



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL



Area
DE Samples - CAT LAB
Machine Id
CATERPILLAR 980 HAUL LOADER 6583 (S/N JMS05055)
Component
Diesel Engine
Fluid
TULCO LUBSOIL CK-4 15W40 (--- GAL)

RECOMMENDATION

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TO10003076	TO10002898	TO1006267
Sample Date		Client Info		08 Jan 2024	06 Nov 2023	26 Aug 2017
Machine Age	hrs	Client Info		34718	34425	21141
Oil Age	hrs	Client Info		539	246	250
Filter Age	hrs	Client Info		539	246	0
Oil Changed		Client Info		Changed	Not Changd	Changed
Filter Changed		Client Info		Changed	Not Changd	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	25	13	2
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>25	1	2	<1
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	4	3	<1
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

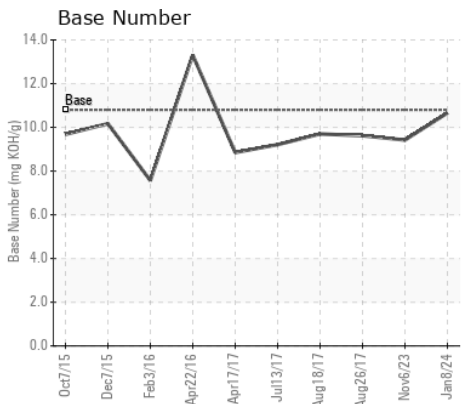
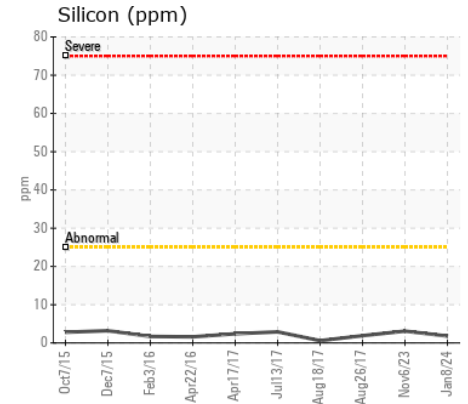
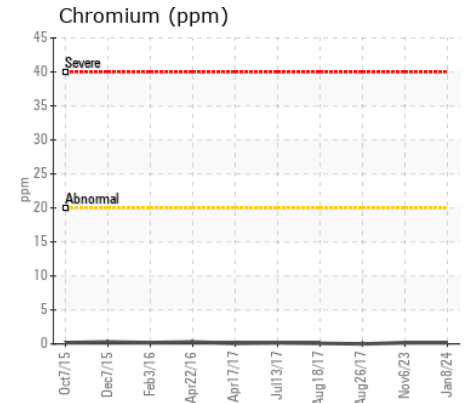
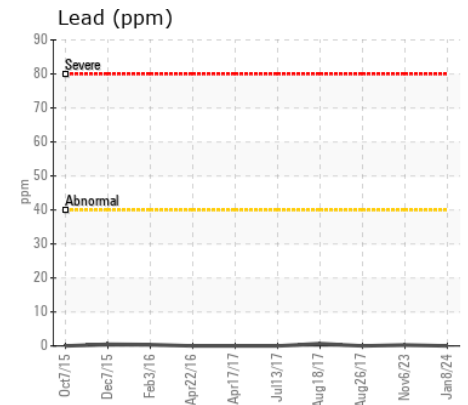
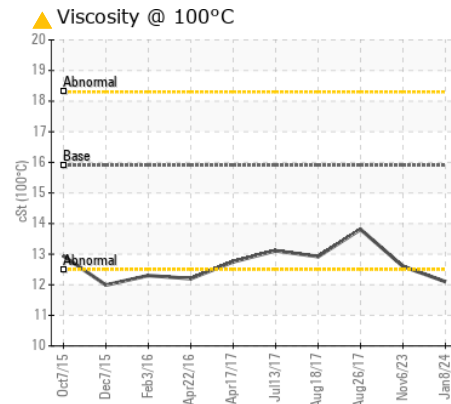
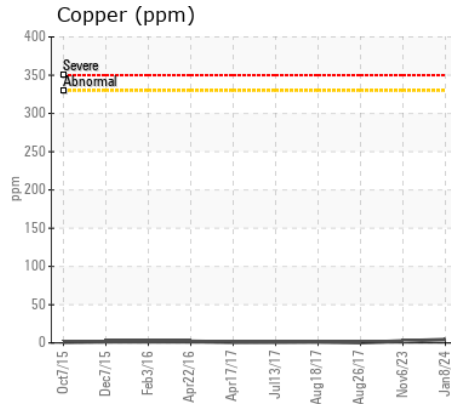
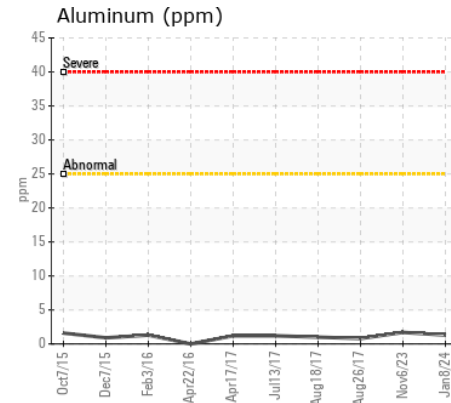
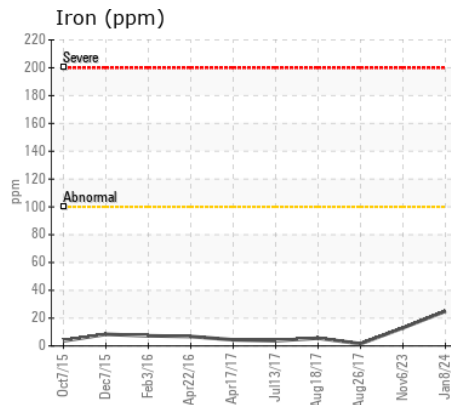
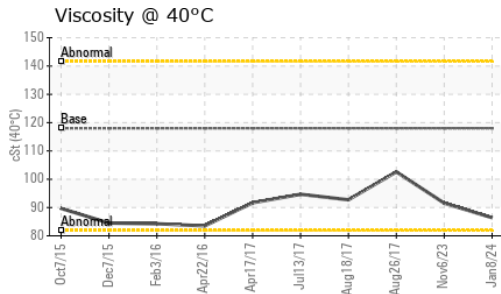
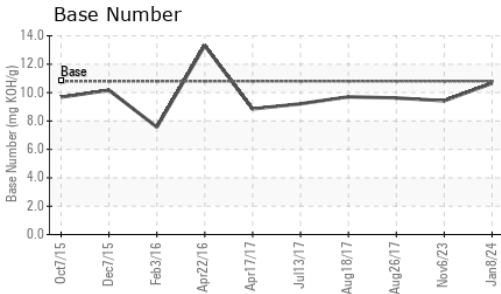
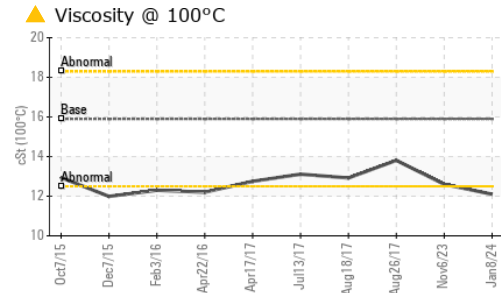
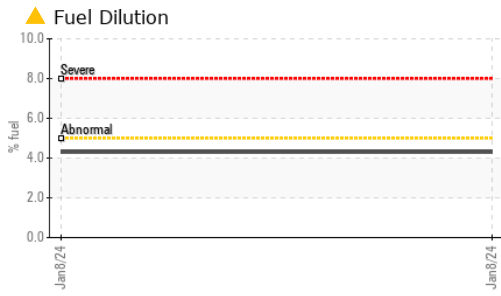
Light fuel dilution occurring.

Silicon	ppm	ASTM D5185m	>25	2	3	2
Potassium	ppm	ASTM D5185m	>20	0	2	1
Fuel	%	ASTM D3524	>5	▲ 4.3	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.5	0.3	0
Nitration	Abs/cm	*ASTM D7624	>20	7.5	6.3	5.
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.0	18.9	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

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

Sodium	ppm	ASTM D5185m		0	<1	1
Boron	ppm	ASTM D5185m		9	16	18
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m	65	59	62	57
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	1060	868	914	922
Calcium	ppm	ASTM D5185m	1140	1049	1117	958
Phosphorus	ppm	ASTM D5185m	1170	1023	1061	984
Zinc	ppm	ASTM D5185m	1230	1218	1232	1092
Sulfur	ppm	ASTM D5185m	3130	2989	3381	1730
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.0	13.9	11.
Base Number (BN)	mg KOH/g	ASTM D2896	10.8	10.66	9.42	9.62
Visc @ 40°C	cSt	ASTM D445	118	86.4	91.55	102.6
Visc @ 100°C	cSt	ASTM D445	15.9	▲ 12.1	12.6	13.81
Viscosity Index (VI)	Scale	ASTM D2270	143	133	133	135



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10003076 **Received** : 16 Jan 2024
Lab Number : 06061374 **Diagnosed** : 18 Jan 2024
Unique Number : 10832756 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: FuelDilution, KV40, PercentFuel, V1)

ANCHOR STONE TULSA ROCK
TULSA ROCK QUARRY, 66TH ST N 145TH AVENUE
TULSA, OK
US 74137

Contact: MIKE SNYDER
msnyder@anchorstoneco.com

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)

T: (417)850-9635

F: