



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
JOHN DEERE 000478
 Component
Hydraulic System
 Fluid
JOHN DEERE ZINC-FREE HYDRAULIC OIL 46 (--- GAL)

RECOMMENDATION

No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0211352	JR0199073	JR0190340
Sample Date		Client Info		11 Apr 2024	17 Jan 2024	05 Oct 2023
Machine Age	hrs	Client Info		1970	1434	939
Oil Age	hrs	Client Info		1970	1434	939
Filter Age	hrs	Client Info		1970	495	939
Oil Changed		Client Info		Not Changed	Not Changd	Not Changed
Filter Changed		Client Info		Changed	Not Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	NORMAL

WEAR

All component wear rates are normal.

PQ	UOM	Method	Limit/Abn	Current	History1	History2
Iron	ppm	ASTM D5185m	>20	2	3	2
Chromium	ppm	ASTM D5185m	>10	0	<1	0
Nickel	ppm	ASTM D5185m	>10	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	0	2	0
Lead	ppm	ASTM D5185m	>10	0	<1	0
Copper	ppm	ASTM D5185m	>75	<1	2	3
Tin	ppm	ASTM D5185m	>10	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

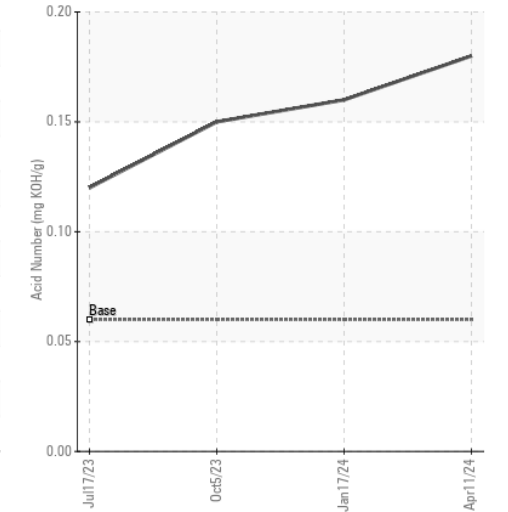
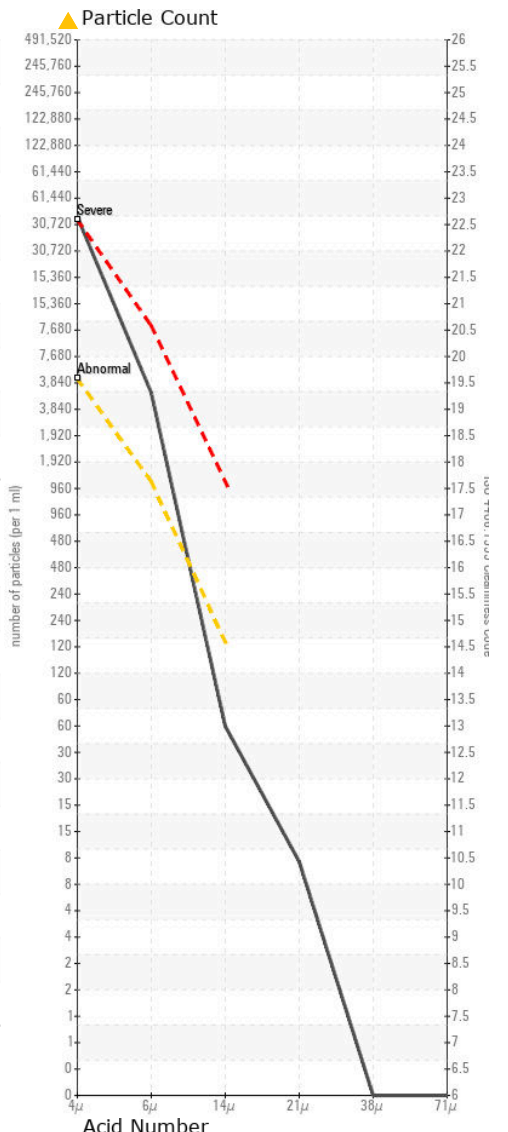
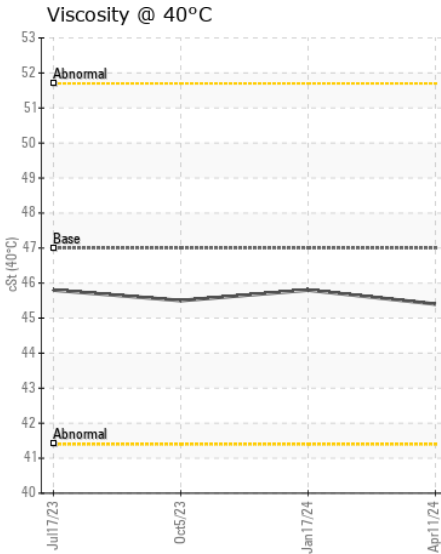
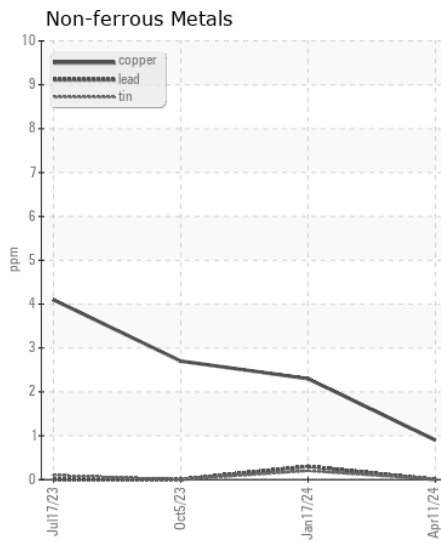
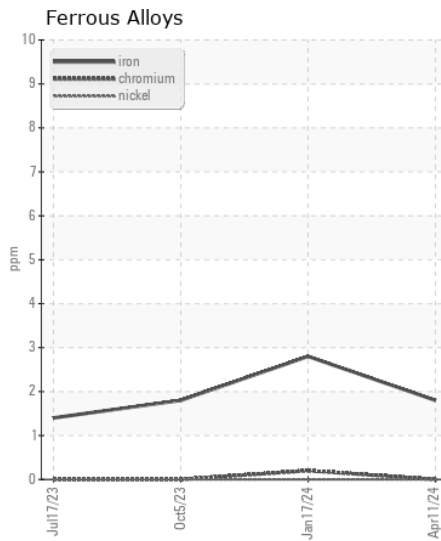
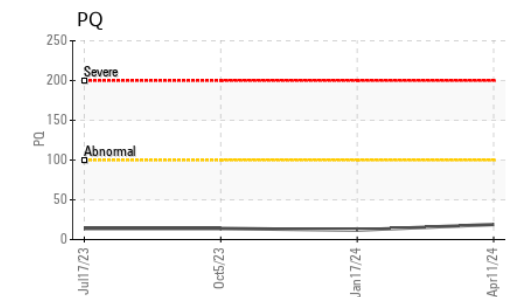
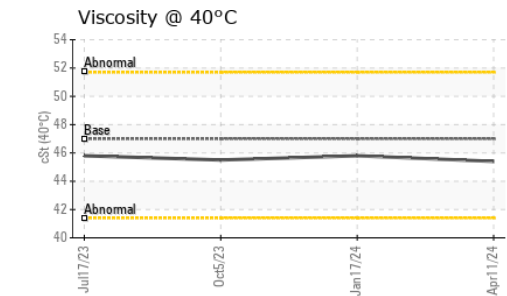
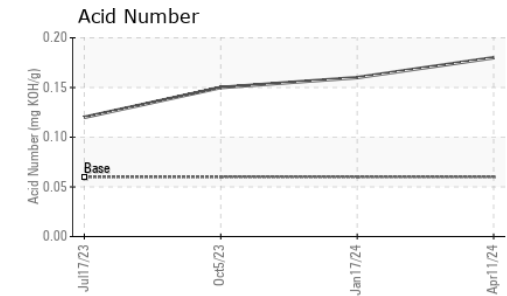
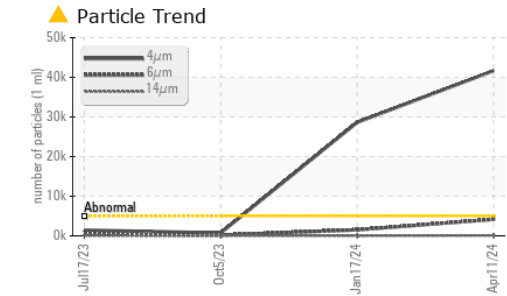
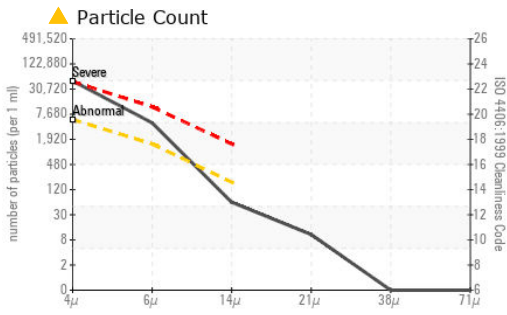
There is a high amount of silt (particulates < 14 microns in size) present in the oil.

Silicon	ppm	ASTM D5185m	>20	<1	<1	<1
Potassium	ppm	ASTM D5185m	>20	0	<1	<1
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>5000	▲ 41672	▲ 28630	728
Particles >6µm		ASTM D7647	>1300	▲ 4158	● 1508	177
Particles >14µm		ASTM D7647	>160	53	9	23
Particles >21µm		ASTM D7647	>40	9	2	8
Particles >38µm		ASTM D7647	>10	0	0	1
Particles >71µm		ASTM D7647	>3	0	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ 23/19/13	▲ 22/18/10	17/15/12
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

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		2	0	<1
Boron	ppm	ASTM D5185m		0	0	0
Barium	ppm	ASTM D5185m		0	1	0
Molybdenum	ppm	ASTM D5185m		0	0	0
Manganese	ppm	ASTM D5185m		0	0	0
Magnesium	ppm	ASTM D5185m		0	<1	0
Calcium	ppm	ASTM D5185m		13	<1	0
Phosphorus	ppm	ASTM D5185m		458	549	544
Zinc	ppm	ASTM D5185m		6	<1	14
Sulfur	ppm	ASTM D5185m		71	8	108
Acid Number (AN)	mg KOH/g	ASTM D8045	0.06	0.18	0.16	0.15
Visc @ 40°C	cSt	ASTM D445	47	45.4	45.8	45.5



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0211352 **Received** : 15 Apr 2024
Lab Number : 06149492 **Tested** : 16 Apr 2024
Unique Number : 10979570 **Diagnosed** : 17 Apr 2024 - Don Baldrige
Test Package : CONST (Additional Tests: PQ)

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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)