



# OIL ANALYSIS REPORT

WEAR	<b>ABNORMAL</b>
CONTAMINATION	<b>ABNORMAL</b>
FLUID CONDITION	<b>SEVERE</b>



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		<b>WC0839353</b>	WC0839333	WC0839328
Sample Date		Client Info		<b>10 Jul 2024</b>	02 Jul 2024	06 May 2024
Machine Age	hrs	Client Info		<b>47035</b>	46849	45521
Oil Age	hrs	Client Info		<b>690</b>	505	210
Filter Age	hrs	Client Info		<b>690</b>	505	210
Oil Changed		Client Info		<b>Changed</b>	Not Changd	Not Changd
Filter Changed		Client Info		<b>Changed</b>	Not Changd	Not Changd
Sample Status				<b>SEVERE</b>	ABNORMAL	NORMAL

## WEAR

The tin level is abnormal.

PQ	UOM	Method	Limit/Abn	Current	History1	History2
Iron	ppm	ASTM D5185m	>14	<b>10</b>	▲ 12	2
Chromium	ppm	ASTM D5185m	>3	<b>&lt;1</b>	1	<1
Nickel	ppm	ASTM D5185m		<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Silver	ppm	ASTM D5185m		<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185m	>5	<b>3</b>	3	2
Lead	ppm	ASTM D5185m	>8	<b>&lt;1</b>	2	<1
Copper	ppm	ASTM D5185m	>5	<b>2</b>	3	<1
Tin	ppm	ASTM D5185m	>3	▲ <b>5</b>	▲ 5	2
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

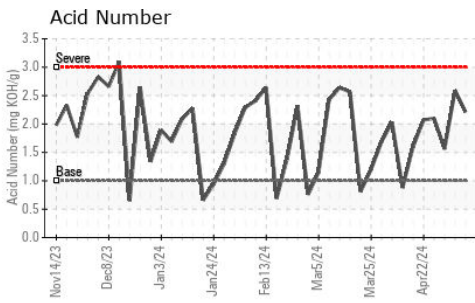
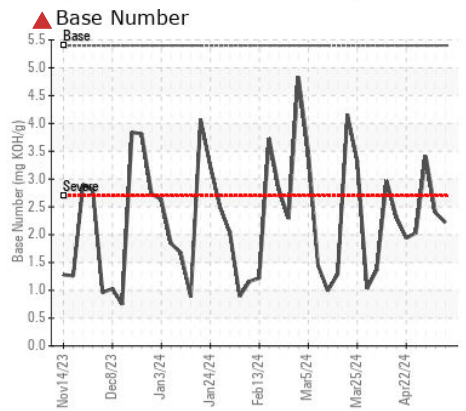
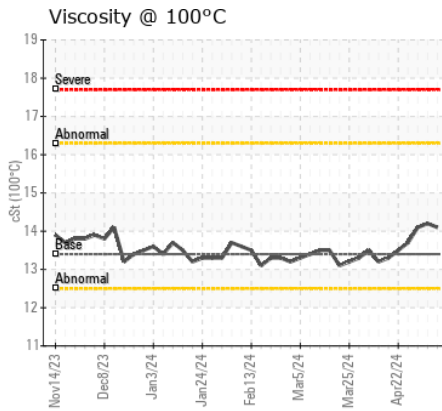
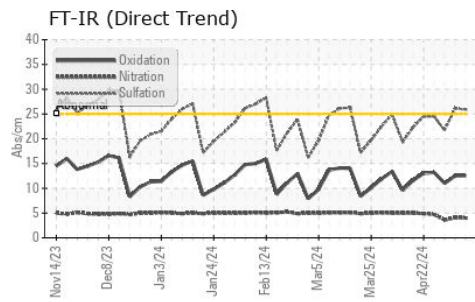
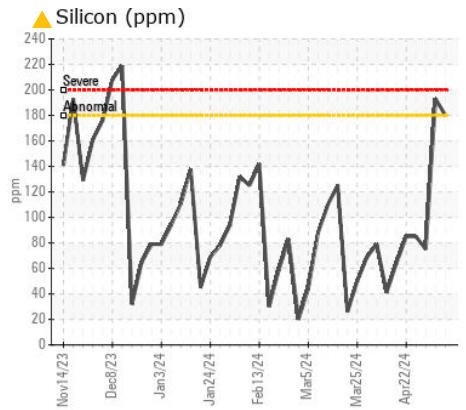
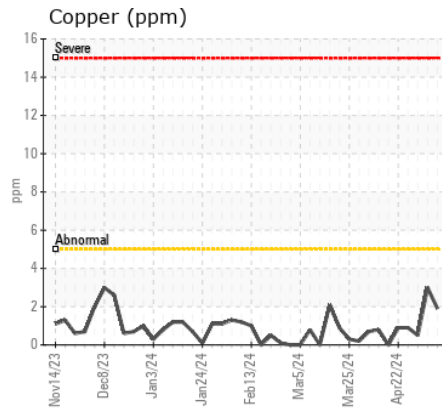
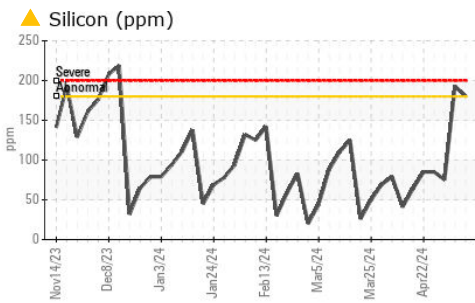
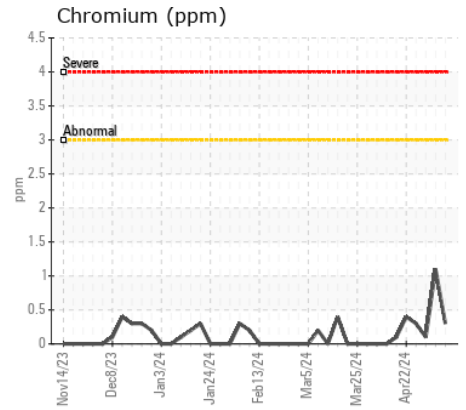
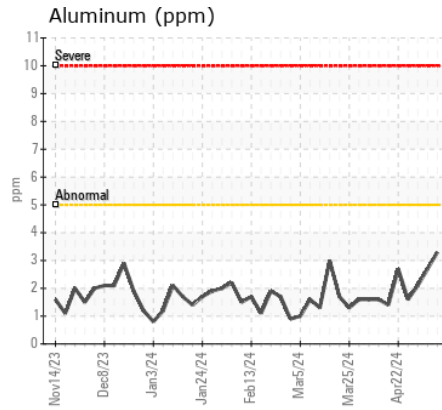
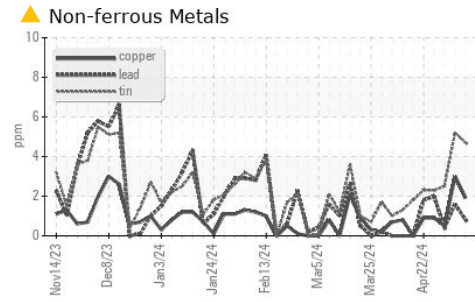
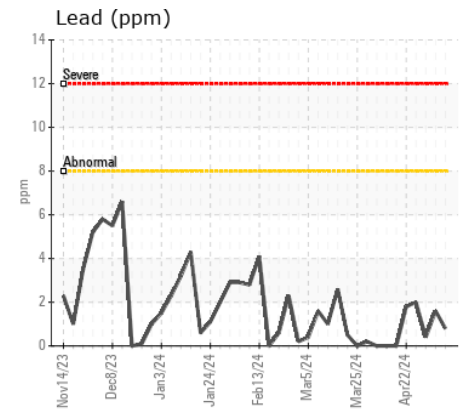
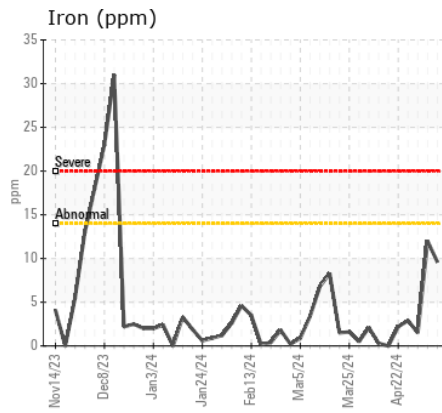
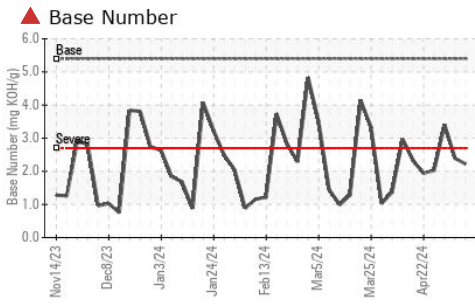
Elemental level of silicon (Si) above normal.

Silicon	ppm	ASTM D5185m	>180	▲ <b>180</b>	▲ 193	75
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	2	<1
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method		<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0.1</b>	0.1	0
Nitration	Abs/cm	*ASTM D7624		<b>4.0</b>	4.1	3.6
Sulfation	Abs/.1mm	*ASTM D7415		<b>25.9</b>	26.1	21.7
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual		<b>NEG</b>	NEG	NEG

## FLUID CONDITION

The BN level is low. The AN level is acceptable for this fluid.

Sodium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0	0
Boron	ppm	ASTM D5185m		<b>29</b>	35	57
Barium	ppm	ASTM D5185m		<b>0</b>	0	<1
Molybdenum	ppm	ASTM D5185m		<b>7</b>	9	8
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>55</b>	63	47
Calcium	ppm	ASTM D5185m		<b>1691</b>	1683	1560
Phosphorus	ppm	ASTM D5185m		<b>422</b>	409	382
Zinc	ppm	ASTM D5185m		<b>622</b>	647	529
Sulfur	ppm	ASTM D5185m		<b>6383</b>	5089	5311
Oxidation	Abs/.1mm	*ASTM D7414		<b>12.5</b>	12.5	11.0
Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	<b>2.21</b>	▲ 2.59	1.56
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	▲ <b>2.22</b>	▲ 2.39	3.41
Visc @ 100°C	cSt	ASTM D445	13.4	<b>14.1</b>	14.2	14.1



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : WC0839353

Lab Number : 06235116

Unique Number : 11123950

Test Package : MOB 2 ( Additional Tests: PQ )

Received : 12 Jul 2024

Tested : 15 Jul 2024

Diagnosed : 15 Jul 2024 - Sean Felton

EDL NA Recips-Watervliet

Watervliet Powerstation, 3563 Hennessey Road

Watervliet, MI

US 49098

Contact: Scott Eastman

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T:

F:

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)