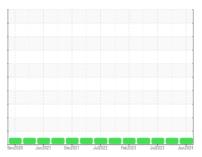


OIL ANALYSIS REPORT

KEMP QUARRIES / RIVER VALLEY BACKBONE **WP066**

Diesel Engine

MOBIL DELVAC 1300 SUPER 15W40 (--- GAL)



Sample Rating Trend



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

Fluid Condition

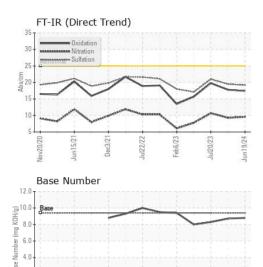
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

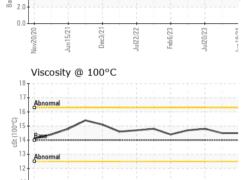
Sample Date	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 9825 9442 8541 Oil Age hrs Client Info 383 901 1094 Oil Changed Client Info Changed Changed Changed Changed Changed Changed Changed NORMAL 1.0 41.0	Sample Number		Client Info		PCA0108481	PCA0108613	PCA0085861
Oil Age hrs Client Info 383 901 1094 Oil Changed Sample Status Client Info Changed Changed Changed Changed Changed Changed Changed Changed NORMAL	Sample Date		Client Info		19 Jun 2024	06 May 2024	20 Jul 2023
Oil Changed Sample Status Client Info Changed NORMAL Changed NoRMAD Changed NoRMAD Changed NoRMAD Changed NeG NoE NoE NoE Changed NoRMAD NoE NoE NoE Changed NoRMAD Changed NEG NoE Changed NoRMAD <td>Machine Age</td> <td>nrs</td> <td>Client Info</td> <td></td> <th>9825</th> <td>9442</td> <td>8541</td>	Machine Age	nrs	Client Info		9825	9442	8541
NORMAL NORMAL NORMAL	Oil Age	nrs	Client Info		383	901	1094
NORMAL NORMAL NORMAL	Oil Changed		Client Info		Changed	Changed	Changed
Fuel WC Method S5 C1.0 C1.0 C1.0 C1.0 Water WC Method S0.2 NEG NEG	Sample Status						
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imitibase current history1 history2 WEAR METALS method limitibase current history1 history2 Iron ppm ASTM D5185m >100 14 16 20 Chromium ppm ASTM D5185m >20 1 <1	CONTAMINATIO	N	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 1 -1 -1 -1 Nickel ppm ASTM D5185m >4 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron p	opm	ASTM D5185m	>100	14	16	20
Nickel	Chromium	opm	ASTM D5185m	>20	1	<1	<1
Silver ppm ASTM D5185m >3 <1 0 0 Aluminum ppm ASTM D5185m >20 2 1 1 Lead ppm ASTM D5185m >40 2 <1 7 Copper ppm ASTM D5185m >330 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1		opm	ASTM D5185m	>4	<1	0	0
Aluminum ppm ASTM D5185m >20 2 1 1 Lead ppm ASTM D5185m >40 2 <1	Titanium	opm	ASTM D5185m		<1	<1	<1
Aluminum ppm ASTM D5185m >20 2 1 1 Lead ppm ASTM D5185m >40 2 <1			ASTM D5185m	>3	<1	0	0
Lead ppm ASTM D5185m >40 2 <1 7 Copper ppm ASTM D5185m >330 1 <1 2 Tin ppm ASTM D5185m >15 <1 <1 <1 <1 Vanadium ppm ASTM D5185m <1 0 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 2 4 Barium ppm ASTM D5185m 0 <1 0 0 Barium ppm ASTM D5185m 0 65 70 74 Manganese ppm ASTM D5185m <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 </td <td>Aluminum p</td> <td>opm</td> <td>ASTM D5185m</td> <td>>20</td> <th>2</th> <td>1</td> <td>1</td>	Aluminum p	opm	ASTM D5185m	>20	2	1	1
Copper ppm ASTM D5185m >330 1 <1 2 Tin ppm ASTM D5185m >15 <1			ASTM D5185m	>40	2	<1	7
Tin ppm ASTM D5185m >15 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1			ASTM D5185m	>330	1	<1	2
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 2 4 Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 0 65 70 74 Manganese ppm ASTM D5185m 0 1073 1130 1059 Calcium ppm ASTM D5185m 0 1073 1130 1059 Calcium ppm ASTM D5185m 1205 1181 1131 Zinc ppm ASTM D5185m 3275 3796 3601 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 So					<1		<1
Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 2 4 Barium ppm ASTM D5185m 0 <1			ASTM D5185m		<1	0	0
Boron					<1		
Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 0 65 70 74 Manganese ppm ASTM D5185m <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 65 70 74 Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 0 1073 1130 1059 Calcium ppm ASTM D5185m 1213 1248 1302 Phosphorus ppm ASTM D5185m 1205 1181 1131 Zinc ppm ASTM D5185m 1439 1483 1423 Sulfur ppm ASTM D5185m 3275 3796 3601 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 22 2 2 2 Sodium ppm ASTM D5185m 20 2 2 2 2 Potassium ppm ASTM D5185m 20 2 0 2 INFRA-RED method limit/base current history1 history2 <t< td=""><td>Boron</td><td>opm</td><td>ASTM D5185m</td><td>0</td><th>5</th><td>2</td><td>4</td></t<>	Boron	opm	ASTM D5185m	0	5	2	4
Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 0 1073 1130 1059 Calcium ppm ASTM D5185m 1213 1248 1302 Phosphorus ppm ASTM D5185m 1205 1181 1131 Zinc ppm ASTM D5185m 1439 1483 1423 Sulfur ppm ASTM D5185m 3275 3796 3601 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.3	Barium	opm	ASTM D5185m	0	<1	0	0
Magnesium ppm ASTM D5185m 0 1073 1130 1059 Calcium ppm ASTM D5185m 1213 1248 1302 Phosphorus ppm ASTM D5185m 1205 1181 1131 Zinc ppm ASTM D5185m 1439 1483 1423 Sulfur ppm ASTM D5185m 3275 3796 3601 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 2 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5	Molybdenum	opm	ASTM D5185m	0	65	70	74
Calcium ppm ASTM D5185m 1213 1248 1302 Phosphorus ppm ASTM D5185m 1205 1181 1131 Zinc ppm ASTM D5185m 1439 1483 1423 Sulfur ppm ASTM D5185m 3275 3796 3601 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 25 4 4 4 Sodium ppm ASTM D5185m 22 2 2 Potassium ppm ASTM D5185m >20 2 2 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm "ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRA		opm	ASTM D5185m		<1	<1	<1
Phosphorus ppm ASTM D5185m 1205 1181 1131 Zinc ppm ASTM D5185m 1439 1483 1423 Sulfur ppm ASTM D5185m 3275 3796 3601 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 2 2 2 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >3 0.2 0.2 0.3 Nitration Abs/cm "ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm "ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 histor	Magnesium p	opm	ASTM D5185m	0	1073	1130	1059
Zinc ppm ASTM D5185m 1439 1483 1423 Sulfur ppm ASTM D5185m 3275 3796 3601 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25	Calcium	opm	ASTM D5185m		1213	1248	1302
Zinc ppm ASTM D5185m 1439 1483 1423 Sulfur ppm ASTM D5185m 3275 3796 3601 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25<	Phosphorus p	opm	ASTM D5185m		1205	1181	1131
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 17.8 19.8		opm	ASTM D5185m		1439	1483	1423
Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 17.8 19.8	Sulfur	opm	ASTM D5185m		3275	3796	3601
Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 17.8 19.8	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 0 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 17.8 19.8	Silicon	opm	ASTM D5185m	>25	4	4	4
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 17.8 19.8	Sodium	opm	ASTM D5185m		2	2	2
Soot % % *ASTM D7844 >3 0.2 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 17.8 19.8	Potassium	opm	ASTM D5185m	>20	2	0	2
Nitration Abs/cm *ASTM D7624 >20 9.6 9.3 10.7 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 17.8 19.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 17.8 19.8	Soot %	%	*ASTM D7844	>3	0.2	0.2	0.3
Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 17.8 19.8	Nitration /	Abs/cm	*ASTM D7624	>20	9.6	9.3	10.7
Oxidation Abs/.1mm *ASTM D7414 >25 17.4 17.8 19.8	Sulfation /	Abs/.1mm	*ASTM D7415	>30		19.5	21.0
	FLUID DEGRADA	NOITA	method	limit/base	current	history1	history2
	Oxidation /	Abs/.1mm	*ASTM D7414	>25	17.4	17.8	19.8
			ASTM D2896		8.8	8.7	8.3



6.0

OIL ANALYSIS REPORT

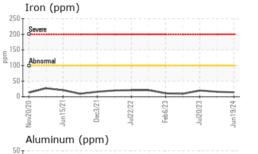


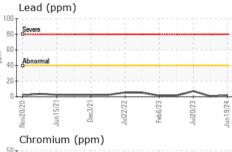


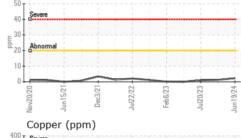
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIFS	method	limit/base	current	historv1	historv2

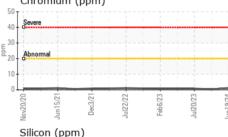
I LOID I HOI L	ITTLO					
Visc @ 100°C	cSt	ASTM D445	14	14.5	14.5	14.8

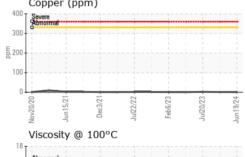
GRAPHS

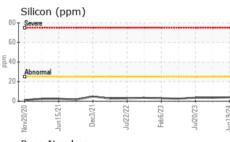


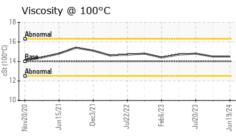


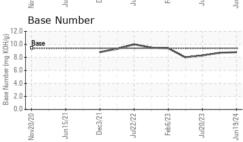
















Certificate 12367

Laboratory

Sample No.

: PCA0108481

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Lab Number : 06224149

Received : 28 Jun 2024 **Tested** : 01 Jul 2024 Diagnosed

: 01 Jul 2024 - Angela Borella

Kemp Quarries - River Valley - Backbone 5600 S Hwy 253 Huntington, AR US 72940

Unique Number : 11102346 Test Package : MOB 1 (Additional Tests: TBN) To discuss this sample report, contact Customer Service at 1-800-237-1369.

Contact: LEE DUCHANOIS LDUCHANOIS@KEMPQUARRIES.COM T:

* - 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)

F: