



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL



Area
DE Samples - CAT LAB
Machine Id
CATERPILLAR 980H LOADER 6821 (S/N JMS06208)
Component
Hydraulic System
Fluid
TULCO LUBSOIL SUPER HYDRAULIC HZ 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		TO10003086	TO10002962	TO10003079
Sample Date		Client Info		08 May 2024	20 Feb 2024	28 Dec 2023
Machine Age	hrs	Client Info		29374	28828	28570
Oil Age	hrs	Client Info		1848	1302	1044
Filter Age	hrs	Client Info		546	258	260
Oil Changed		Client Info		Not Changed	Not Changed	Not Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>20	11	8	7
Chromium	ppm	ASTM D5185m	>10	<1	0	<1
Nickel	ppm	ASTM D5185m	>10	<1	0	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	9	8	7
Lead	ppm	ASTM D5185m	>10	<1	0	0
Copper	ppm	ASTM D5185m	>75	6	5	5
Tin	ppm	ASTM D5185m	>10	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

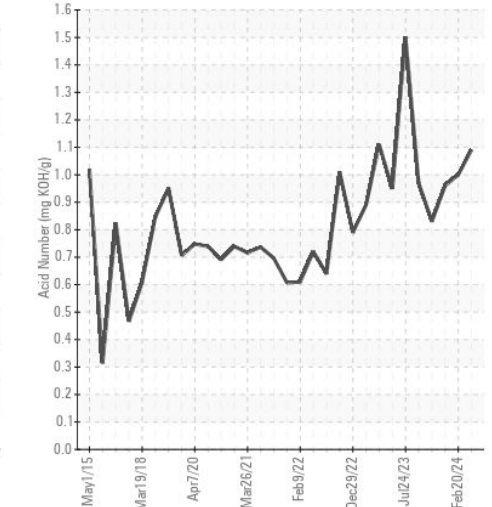
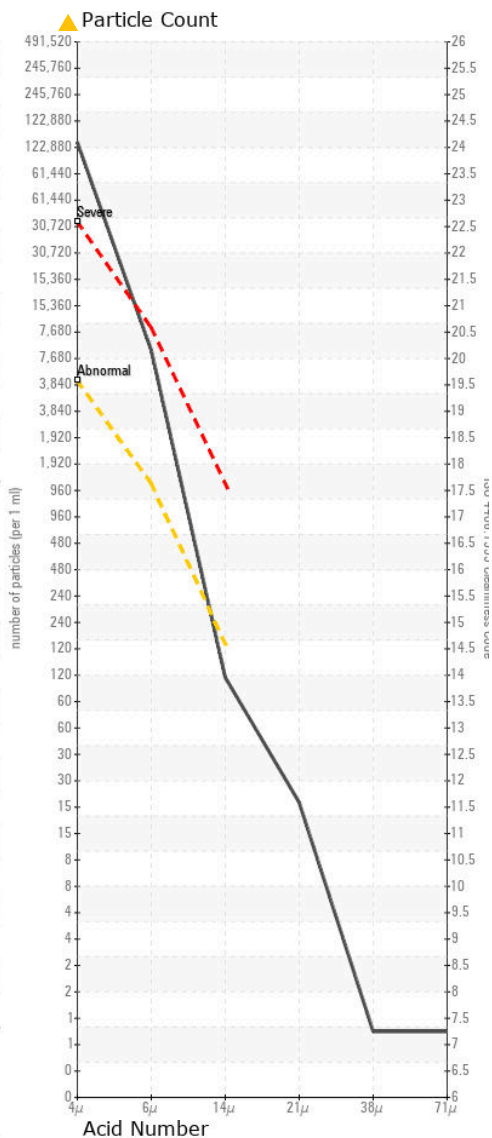
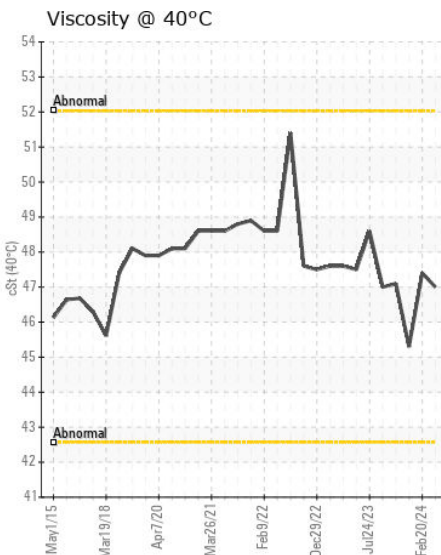
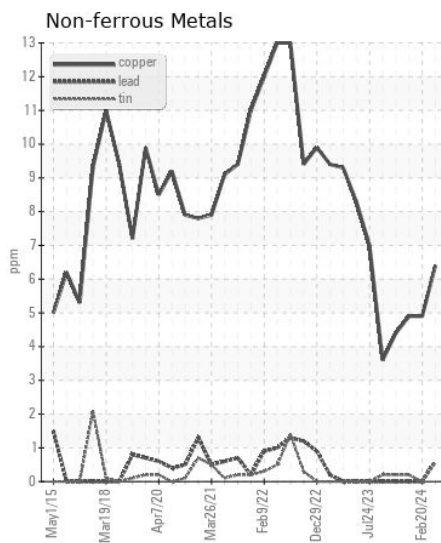
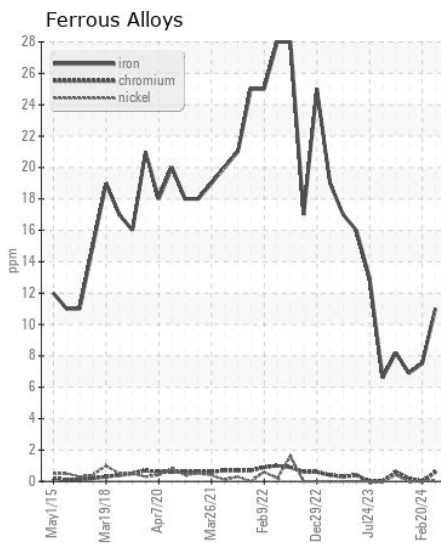
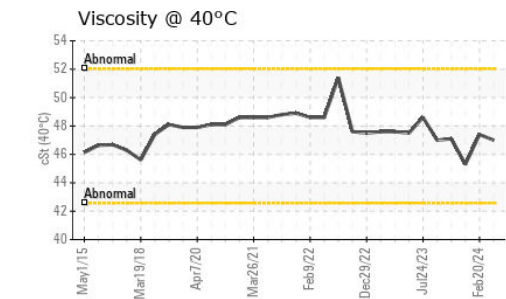
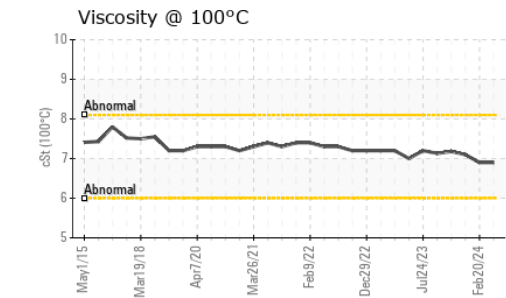
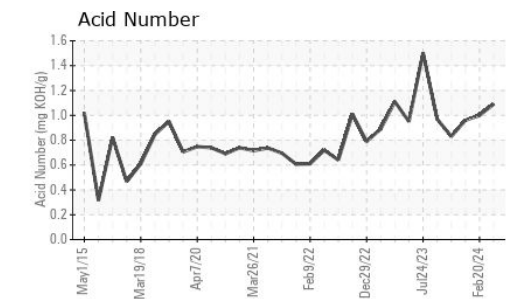
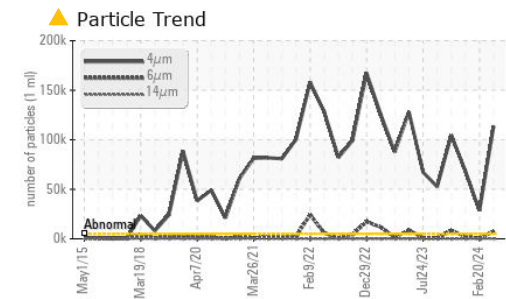
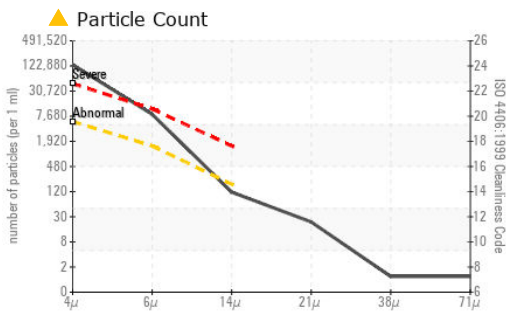
There is a high amount of silt (particulates < 14 microns in size) present in the oil.

Silicon	ppm	ASTM D5185m	>20	15	12	10
Potassium	ppm	ASTM D5185m	>20	4	<1	<1
Water	%	ASTM D6304	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>5000	▲ 113421	▲ 28468	▲ 68353
Particles >6µm		ASTM D7647	>1300	▲ 7437	285	▲ 2535
Particles >14µm		ASTM D7647	>160	103	17	14
Particles >21µm		ASTM D7647	>40	20	5	4
Particles >38µm		ASTM D7647	>10	1	0	1
Particles >71µm		ASTM D7647	>3	1	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ 24/20/14	▲ 22/15/11	▲ 23/19/11
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		<1	6	4
Boron	ppm	ASTM D5185m		0	0	0
Barium	ppm	ASTM D5185m		2	0	0
Molybdenum	ppm	ASTM D5185m		2	1	<1
Manganese	ppm	ASTM D5185m		<1	0	<1
Magnesium	ppm	ASTM D5185m		182	155	181
Calcium	ppm	ASTM D5185m		279	225	239
Phosphorus	ppm	ASTM D5185m		880	622	755
Zinc	ppm	ASTM D5185m		969	795	943
Sulfur	ppm	ASTM D5185m		3262	2399	2818
Acid Number (AN)	mg KOH/g	ASTM D8045		1.09	1.00	0.96
Visc @ 40°C	cSt	ASTM D445		47.0	47.4	45.3
Visc @ 100°C	cSt	ASTM D445		6.9	6.9	7.1
Viscosity Index (VI)	Scale	ASTM D2270		101	100	115



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : TO10003086

Lab Number : 06177682

Unique Number : 11023735

Test Package : MOB 2 (Additional Tests: KF, KV100, VI)

Received : 13 May 2024

Tested : 15 May 2024

Diagnosed : 15 May 2024 - Don Baldrige

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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