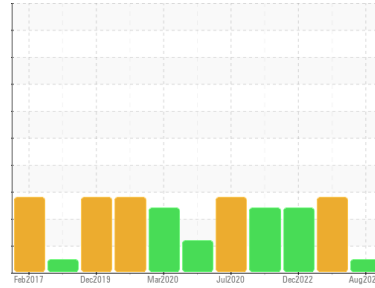


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
KEMP QUARRIES / MUSKOGEE SAND
 Machine Id
GEN023
 Component
Diesel Engine
 Fluid
MOBIL DELVAC 1300 SUPER15W40 (--- GAL)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. 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	PCA0087096	PCA0087180	PCA0070535
Sample Date	Client Info	01 Aug 2023	22 Feb 2023	15 Dec 2022
Machine Age	hrs	11375	11065	11000
Oil Age	hrs	375	65	885
Oil Changed	Client Info	Changed	Not Changd	Changed
Sample Status		NORMAL	SEVERE	SEVERE

CONTAMINATION

method	limit/base	current	history1	history2
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >100	28	17	18
Chromium	ppm	ASTM D5185m >20	4	<1	1
Nickel	ppm	ASTM D5185m >4	0	0	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m >3	0	0	0
Aluminum	ppm	ASTM D5185m >20	<1	<1	2
Lead	ppm	ASTM D5185m >40	7	2	3
Copper	ppm	ASTM D5185m >330	11	5	6
Tin	ppm	ASTM D5185m >15	5	2	4
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	2	<1
Barium	ppm	ASTM D5185m 0	0	0	0
Molybdenum	ppm	ASTM D5185m 0	71	46	54
Manganese	ppm	ASTM D5185m	0	<1	<1
Magnesium	ppm	ASTM D5185m 0	1119	750	830
Calcium	ppm	ASTM D5185m	1271	932	922
Phosphorus	ppm	ASTM D5185m	1075	735	826
Zinc	ppm	ASTM D5185m	1409	987	1092
Sulfur	ppm	ASTM D5185m	3087	2500	2916

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >25	5	7	5
Sodium	ppm	ASTM D5185m	2	1	2
Potassium	ppm	ASTM D5185m >20	<1	1	0
Fuel	%	ASTM D3524 >5	0.5	23.8	18.1

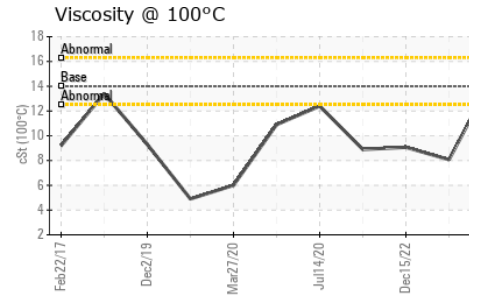
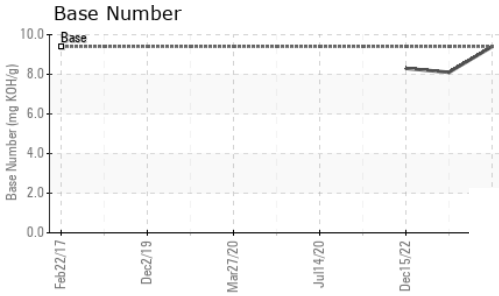
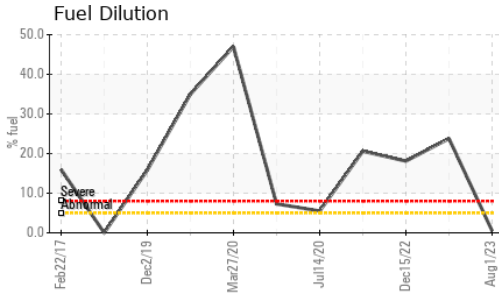
INFRA-RED

method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844 >3	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624 >20	7.6	6.3	7.5
Sulfation	Abs/.1mm	*ASTM D7415 >30	19.0	16.5	17.3

FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	16.6	12.4	14.0
Base Number (BN)	mg KOH/g	ASTM D2896 9.4	9.4	8.1	8.3

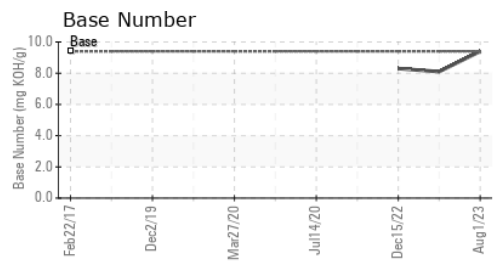
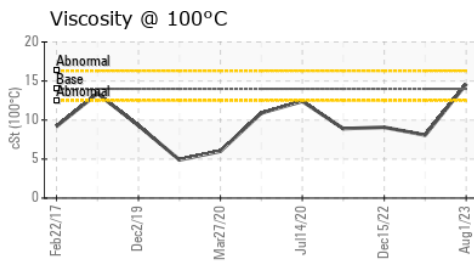
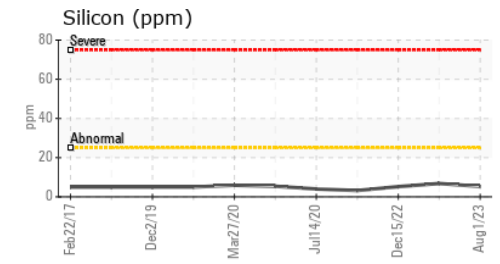
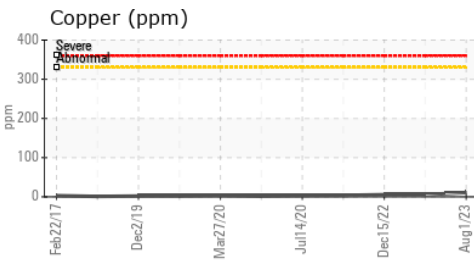
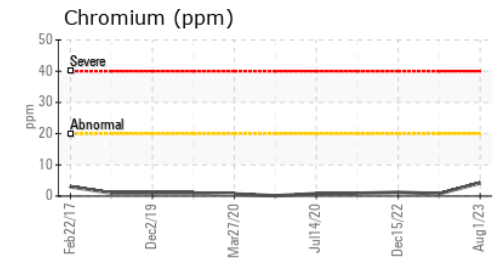
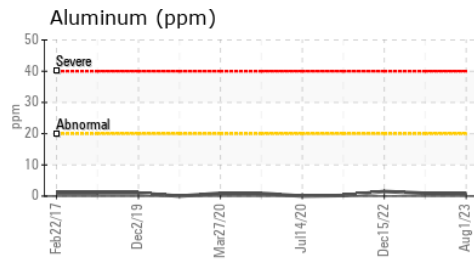
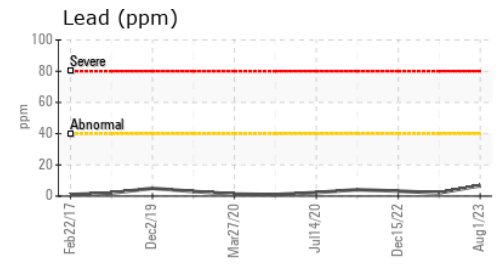
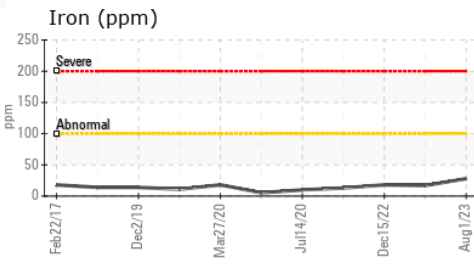
OIL ANALYSIS REPORT



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	14.6	8.07	9.07

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0087096 **Received** : 04 Oct 2023
Lab Number : 05969524 **Diagnosed** : 09 Oct 2023
Unique Number : 10676075 **Diagnostician** : Sean Felton
Test Package : MOB 1 (Additional Tests: PercentFuel, TBN)

Kemp Quarries - Muskogee Sand
 3395 W 50th St N
 Porter, OK
 US 74454
 Contact:
 muskogee@muskogeessand.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)