



OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL



Area
DE Samples - CAT LAB
Machine Id
CATERPILLAR 420 FST BACKHOE 6010 (S/N SKR04232)
Component
Front Right Planetary
Fluid
TULCO LUBSOIL TO-4 50 (0 GAL)

RECOMMENDATION

We advise that you check all areas where dirt can enter the system. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TO10003635	TO10002857	TO10002082
Sample Date		Client Info		01 Jul 2024	14 Nov 2023	18 Sep 2023
Machine Age	hrs	Client Info		13787	12883	12601
Oil Age	hrs	Client Info		1186	282	291
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Changed	Changed
Filter Changed		Client Info		None	None	None
Sample Status				ABNORMAL	SEVERE	SEVERE

WEAR

The iron level has decreased, but is still abnormal. Gear wear is indicated.

PQ		ASTM D8184		131	▲ 1291	▲ 1325
Iron	ppm	ASTM D5185m	>150	▲ 214	▲ 1914	▲ 5217
Chromium	ppm	ASTM D5185m	>10	2	▲ 11	▲ 32
Nickel	ppm	ASTM D5185m	>10	<1	2	▲ 14
Titanium	ppm	ASTM D5185m		<1	23	51
Silver	ppm	ASTM D5185m		0	<1	0
Aluminum	ppm	ASTM D5185m	>25	● 15	● 336	● 788
Lead	ppm	ASTM D5185m	>100	4	4	14
Copper	ppm	ASTM D5185m	>50	8	6	27
Tin	ppm	ASTM D5185m	>10	<1	4	0
Vanadium	ppm	ASTM D5185m		0	1	2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

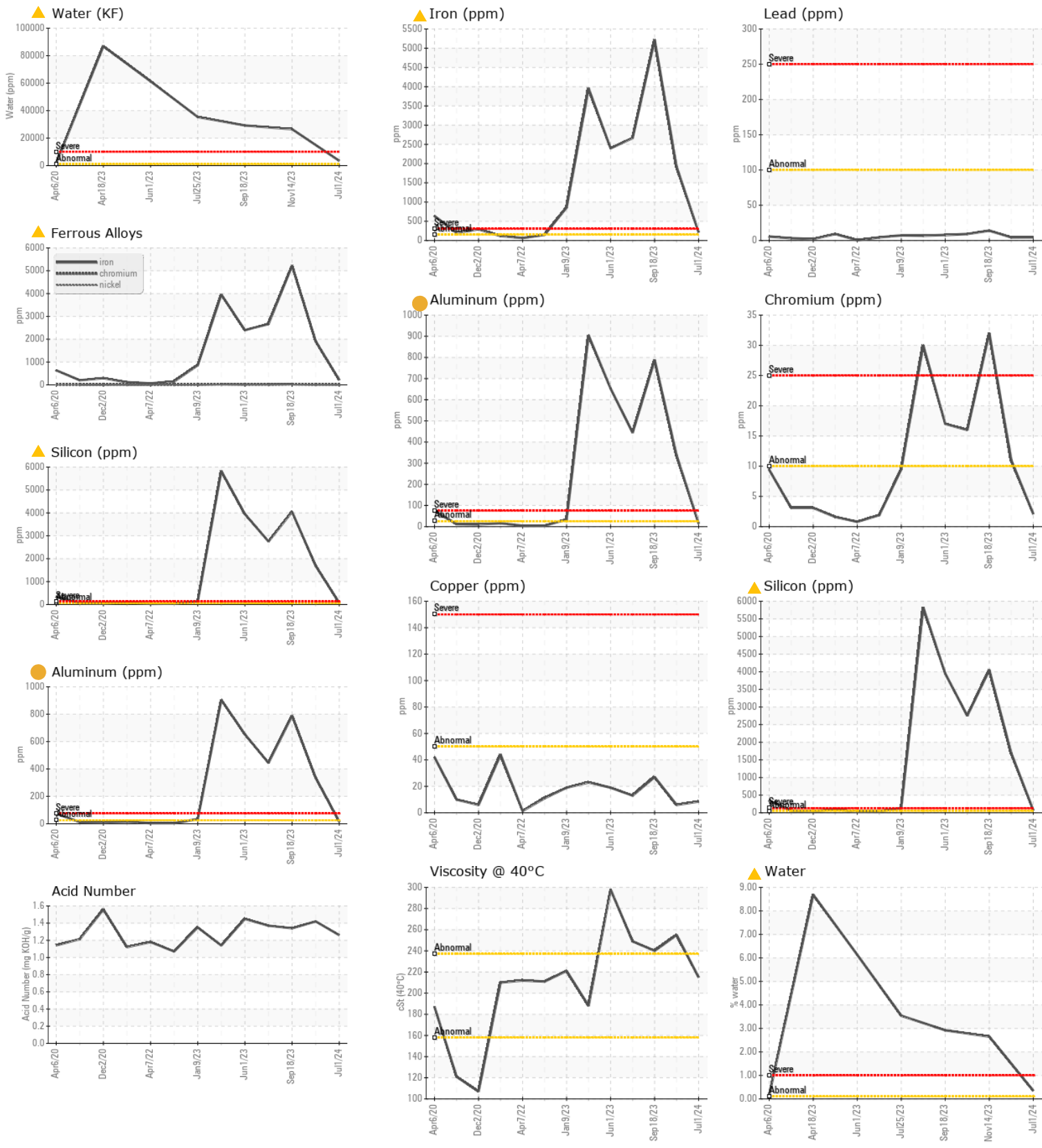
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. There is a light concentration of water present in the oil.

Silicon	ppm	ASTM D5185m	>50	▲ 70	▲ 1687	▲ 4047
Potassium	ppm	ASTM D5185m	>20	8	128	329
Water	%	ASTM D6304	>0.1	▲ 0.346	▲ 2.65	▲ 2.92
ppm Water	ppm	ASTM D6304	>1000	▲ 3460	▲ 26500	▲ 29200
Silt	scalar	*Visual	NONE	MODER	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	0.2%	▲ 0.2%	▲ 0.2%

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		6	36	98
Boron	ppm	ASTM D5185m		<1	7	34
Barium	ppm	ASTM D5185m		0	4	10
Molybdenum	ppm	ASTM D5185m		<1	0	0
Manganese	ppm	ASTM D5185m		2	18	52
Magnesium	ppm	ASTM D5185m		21	421	1032
Calcium	ppm	ASTM D5185m		3614	14673	11610
Phosphorus	ppm	ASTM D5185m		1018	933	1310
Zinc	ppm	ASTM D5185m		1245	1087	1547
Sulfur	ppm	ASTM D5185m		6317	4790	9473
Acid Number (AN)	mg KOH/g	ASTM D8045		1.26	1.42	1.34
Visc @ 40°C	cSt	ASTM D445		215	255	240
Visc @ 100°C	cSt	ASTM D445		18.5	18.8	19.07
Viscosity Index (VI)	Scale	ASTM D2270		95	80	89



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10003635 **Received** : 05 Jul 2024
Lab Number : 06229231 **Tested** : 09 Jul 2024
Unique Number : 11112724 **Diagnosed** : 09 Jul 2024 - Don Baldridge
Test Package : MOB 2 (Additional Tests: KF, KV100, PQ, VI)
 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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