



# OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id  
**E-4 - RICHLAND CREEK**

Component  
**Biogas Engine**

Fluid  
**MAHLER Q8 Mahler G8 SAE 40 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0880358</b>	WC0880363	WC0880375
Sample Date		Client Info		<b>03 Jan 2024</b>	26 Dec 2023	24 Dec 2023
Machine Age	hrs	Client Info		<b>45477</b>	45324	0
Oil Age	hrs	Client Info		<b>3414</b>	3261	0
Filter Age	hrs	Client Info		<b>3414</b>	3261	0
Oil Changed		Client Info		<b>N/A</b>	Not Changd	N/A
Filter Changed		Client Info		<b>N/A</b>	Not Changd	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>45	<b>6</b>	4	3
Chromium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>10	<b>2</b>	3	3
Lead	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	0
Copper	ppm	ASTM D5185m	>14	<b>4</b>	4	3
Tin	ppm	ASTM D5185m	>13	<b>6</b>	6	5
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

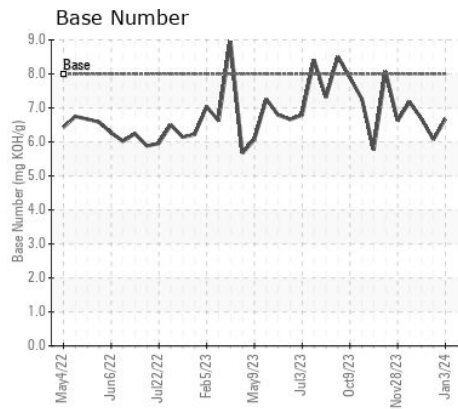
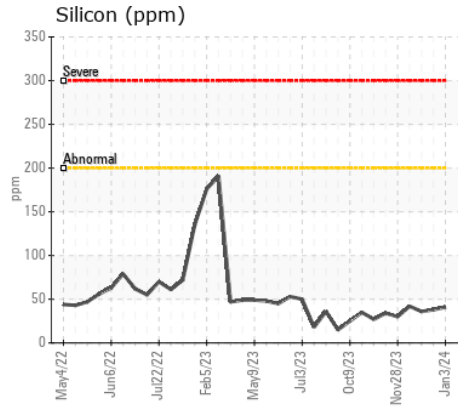
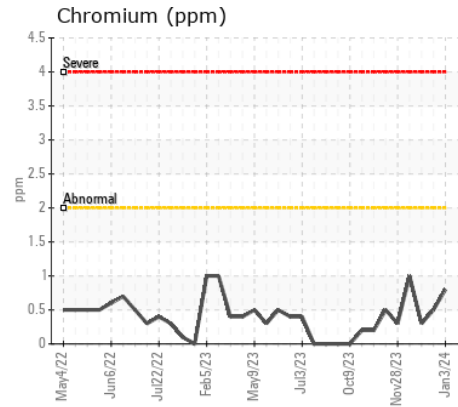
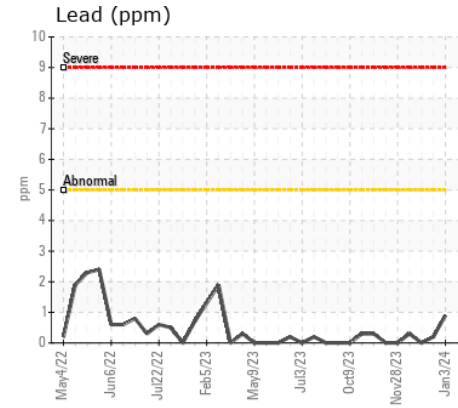
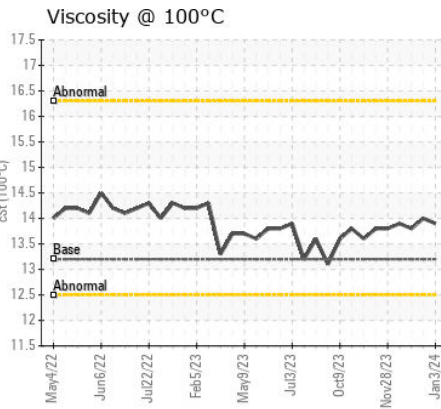
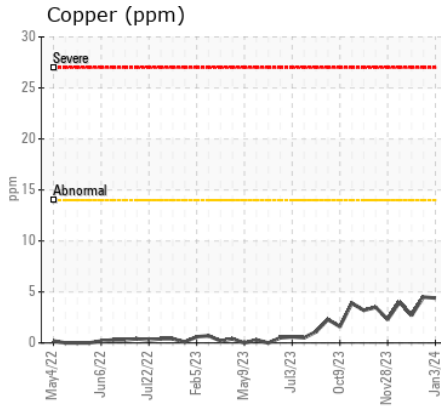
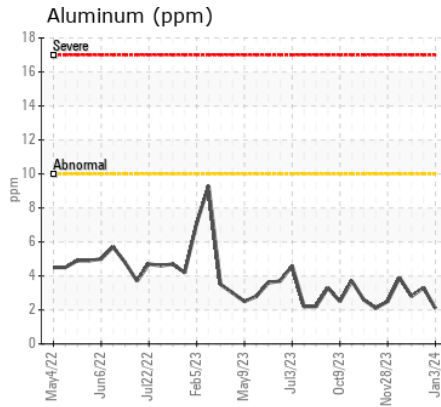
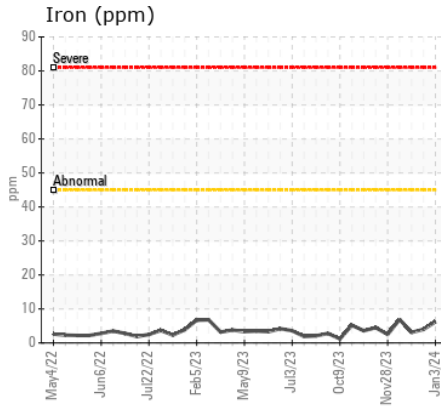
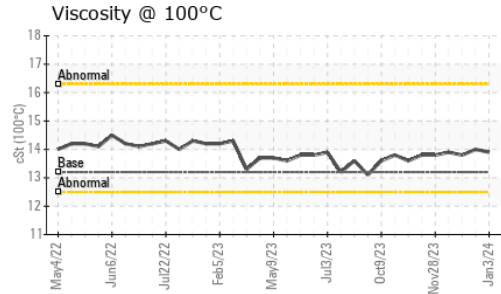
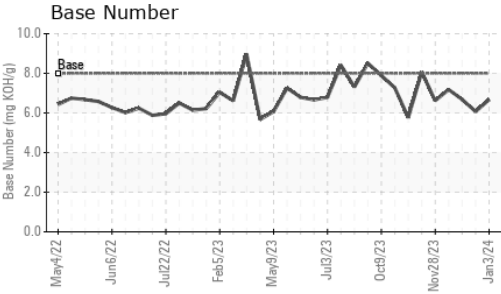
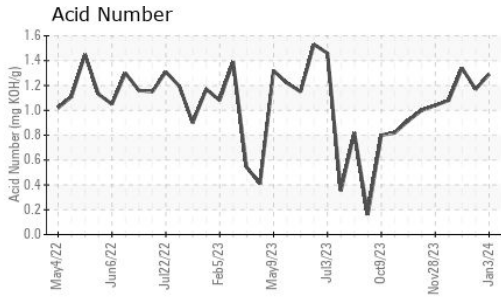
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>200	<b>41</b>	38	36
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	0	0
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0</b>	0	0
Nitration	Abs/cm	*ASTM D7624	>20	<b>7.6</b>	7.5	7.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>18.2</b>	18.0	17.9
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>0</b>	2	0
Boron	ppm	ASTM D5185m		<b>2</b>	3	<1
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>2</b>	0	0
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>10</b>	11	10
Calcium	ppm	ASTM D5185m		<b>2496</b>	2308	2300
Phosphorus	ppm	ASTM D5185m		<b>438</b>	414	419
Zinc	ppm	ASTM D5185m		<b>514</b>	501	498
Sulfur	ppm	ASTM D5185m		<b>2902</b>	2451	2420
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>14.5</b>	14.4	14.3
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>1.29</b>	1.17	1.34
Base Number (BN)	mg KOH/g	ASTM D2896	8.0	<b>6.67</b>	6.07	6.68
Visc @ 100°C	cSt	ASTM D445	13.2	<b>13.9</b>	14.0	13.8



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0880358 **Received** : 08 Jan 2024  
**Lab Number** : 06055010 **Diagnosed** : 10 Jan 2024  
**Unique Number** : 10820959 **Diagnostician** : Sean Felton  
**Test Package** : MOB 2

**CUBE DISTRICT ENERGY - MAS GEORGIA LFG PLANT SITE**  
 5691 S RICHLAND CREEK RD  
 BUFORD, GA  
 US 30518  
 Contact: RYAN INGALLS  
 ryan.ingalls@cubedistrictenergy.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)

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F: