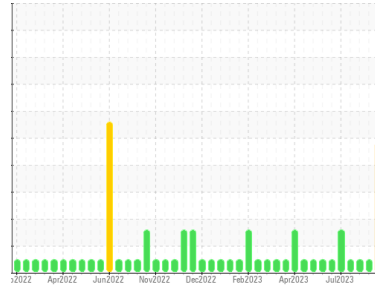




OIL ANALYSIS REPORT

Sample Rating Trend



DIRT



Machine Id
MTNM01BE
 Component
Biogas Engine
 Fluid
SHELL SHELL MYSELLA S3 N 40 (--- GAL)

DIAGNOSIS

Recommendation

We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

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.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0775293	WC0775135	WC0775117
Sample Date	Client Info		27 Sep 2023	18 Sep 2023	15 Sep 2023
Machine Age	hrs	Client Info	39055	38846	38787
Oil Age	hrs	Client Info	523	314	255
Oil Changed	Client Info		Not Chngd	N/A	Changed
Sample Status			SEVERE	NORMAL	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	>15	7	4	6
Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	5	<1	4
Lead	ppm	ASTM D5185m	>9	0	<1	<1
Copper	ppm	ASTM D5185m	>6	2	<1	1
Tin	ppm	ASTM D5185m	>4	4	3	2
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		1	<1	0
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		3	2	3
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		17	16	14
Calcium	ppm	ASTM D5185m		1717	1702	1577
Phosphorus	ppm	ASTM D5185m		368	346	321
Zinc	ppm	ASTM D5185m		446	418	427
Sulfur	ppm	ASTM D5185m		3554	3845	3907

CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>181	246	168	157
Sodium	ppm	ASTM D5185m		2	<1	<1
Potassium	ppm	ASTM D5185m	>20	0	1	<1

INFRA-RED

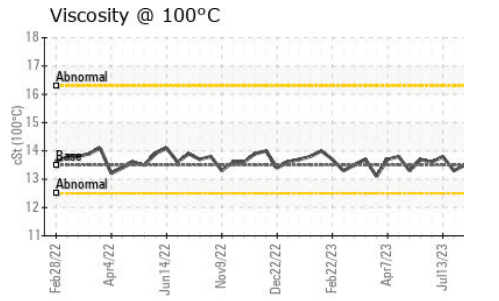
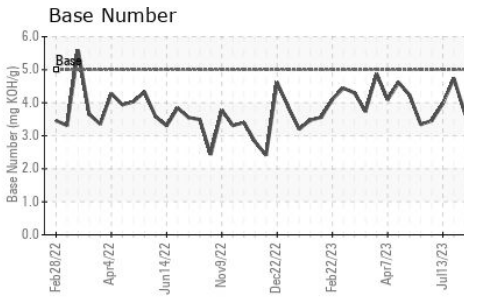
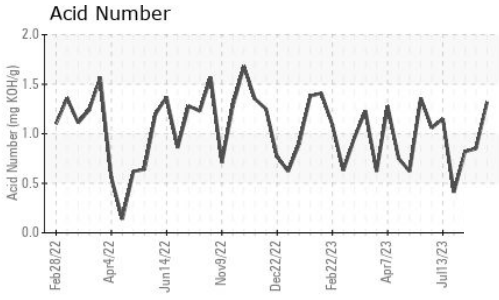
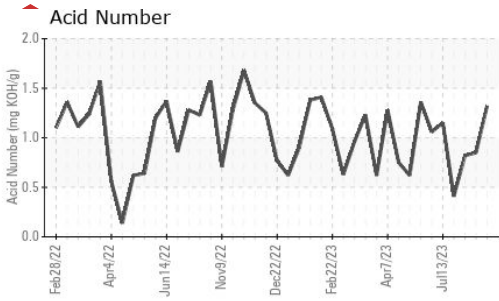
	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844		0.1	0	0.1
Nitration	Abs/cm	*ASTM D7624	>20	5.3	5.5	4.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.2	23.5	19.5

FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.4	15.0	12.1
Acid Number (AN)	mg KOH/g	ASTM D8045		1.32	0.85	0.82
Base Number (BN)	mg KOH/g	ASTM D2896	5	3.65	3.66	3.67



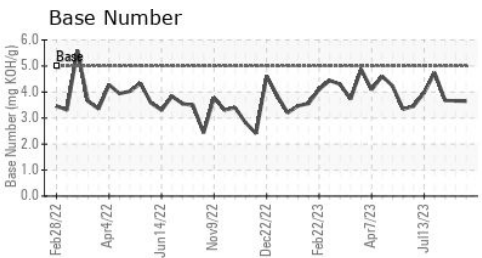
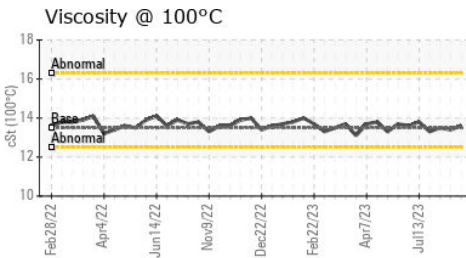
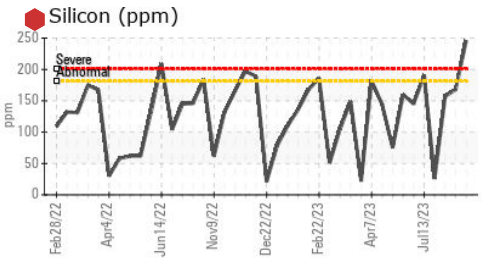
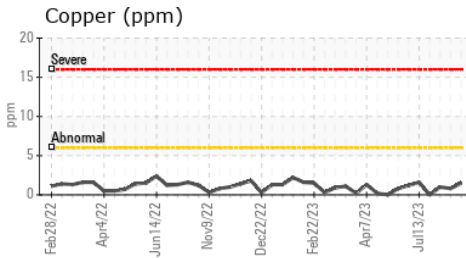
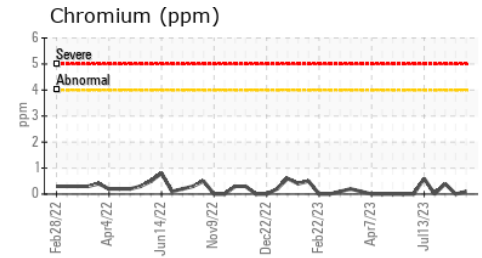
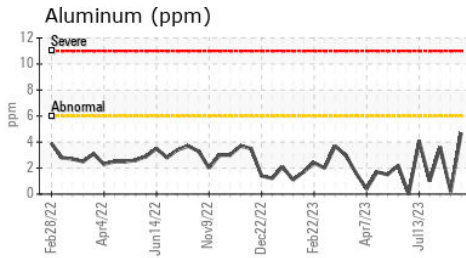
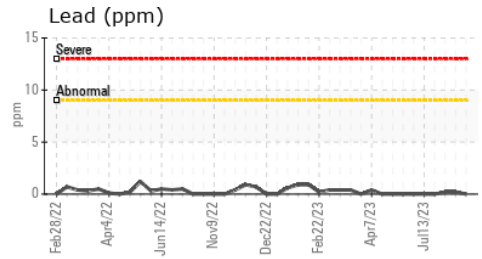
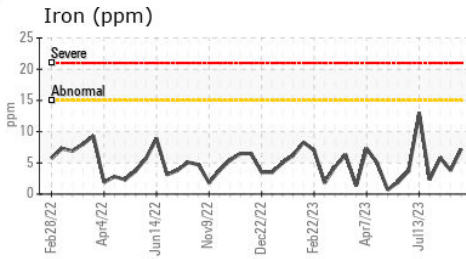
OIL ANALYSIS REPORT



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	13.5	13.6	13.4

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0775293 **Received** : 29 Sep 2023
Lab Number : 05964763 **Diagnosed** : 02 Oct 2023
Unique Number : 10671314 **Diagnostician** : Sean Felton
Test Package : MOB 2

EDL NA Recips-Morgantown
 Morgantown Powerstation, 950 Shiloh
 Morgantown, PA
 US 19543
 Contact: ARON GUNN
 aron.gunn@edlenergy.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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