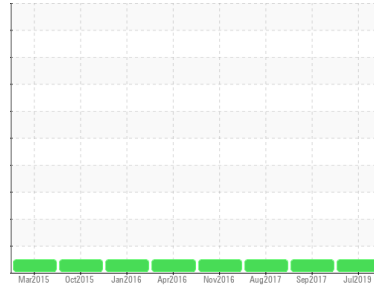


OIL ANALYSIS REPORT



Area
DE Samples - CAT LAB
Machine Id
CATERPILLAR 775D 6441 (S/N 8AS00350)
Component
Diesel Engine
Fluid
TULCO LUBSOIL CK-4 15W40 (--- GAL)

Sample Rating Trend



DIAGNOSIS

Recommendation
Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
There is no indication of any contamination in the oil.

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.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		TO1006652	TO1006273	TO1006190
Sample Date	Client Info		12 Jul 2019	23 Sep 2017	08 Aug 2017
Machine Age	hrs	Client Info	35336	32459	32234
Oil Age	hrs	Client Info	300	260	300
Oil Changed	Client Info		Changed	N/A	Changed
Sample Status			NORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	<1.0	<1.0
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	16	18	22
Chromium	ppm	ASTM D5185m >20	<1	0	<1
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	<1	1	2
Lead	ppm	ASTM D5185m >40	0	1	2
Copper	ppm	ASTM D5185m >330	1	3	5
Tin	ppm	ASTM D5185m >15	0	9	2
Antimony	ppm	ASTM D5185m	0	0	0
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	7	18	52
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m 65	60	59	65
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m 1060	953	891	930
Calcium	ppm	ASTM D5185m 1140	1185	1011	1233
Phosphorus	ppm	ASTM D5185m 1170	990	911	1070
Zinc	ppm	ASTM D5185m 1230	1179	1164	1167
Sulfur	ppm	ASTM D5185m 3130	2795	2927	2121

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	3	2	3
Sodium	ppm	ASTM D5185m	2	3	4
Potassium	ppm	ASTM D5185m >20	2	2	2

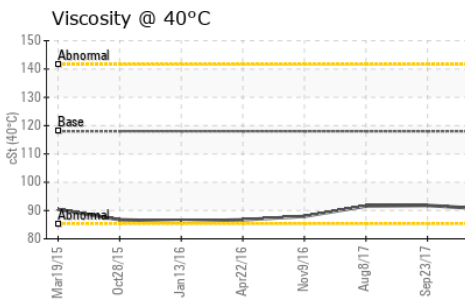
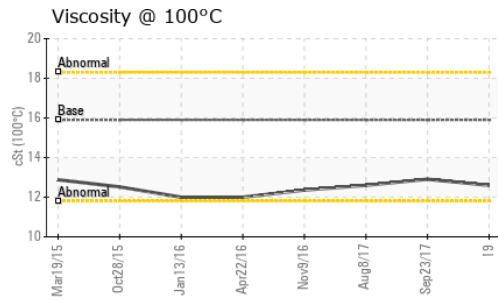
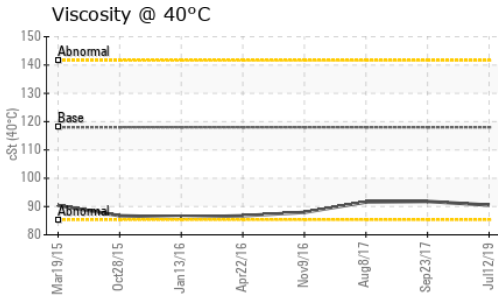
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	0.5	0.3	0.3
Nitration	Abs/cm	*ASTM D7624 >20	6.8	5.	6.
Sulfation	Abs./1mm	*ASTM D7415 >30	19.1	16.	16.

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs./1mm	*ASTM D7414 >25	13.9	11.	12.
Base Number (BN)	mg KOH/g	ASTM D2896 10.8	10.3	9.38	9.77

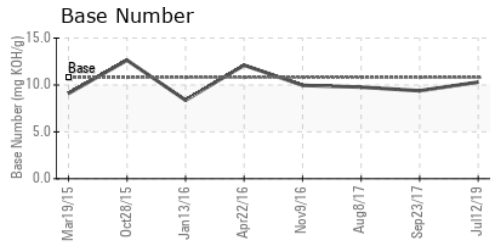
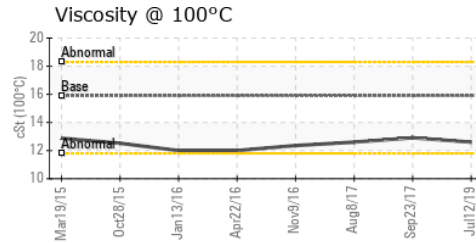
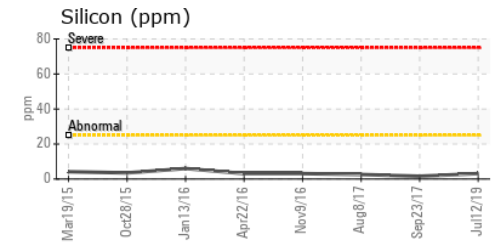
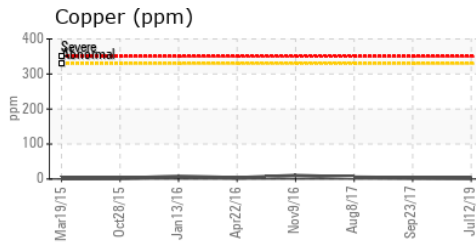
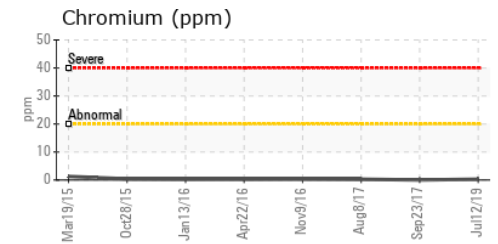
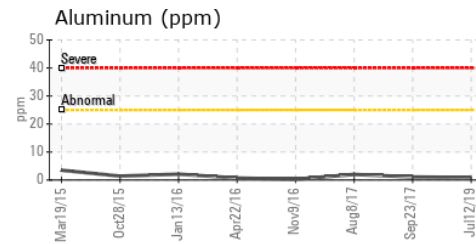
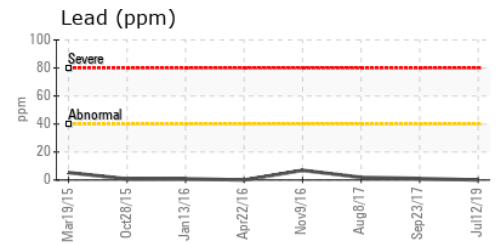
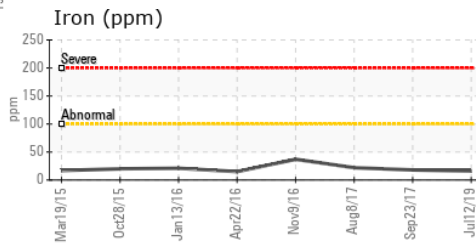
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 40°C	cSt	ASTM D445	118	90.5	91.8	91.58
Visc @ 100°C	cSt	ASTM D445	15.9	12.6	12.91	12.6
Viscosity Index (VI)	Scale	ASTM D2270	143	135	138	133

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO1006652 **Received** : 25 Jul 2019
Lab Number : **04762436** **Diagnosed** : 26 Jul 2019
Unique Number : 8680215 **Diagnostician** : Wes Davis
Test Package : MOB 2 (Additional Tests: KV40, VI)

ANCHOR STONE TULSA ROCK
 TULSA ROCK QUARRY, 66TH ST N 145TH AVENUE
 TULSA, OK
 US 74137
 Contact: DAVID MORRIS
 dmorris@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)

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F: