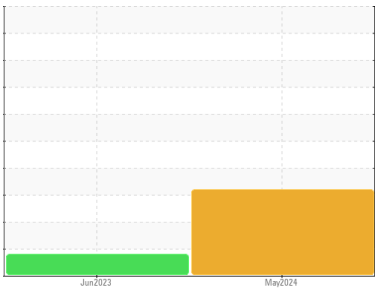
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Area
West Virginia
Machine Id
[West Virginia] Hydraulic - Steering
Component
Hydraulic System
Fluid
MARATHON R&O 32 (35 GAL)

DIAGNOSIS

Recommendation
Check seals and/or filters for points of contaminant entry. Resample at the next service interval to monitor.

Wear
The copper level is abnormal. All other component wear rates are normal.

Contamination
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Fluid Condition
The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0874855**	WC0769407	---
Sample Date		Client Info		**13 May 2024**	30 Jun 2023	---
Machine Age	hrs	Client Info		**0**	0	---
Oil Age	hrs	Client Info		**0**	0	---
Oil Changed		Client Info		**N/A**	N/A	---
Sample Status				**ABNORMAL**	ABNORMAL	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	**<1**	<1	---
Chromium	ppm	ASTM D5185m	>20	**0**	0	---
Nickel	ppm	ASTM D5185m	>20	**0**	0	---
Titanium	ppm	ASTM D5185m		**0**	0	---
Silver	ppm	ASTM D5185m		**<1**	0	---
Aluminum	ppm	ASTM D5185m	>20	**0**	0	---
Lead	ppm	ASTM D5185m	>20	**0**	0	---
Copper	ppm	ASTM D5185m	>20	▲ **59**	▲ 56	---
Tin	ppm	ASTM D5185m	>20	**0**	0	---
Vanadium	ppm	ASTM D5185m		**0**	0	---
Cadmium	ppm	ASTM D5185m		**0**	0	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	---
Barium	ppm	ASTM D5185m		**<1**	0	---
Molybdenum	ppm	ASTM D5185m		**0**	<1	---
Manganese	ppm	ASTM D5185m		**0**	0	---
Magnesium	ppm	ASTM D5185m		**0**	0	---
Calcium	ppm	ASTM D5185m		**45**	54	---
Phosphorus	ppm	ASTM D5185m		**255**	306	---
Zinc	ppm	ASTM D5185m		**312**	373	---
Sulfur	ppm	ASTM D5185m		**779**	952	---

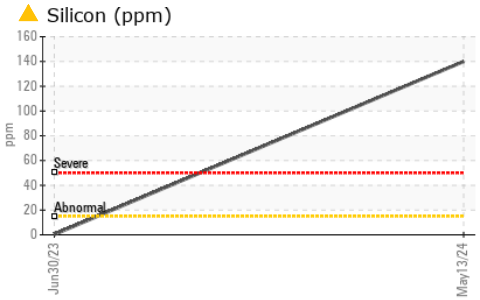
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>15	▲ **140**	<1	---
Sodium	ppm	ASTM D5185m		**2**	<1	---
Potassium	ppm	ASTM D5185m	>20	**0**	<1	---
Water	%	ASTM D6304	>0.05	**0.002**	0.002	---
ppm Water	ppm	ASTM D6304	>500	**16**	21.0	---

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	● **5508**	512	---
Particles >6µm		ASTM D7647	>1300	**614**	103	---
Particles >14µm		ASTM D7647	>160	**38**	20	---
Particles >21µm		ASTM D7647	>40	**10**	7	---
Particles >38µm		ASTM D7647	>10	**1**	0	---
Particles >71µm		ASTM D7647	>3	**0**	0	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	● **20/16/12**	16/14/11	---

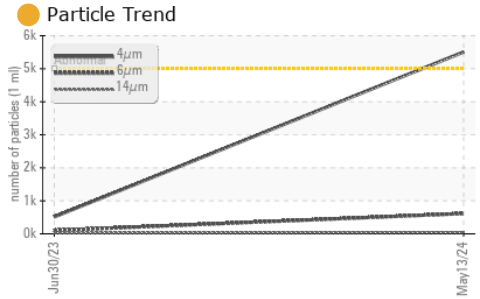
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.34**	0.33	---

OIL ANALYSIS REPORT

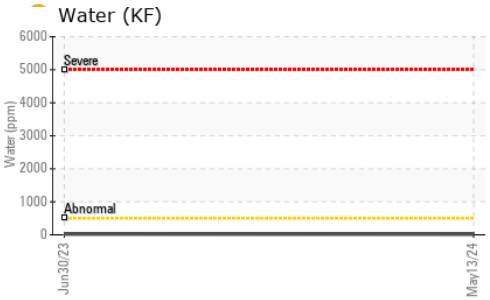
Silicon (ppm)



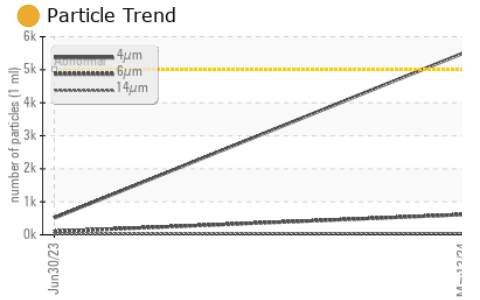
Particle Trend



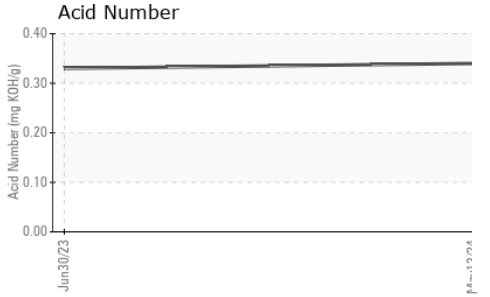
Water (KF)



Particle Trend

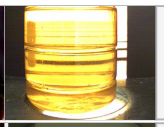
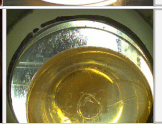


Acid Number



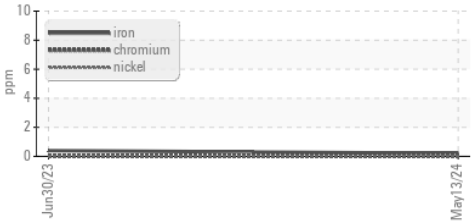
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	---
Silt	scalar	*Visual	NONE	**NONE**	NONE	---
Debris	scalar	*Visual	NONE	**LIGHT**	NONE	---
Sand/Dirt	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		**46.9**	46.5	---

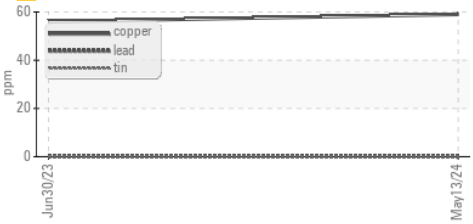
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					*no image*
Bottom					*no image*

GRAPHS

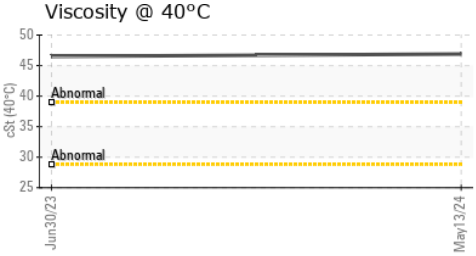
Ferrous Alloys



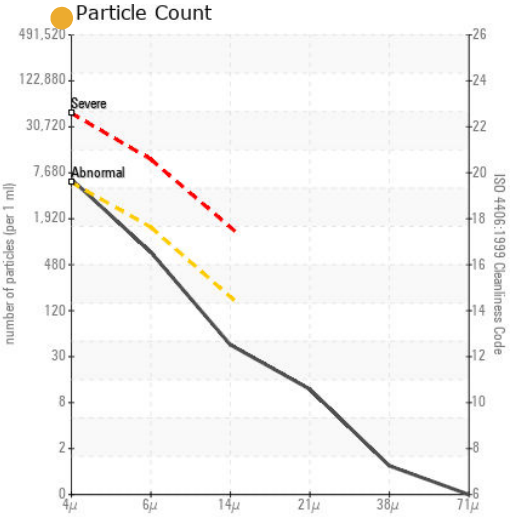
Non-ferrous Metals



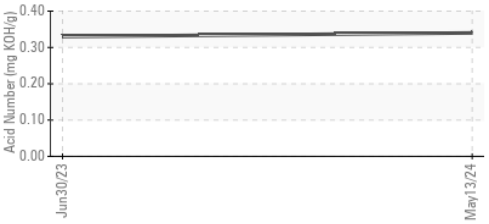
Viscosity @ 40°C



Particle Count



Acid Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0874855 **Received** : 16 May 2024
Lab Number : 06181327 **Tested** : 17 May 2024
Unique Number : 11032653 **Diagnosed** : 20 May 2024 - Angela Borella
Test Package : IND 2 (Additional Tests: KF)

Certificate L2367

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)

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Report Id: MARCAT [WUSCAR] 06181327 (Generated: 05/20/2024 10:10:57) Rev: 1

Submitted By: Barry Bridges