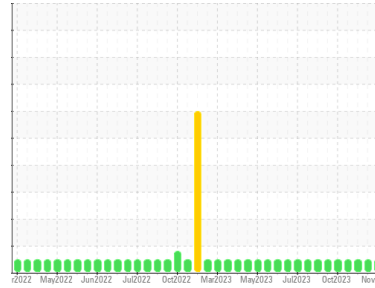




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
E-2 - RICHLAND CREEK
 Component
Biogas Engine
 Fluid
MAHLER Q8 Mahler G8 SAE 40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

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 AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			WC0852936	WC0852881	WC0835583
Sample Date	Client Info			20 Nov 2023	23 Oct 2023	18 Oct 2023
Machine Age	hrs	Client Info		48359	47809	47692
Oil Age	hrs	Client Info		2711	2161	2044
Oil Changed	Client Info			N/A	N/A	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method	>4.0		<1.0	<1.0	<1.0
Water	WC Method	>0.1		NEG	NEG	NEG
Glycol	WC Method			NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>45	10	10	12
Chromium	ppm	ASTM D5185m	>2	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>10	3	4	3
Lead	ppm	ASTM D5185m	>5	2	<1	<1
Copper	ppm	ASTM D5185m	>14	2	2	2
Tin	ppm	ASTM D5185m	>13	7	6	6
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		0	1	<1
Barium	ppm	ASTM D5185m		0	0	<1
Molybdenum	ppm	ASTM D5185m		2	<1	1
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		9	8	9
Calcium	ppm	ASTM D5185m		2492	2196	2515
Phosphorus	ppm	ASTM D5185m		450	383	417
Zinc	ppm	ASTM D5185m		531	463	531
Sulfur	ppm	ASTM D5185m		2811	2292	2904

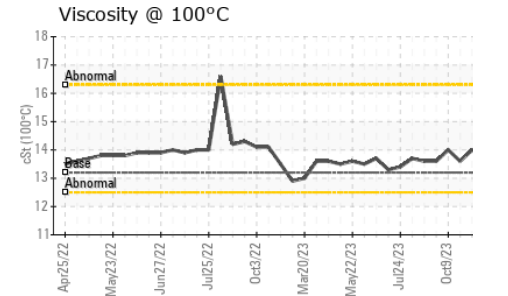
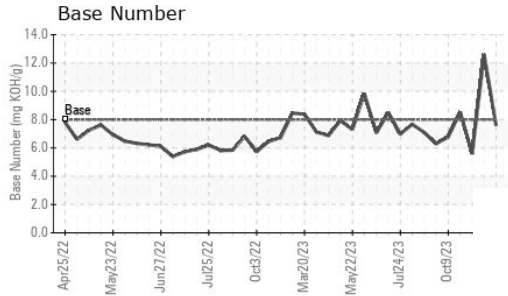
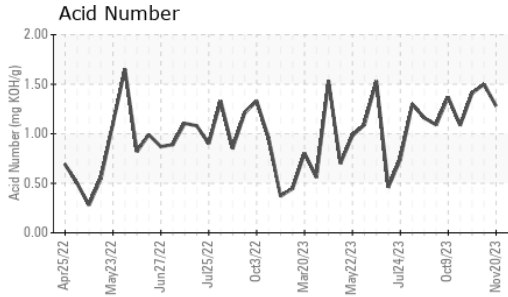
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>200	56	53	53
Sodium	ppm	ASTM D5185m		32	4	0
Potassium	ppm	ASTM D5185m	>20	19	1	2

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		0	0	0
Nitration	Abs/cm	*ASTM D7624	>20	8.0	7.9	7.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.0	18.6	18.5

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.0	14.9	15.0
Acid Number (AN)	mg KOH/g	ASTM D8045		1.28	1.50	1.41
Base Number (BN)	mg KOH/g	ASTM D2896	8.0	7.60	12.60	5.59



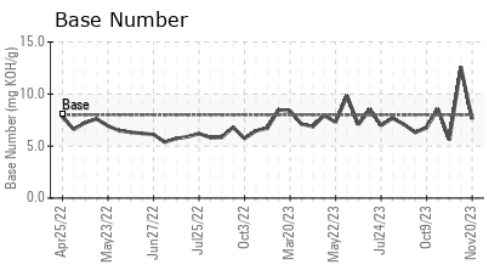
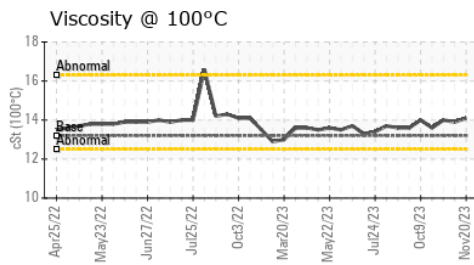
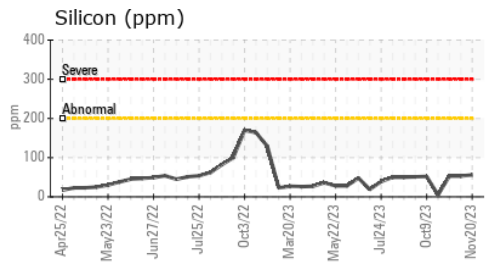
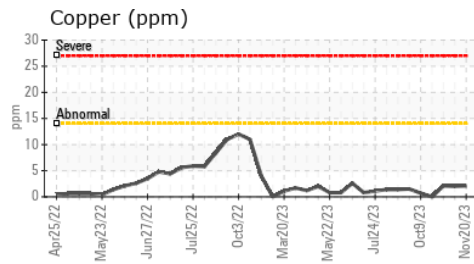
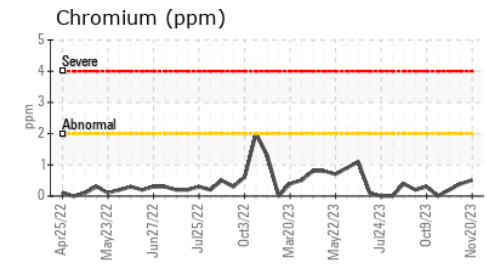
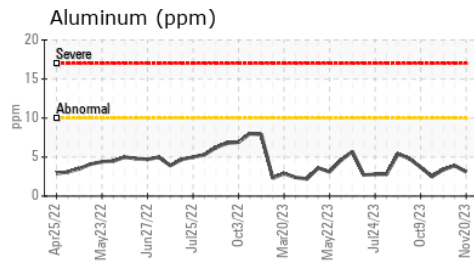
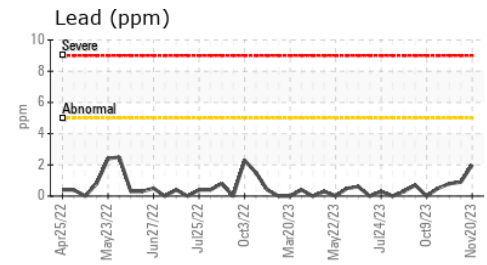
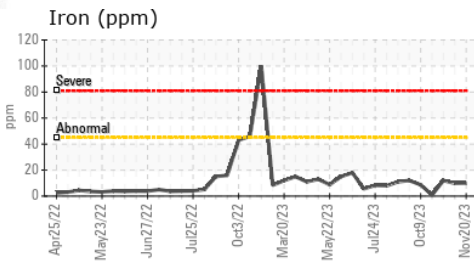
OIL ANALYSIS REPORT



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	14.1	13.9

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0852936 **Received** : 21 Nov 2023
Lab Number : 06014593 **Diagnosed** : 24 Nov 2023
Unique Number : 10753737 **Diagnostician** : Don Baldrige
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)