



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Area
RIG 3
Machine Id
CATERPILLAR 3512 R3-G-02-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		KL0014066	KL0013116	KL0012903
Sample Date		Client Info		28 Dec 2023	27 Oct 2023	25 Sep 2023
Machine Age	days	Client Info		45288	45225	45192
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	ATTENTION

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	7	0	7
Chromium	ppm	ASTM D5185m	>20	<1	0	0
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	4	0
Lead	ppm	ASTM D5185m	>40	6	<1	<1
Copper	ppm	ASTM D5185m	>330	3	0	<1
Tin	ppm	ASTM D5185m	>15	<1	0	<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

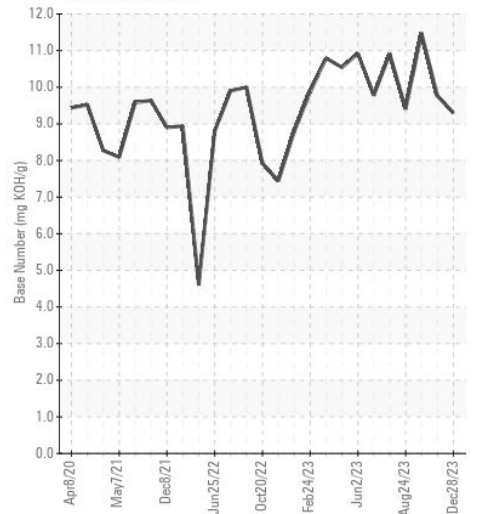
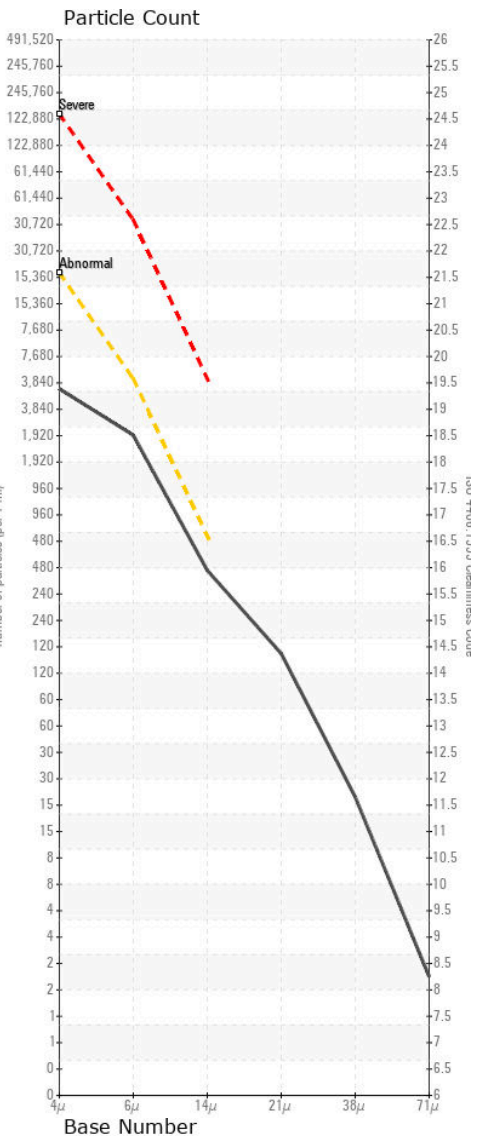
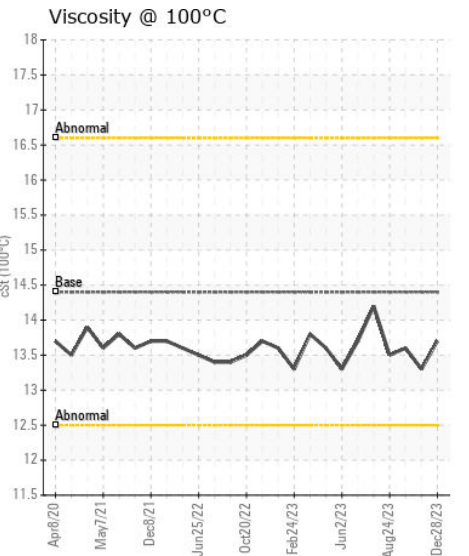
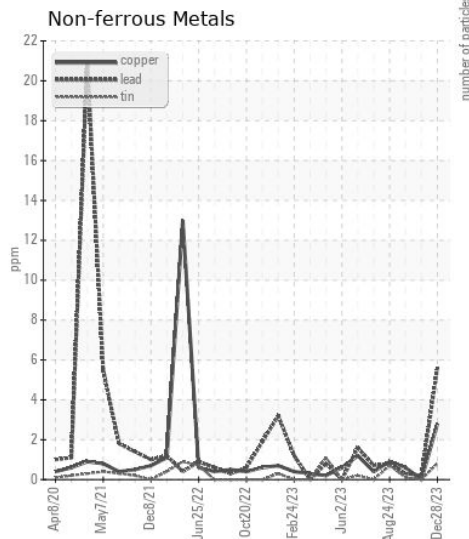
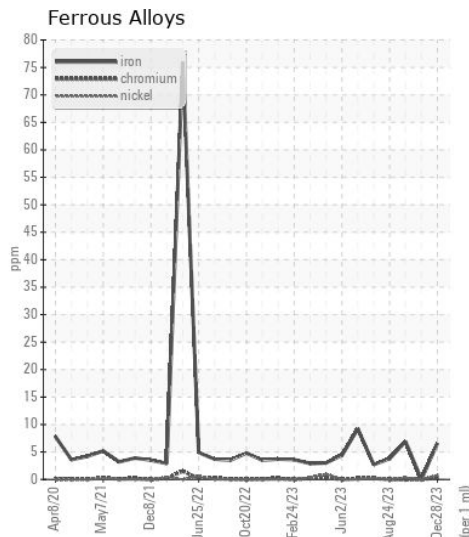
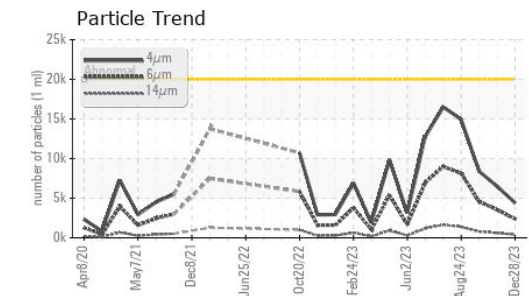
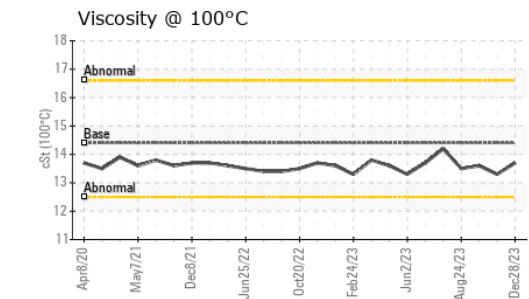
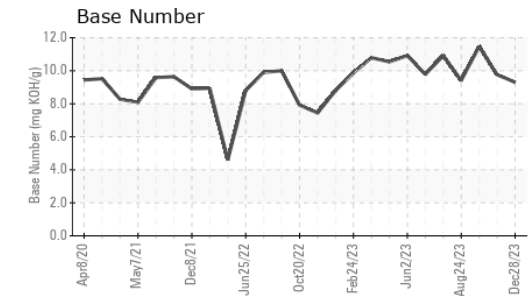
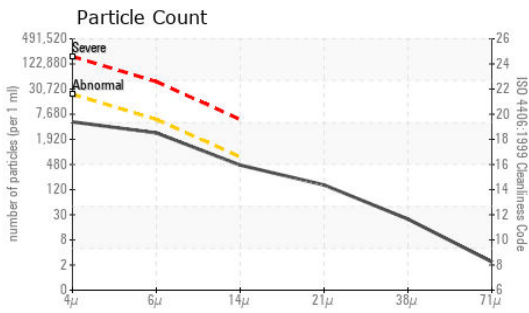
The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	15	7	23
Potassium	ppm	ASTM D5185m	>20	2	2	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	0.1
Nitration	Abs/cm	*ASTM D7624	>20	9.7	6.9	5.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	25.1	23.9	22.1
Particles >4µm		ASTM D7647	>20000	4385	6499	8395
Particles >6µm		ASTM D7647	>5000	2389	3540	4573
Particles >14µm		ASTM D7647	>640	407	603	▲ 778
Particles >21µm		ASTM D7647	>160	137	203	▲ 262
Particles >38µm		ASTM D7647	>40	21	31	40
Particles >71µm		ASTM D7647	>10	2	3	4
Oil Cleanliness		ISO 4406 (c)	>21/19/16	19/18/16	20/19/16	▲ 20/19/17
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	2	0
Boron	ppm	ASTM D5185m		315	398	414
Barium	ppm	ASTM D5185m		0	0	3
Molybdenum	ppm	ASTM D5185m		140	133	145
Manganese	ppm	ASTM D5185m		<1	0	<1
Magnesium	ppm	ASTM D5185m		741	718	649
Calcium	ppm	ASTM D5185m		1736	1685	1495
Phosphorus	ppm	ASTM D5185m		727	724	760
Zinc	ppm	ASTM D5185m		939	891	868
Sulfur	ppm	ASTM D5185m		2708	2499	3105
Oxidation	Abs/.1mm	*ASTM D7414	>25	21.3	17.5	15.3
Base Number (BN)	mg KOH/g	ASTM D2896		9.30	9.76	11.47
Visc @ 100°C	cSt	ASTM D445	14.4	13.7	13.3	13.6



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0014066 **Received** : 08 Jan 2024
Lab Number : 06055028 **Diagnosed** : 10 Jan 2024
Unique Number : 10820977 **Diagnostician** : Sean Felton
Test Package : MOB 2 (Additional Tests: PrtCount)

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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