



OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL



Machine Id
Coopersville CAT 5 CPVM05BE
Component
Biogas Engine
Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (105 GAL)

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0871563	WC0871590	WC0871534
Sample Date		Client Info		10 Apr 2024	29 Mar 2024	26 Feb 2024
Machine Age	hrs	Client Info		16402	16119	15380
Oil Age	hrs	Client Info		645	362	837
Filter Age	hrs	Client Info		645	362	837
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Filter Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				SEVERE	ABNORMAL	SEVERE

WEAR

The tin level is severe. All other component wear rates are normal.

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

CONTAMINATION

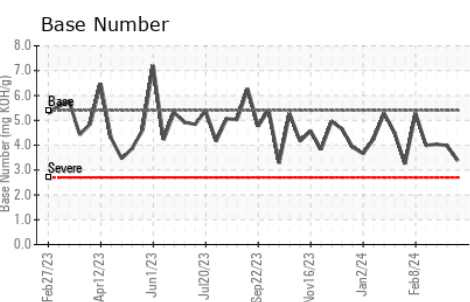
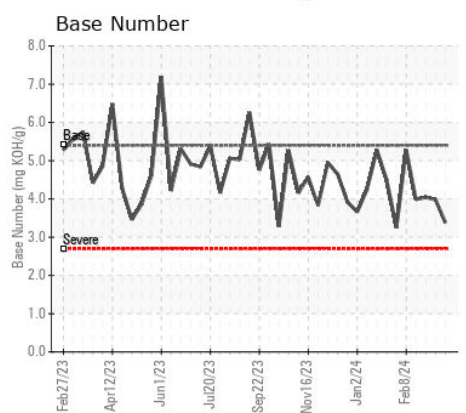
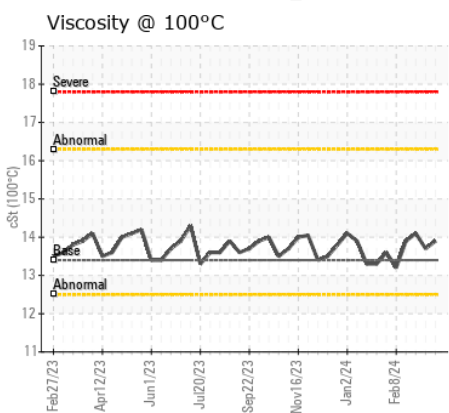
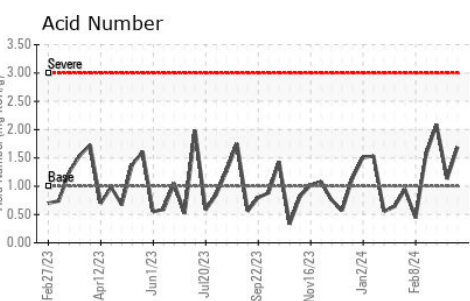
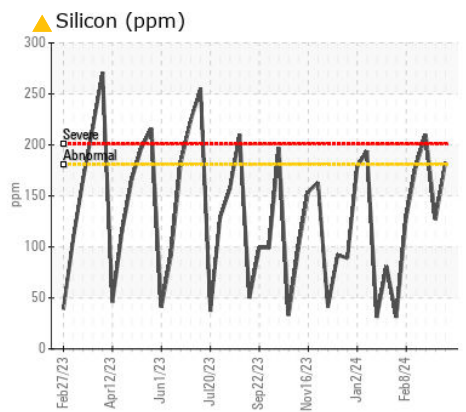
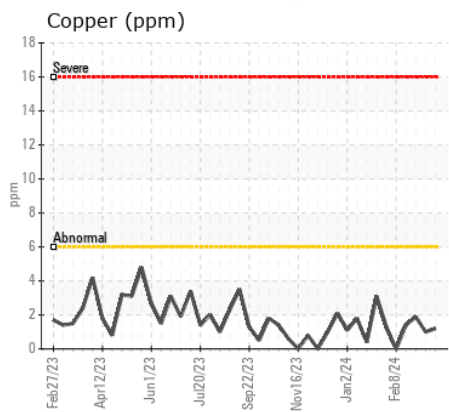
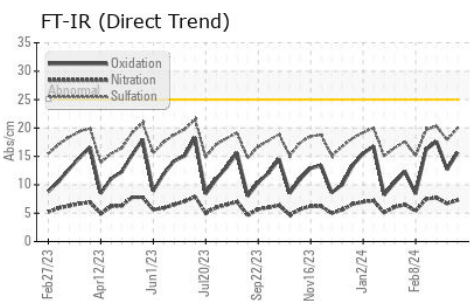
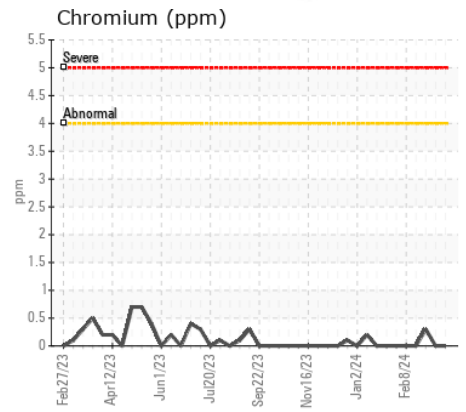
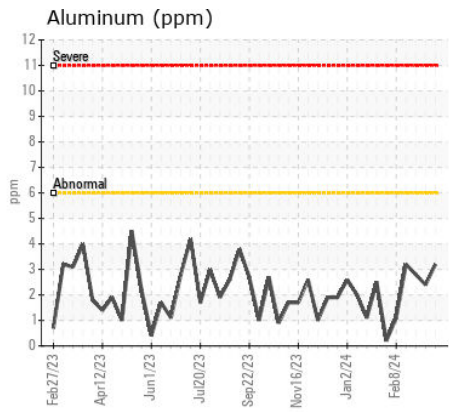
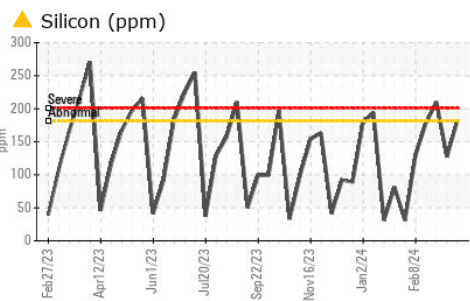
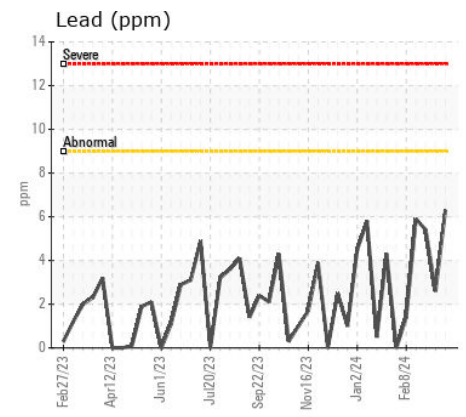
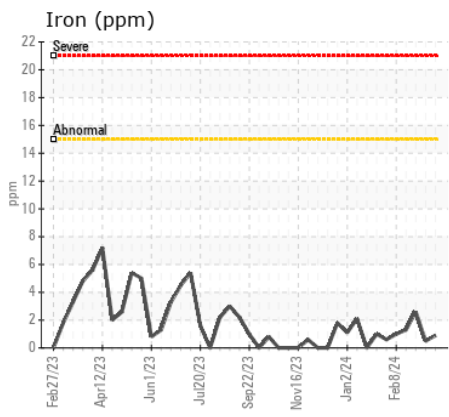
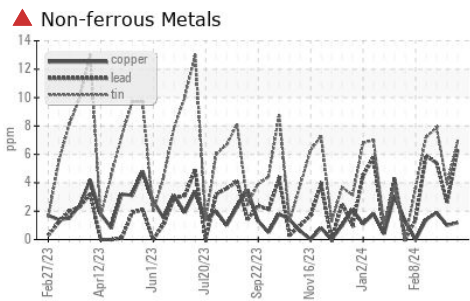
Elemental level of silicon (Si) above normal.

Silicon	ppm	ASTM D5185m	>181	▲ 183	127	▲ 210
Potassium	ppm	ASTM D5185m	>20	3	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		0.1	0	0.1
Nitration	Abs/cm	*ASTM D7624		7.3	6.7	7.7
Sulfation	Abs/.1mm	*ASTM D7415		20.0	17.9	20.3
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 result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid.

Sodium	ppm	ASTM D5185m	>21	1	1	0
Boron	ppm	ASTM D5185m		0	2	1
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		4	4	2
Manganese	ppm	ASTM D5185m		<1	0	0
Magnesium	ppm	ASTM D5185m		9	6	8
Calcium	ppm	ASTM D5185m		2015	1770	1864
Phosphorus	ppm	ASTM D5185m		299	248	274
Zinc	ppm	ASTM D5185m		352	318	362
Sulfur	ppm	ASTM D5185m		2594	2122	1910
Oxidation	Abs/.1mm	*ASTM D7414		15.7	12.7	17.6
Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	1.69	1.13	2.09
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	3.38	3.98	4.04
Visc @ 100°C	cSt	ASTM D445	13.4	13.9	13.7	14.1



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0871563
Lab Number : 06153279
Unique Number : 10983357
Test Package : MOB 2
Received : 18 Apr 2024
Tested : 19 Apr 2024
Diagnosed : 22 Apr 2024 - Sean Felton

EDL NA Recips-Coopersville
 Coopersville Powerstation, 15362 68th Avenue
 Coopersville, MI
 US 49404
 Contact: Daniel Young
 daniel.young@edlenergy.com
 T:
 F:

Certificate L2367
 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)