



OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	NORMAL
FLUID CONDITION	SEVERE



Machine Id
WVTM03BE
Component
Biogas Engine
Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

RECOMMENDATION

We recommend that you drain the oil and perform a filter service on this component if not already done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0895535	WC0895563	WC0895564
Sample Date		Client Info		11 Apr 2024	02 Apr 2024	25 Mar 2024
Machine Age	hrs	Client Info		34719	34503	34319
Oil Age	hrs	Client Info		400	184	913
Filter Age	hrs	Client Info		400	184	913
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Filter Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				SEVERE	NORMAL	SEVERE

WEAR

The iron level is severe.

Iron	ppm	ASTM D5185m	>15	▲ 22	14	▲ 43
Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Nickel	ppm	ASTM D5185m		<1	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>6	2	2	3
Lead	ppm	ASTM D5185m	>9	0	0	<1
Copper	ppm	ASTM D5185m	>6	2	1	2
Tin	ppm	ASTM D5185m	>4	1	<1	▲ 4
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

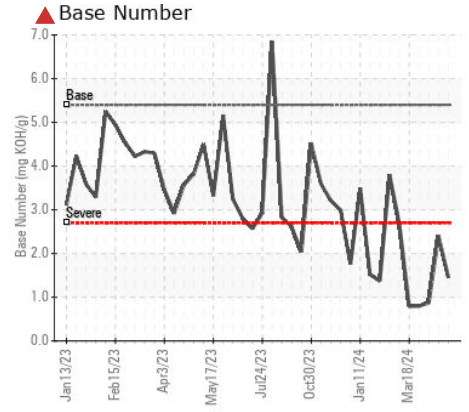
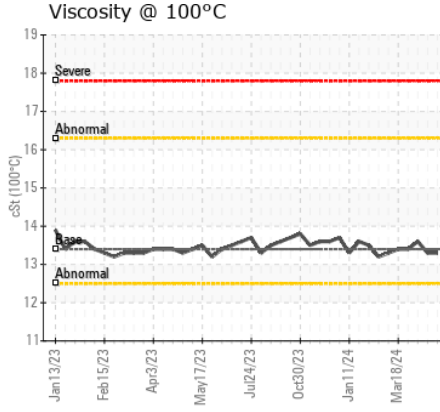
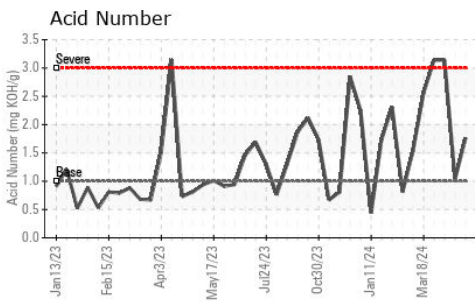
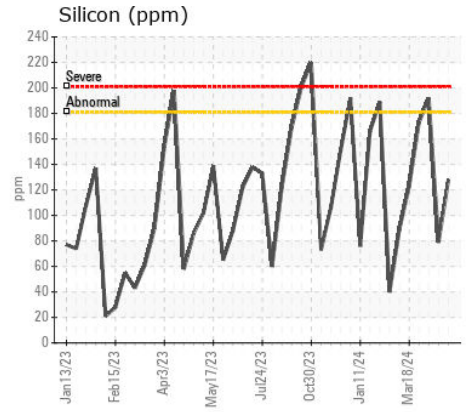
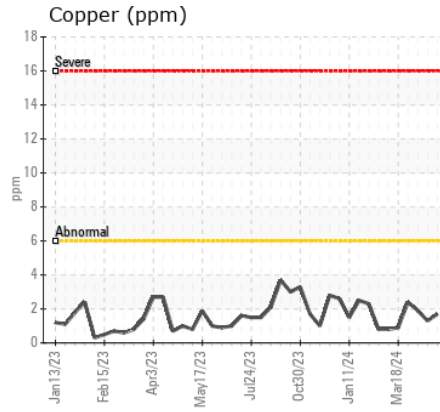
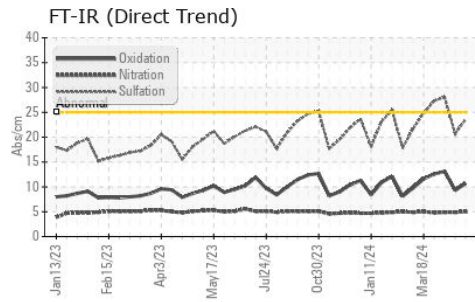
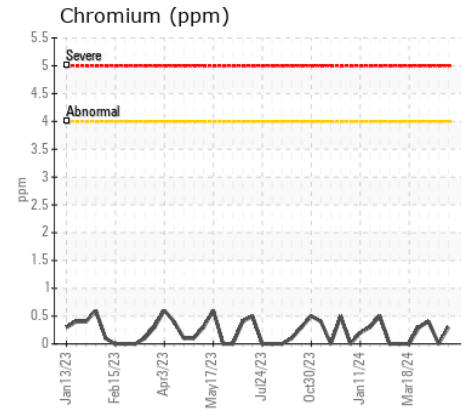
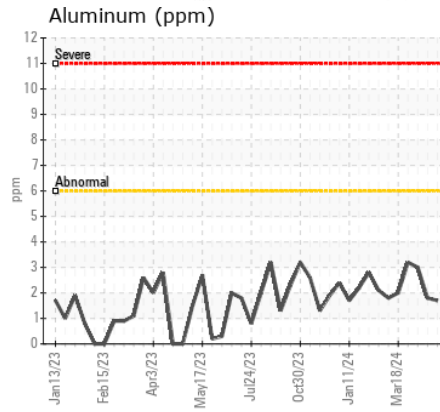
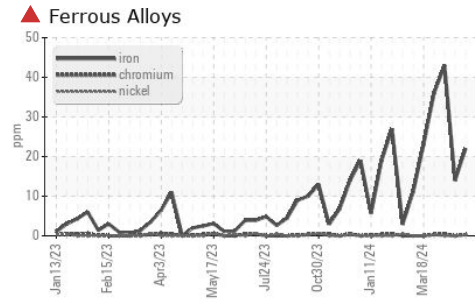
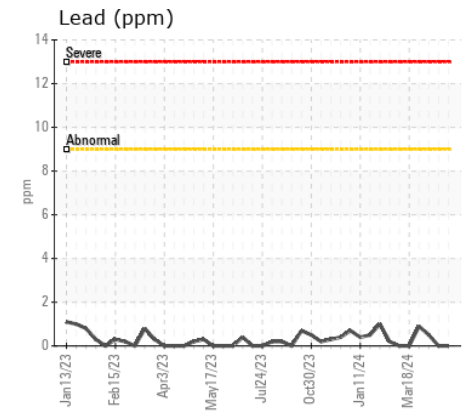
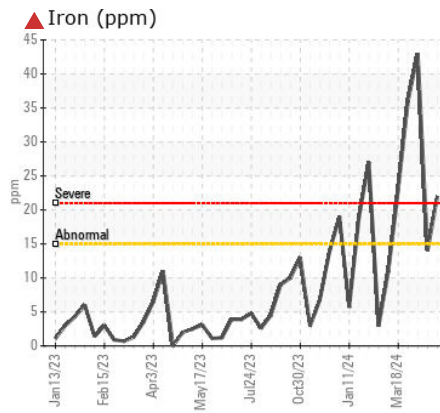
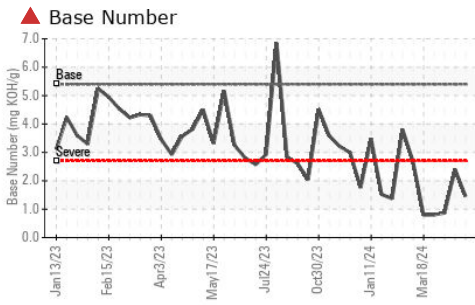
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>181	128	79	▲ 192
Potassium	ppm	ASTM D5185m	>20	0	0	2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>.11	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0	0	0
Nitration	Abs/cm	*ASTM D7624		5.0	4.9	4.9
Sulfation	Abs/.1mm	*ASTM D7415		23.6	20.7	28.1
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

FLUID CONDITION

The BN level is low.

Sodium	ppm	ASTM D5185m	>21	3	2	6
Boron	ppm	ASTM D5185m		0	0	3
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		1	1	2
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		4	5	7
Calcium	ppm	ASTM D5185m		1642	1672	1712
Phosphorus	ppm	ASTM D5185m		227	229	257
Zinc	ppm	ASTM D5185m		253	294	328
Sulfur	ppm	ASTM D5185m		3830	3599	4585
Oxidation	Abs/.1mm	*ASTM D7414		10.7	9.3	13.1
Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	1.76	1.04	▲ 3.14
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	▲ 1.45	2.40	▲ 0.87
Visc @ 100°C	cSt	ASTM D445	13.4	13.3	13.3	13.6



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0895535
Lab Number : 06148893
Unique Number : 10978971
Test Package : MOB 2

Received : 15 Apr 2024
Tested : 16 Apr 2024
Diagnosed : 17 Apr 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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