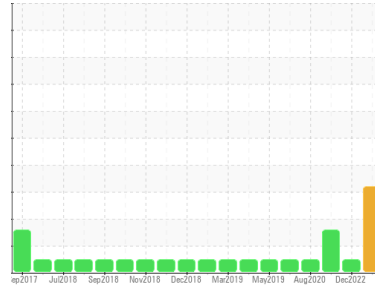


Area  
**KEMP QUARRIES / RIVER VALLEY BACKBONE**  
 Machine Id  
**WL118**  
 Component  
**Diesel Engine**  
 Fluid  
**MOBIL DELVAC 1300 SUPER15W40 (--- GAL)**



**DIAGNOSIS**

**Recommendation**  
 We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

**Wear**  
 Cylinder, crank, or cam shaft wear is indicated. All other component wear rates are normal.

**Contamination**  
 Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

**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>PCA0084866</b>	PCA0037145	PCA0025212
Sample Date	Client Info	<b>26 Sep 2023</b>	01 Dec 2022	27 Jan 2021
Machine Age	hrs	<b>5358</b>	5054	4641
Oil Age	hrs	<b>304</b>	413	0
Oil Changed	Client Info	<b>Changed</b>	Changed	Changed
Sample Status		<b>ABNORMAL</b>	NORMAL	ABNORMAL

**CONTAMINATION**

method	limit/base	current	history1	history2
Fuel	WC Method >5	<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>▲ 159</b>	42	59
Chromium	ppm ASTM D5185m >20	<b>5</b>	2	2
Nickel	ppm ASTM D5185m >4	<b>0</b>	0	0
Titanium	ppm ASTM D5185m	<b>&lt;1</b>	<1	<1
Silver	ppm ASTM D5185m >3	<b>0</b>	0	0
Aluminum	ppm ASTM D5185m >20	<b>▲ 21</b>	10	7
Lead	ppm ASTM D5185m >40	<b>&lt;1</b>	0	<1
Copper	ppm ASTM D5185m >330	<b>3</b>	1	2
Tin	ppm ASTM D5185m >15	<b>&lt;1</b>	0	<1
Antimony	ppm ASTM D5185m	<b>---</b>	---	0
Vanadium	ppm ASTM D5185m	<b>0</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>0</b>	0	5
Barium	ppm ASTM D5185m 0	<b>0</b>	1	0
Molybdenum	ppm ASTM D5185m 0	<b>80</b>	77	72
Manganese	ppm ASTM D5185m	<b>1</b>	<1	<1
Magnesium	ppm ASTM D5185m 0	<b>1213</b>	1146	1161
Calcium	ppm ASTM D5185m	<b>1381</b>	1367	1266
Phosphorus	ppm ASTM D5185m	<b>1179</b>	1100	1148
Zinc	ppm ASTM D5185m	<b>1405</b>	1398	1296
Sulfur	ppm ASTM D5185m	<b>3561</b>	3570	2673

**CONTAMINANTS**

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	<b>▲ 35</b>	17	▲ 25
Sodium	ppm ASTM D5185m	<b>2</b>	<1	0
Potassium	ppm ASTM D5185m >20	<b>2</b>	0	2

**INFRA-RED**

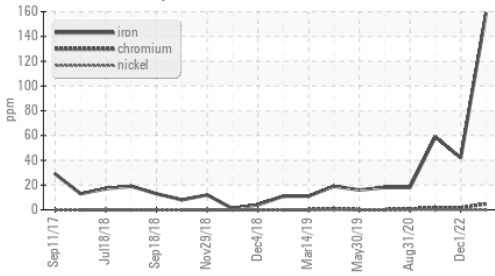
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	<b>0.1</b>	0.3	0.2
Nitration	Abs/cm *ASTM D7624 >20	<b>6.3</b>	8.8	7.7
Sulfation	Abs/.1mm *ASTM D7415 >30	<b>18.7</b>	21.9	20.4

**FLUID DEGRADATION**

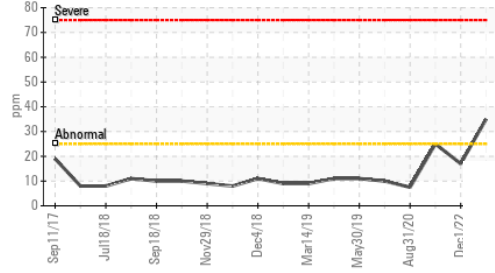
method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	<b>14.6</b>	17.7	16.4
Base Number (BN)	mg KOH/g ASTM D2896 9.4	<b>10.2</b>	11.9	---

# OIL ANALYSIS REPORT

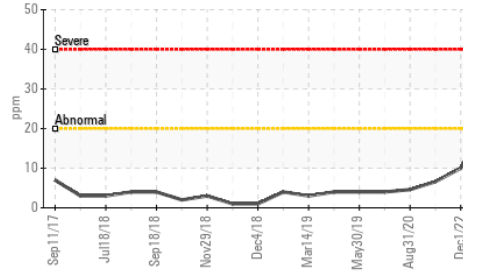
## ▲ Ferrous Alloys



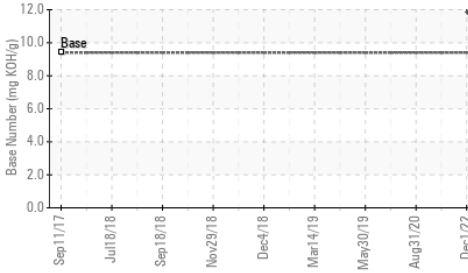
## ▲ Silicon (ppm)



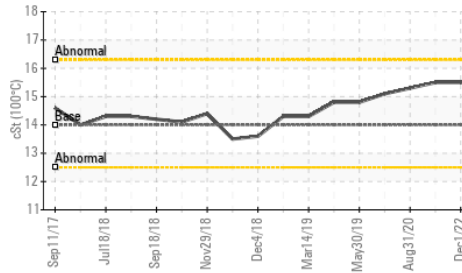
## ▲ Aluminum (ppm)



## Base Number



## Viscosity @ 100°C



## VISUAL

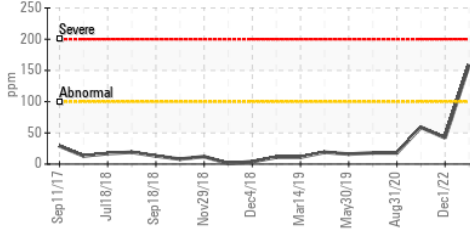
method	limit/base	current	history1	history2
White Metal	scalar *Visual	NONE	NONE	NONE
Yellow Metal	scalar *Visual	NONE	NONE	NONE
Precipitate	scalar *Visual	NONE	NONE	NONE
Silt	scalar *Visual	NONE	NONE	NONE
Debris	scalar *Visual	NONE	NONE	NONE
Sand/Dirt	scalar *Visual	NONE	NONE	NONE
Appearance	scalar *Visual	NORML	NORML	NORML
Odor	scalar *Visual	NORML	NORML	NORML
Emulsified Water	scalar *Visual	>0.2	NEG	NEG
Free Water	scalar *Visual	NEG	NEG	NEG

## FLUID PROPERTIES

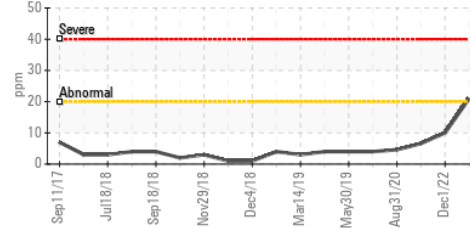
method	limit/base	current	history1	history2
Visc @ 100°C	cSt ASTM D445	14	15.5	15.5

## GRAPHS

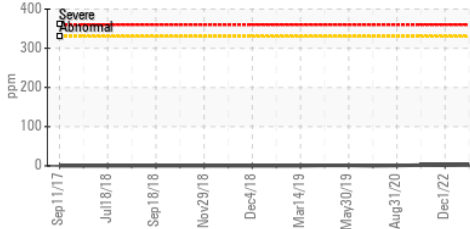
### ▲ Iron (ppm)



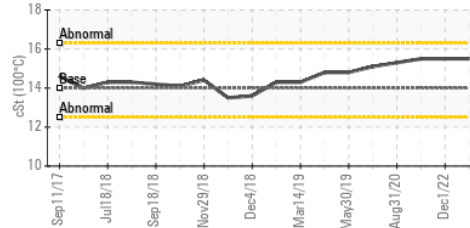
### ▲ Aluminum (ppm)



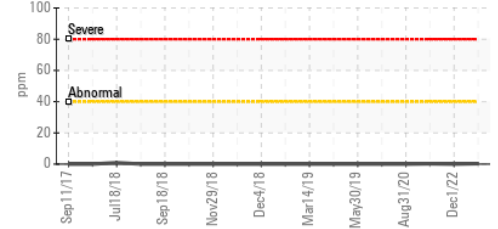
### Copper (ppm)



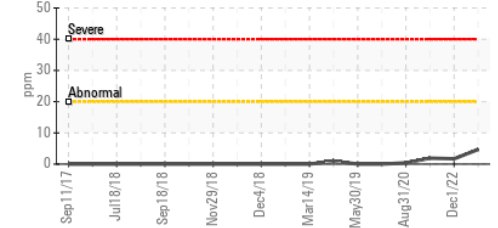
### Viscosity @ 100°C



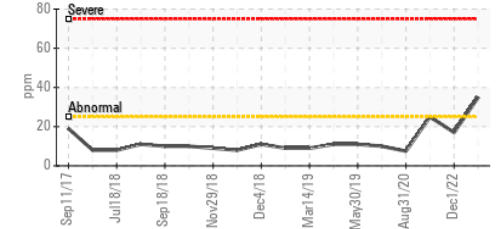
### Lead (ppm)



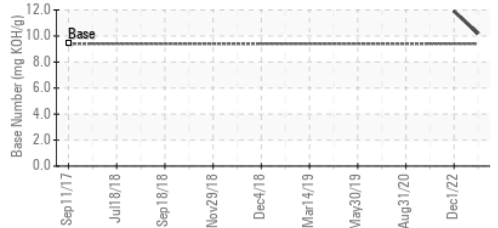
### Chromium (ppm)



### ▲ Silicon (ppm)



### Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0084866 **Received** : 06 Oct 2023  
**Lab Number** : 05972043 **Diagnosed** : 10 Oct 2023  
**Unique Number** : 10683993 **Diagnostician** : Don Baldrige  
**Test Package** : MOB 1 ( Additional Tests: TBN )

**Kemp Quarries - River Valley - Backbone**  
 5600 S Hwy 253  
 Huntington, AR  
 US 72940  
 Contact:  
 backbone@rivervalleyquarries.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)

T:  
F: