



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Area
RIG 1
Machine Id
CATERPILLAR 3512 R1-G-03 NKL
Component
Diesel Engine
Fluid
CHEVRON 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0014073	KL0013124	KL0012900
Sample Date		Client Info		12 Dec 2023	03 Nov 2023	29 Sep 2023
Machine Age	days	Client Info		45272	45233	45196
Oil Age	days	Client Info		0	0	0
Filter Age	days	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	4	1	25
Chromium	ppm	ASTM D5185m	>20	<1	0	0
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	4	4	0
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	2	0	3
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

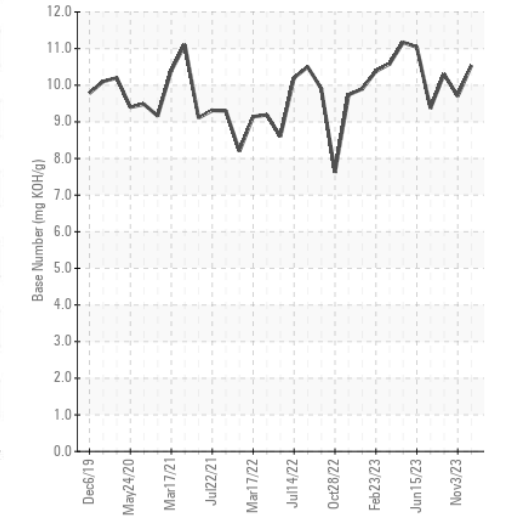
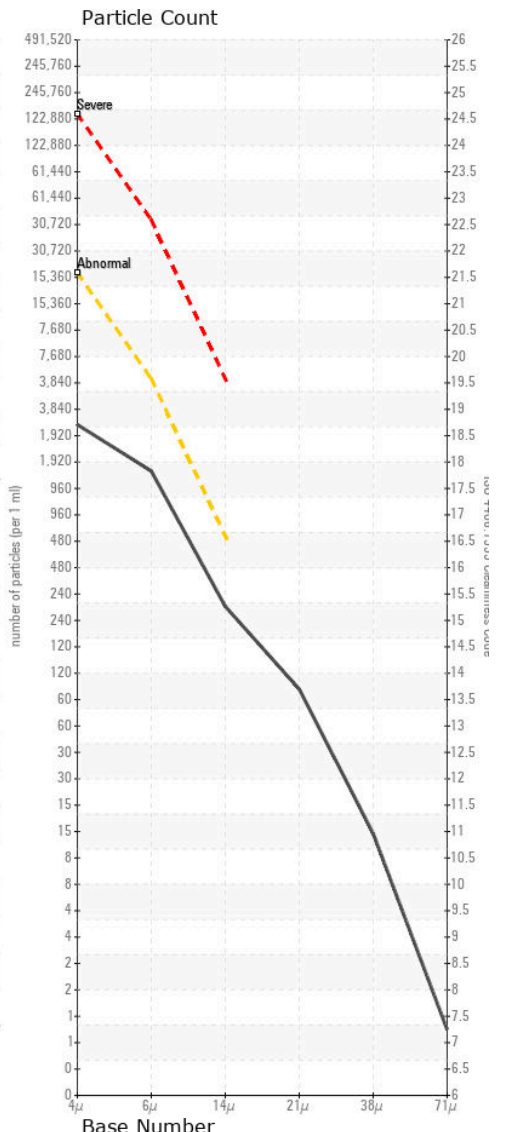
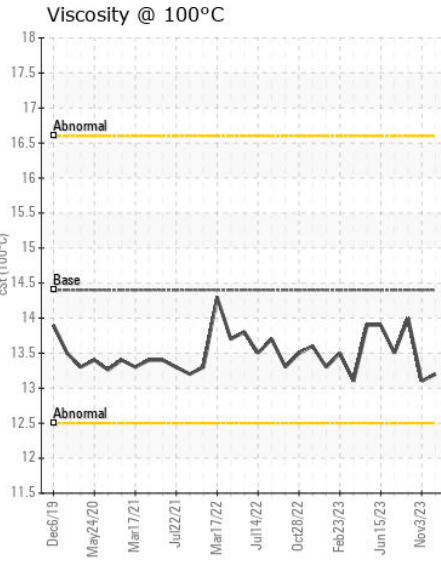
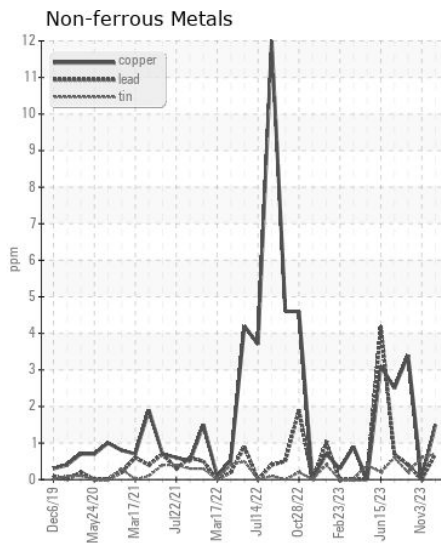
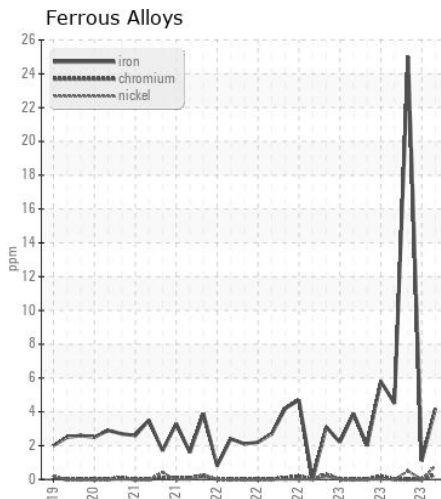
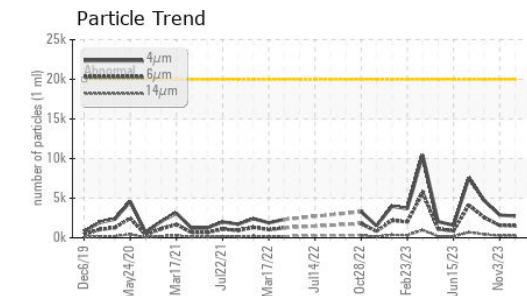
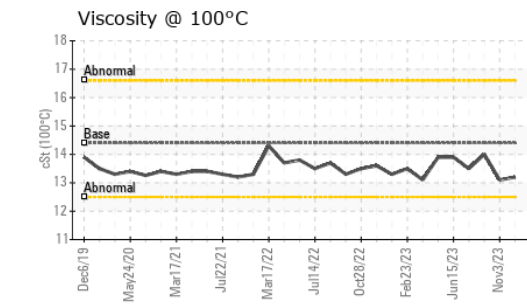
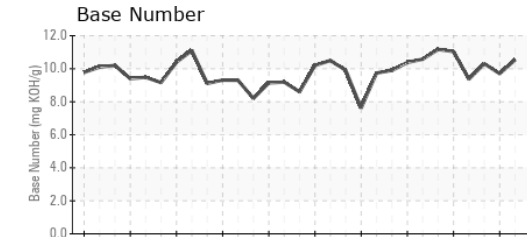
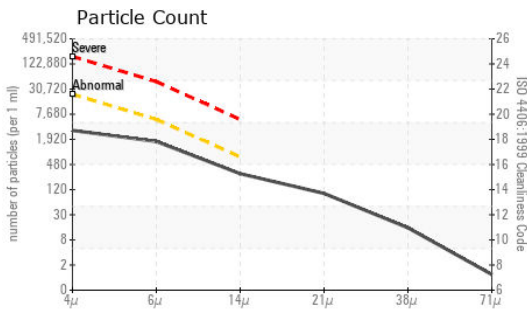
There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

Silicon	ppm	ASTM D5185m	>25	9	23	11
Potassium	ppm	ASTM D5185m	>20	2	0	2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.1	0.2
Nitration	Abs/cm	*ASTM D7624	>20	7.3	7.1	7.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	24.0	24.3	23.0
Particles >4µm		ASTM D7647	>20000	2740	2871	4706
Particles >6µm		ASTM D7647	>5000	1493	1564	2564
Particles >14µm		ASTM D7647	>640	254	266	436
Particles >21µm		ASTM D7647	>160	86	90	147
Particles >38µm		ASTM D7647	>40	13	14	23
Particles >71µm		ASTM D7647	>10	1	1	2
Oil Cleanliness		ISO 4406 (c)	>21/19/16	19/18/15	19/18/15	19/19/16
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	>0.2	NEG	NEG	NEG

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>50	0	0	4
Boron	ppm	ASTM D5185m		449	342	331
Barium	ppm	ASTM D5185m		0	0	4
Molybdenum	ppm	ASTM D5185m		164	127	138
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		898	703	630
Calcium	ppm	ASTM D5185m		1955	1507	1464
Phosphorus	ppm	ASTM D5185m		858	721	720
Zinc	ppm	ASTM D5185m		1077	858	803
Sulfur	ppm	ASTM D5185m		3690	2556	3211
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.1	17.9	17.1
Base Number (BN)	mg KOH/g	ASTM D2896		10.54	9.70	10.30
Visc @ 100°C	cSt	ASTM D445	14.4	13.2	13.1	14.0



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0014073 **Received** : 08 Jan 2024
Lab Number : 06055029 **Diagnosed** : 10 Jan 2024
Unique Number : 10820978 **Diagnostician** : Sean Felton
Test Package : MOB 2 (Additional Tests: PrtCount)

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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)