

## **OIL ANALYSIS REPORT**

Sample Rating Trend

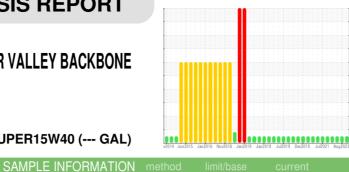
### NORMAL



#### Area KEMP QUARRIES / RIVER VALLEY BACKBONE Machine Id VVL088

Component Diesel Engine

MOBIL DELVAC 1300 SUPER15W40 (--- GAL)





## DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Fluic

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

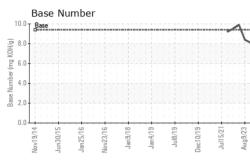
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

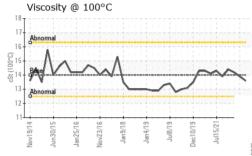
Sample Number		Client Info		PCA0084893	PCA0085854	PCA0070235
Sample Date		Client Info		02 Oct 2023	09 Aug 2023	11 Nov 2022
Machine Age	hrs	Client Info		36443	6146	5802
Oil Age	hrs	Client Info		320	300	5802
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	15	13	8
Chromium	ppm	ASTM D5185m	>20	0	0	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	<1	<1	<1
Lead	ppm	ASTM D5185m	>40	<1	2	<1
Copper	ppm	ASTM D5185m	>330	2	3	1
Tin	ppm	ASTM D5185m	>15	0	<1	0
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES		method	iiiiii/base	Guironi	Thistory I	Thistory 2
Boron	ppm	ASTM D5185m	0	<1	0	0
	ppm ppm					
Boron		ASTM D5185m	0	<1	0	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 0	0 0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	<1 0 58	0 0 59	0 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	<1 0 58 0	0 0 59 <1	0 0 57 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	<1 0 58 0 945	0 0 59 <1 1016	0 0 57 <1 897
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	<1 0 58 0 945 988	0 0 59 <1 1016 1136	0 0 57 <1 897 1030
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	<1 0 58 0 945 988 954	0 0 59 <1 1016 1136 1055	0 0 57 <1 897 1030 1001
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	<1 0 58 0 945 988 954 1203	0 59 <1 1016 1136 1055 1318	0 0 57 <1 897 1030 1001 1149
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 0 0 limit/base	<1 0 58 0 945 988 954 1203 2914	0 0 59 <1 1016 1136 1055 1318 3931	0 0 57 <1 897 1030 1001 1149 3575
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 0 0 limit/base	<1 0 58 0 945 988 954 1203 2914 current	0 0 59 <1 1016 1136 1055 1318 3931 history1	0 0 57 <1 897 1030 1001 1149 3575 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 0 0 0 limit/base	<1 0 58 0 945 988 954 1203 2914 current 3	0 0 59 <1 1016 1136 1055 1318 3931 history1 5	0 0 57 <1 897 1030 1001 1149 3575 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	0 0 0 0 ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !	<1 0 58 0 945 988 954 1203 2914 current 3 1	0 0 59 <1 1016 1136 1055 1318 3931 history1 5 2	0 0 57 <1 897 1030 1001 1149 3575 history2 4 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 0 limit/base >25 >20	<1 0 58 0 945 988 954 1203 2914 current 3 1 <1	0 0 59 <1 1016 1136 1055 1318 3931 history1 5 2 2 1	0 0 57 <1 897 1030 1001 1149 3575 history2 4 0 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 0 limit/base >25 >20	<1 0 58 0 945 988 954 1203 2914 <i>current</i> 3 1 <1 <1	0 0 59 <1 1016 1136 1055 1318 3931 history1 5 2 1 1 history1	0 0 57 <1 897 1030 1001 1149 3575 <b>history2</b> 4 0 0 0 <b>history2</b>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 0 limit/base >25 >20 limit/base >3	<1 0 58 0 945 988 954 1203 2914 <i>current</i> 3 1 <1 <1 <i>current</i> 0.3	0 0 59 <1 1016 1136 1055 1318 3931 history1 5 2 1 1 history1 0.2	0 0 57 <1 897 1030 1001 1149 3575 history2 4 0 0 0 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 0 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<1 0 58 0 945 988 954 1203 2914 <u>current</u> 3 1 <1 <1 <u>current</u> 0.3 5.7 17.6	0 0 59 <1 1016 1136 1055 1318 3931 history1 5 2 1 5 2 1 history1 0.2 5.5	0 0 57 <1 897 1030 1001 1149 3575 history2 4 0 0 0 history2 0.2 6.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<1 0 58 0 945 988 954 1203 2914 <u>current</u> 3 1 <1 <1 <u>current</u> 0.3 5.7 17.6	0 0 59 <1 1016 1136 1055 1318 3931 history1 5 2 1 1 history1 0.2 5.5 17.4	0 0 57 <1 897 1030 1001 1149 3575 <b>history2</b> 4 0 0 0 <b>history2</b> 0.2 6.1 19.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<1 0 58 0 945 988 954 1203 2914 Current 3 1 <1 current 0.3 5.7 17.6 current	0 0 59 <1 1016 1136 1055 1318 3931 <b>history1</b> 5 2 1 1 <b>history1</b> 0.2 5.5 17.4 <b>history1</b>	0 0 57 <1 897 1030 1001 1149 3575 history2 4 0 0 0 history2 0.2 6.1 19.5 history2



# **OIL ANALYSIS REPORT**

VISUAL





		VISUAL		methou	iiiiii/base	Current	history i	TIStoryz
		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
19	/21		scalar	*Visual	NORML	NORML	NORML	NORML
Jan9/18 Jan4/19 Jul8/19	Jul15/21	Appearance Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water						
C			scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
		FLUID PROF	PERTIES	method	limit/base	current	history1	history2
Λ		Visc @ 100°C	cSt	ASTM D445	14	13.6	13.9	14.2
		GRAPHS						
		Iron (ppm)			10	Lead (ppm)		
6 6	21	200 Severe	a la la			0 Severe		
Jan9/18 Jan4/19 Jul8/19	Dec10/19 Jul15/21	200	Λ			0		
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		Nov19/14 Jun30/15 Jan25/16 Nov23/16	Jan9/18 -	Jul8/19 - Dec10/19 - Jul15/21 -	Aug9/23	Nov19/15 Jun30/15 Jan25/16 Nov23/16	Jan9/18 Jan4/19 Jul8/19	Dec10/19 Jul15/21 Aug9/23
		Aluminum (ppn	)			Chromium (ppr	n)	
		50 <sub>T</sub> and a stress of a stress of a	1) (1975–6631)		<b>5</b>		••••••••••••••••••••••••••••••••••••••	
		40 - Severe			4	0 Severe		
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		e <sup>30</sup> - Abnormal			end 2	Abnormal		
		10-	٨			0		
			m			0	$\sim$	
			Jan9/18	Jul8/19 - Dec10/19 - Jul15/21 -	Aug9/23		Jan9/18 - Jan4/19 -	Dec10/19 - Jul15/21 - Aug9/23 -
		Nov19/14 Jun30/15 Jan25/16 Nov23/16	Jan	Jul Dec1 Jul1	Aug	Nov19/15 Jun30/15 Jan25/16 Nov23/16	Jan Jan	Dec1 Jul1 Aug
		Copper (ppm)				Silicon (ppm)		
		800 T		1000110000	8	0 Severe		
		600			6	0	A	
							Λ	
		툍 400 - <b>Aprenina</b>	-A		Ed 4	Abnormal	$\mathbf{I}$	
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			VL			0		$\sim \sim$
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		Nov Jun: Janž Novź	Jar	Jul Jul	Aug	Novi Juni Jani	Jar Jar	Jul Aug
		Viscosity @ 100	°C			Base Number		
		18 Abaramat			10. S	0		~
		Abnormal			.8 Base Number (mg KOH/g)			
		(3-0014 超 极bnormal	A		<u>ل</u> 6.	0		
		- Abnormal	<u> </u>	$\sim$	du 4.	0		
		12 -			ese 2.	0-		
				9	0.		6 6	3 3 3
		Nov19/14 Jun30/15 Jan25/16 Nov23/16	Jan9/18 Jan4/19	Jul8/19 Dec10/19 Jul15/21	Aug9/23	Nov19/15 Jun30/15 Jan25/16 Nov23/16	Jan9/18 Jan4/19 Jul8/19	Dec10/19 Jul15/21 Aug9/23
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1	Laboratory	: WearCheck USA	- 501 Mad	ison Ave Cr	ary NIC 07E1	3 Komn Our	arriae - Rivar V.	allev - Rackhon
4	Laboratory Sample No		- 501 Madi		Oct 2023			alley - Backbon 600 S Hwy 253
ANAB	Lab Numbe		Diagnos		Oct 2023 Oct 2023			Huntington, AF
TESTING LABORATORY	Unique Num		Diagnos		an Felton			US 72940
Certificate L2367	Test Packa							Contact:
Cerunicale L2307					0	hackh	one@rivervalle	ovauarriae cor
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