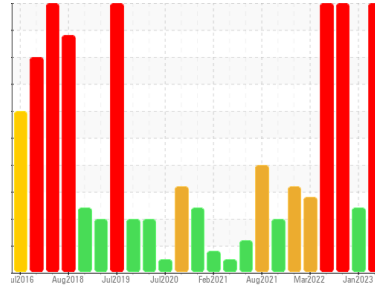


Area
KEMP QUARRIES / RIVER VALLEY ARKOMA
Machine Id
WL108
Component
Diesel Engine
Fluid
MOBIL DELVAC 1300 SUPER15W40 (--- GAL)



DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. Suspect Oil Cooler leaching. We recommend that you check the cooling system for the presence of oil. If oil is present in the cooling system we recommend that the oil cooler be removed and tested. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

The copper level is severe. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

Contamination

Sodium and/or potassium levels are high. Test for glycol is positive. Fuel content negligible. There is an abnormal amount of solids and carbon present in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION

method	limit/base	current	history 1	history 2
Sample Number	Client Info	PCA0070325	PCA0070397	PCA0070464
Sample Date	Client Info	23 Mar 2023	03 Jan 2023	16 Dec 2022
Machine Age	hrs	45601	45120	45035
Oil Age	hrs	45601	45035	43840
Oil Changed	Client Info	Changed	Not Changd	Changed
Sample Status		SEVERE	ABNORMAL	SEVERE

WEAR METALS

method	limit/base	current	history 1	history 2	
Iron	ppm	ASTM D5185m >100	43	25	67
Chromium	ppm	ASTM D5185m >20	<1	<1	1
Nickel	ppm	ASTM D5185m >4	1	0	2
Titanium	ppm	ASTM D5185m	<1	<1	0
Silver	ppm	ASTM D5185m >3	0	0	0
Aluminum	ppm	ASTM D5185m >20	2	0	1
Lead	ppm	ASTM D5185m >40	4	3	12
Copper	ppm	ASTM D5185m >330	630	270	200
Tin	ppm	ASTM D5185m >15	<1	<1	1
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history 1	history 2	
Boron	ppm	ASTM D5185m 0	<1	0	2
Barium	ppm	ASTM D5185m 0	3	0	0
Molybdenum	ppm	ASTM D5185m 0	168	100	127
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m 0	838	809	911
Calcium	ppm	ASTM D5185m	982	991	1034
Phosphorus	ppm	ASTM D5185m	963	914	949
Zinc	ppm	ASTM D5185m	1150	1087	1228
Sulfur	ppm	ASTM D5185m	2730	2658	2955

CONTAMINANTS

method	limit/base	current	history 1	history 2	
Silicon	ppm	ASTM D5185m >25	9	6	9
Sodium	ppm	ASTM D5185m	881	356	477
Potassium	ppm	ASTM D5185m >20	183	60	77
Fuel	%	ASTM D3524 >5	2.4	<1.0	2.7
Glycol	%	*ASTM D2982	0.10	NEG	0.10

INFRA-RED

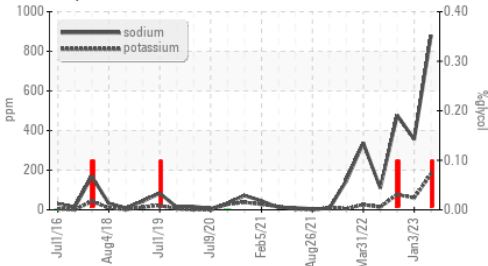
method	limit/base	current	history 1	history 2	
Soot %	%	*ASTM D7844 >3	4.6	2.1	7.9
Nitration	Abs/cm	*ASTM D7624 >20	13.9	8.3	19.3
Sulfation	Abs/.1mm	*ASTM D7415 >30	27.2	20.7	37.0

FLUID DEGRADATION

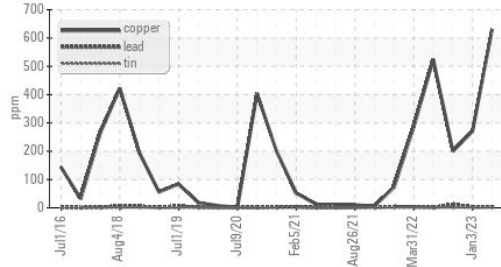
method	limit/base	current	history 1	history 2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	15.0	13.0	27.3
Base Number (BN)	mg KOH/g	ASTM D2896 9.4	6.2	10.7	0.0

OIL ANALYSIS REPORT

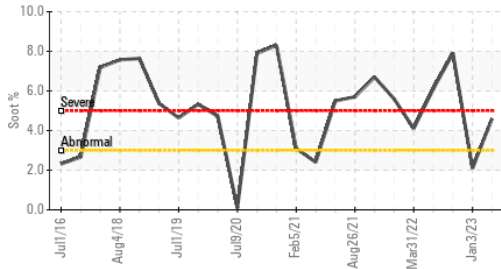
Glycol Contamination



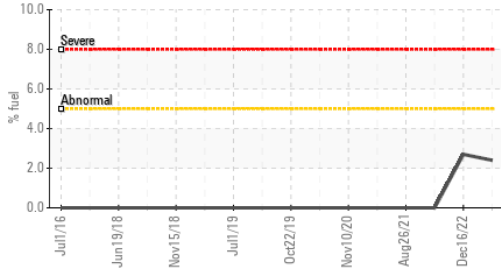
Non-ferrous Metals



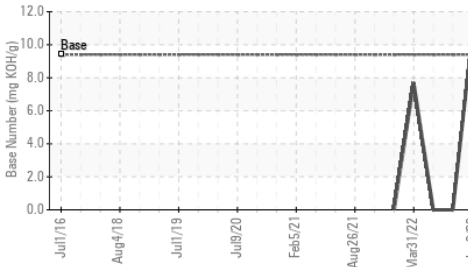
Soot %



Fuel Dilution



Base Number



VISUAL

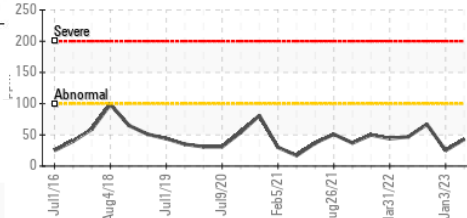
	method	limit/base	current	history 1	history 2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*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

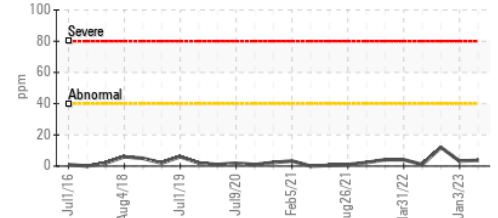
	method	limit/base	current	history 1	history 2
Visc @ 100°C	cSt	ASTM D445	14	14.7	14.3

GRAPHS

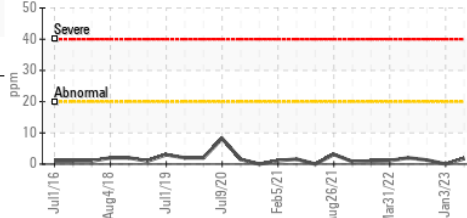
Iron (ppm)



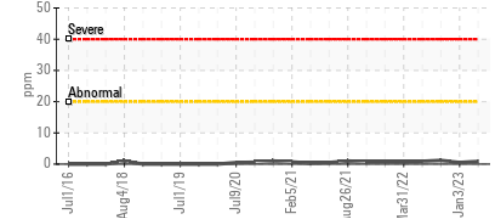
Lead (ppm)



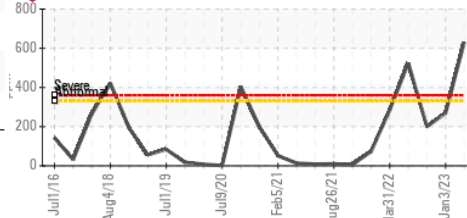
Aluminum (ppm)



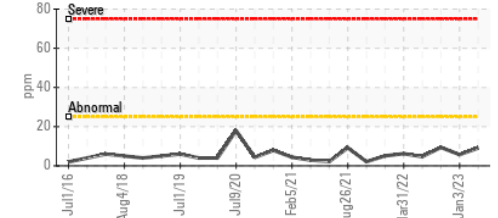
Chromium (ppm)



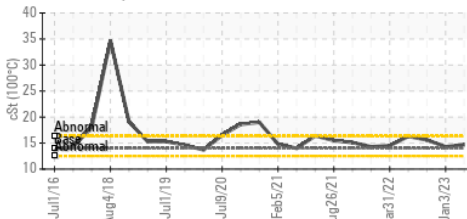
Copper (ppm)



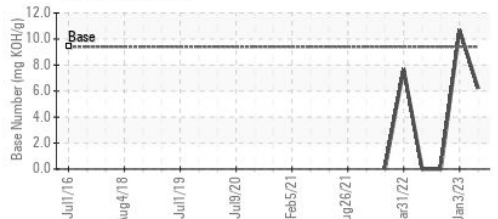
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0070325
Lab Number : 05806700
Unique Number : 10404229
Test Package : MOB 1 (Additional Tests: FUELDILUTION, Glycol, PercentFuel, TBN)

Kemp Quarries - River Valley - Arkoma
 12971 HWY 9a
 Shawnee, OK
 US 74804
 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)

arkomashop@kempquarries.net

T:

F: