

# **OIL ANALYSIS REPORT**

## Sample Rating Trend

# NORMAL



Machine Id WVTM01BE Component Biograp Engine

Biogas Engine

CHEVRON HDAX 6500 LFG GAS ENGINE OIL (--- GAL)

### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor. ( Customer Sample Comment: Oil and filters changed )

### Wear

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the oil.

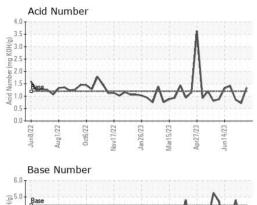
### **Fluid Condition**

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

GAS ENGINE OIL (-	GAL)	n2022 Aug20	22 Oct2022 Nov2022	Jan2023 Mar2023 Apr2023	Jun2023	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0574735	WC0574733	WC0574742
Sample Date		Client Info		20 Jul 2023	13 Jul 2023	05 Jul 2023
Machine Age	hrs	Client Info		109486	109319	109143
Oil Age	hrs	Client Info		510	343	167
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	V	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>15	6	4	2
Chromium	ppm	ASTM D5185m	>4	<1	0	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	2	1	<1
Lead	ppm	ASTM D5185m	>9	0	0	0
Copper	ppm	ASTM D5185m	>6	2	2	<1
Tin	ppm	ASTM D5185m	>4	4	3	1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES						
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	method ASTM D5185m	limit/base	current 2	history1	history2 <1
	ppm ppm		limit/base		•	
Boron		ASTM D5185m	limit/base	2	1	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	2 <1	1 0	<1
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 <1 2	1 0 2	<1 0 1
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 <1 2 <1	1 0 2 <1	<1 0 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 <1 2 <1 17	1 0 2 <1 15	<1 0 1 0 14
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 <1 2 <1 17 1930	1 0 2 <1 15 1830	<1 0 1 0 14 1682
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 <1 2 <1 17 1930 280	1 0 2 <1 15 1830 265	<1 0 1 0 14 1682 247
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 <1 2 <1 17 1930 280 336	1 0 2 <1 15 1830 265 315	<1 0 1 0 14 1682 247 278
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 <1 2 <1 17 1930 280 336 4020	1 0 2 <1 15 1830 265 315 3358	<1 0 1 0 14 1682 247 278 2478
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 <1 2 <1 17 1930 280 336 4020	1 0 2 <1 15 1830 265 315 3358 history1	<1 0 1 0 14 1682 247 278 2478 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181	2 <1 2 <1 17 1930 280 336 4020 current 155	1 0 2 2 <1 15 1830 265 315 3358 history1 113	<1 0 1 0 14 1682 247 278 2478 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181	2 <1 2 <1 17 1930 280 336 4020 current 155 4	1 0 2 <1 15 1830 265 315 3358 history1 113 1	<1 0 1 0 14 1682 247 278 2478 history2 58
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181 >20	2 <1 2 <1 17 1930 280 336 4020 current 155 4 0	1 0 2 2 <1 15 1830 265 315 3358 history1 113 1 0	<1 0 1 0 14 1682 247 278 2478 history2 58 1 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181 >20 limit/base	2 <1 2 <1 17 1930 280 336 4020 current 155 4 0 current	1 0 2 2 <1 15 1830 265 315 3358 history1 113 1 0 history1	<1 0 1 0 14 1682 247 278 2478 history2 58 1 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181 >20 limit/base	2 <1 2 <1 17 1930 280 336 4020 current 155 4 0 current 0	1 0 2 2 <1 15 1830 265 315 3358 history1 113 1 0 history1 0.1	<1 0 1 0 14 1682 247 278 2478 history2 58 1 0 history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method  *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >181 >20 limit/base >20	2 <1 2 <1 17 1930 280 336 4020 current 155 4 0 current 0 5.0	1 0 2 2 <1 15 1830 265 315 3358 history1 113 1 0 history1 0.1 5.1	<1 0 1 0 14 1682 247 278 2478 history2 58 1 0 history2 0.1 5.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  Method  ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D76145	limit/base >181 >20 limit/base >20 >30	2 <1 2 <1 2 <1 17 1930 280 336 4020 current 155 4 0 current 0 5.0 22.0	1 0 2 2 <1 15 1830 265 315 3358 history1 113 1 0 history1 0.1 5.1 20.5	<1 0 1 0 14 1682 247 278 2478 history2 58 1 0 history2 0.1 5.0 17.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method  *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  method  *ASTM D7844  *ASTM D7844  *ASTM D7844  *ASTM D7844  *ASTM D7844	limit/base >181 >20 limit/base >20 >30 limit/base	2 <1 2 <1 17 1930 280 336 4020 current 155 4 0 current 0 5.0 22.0 current	1 0 2 2 <1 15 1830 265 315 3358 history1 113 1 0 history1 0.1 5.1 20.5 history1	<1 0 1 0 14 1682 247 278 2478 history2 58 1 0 history2 0.1 5.0 17.8 history2

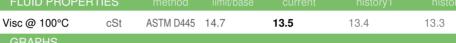


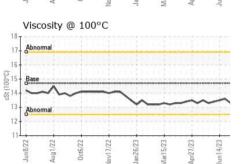
# **OIL ANALYSIS REPORT**

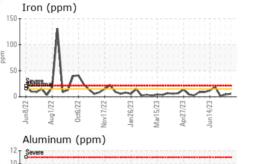


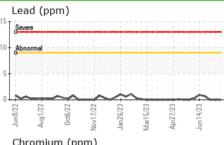
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
ELLID DDODEDI		mathad	limit/bass	ourront.	history	history?

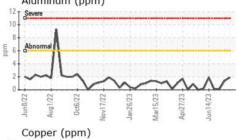
Base	,			Α/	7.4	۸ .	$\Lambda_{J}$
1.0-	٨			JV	۷۷	1	V
	111	\ /	$\mathcal{N}$			V	
1.0-	J V	V				100000	
Base 1.0 -	J V	M					
Jun8/22	Aug1/22 - <	Oct6/22 ~~	Nov17/22	Jan26/23	Mar15/23	Apr27/23	Jun14/23

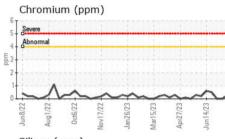


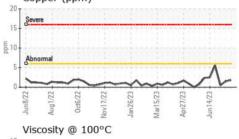


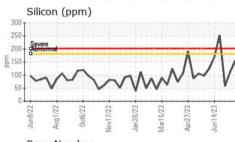


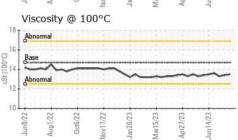


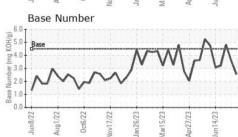
















Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : MOB 2

: WC0574735 : 05905656 : 10567012

To discuss this sample report, contact Customer Service at 1-800-237-1369.

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

Received : 24 Jul 2023 : 25 Jul 2023 Diagnosed Diagnostician : Sean Felton

**EDL NA Recips-Watervliet** 

Watervliet Powerstation, 3563 Hennessey Road Watervliet, MI

US 49098 Contact: Scott Eastman

scott.eastman@edlenergy.com T:

\* - 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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