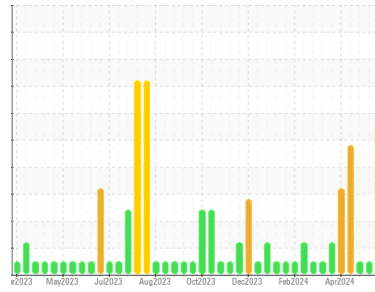




OIL ANALYSIS REPORT

Machine Id
Grand Blanc CAT 5 GBLM05BE
 Component
Biogas Engine
 Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

Sample Rating Trend



DIRT



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

The tin level is abnormal.

Contamination

Elemental level of silicon (Si) above normal.

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		WC0905713	WC0905722	WC0905723
Sample Date	Client Info		03 Jun 2024	13 May 2024	06 May 2024
Machine Age	hrs	Client Info	60863	60643	60473
Oil Age	hrs	Client Info	0	430	259
Oil Changed	Client Info		N/A	Not Changd	Changed
Sample Status			SEVERE	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>4.0	<1.0	<1.0	<1.0
Water	WC Method	>.11	NEG	NEG	NEG
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >15	9	<1	0
Chromium	ppm	ASTM D5185m >4	<1	0	<1
Nickel	ppm	ASTM D5185m	0	0	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m	0	0	0
Aluminum	ppm	ASTM D5185m >6	4	1	2
Lead	ppm	ASTM D5185m >9	2	<1	1
Copper	ppm	ASTM D5185m >6	2	<1	0
Tin	ppm	ASTM D5185m >4	▲ 4	1	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	76	80	37
Barium	ppm	ASTM D5185m	0	0	<1
Molybdenum	ppm	ASTM D5185m	2	1	3
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m	26	19	15
Calcium	ppm	ASTM D5185m	1904	1861	1883
Phosphorus	ppm	ASTM D5185m	401	374	317
Zinc	ppm	ASTM D5185m	531	467	395
Sulfur	ppm	ASTM D5185m	4700	4379	3753

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >181	▲ 205	101	85
Sodium	ppm	ASTM D5185m >21	<1	<1	0
Potassium	ppm	ASTM D5185m >20	0	0	<1

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	6.3	5.6	5.8
Sulfation	Abs/.1mm	*ASTM D7415	26.0	23.9	22.3

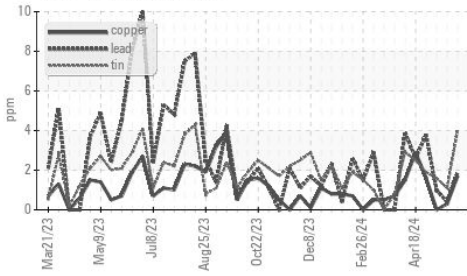
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	17.6	15.4	14.0
Acid Number (AN)	mg KOH/g	ASTM D8045 1.0	2.17	1.45	1.51
Base Number (BN)	mg KOH/g	ASTM D2896 5.4	2.70	3.45	3.26

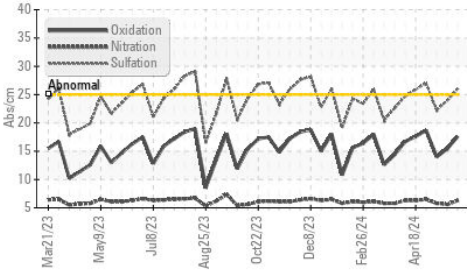


OIL ANALYSIS REPORT

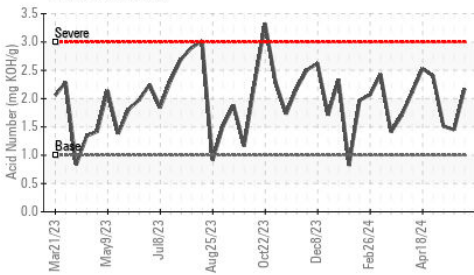
▲ Non-ferrous Metals



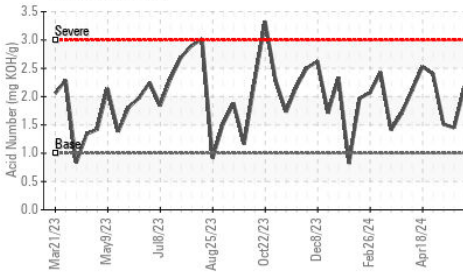
● FT-IR (Direct Trend)



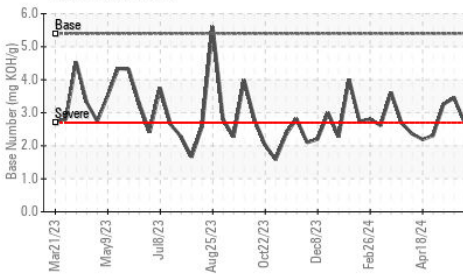
Acid Number



Acid Number



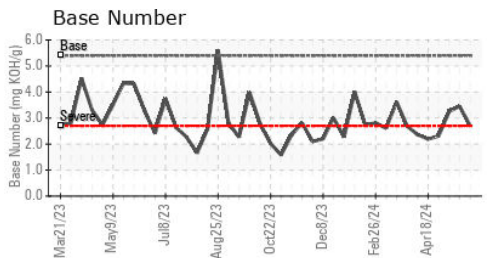
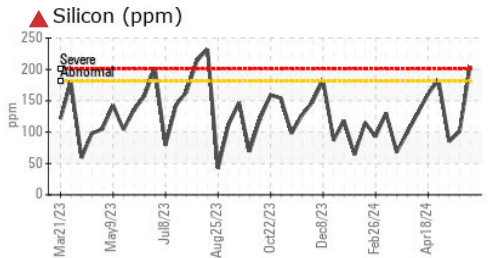
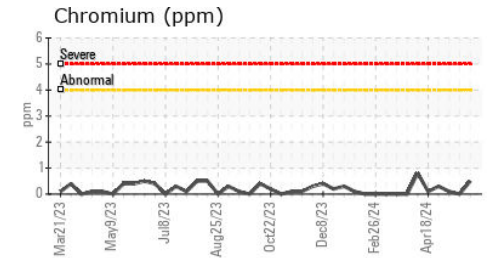
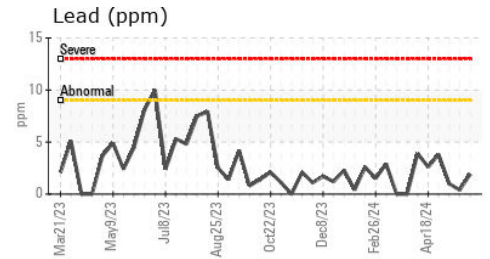
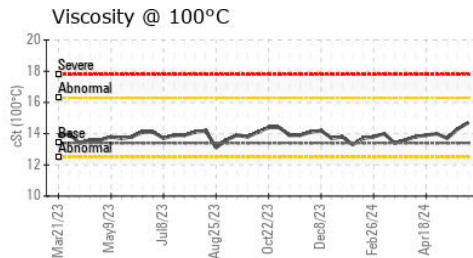
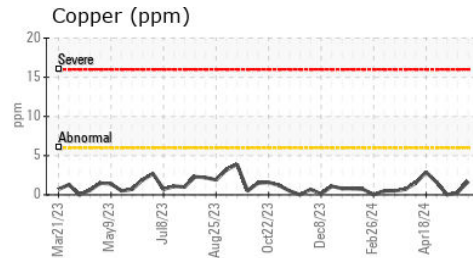
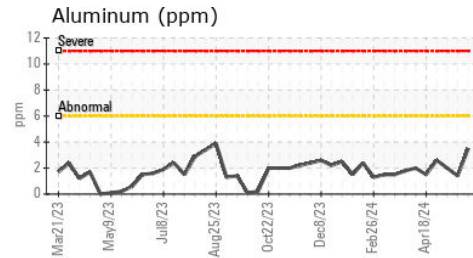
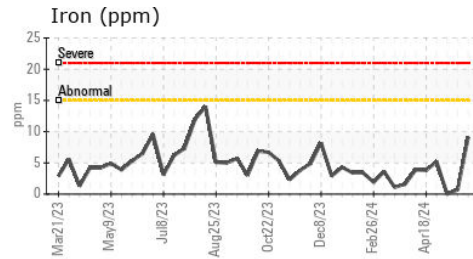
Base Number



VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	*Visual	NONE	LIGHT	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
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>.11	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	13.4	14.7	14.3	13.7

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : WC0905713
 Lab Number : 06197879
 Unique Number : 11060002
 Test Package : MOB 2

Received : 03 Jun 2024
 Tested : 04 Jun 2024
 Diagnosed : 04 Jun 2024 - Don Baldrige

EDL NA Recips-Grand Blanc
 Grand Blanc Powerstation, 2361 West Grand Blanc Road
 Grand Blanc, MI
 US 48439

Contact: Tony Saint Marie
 tony.saintmarie@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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F: