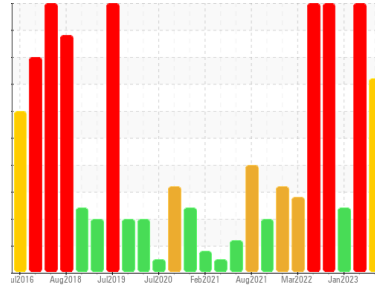


Area
KEMP QUARRIES / RIVER VALLEY ARKOMA
Machine Id
WL108
Component
Diesel Engine
Fluid
MOBIL DELVAC 1300 SUPER15W40 (--- GAL)



DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

Wear

The copper level is abnormal. 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. Light fuel dilution occurring.

Fluid Condition

The BN level is low.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		PCA0084137	PCA0070325	PCA0070397
Sample Date	Client Info		04 Aug 2023	23 Mar 2023	03 Jan 2023
Machine Age	hrs	Client Info	46129	45601	45120
Oil Age	hrs	Client Info	45601	45601	45035
Oil Changed	Client Info		Changed	Changed	Not Changed
Sample Status			SEVERE	SEVERE	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	37	43	25
Chromium	ppm	ASTM D5185m >20	<1	<1	<1
Nickel	ppm	ASTM D5185m >4	<1	1	0
Titanium	ppm	ASTM D5185m	<1	<1	<1
Silver	ppm	ASTM D5185m >3	0	0	0
Aluminum	ppm	ASTM D5185m >20	2	2	0
Lead	ppm	ASTM D5185m >40	1	4	3
Copper	ppm	ASTM D5185m >330	545	630	270
Tin	ppm	ASTM D5185m >15	<1	<1	<1
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	0	<1	0
Barium	ppm	ASTM D5185m 0	1	3	0
Molybdenum	ppm	ASTM D5185m 0	91	168	100
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m 0	905	838	809
Calcium	ppm	ASTM D5185m	1010	982	991
Phosphorus	ppm	ASTM D5185m	944	963	914
Zinc	ppm	ASTM D5185m	1164	1150	1087
Sulfur	ppm	ASTM D5185m	2763	2730	2658

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	5	9	6
Sodium	ppm	ASTM D5185m	222	881	356
Potassium	ppm	ASTM D5185m >20	64	183	60
Fuel	%	ASTM D3524 >5	3.9	2.4	<1.0
Glycol	%	*ASTM D2982	NEG	0.10	NEG

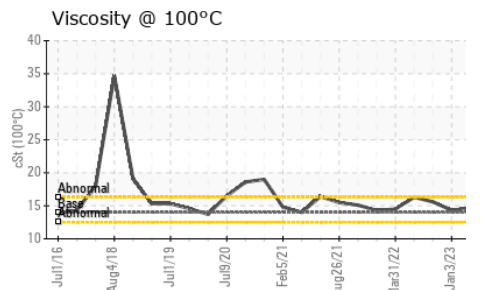
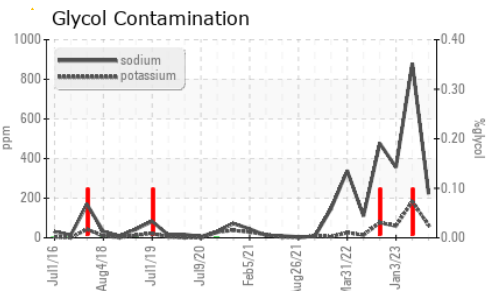
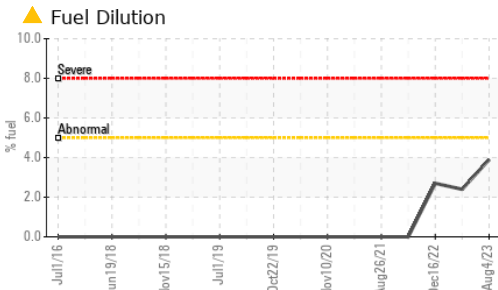
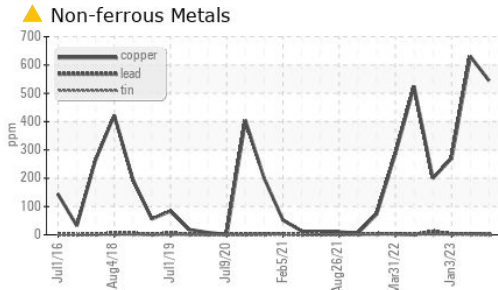
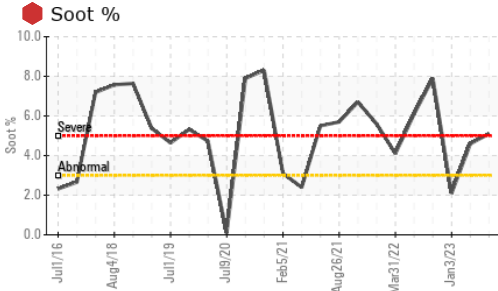
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	5.1	4.6	2.1
Nitration	Abs/cm	*ASTM D7624 >20	13.6	13.9	8.3
Sulfation	Abs/.1mm	*ASTM D7415 >30	28.9	27.2	20.7

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	18.8	15.0	13.0
Base Number (BN)	mg KOH/g	ASTM D2896 9.4	0.0	6.2	10.7

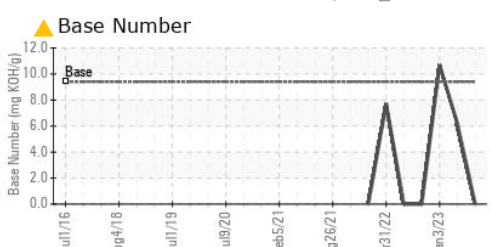
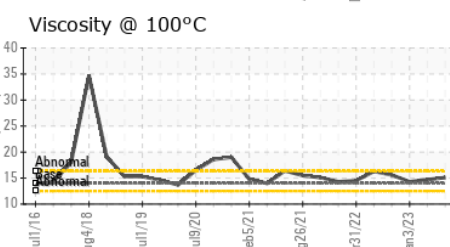
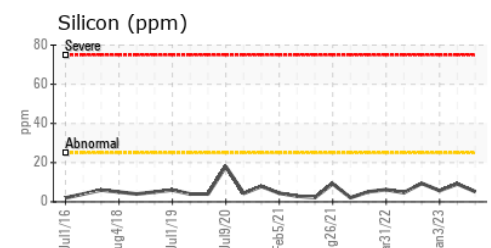
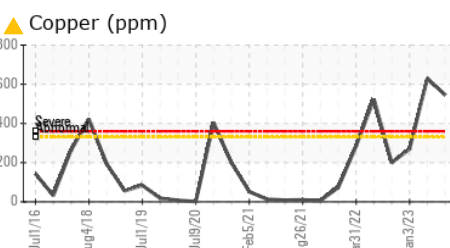
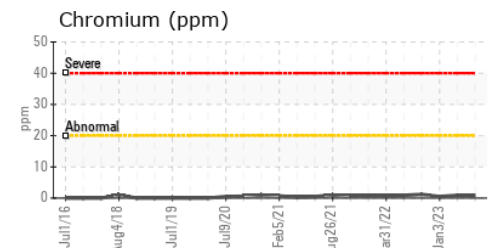
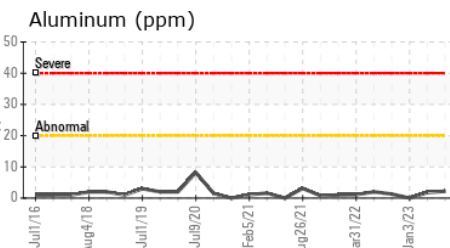
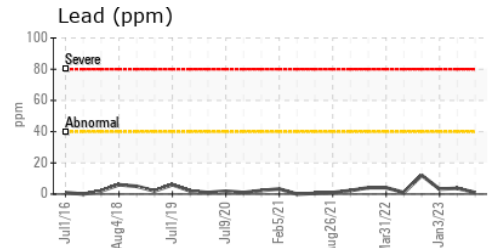
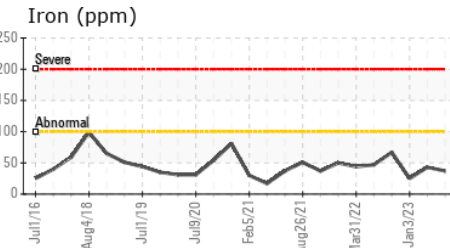
OIL ANALYSIS REPORT



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	15.1	14.7

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0084137
Lab Number : 05920144
Unique Number : 10592058
Test Package : MOB 1 (Additional Tests: FUELDILUTION, PercentFuel, TBN)

Kemp Quarries - River Valley - Arkoma
 12971 HWY 9a
 Shawnee, OK
 US 74804
 Contact:
 arkomashop@kempquarries.net

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)