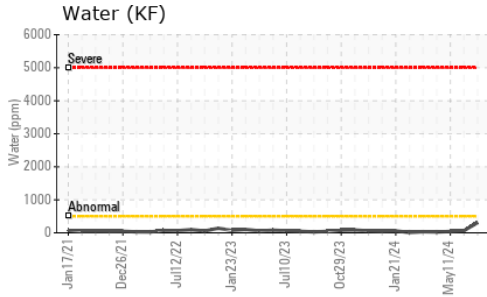
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>15	<b>&lt;1</b>	1	1
Sodium	ppm	ASTM D5185m		<b>0</b>	2	2
Potassium	ppm	ASTM D5185m	>20	<b>1</b>	3	0
Water	%	ASTM D6304	>0.05	<b>0.030</b>	0.006	0.004
ppm Water	ppm	ASTM D6304	>500	<b>310</b>	65	41

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	<b>4128</b>	5717	3630
Particles >6µm		ASTM D7647	>1300	<b>618</b>	475	72
Particles >14µm		ASTM D7647	>160	<b>57</b>	13	2
Particles >21µm		ASTM D7647	>40	<b>15</b>	0	0
Particles >38µm		ASTM D7647	>10	<b>1</b>	0	0
Particles >71µm		ASTM D7647	>3	<b>0</b>	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	<b>19/16/13</b>	20/16/11	19/13/9

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.57	<b>0.22</b>	0.21	0.21



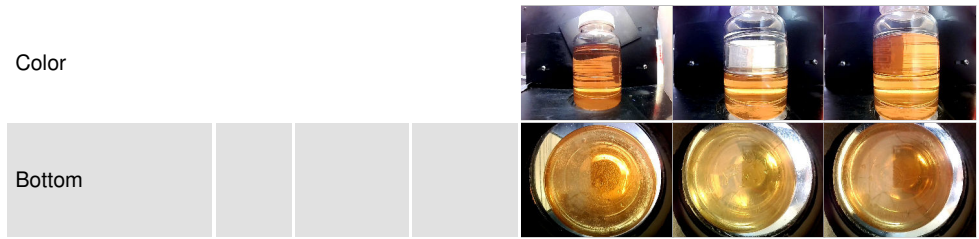
# OIL ANALYSIS REPORT



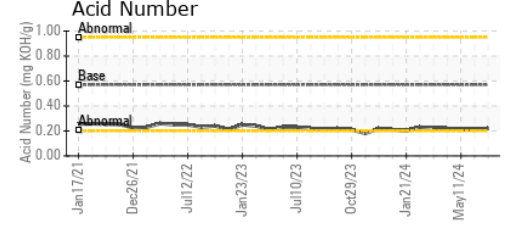
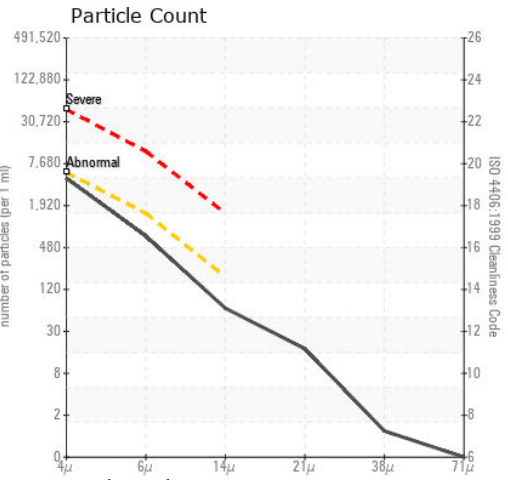
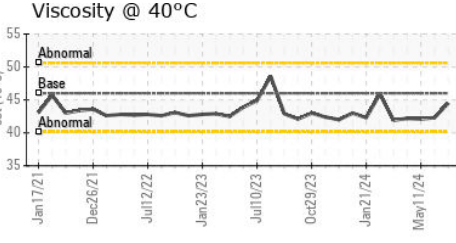
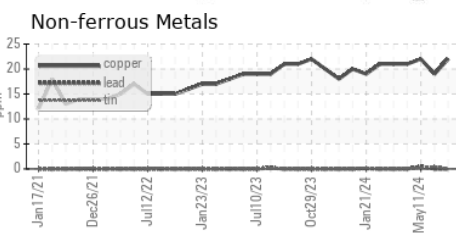
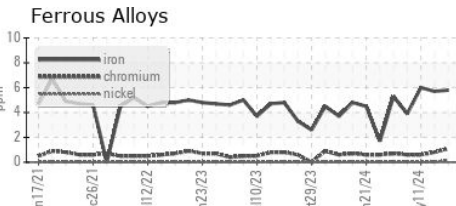
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445 46	44.5	42.3	42.1

SAMPLE IMAGES	method	limit/base	current	history1	history2
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## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0735272 **Received** : 15 Jul 2024  
**Lab Number** : 06235930 **Tested** : 16 Jul 2024  
**Unique Number** : 11124764 **Diagnosed** : 16 Jul 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)