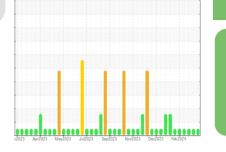


# **OIL ANALYSIS REPORT**



<1.0

NEG

NEG

0

0

0

0

Sample Rating Trend

WC0871500

11 Mar 2024

16463

Changed

NORMAL

<1.0

NEG

NEG

<1

<1

0

0

1

WC0871589

29 Mar 2024

Not Changd

NORMAL

<1.0

NEG

NEG

0

0

0

<1

16890

540

NORMAL

Coopersville CAT 1 CPVM01BE **Biogas Engine** 

CHEVRON HDAX 9500 GAS ENGINE OIL 40 (105 GAL)

#### SAMPLE INFORMATION method WC0871562 Client Info Sample Number Client Info 09 Apr 2024 Sample Date 17155 Machine Age hrs **Client Info** Oil Age hrs Client Info 805 Oil Changed **Client Info** Not Changd NORMAL Sample Status CONTAMINATION Fuel >4.0 WC Method Water WC Method >.11 Glycol WC Method WEAR METALS >15 Iron ppm ASTM D5185m Chromium ppm ASTM D5185m >4 Nickel ppm ASTM D5185m Titanium ppm ASTM D5185m Silv OTLIDEIOS Alu Lea Cop Tin Van Cac Bor Bar Mol Mar Mag Cal Pho Zind Sulf

Acid Number (AN) mg KOH/g ASTM D8045

mg KOH/g ASTM D2896

Base Number (BN)

Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>6	2	1	2
Lead	ppm	ASTM D5185m	>9	2	0	<1
Copper	ppm	ASTM D5185m	>6	<1	<1	<1
Tin	ppm	ASTM D5185m	>4	3	3	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		0	2	3
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		6	3	3
Manganese	ppm	ASTM D5185m		<1	0	0
Magnesium	ppm	ASTM D5185m		7	6	7
Calcium	ppm	ASTM D5185m		1969	1742	1587
Phosphorus	ppm	ASTM D5185m		285	245	258
Zinc	ppm	ASTM D5185m		336	315	308
Sulfur	ppm	ASTM D5185m		2371	1974	1794
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	109	116	33
Sodium	ppm	ASTM D5185m	>21	1	2	0
Potassium	ppm	ASTM D5185m	>20	4	<1	3
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		0	0.1	0
Nitration	Abs/cm	*ASTM D7624		6.7	6.9	4.9
Sulfation	Abs/.1mm	*ASTM D7415		18.0	18.0	14.2
FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414		12.7	13.4	8.0

1.0

5.4

1.28

3.75

### Recommendation

DIAGNOSIS

Resample at the next service interval to monitor.

Machine Id

#### 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.

Report Id: EDLCOO [WUSCAR] 06153277 (Generated: 04/22/2024 17:57:27) Rev: 1

Submitted By: Chad Conroy

0.52

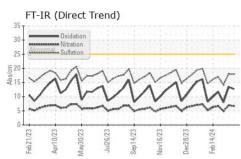
4.83

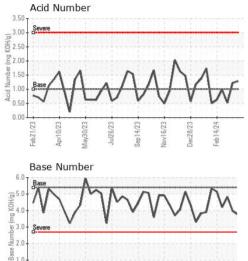
1.22

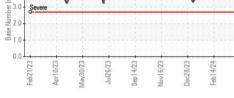
3.97

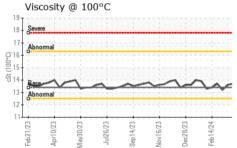


## **OIL ANALYSIS REPORT**









White Metal	scalar	*Visual	NONE	NONE	NON
Yellow Metal	scalar	*Visual	NONE	NONE	NON
Precipitate	scalar	*Visual	NONE	NONE	NON
Silt	scalar	*Visual	NONE	NONE	NON
Debris	scalar	*Visual	NONE	NONE	NON
Sand/Dirt	scalar	*Visual	NONE	NONE	NON
Appearance	scalar	*Visual	NORML	NORML	NOR
Odor	scalar	*Visual	NORML	NORML	NOR
Emulsified Water	scalar	*Visual	>.11	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG
FLUID PROPER		method	limit/base		hist
Visc @ 100°C	cSt	ASTM D445	13.4	13.7	13.6
GRAPHS					
Iron (ppm)			111111	Lead (ppm)	
0 - Severe				Severe	
5 - Abnormal			E C	10 - Abnormal	
	M		đ	5	
5 / V W1	VV	han		A	1~
	(23	123	1.70		123
Feb21/23 Apr10/23 May30/23	Juice/23 Sep 14/23	Nov16/23 Dec28/23	f ingl	Feb21/23 Apr10/23 May30/23	Jul26/23
Aluminum (ppm)	)			Chromium (p	pm)
<sup>2</sup> Severe				5 Severe	
8-				4 - Abnormal	
6 - Abnormal				a.3	
	M	ma	2	2	
	3 8		5		$\Delta \sim$
Feb21/23 Apr10/23 May30/23	Juico/23 Sep 14/23	Nov16/23 Dec28/23		Feb21/23 Apr10/23 May30/23	Jul26/23
r ⊲ ≦ Copper (ppm)				u ⊲ ⊵ Silicon (ppm)	
<sup>0</sup> T.3.3.3.5.5.5.5.7.7.7.3.3.3.5.5.7.0	20001111		2	<sup>50</sup> T	, ,
5 - Severe			2	200 - Severe	AA
0-			E.	50-	11
Abnormal				00- / V V	V
.~~~	~~	m		50 V V	
	123	V23	170	/23 /23	(/23 -
Feb21/23 Apr10/23 May30/23	Juic 0/23 Sep 14/23	Nov16/2 Dec28/2		Feb 21/23 Apr1 0/23 May 30/23	Jul26/23
Viscosity @ 100°		anati difiti 3		Base Number	
	0001000		(b)	Base	<u> </u>
8 - Severe Abnormal			g KOF		M
6 - <b>0</b>	1.1.1.1		ber (m	3.0 - Severe	Y
4+ Base Abnormal			a state a state of the state of	2.0	
			Base	0.0	
53 53	3 83	23		ບ.ບ <del>. 1</del> ບ.ບ	3

Feb14/24 -Feb21/23 Feb21/23 Apr10/23 Apr10/23 /av/30/23 Jul26/23 Vov16/23 Dec28/23 Jul26/23 Sep 14/23 Sep 14/23 May30/23 Dec28/23 Feb14/24 Vov16/23 Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 **EDL NA Recips-Coopersville** Sample No. : WC0871562 Received : 18 Apr 2024 Coopersville Powerstation, 15362 68th Avenue Lab Number : 06153277 Tested : 19 Apr 2024 Coopersville, MI Unique Number : 10983355 Diagnosed : 22 Apr 2024 - Sean Felton US 49404 Contact: Daniel Young Test Package : MOB 2 To discuss this sample report, contact Customer Service at 1-800-237-1369. daniel.young@edlenergy.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Certificate 12367 To discuss thi \* - Denotes te

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Report Id: EDLCOO [WUSCAR] 06153277 (Generated: 04/22/2024 17:57:27) Rev: 1

Submitted By: Chad Conroy Page 2 of 2

NONE

NONE

NONE NONE

NONE NONE

NORML

NORML

NEG

NEG

13.2

eb 14/24

Feb14/24

Der 28/7