



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ABNORMAL



Machine Id
WVTM02BE

Component
Biogas Engine

Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0895528	WC0895534	WC0895550
Sample Date		Client Info		19 Mar 2024	18 Mar 2024	11 Mar 2024
Machine Age	hrs	Client Info		44406	44314	44232
Oil Age	hrs	Client Info		92	726	644
Filter Age	hrs	Client Info		92	726	644
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Filter Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>15	8	7	3
Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	3	1	2
Lead	ppm	ASTM D5185m	>9	3	1	2
Copper	ppm	ASTM D5185m	>6	2	0	<1
Tin	ppm	ASTM D5185m	>4	4	1	2
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

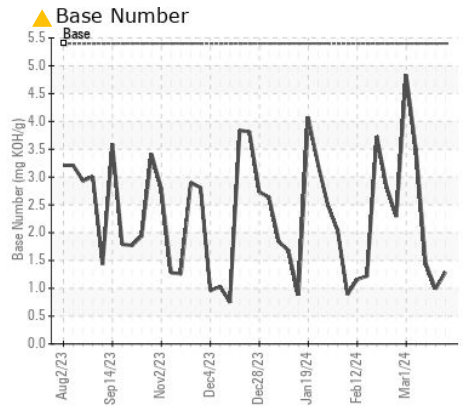
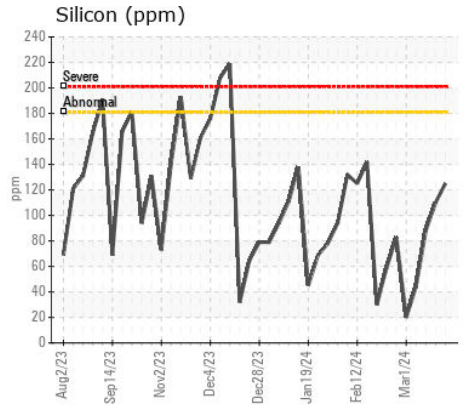
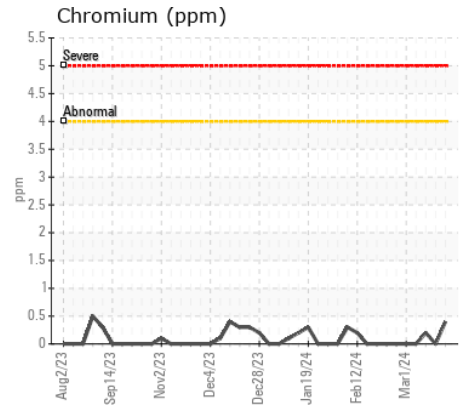
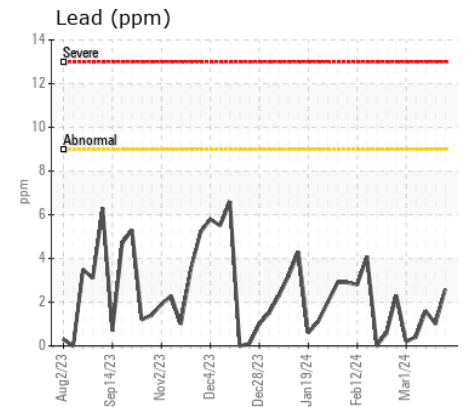
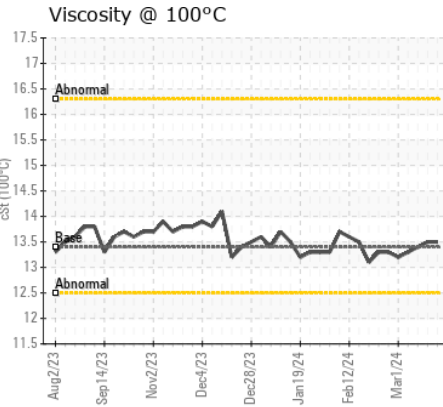
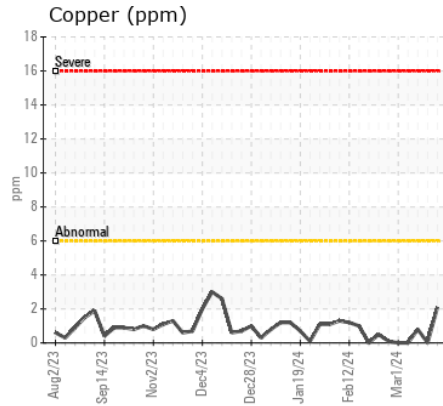
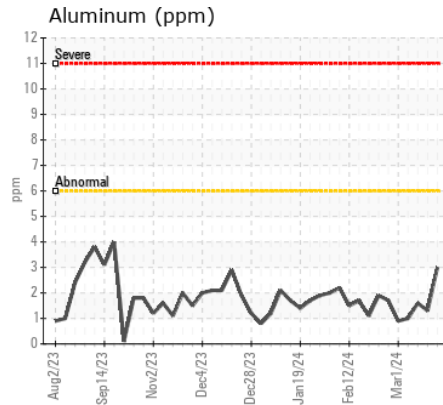
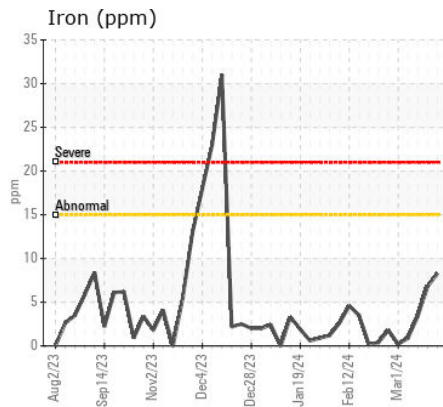
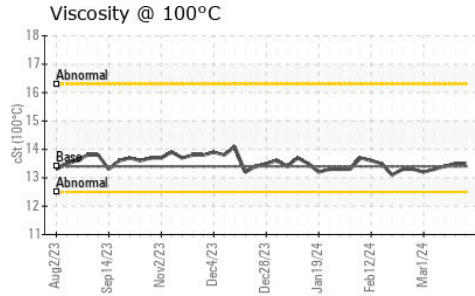
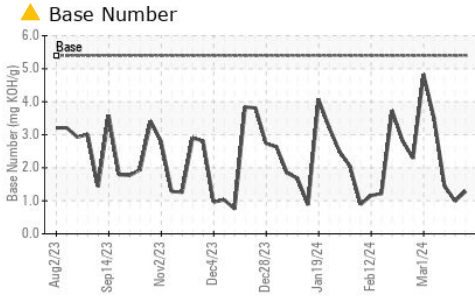
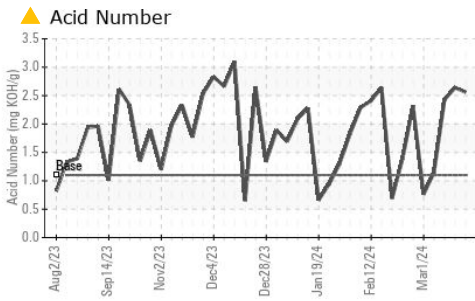
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>181	125	110	88
Potassium	ppm	ASTM D5185m	>20	3	0	2
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
Soot %	%	*ASTM D7844		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	5.1	5.1	5.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	26.3	26.1	24.8
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	>0.1	NEG	NEG	NEG

FLUID CONDITION

The BN level is low. The AN level is at the top-end of the recommended limit.

Sodium	ppm	ASTM D5185m		0	<1	0
Boron	ppm	ASTM D5185m		<1	0	1
Barium	ppm	ASTM D5185m		2	0	0
Molybdenum	ppm	ASTM D5185m		1	0	2
Manganese	ppm	ASTM D5185m		<1	0	<1
Magnesium	ppm	ASTM D5185m		7	4	7
Calcium	ppm	ASTM D5185m		1876	1945	1726
Phosphorus	ppm	ASTM D5185m		260	282	273
Zinc	ppm	ASTM D5185m		338	346	325
Sulfur	ppm	ASTM D5185m		3965	4304	3690
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.0	14.1	13.7
Acid Number (AN)	mg KOH/g	ASTM D8045	1.1	▲ 2.56	▲ 2.64	▲ 2.43
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	▲ 1.29	▲ 0.99	▲ 1.45
Visc @ 100°C	cSt	ASTM D445	13.4	13.5	13.5	13.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0895528
Lab Number : 06125109
Unique Number : 10939260
Test Package : MOB 2

Received : 21 Mar 2024
Tested : 25 Mar 2024
Diagnosed : 25 Mar 2024 - Sean Felton

EDL NA Recips-Watervliet
 Watervliet Powerstation, 3563 Hennessey Road
 Watervliet, MI
 US 49098

Contact: Scott Eastman
 scott.eastman@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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