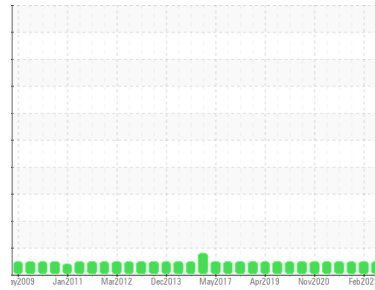


OIL ANALYSIS REPORT



Area
KEMP QUARRIES / MUSKOGEE SAND
Machine Id
WL015
Component
Diesel Engine
Fluid
MOBIL DELVAC 1300 SUPER15W40 (--- GAL)

Sample Rating Trend



NORMAL



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		PCA0087109	PCA0070539	PCA0070518
Sample Date	Client Info		03 Jun 2023	16 Feb 2023	13 Dec 2022
Machine Age	hrs	Client Info	1895	1210	1209
Oil Age	hrs	Client Info	685	450	449
Oil Changed	Client Info		Changed	Changed	Not 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	36	55	50
Chromium	ppm	ASTM D5185m >20	<1	<1	<1
Nickel	ppm	ASTM D5185m >2	<1	<1	<1
Titanium	ppm	ASTM D5185m >2	0	0	<1
Silver	ppm	ASTM D5185m >2	0	0	0
Aluminum	ppm	ASTM D5185m >25	1	2	1
Lead	ppm	ASTM D5185m >40	4	11	9
Copper	ppm	ASTM D5185m >330	3	4	4
Tin	ppm	ASTM D5185m >15	<1	2	1
Antimony	ppm	ASTM D5185m	---	---	---
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	<1	3	4
Barium	ppm	ASTM D5185m 0	0	0	<1
Molybdenum	ppm	ASTM D5185m 0	62	55	55
Manganese	ppm	ASTM D5185m	<1	1	<1
Magnesium	ppm	ASTM D5185m 0	1029	890	877
Calcium	ppm	ASTM D5185m	1261	1259	1266
Phosphorus	ppm	ASTM D5185m	1072	940	1000
Zinc	ppm	ASTM D5185m	1394	1266	1231
Sulfur	ppm	ASTM D5185m	3838	3246	3315

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	3	6	5
Sodium	ppm	ASTM D5185m	7	9	9
Potassium	ppm	ASTM D5185m >20	1	2	0

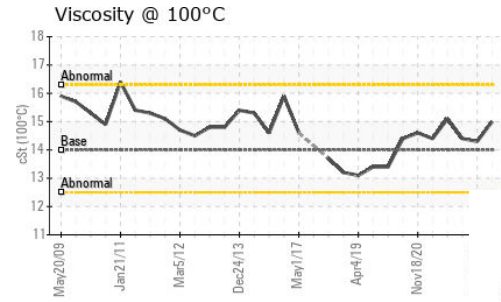
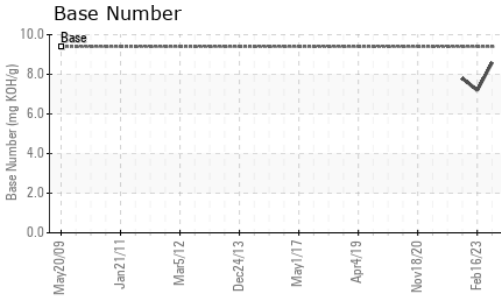
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	1.3	1.2	1.2
Nitration	Abs/cm	*ASTM D7624 >20	11.6	12.4	12.8
Sulfation	Abs/.1mm	*ASTM D7415 >30	23.1	24.6	25.7

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	21.4	24.2	24.5
Base Number (BN)	mg KOH/g	ASTM D2896 9.4	8.6	7.2	7.8

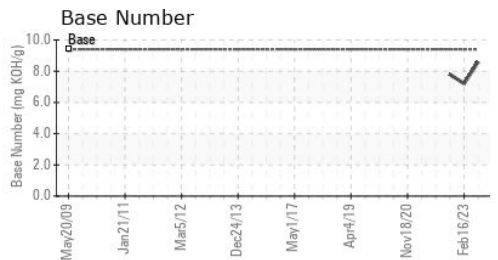
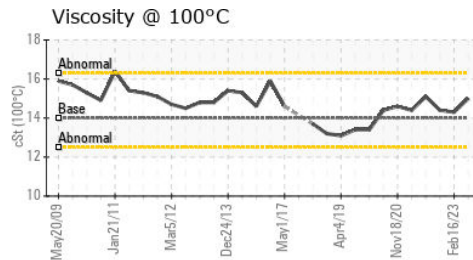
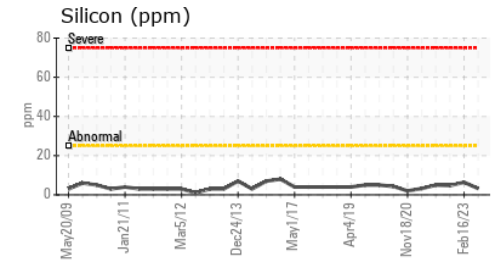
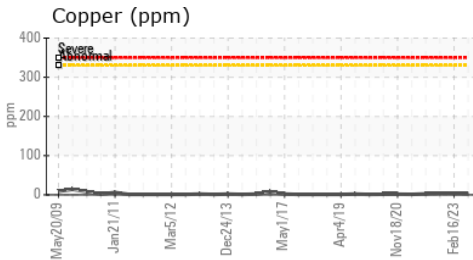
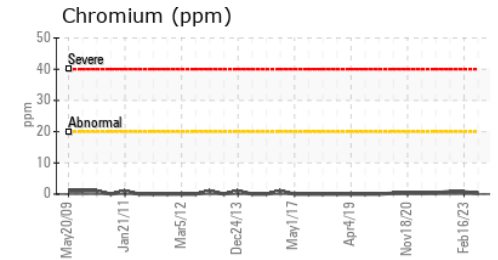
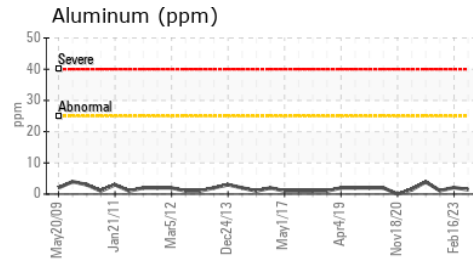
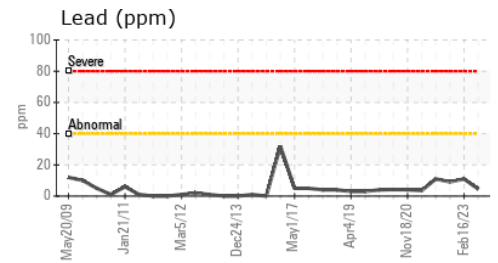
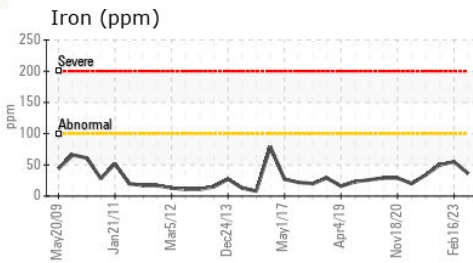
OIL ANALYSIS REPORT



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 @ 100°C	cSt	ASTM D445	14	15.0	14.3	14.4

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0087109 **Received** : 17 Jul 2023
Lab Number : 05900604 **Diagnosed** : 19 Jul 2023
Unique Number : 10561960 **Diagnostician** : Don Baldrige
Test Package : MOB 1 (Additional Tests: TBN)

Kemp Quarries - Muskogee Sand
 3395 W 50th St N
 Porter, OK
 US 74454
 Contact:

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)

muskogee@muskogeessand.com

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F: