

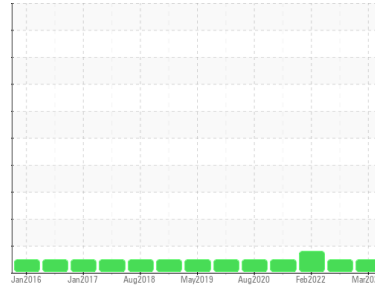
# OIL ANALYSIS REPORT

## Sample Rating Trend

**NORMAL**



Area  
**KEMP QUARRIES / MUSKOGEE SAND**  
 Machine Id  
**OHT086**  
 Component  
**Diesel Engine**  
 Fluid  
**MOBIL DELVAC 1300 SUPER15W40 (--- GAL)**



## 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		<b>PCA0087118</b>	PCA0062247	PCA0034593
Sample Date	Client Info		<b>23 Mar 2023</b>	23 Jun 2022	09 Feb 2022
Machine Age	hrs	Client Info	<b>19795</b>	19380	19025
Oil Age	hrs	Client Info	<b>415</b>	355	470
Oil Changed	Client Info		<b>Changed</b>	Changed	Changed
Sample Status			<b>NORMAL</b>	NORMAL	ABNORMAL

## CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>6.0	<b>&lt;1.0</b>	<1.0	<1.0
Glycol	WC Method		<b>NEG</b>	NEG	NEG

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	<b>9</b>	7	10
Chromium	ppm	ASTM D5185m >20	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185m >2	<b>0</b>	<1	<1
Titanium	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m >2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >25	<b>2</b>	2	2
Lead	ppm	ASTM D5185m >40	<b>&lt;1</b>	1	1
Copper	ppm	ASTM D5185m >330	<b>&lt;1</b>	<1	<1
Tin	ppm	ASTM D5185m >15	<b>&lt;1</b>	<1	<1
Antimony	ppm	ASTM D5185m	<b>---</b>	---	0
Vanadium	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	<b>&lt;1</b>	4	5
Barium	ppm	ASTM D5185m 0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m 0	<b>60</b>	55	62
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m 0	<b>990</b>	851	1016
Calcium	ppm	ASTM D5185m	<b>1096</b>	999	1137
Phosphorus	ppm	ASTM D5185m	<b>1030</b>	919	1158
Zinc	ppm	ASTM D5185m	<b>1294</b>	1187	1267
Sulfur	ppm	ASTM D5185m	<b>3786</b>	3288	2822

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	<b>4</b>	4	5
Sodium	ppm	ASTM D5185m	<b>&lt;1</b>	1	19
Potassium	ppm	ASTM D5185m >20	<b>&lt;1</b>	0	16

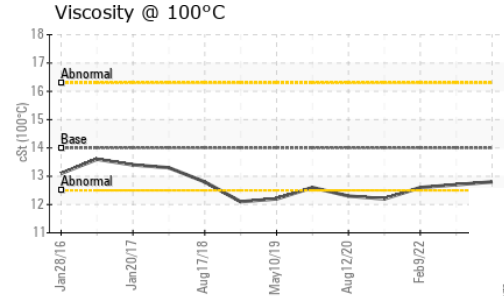
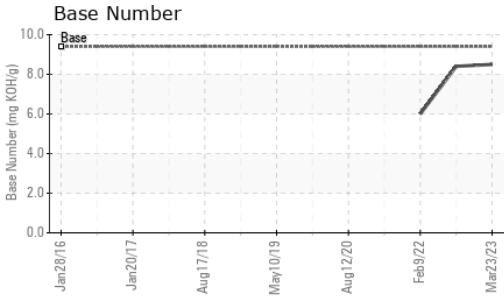
## INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	<b>0.6</b>	0.4	▲ 4.4
Nitration	Abs/cm	*ASTM D7624 >20	<b>6.6</b>	6.2	14.7
Sulfation	Abs/.1mm	*ASTM D7415 >30	<b>18.0</b>	18.1	29.5

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	<b>13.3</b>	13.2	20.5
Base Number (BN)	mg KOH/g	ASTM D2896 9.4	<b>8.5</b>	8.4	6.0

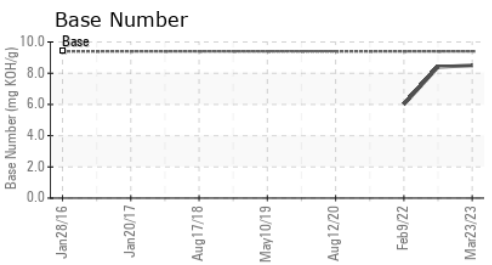
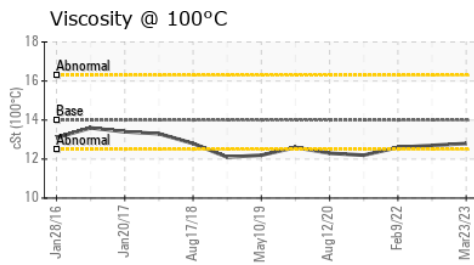
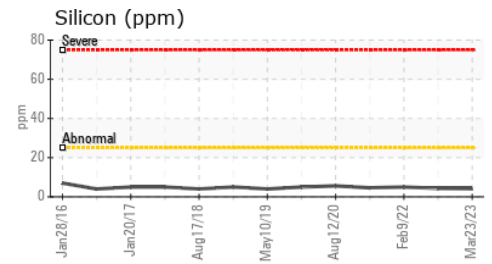
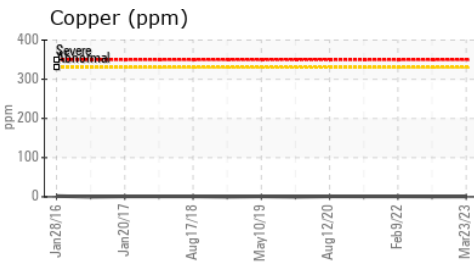
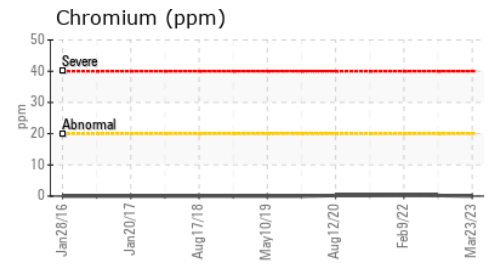
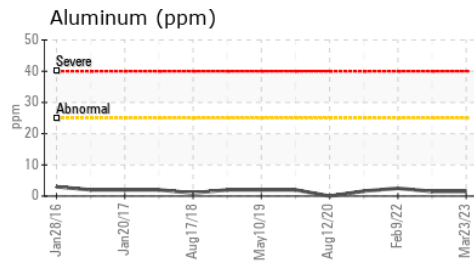
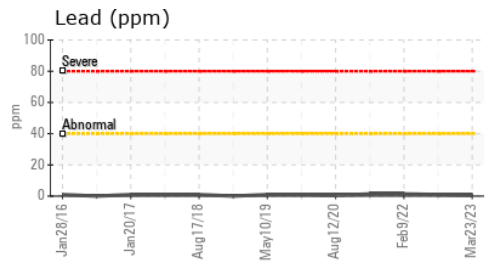
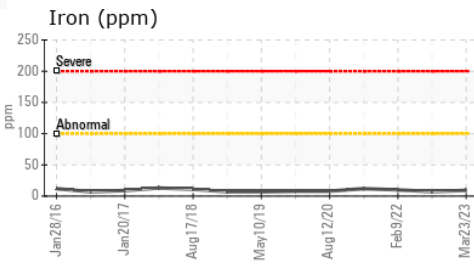
# OIL ANALYSIS REPORT



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	<b>12.8</b>	12.7	12.6

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0087118 **Received** : 17 Jul 2023  
**Lab Number** : 05900605 **Diagnosed** : 19 Jul 2023  
**Unique Number** : 10561961 **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  
 T:  
 F: