



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Area
RIG 1
Machine Id
CATERPILLAR 3512 R1-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		KL0013974	KL0013125	KL0012901
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	ABNORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	3	3	6
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	3	4	0
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	1	<1	<1
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

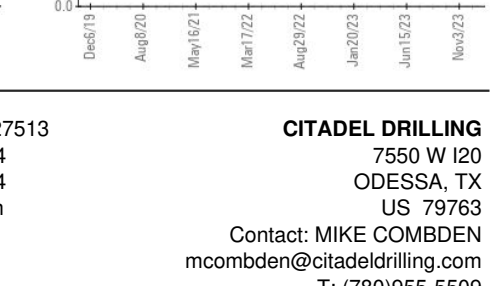
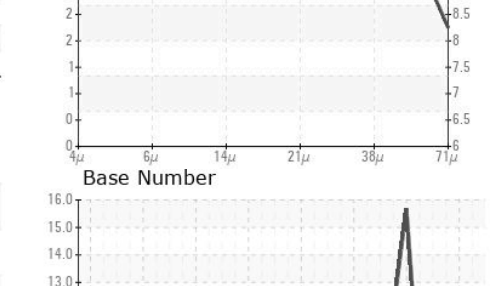
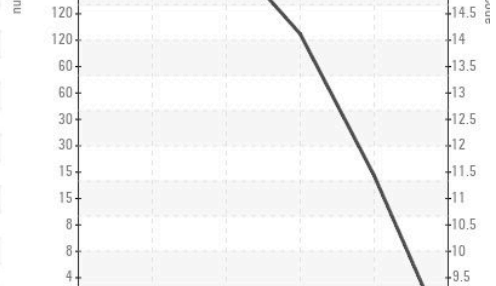
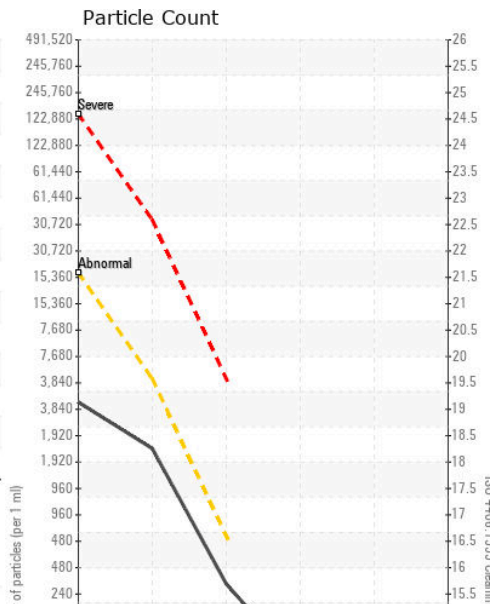
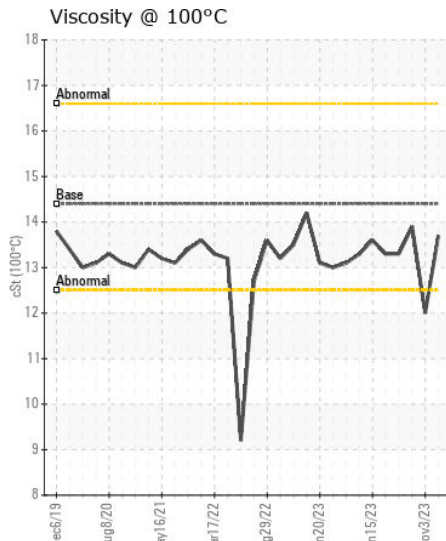
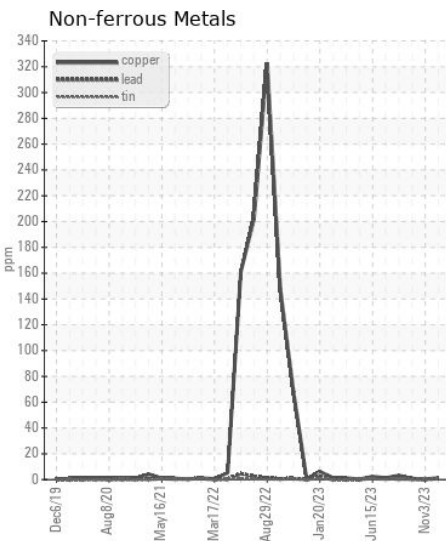
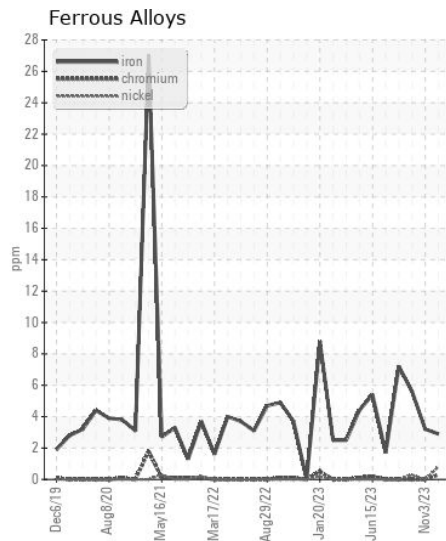
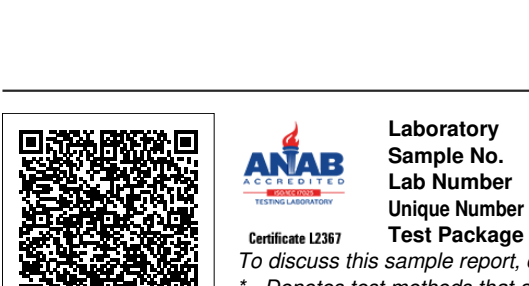
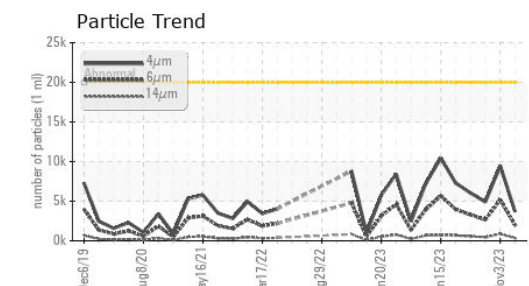
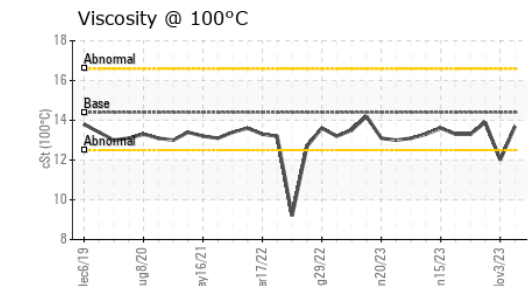
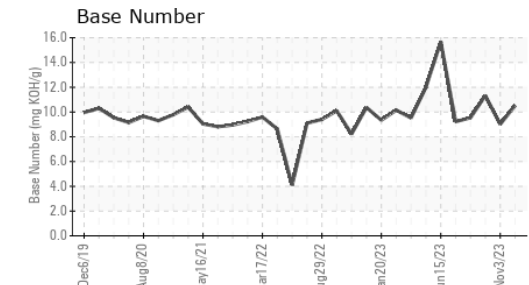
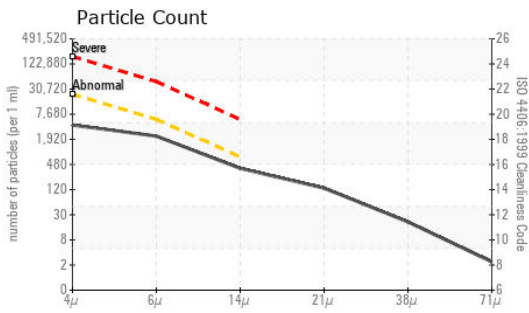
The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	14	7	8
Potassium	ppm	ASTM D5185m	>20	2	0	1
Fuel		WC Method	>5	<1.0	▲ 4.5	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.2	0.1
Nitration	Abs/cm	*ASTM D7624	>20	4.6	7.4	4.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.8	23.7	22.1
Particles >4µm		ASTM D7647	>20000	3680	9474	4889
Particles >6µm		ASTM D7647	>5000	2005	▲ 5161	2663
Particles >14µm		ASTM D7647	>640	341	▲ 878	453
Particles >21µm		ASTM D7647	>160	115	▲ 296	153
Particles >38µm		ASTM D7647	>40	18	▲ 46	24
Particles >71µm		ASTM D7647	>10	2	5	2
Oil Cleanliness		ISO 4406 (c)	>21/19/16	19/18/16	▲ 20/20/17	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	1	0
Boron	ppm	ASTM D5185m		352	322	428
Barium	ppm	ASTM D5185m		0	0	3
Molybdenum	ppm	ASTM D5185m		132	124	143
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		649	662	654
Calcium	ppm	ASTM D5185m		1464	1481	1495
Phosphorus	ppm	ASTM D5185m		646	693	742
Zinc	ppm	ASTM D5185m		820	820	845
Sulfur	ppm	ASTM D5185m		2574	2425	3027
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.7	17.4	15.1
Base Number (BN)	mg KOH/g	ASTM D2896		10.52	9.01	11.32
Visc @ 100°C	cSt	ASTM D445	14.4	13.7	▲ 12.0	13.9



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0013974 **Received** : 08 Jan 2024
Lab Number : 06055021 **Diagnosed** : 10 Jan 2024
Unique Number : 10820970 **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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