

OIL ANALYSIS REPORT

KEMP QUARRIES / RIVER VALLEY OZARK



NORMAL

MOBIL DELVAC 1300 SUPER15W40 (--- GAL)

SAMPLE INFORMATION method

Sample Rating Trend

DIAG	NOSIS	

Recommendation

Resample at the next service interval to monitor.

WL033 Component Diesel Engine

Fluic

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

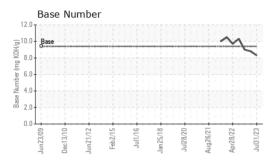
Fluid Condition

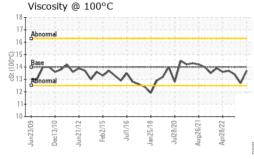
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date Client Info 31 Jul 2023 23 May 2023 28 Feb 2023 Machine Age hrs Client Info 42005 41725 41433 Oil Age hrs Client Info 40191 40191 41433 Oil Changed Client Info N/A N/A N/A ABNORMAL Sample Status Imitibase current history1 History2 Fuel WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method >5 <1.0 <1.0 <1.0 Krim Difism >100 29 32 121 <1.0 Chromium ppm ASTM D5165m >20 <1 <1 1 Nickel ppm ASTM D5165m >2 <1 0 <1 1 1 2 4 1 1 1 1 1 2 4 1 1 1 1 1 1 1 1 1 1 1	Sample Number		Client Info		PCA0069687	PCA0084649	PCA0084671
Machine Age hrs Client Info 42005 41725 41433 Oil Age hrs Client Info 40191 40191 41433 Oil Changed Client Info N/A N/A N/A N/A Sample Status Imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method >5 <1.0 <1.0 <1.0 WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 <1 <1 1 2 <1 <1 1 2 <1 <1 1 2 <1 <1 1 2 <1 <1 1 2 <1 <1 1 2 <1 <1 1 2 <1 <1 1 2 1	,						
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Chromium ppm ASTM D5185m >20 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 <1	Iron	ppm	ASTM D5185m	>100	29	32	1 21
Titanium ppm ASTM D5185m >2 <1	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >25 <1 2 4 Lead ppm ASTM D5185m >40 1 1 2 Copper ppm ASTM D5185m >330 6 8 14 Tin ppm ASTM D5185m >15 <1 2 <1 Vanadium ppm ASTM D5185m >15 <1 0 0 Cadmium ppm ASTM D5185m 0 <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 62 62 58 Magnesium ppm ASTM D5185m 0 1030 978 867 Calcium ppm ASTM D5185m 0 1030 978 3109 Calcium ppm ASTM D5185m 1178 1124	Nickel	ppm	ASTM D5185m	>2	<1	0	
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Lead ppm ASTM D5185m >40 1 1 2 Copper ppm ASTM D5185m >330 6 8 14 Tin ppm ASTM D5185m >15 <1 2 <1 Vanadium ppm ASTM D5185m >15 <1 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 5 4 Barium ppm ASTM D5185m 0 62 62 58 Maganese ppm ASTM D5185m <11 <1 1 1031 Phosphorus ppm ASTM D5185m <1 1368 1306 1187 Sulfur ppm ASTM D5185m >25 6 5 22 Solifum ppm ASTM D5185m <th>Silver</th> <th>ppm</th> <th></th> <th></th> <th>-</th> <th></th> <th></th>	Silver	ppm			-		
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Tin ppm ASTM D5185m >15 <1	Lead	ppm					
Vanadium ppm ASTM D5185m 0 0 <1	Copper	ppm			-		
Cadmium ppm ASTM D5185m <1	Tin	ppm	ASTM D5185m	>15	<1		<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 5 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 62 62 58 Manganese ppm ASTM D5185m 0 1030 978 867 Calcium ppm ASTM D5185m 0 1030 978 867 Calcium ppm ASTM D5185m 0 1030 978 867 Calcium ppm ASTM D5185m 1178 1124 1031 Phosphorus ppm ASTM D5185m 1368 1306 1187 Sulfur ppm ASTM D5185m 3966 3766 3109 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 1 <1 6	Vanadium	ppm	ASTM D5185m		0	0	
Boron ppm ASTM D5185m 0 <1	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 62 62 58 Manganese ppm ASTM D5185m <1 1 Magnesium ppm ASTM D5185m 0 1030 978 867 Calcium ppm ASTM D5185m 0 1030 978 867 Calcium ppm ASTM D5185m 0 1030 978 867 Calcium ppm ASTM D5185m 1178 1124 1031 Phosphorus ppm ASTM D5185m 1094 1089 943 Zinc ppm ASTM D5185m 1368 1306 1187 Sulfur ppm ASTM D5185m 3966 3766 3109 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >20 1 <1 6 <	ADDITIVES		method	limit/base	current	history1	history2
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Manganese ppm ASTM D5185m <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 0 1030 978 867 Calcium ppm ASTM D5185m 1178 1124 1031 Phosphorus ppm ASTM D5185m 1094 1089 943 Zinc ppm ASTM D5185m 1094 1089 943 Zinc ppm ASTM D5185m 1368 1306 1187 Sulfur ppm ASTM D5185m 3966 3766 3109 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 22 Sodium ppm ASTM D5185m >20 1 <1 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.1 0.5 0.8 Nitration Abs/.mm *ASTM D7624 >20 8.2 7.8 8.7	Molybdenum	ppm	ASTM D5185m	0	62	62	58
Calcium ppm ASTM D5185m 1178 1124 1031 Phosphorus ppm ASTM D5185m 1094 1089 943 Zinc ppm ASTM D5185m 1368 1306 1187 Sulfur ppm ASTM D5185m 3966 3766 3109 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 22 Sodium ppm ASTM D5185m >20 1 <1 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.1 0.5 0.8 Nitration Abs/cm< *ASTM D7624 >20 8.2 7.8 8.7 Sulfation Abs/.1mm *ASTM D7414 >30 20.3 20.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 </th <th>Manganese</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th><1</th> <th><1</th> <th>1</th>	Manganese	ppm	ASTM D5185m		<1	<1	1
Phosphorus ppm ASTM D5185m 1094 1089 943 Zinc ppm ASTM D5185m 1368 1306 1187 Sulfur ppm ASTM D5185m 3966 3766 3109 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 22 Sodium ppm ASTM D5185m >25 6 5 22 Sodium ppm ASTM D5185m >20 1 <1 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.1 0.5 0.8 Nitration Abs/cm *ASTM D7624 >20 8.2 7.8 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 20.6 20.1 FLUID DEGRADATION method limit/base current history1	Magnesium	ppm	ASTM D5185m	0	1030	978	867
Zinc ppm ASTM D5185m 1368 1306 1187 Sulfur ppm ASTM D5185m 3966 3766 3109 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 22 Sodium ppm ASTM D5185m >20 1 <1 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.1 0.5 0.8 Nitration Abs/cm *ASTM D7624 >20 8.2 7.8 8.7 Sulfation Abs/.1mm *ASTM D7624 >20 8.2 7.8 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 20.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25	Calcium	ppm	ASTM D5185m		1178	1124	1031
Sulfur ppm ASTM D5185m 3966 3766 3109 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 22 Sodium ppm ASTM D5185m >20 1 <1 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.1 0.5 0.8 Nitration Abs/cm *ASTM D7624 >20 8.2 7.8 8.7 Sulfation Abs/.1mm *ASTM D7615 >30 20.3 20.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 16.1 15.4	Phosphorus	ppm	ASTM D5185m		1094	1089	943
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m<>25 6 5 22 Sodium ppm ASTM D5185m<>20 1 2 53 Potassium ppm ASTM D5185m >20 1 <1 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844<>3 1.1 0.5 0.8 Nitration Abs/cm *ASTM D7624<>20 8.2 7.8 8.7 Sulfation Abs/.1mm *ASTM D7415<>30 20.3 20.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414<>25 15.7 16.1 15.4	Zinc	ppm	ASTM D5185m		1368	1306	1187
Silicon ppm ASTM D5185m >25 6 5 22 Sodium ppm ASTM D5185m >20 4 2 53 Potassium ppm ASTM D5185m >20 1 <1	Sulfur	ppm	ASTM D5185m		3966	3766	3109
Sodium ppm ASTM D5185m 4 2 53 Potassium ppm ASTM D5185m<>20 1 <1 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844<>3 1.1 0.5 0.8 Nitration Abs/cm *ASTM D7624<>20 8.2 7.8 8.7 Sulfation Abs/.1mm *ASTM D7415<>30 20.3 20.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414<>25 15.7 16.1 15.4	CONTAMINAN	TS	method	limit/base	current	history1	history2
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Soot % % *ASTM D7844 >3 1.1 0.5 0.8 Nitration Abs/cm *ASTM D7624 >20 8.2 7.8 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 20.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 16.1 15.4	Potassium	ppm	ASTM D5185m	>20	1	<1	6
Nitration Abs/cm *ASTM D7624 >20 8.2 7.8 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 20.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 16.1 15.4	INFRA-RED		method	limit/base	current	history1	history2
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Sulfation Abs/.1mm *ASTM D7415 >30 20.3 20.6 20.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 16.1 15.4	Nitration						
Oxidation Abs/.1mm *ASTM D7414 >25 15.7 16.1 15.4	Sulfation						
Oxidation Abs/.1mm *ASTM D7414 >25 15.7 16.1 15.4	FLUID DEGRA	DAT <u>ION</u>	method	limi <u>t/base</u>	current	history1	history2
				>25	15.7		
	Base Number (BN)	mg KOH/g	ASTM D2896		8.3	8.8	9.0



OIL ANALYSIS REPORT







Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

St (100°C)

Laboratory

Sample No.

Lab Number

Unique Number

Certificate L2367