



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ATTENTION
FLUID CONDITION	NORMAL



Area
RIG 5
Machine Id
CATERPILLAR 3512 R5-G-03 NKL
Component
Diesel Engine
Fluid
{not provided} (--- GAL)

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0013981	KL0013090	KL0012990
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				ATTENTION	NORMAL	ATTENTION

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	3	<1	4
Chromium	ppm	ASTM D5185m	>20	<1	0	0
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	3	6
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	<1	0	1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

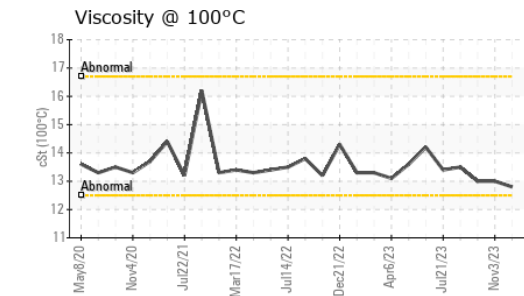
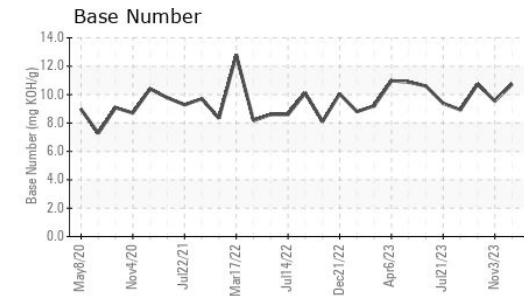
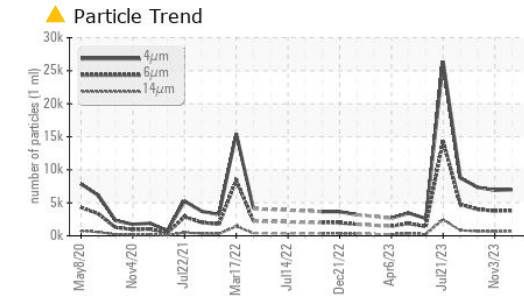
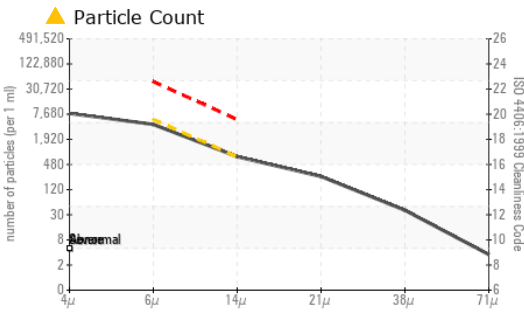
There is a moderate amount of particulates present in the oil.

Silicon	ppm	ASTM D5185m	>25	7	11	5
Potassium	ppm	ASTM D5185m	>20	2	0	1
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	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	5.8	6.9	7.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.8	23.7	23.1
Particles >4µm		ASTM D7647		6994	6890	7351
Particles >6µm		ASTM D7647	>5000	3810	3753	4005
Particles >14µm		ASTM D7647	>640	▲ 648	639	▲ 682
Particles >21µm		ASTM D7647	>160	▲ 218	215	▲ 230
Particles >38µm		ASTM D7647	>40	34	33	35
Particles >71µm		ASTM D7647	>10	3	3	4
Oil Cleanliness		ISO 4406 (c)	>19/16	▲ 19/17	19/16	▲ 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

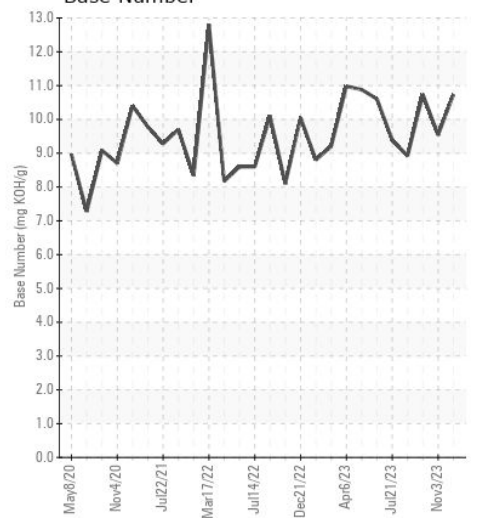
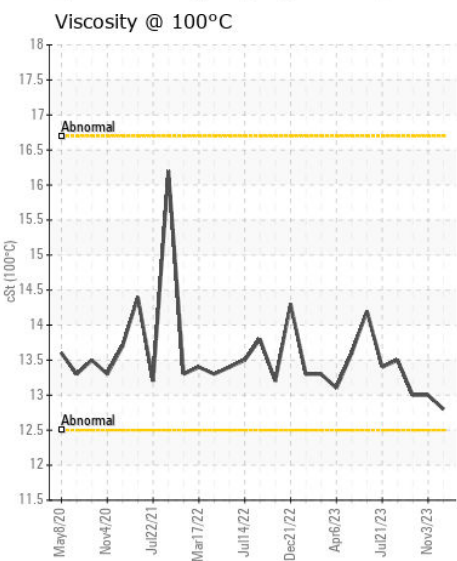
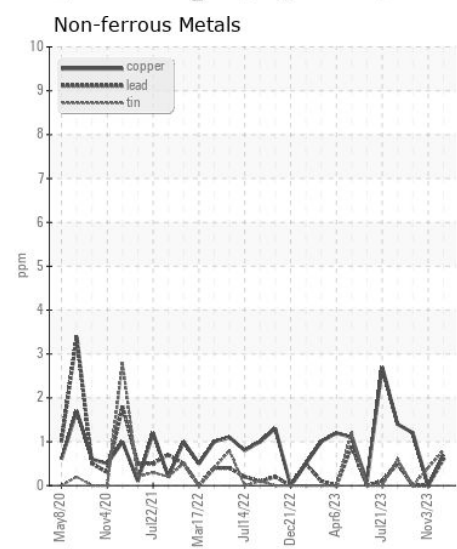
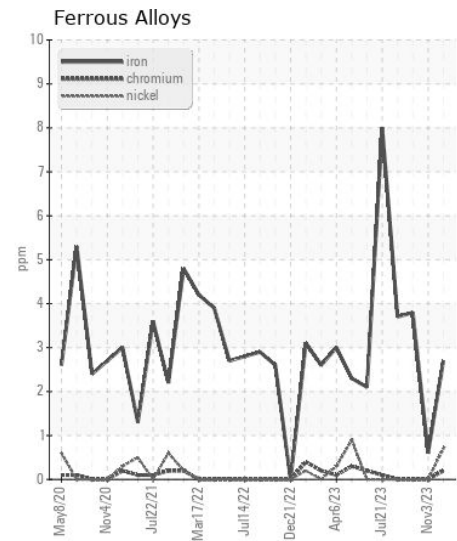
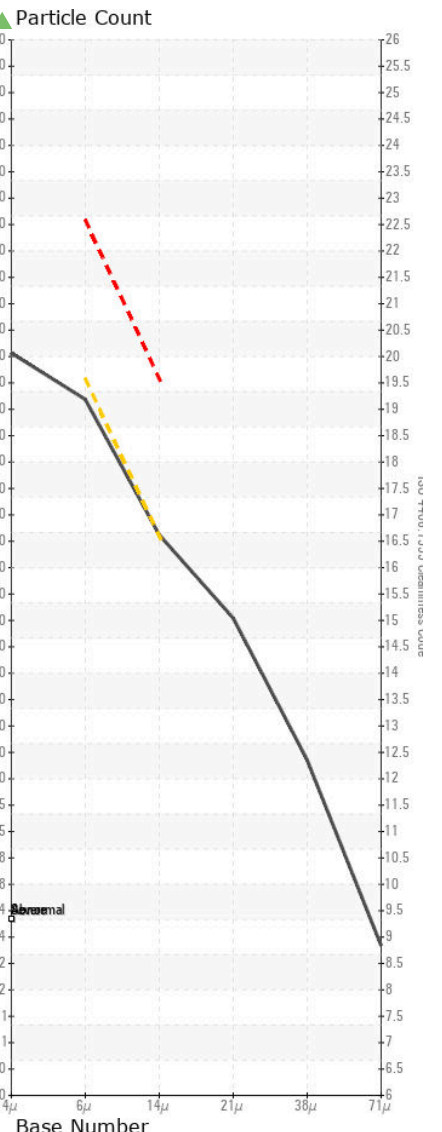
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		0	0	<1
Boron	ppm	ASTM D5185m		364	344	301
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		118	128	129
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		636	690	640
Calcium	ppm	ASTM D5185m		1597	1523	1412
Phosphorus	ppm	ASTM D5185m		712	723	659
Zinc	ppm	ASTM D5185m		857	853	805
Sulfur	ppm	ASTM D5185m		2789	2517	2576
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.0	17.1	17.1
Base Number (BN)	mg KOH/g	ASTM D2896		10.73	9.54	10.74
Visc @ 100°C	cSt	ASTM D445		12.8	13.0	13.0



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0013981 **Received** : 08 Jan 2024
Lab Number : 06055025 **Diagnosed** : 10 Jan 2024
Unique Number : 10820974 **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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