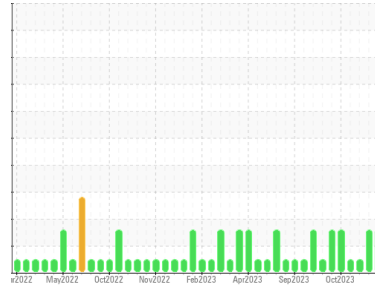




OIL ANALYSIS REPORT

Sample Rating Trend



DIRT



Machine Id
4EK05286

Component
Biogas Engine

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

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Elemental level of silicon (Si) above normal indicating ingress of seal material.

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 acceptable for the time in service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0660935	WC0660927	WC0660928
Sample Date	Client Info		30 Oct 2023	29 Oct 2023	23 Oct 2023
Machine Age	hrs	Client Info	81828	81828	81668
Oil Age	hrs	Client Info	447	447	287
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			ABNORMAL	ABNORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>4.0	<1.0	<1.0	<1.0
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>45	7	7	5
Chromium	ppm	ASTM D5185m	>2	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>10	5	5	4
Lead	ppm	ASTM D5185m	>5	2	2	1
Copper	ppm	ASTM D5185m	>14	3	4	2
Tin	ppm	ASTM D5185m	>13	3	3	2
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	<1

ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		0	0	0
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		<1	<1	<1
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		7	8	7
Calcium	ppm	ASTM D5185m		2083	2109	2122
Phosphorus	ppm	ASTM D5185m		313	314	368
Zinc	ppm	ASTM D5185m		413	414	441
Sulfur	ppm	ASTM D5185m		3757	3765	4164

CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>200	▲ 204	▲ 208	166
Sodium	ppm	ASTM D5185m		2	2	2
Potassium	ppm	ASTM D5185m	>20	2	2	<1

INFRA-RED

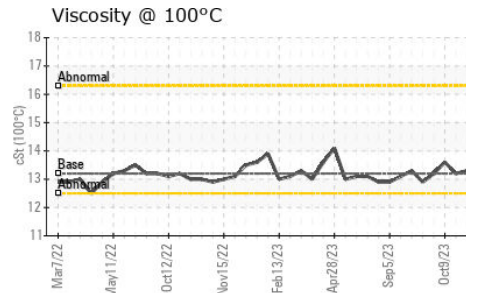
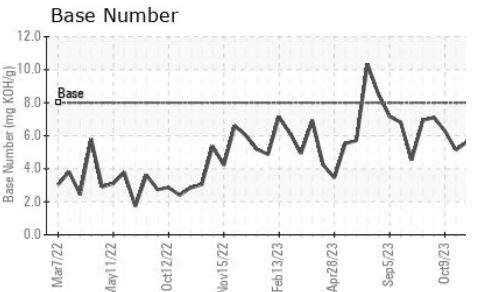
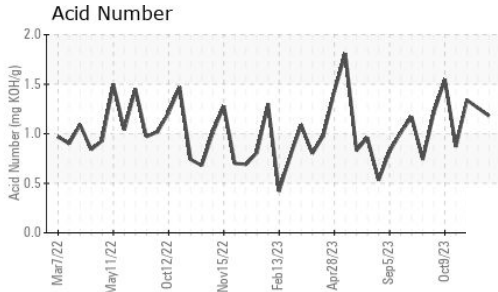
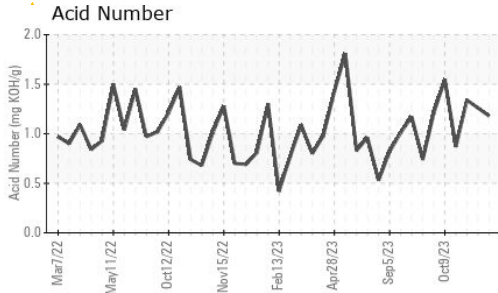
	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844		0	0.4	0
Nitration	Abs/cm	*ASTM D7624	>20	7.4	9.6	6.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	15.7	19.8	22.0

FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.4	12.1	12.0
Acid Number (AN)	mg KOH/g	ASTM D8045		1.18	1.26	1.34
Base Number (BN)	mg KOH/g	ASTM D2896	8.0	4.67	7.18	5.62



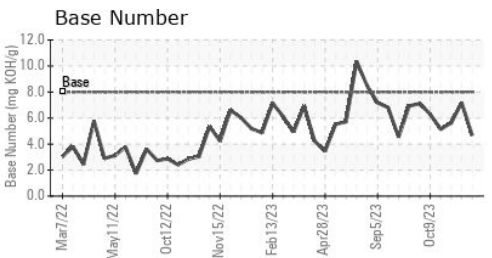
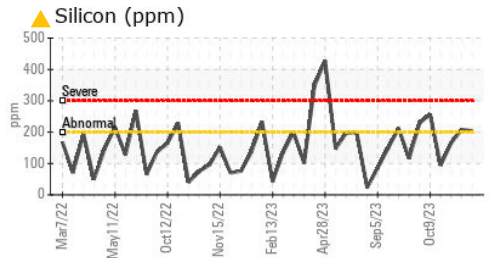
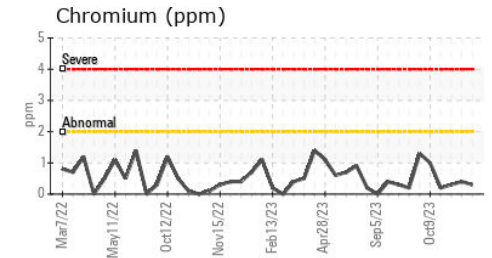
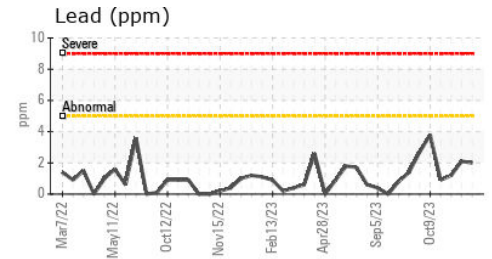
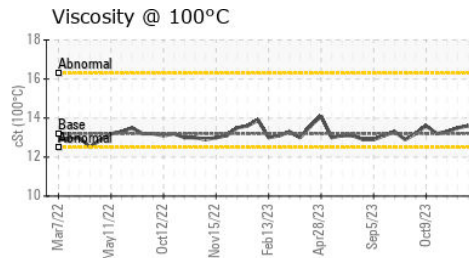
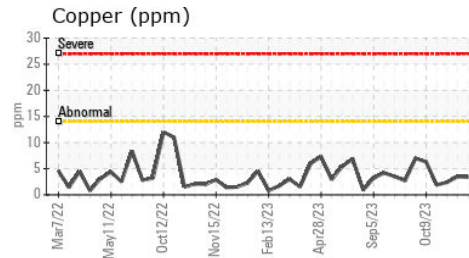
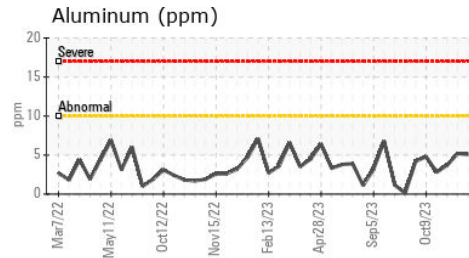
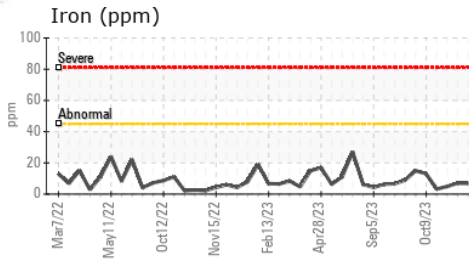
OIL ANALYSIS REPORT



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	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.2	13.6	13.5

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0660935 **Received** : 01 Nov 2023
Lab Number : 05996355 **Diagnosed** : 06 Nov 2023
Unique Number : 10724715 **Diagnostician** : Sean Felton
Test Package : MOB 2

BI-COUNTY
 3214 DOVER RD
 WOODLAWN, TN
 US 37191

Contact: KEVIN WEAVER
 kevin.weaver@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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