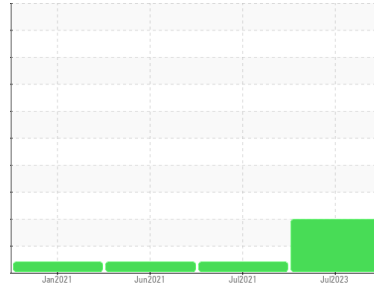




PROBLEM SUMMARY

Sample Rating Trend



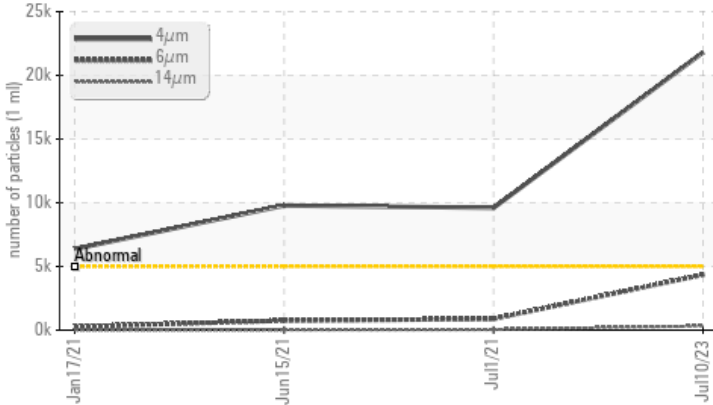
ISO



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

COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. Please specify the brand, type, and viscosity of the oil on your next sample.

PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	ATTENTION	ATTENTION
Particles >4µm	ASTM D7647	>5000	▲ 21800	▲ 9600	▲ 9780
Particles >6µm	ASTM D7647	>1300	▲ 4347	878	748
Particles >14µm	ASTM D7647	>160	▲ 322	45	26
Particles >21µm	ASTM D7647	>40	▲ 73	11	6
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 22/19/16	▲ 20/17/13	▲ 20/17/12

Customer Id: MARCAT
 Sample No.: WC0769444
 Lab Number: 05904339
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

To change component or sample information:
 Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Information Required	---	---	?	Please specify the brand, type, and viscosity of the oil on your next sample.

HISTORICAL DIAGNOSIS

01 Jul 2021 Diag: Jonathan Hester

ISO



No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. There is a moderate amount of silt (particulates < 6 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

[view report](#)



15 Jun 2021 Diag: Jonathan Hester

ISO



No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. There is a moderate amount of silt (particulates < 6 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

[view report](#)



17 Jan 2021 Diag: Doug Bogart

ISO



No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. There is a moderate amount of silt (particulates < 6 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

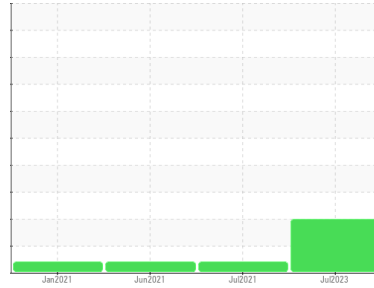
[view report](#)





OIL ANALYSIS REPORT

Sample Rating Trend



ISO



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

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible.

Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	WC0769444	RP0015042	RP0015054
Sample Date	Client Info	10 Jul 2023	01 Jul 2021	15 Jun 2021
Machine Age	hrs	Client Info	41191	0
Oil Age	hrs	Client Info	41191	0
Oil Changed	Client Info	N/A	N/A	Not Changd
Sample Status		ABNORMAL	ATTENTION	ATTENTION

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >20	4	5
Chromium	ppm	ASTM D5185m >20	<1	<1
Nickel	ppm	ASTM D5185m >20	0	0
Titanium	ppm	ASTM D5185m	<1	0
Silver	ppm	ASTM D5185m	0	<1
Aluminum	ppm	ASTM D5185m >20	<1	0
Lead	ppm	ASTM D5185m >20	0	<1
Copper	ppm	ASTM D5185m >20	19	14
Tin	ppm	ASTM D5185m >20	0	0
Antimony	ppm	ASTM D5185m	---	0
Vanadium	ppm	ASTM D5185m	<1	0
Cadmium	ppm	ASTM D5185m	0	<1

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 5	0	3
Barium	ppm	ASTM D5185m 5	0	0
Molybdenum	ppm	ASTM D5185m 5	<1	2
Manganese	ppm	ASTM D5185m	<1	0
Magnesium	ppm	ASTM D5185m 25	6	9
Calcium	ppm	ASTM D5185m 200	81	80
Phosphorus	ppm	ASTM D5185m 300	273	282
Zinc	ppm	ASTM D5185m 370	278	304
Sulfur	ppm	ASTM D5185m 2500	1526	1207

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >15	0	<1
Sodium	ppm	ASTM D5185m	3	1
Potassium	ppm	ASTM D5185m >20	0	0
Water	%	ASTM D6304 >0.05	0.009	0.005
ppm Water	ppm	ASTM D6304 >500	93.5	58.6

FLUID CLEANLINESS

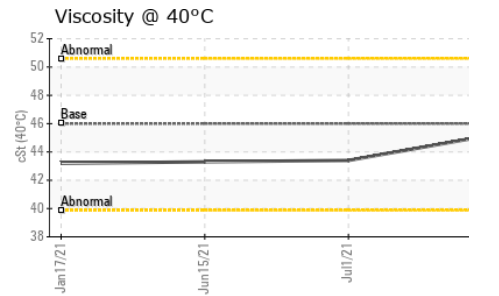
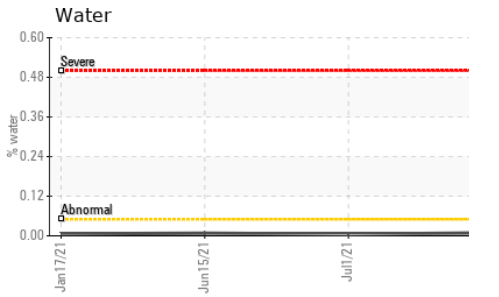
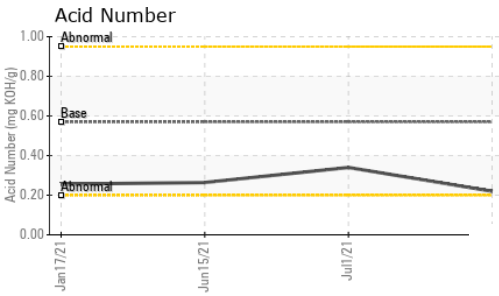
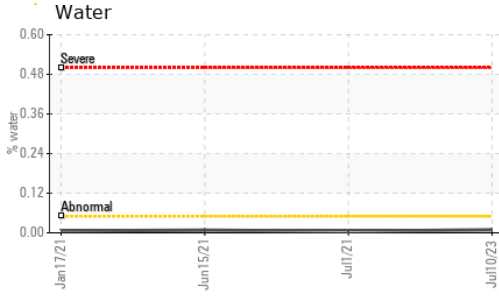
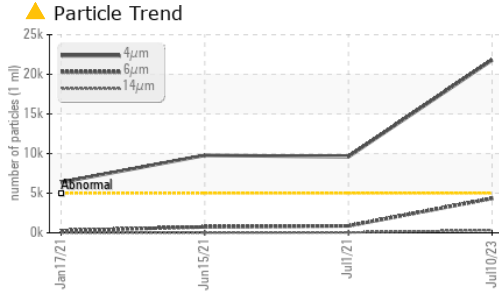
method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >5000	▲ 21800	▲ 9600	▲ 9780
Particles >6µm	ASTM D7647 >1300	▲ 4347	878	748
Particles >14µm	ASTM D7647 >160	▲ 322	45	26
Particles >21µm	ASTM D7647 >40	▲ 73	11	6
Particles >38µm	ASTM D7647 >10	2	0	0
Particles >71µm	ASTM D7647 >3	0	0	0
Oil Cleanliness	ISO 4406 (c) >19/17/14	▲ 22/19/16	▲ 20/17/13	▲ 20/17/12

FLUID DEGRADATION

method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045 0.57	0.22	0.340
				0.264



OIL ANALYSIS REPORT



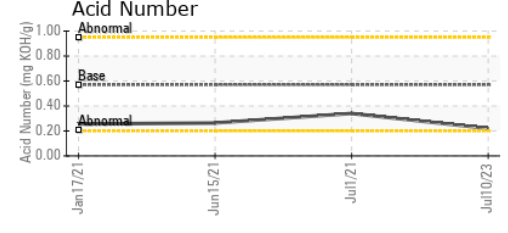
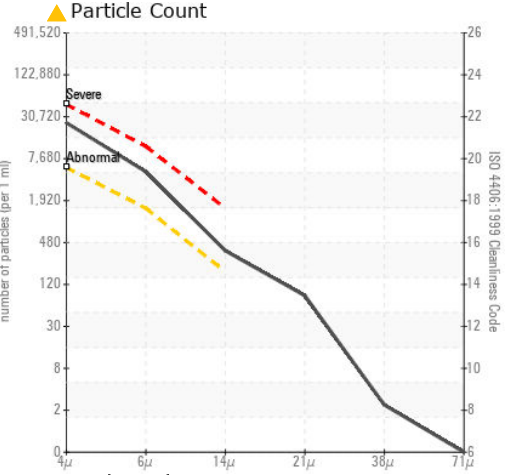
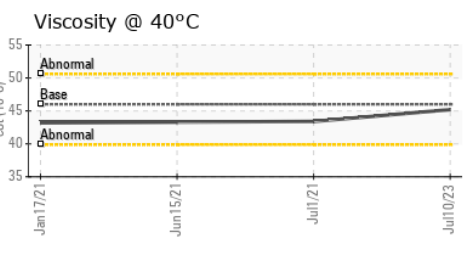
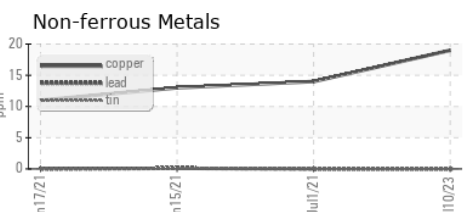
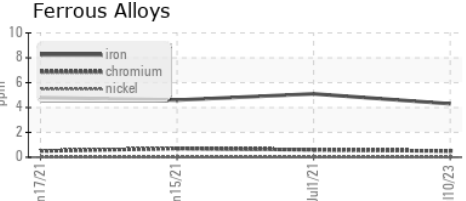
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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	45.2	43.4	43.3

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0769444 **Received** : 21 Jul 2023
Lab Number : 05904339 **Diagnosed** : 24 Jul 2023
Unique Number : 10565695 **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:

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)