

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id WVTM02BE Component

Biogas Engine

CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

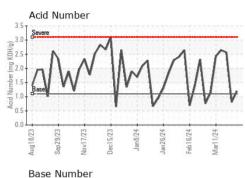
Fluid Condition

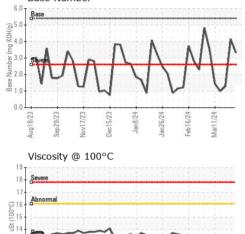
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

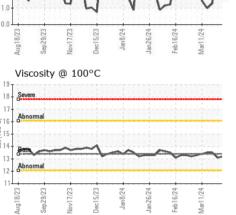
SAMPLE INFORM	1ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0895532	WC0895530	WC0895528
Sample Date		Client Info		25 Mar 2024	22 Mar 2024	19 Mar 2024
Machine Age	hrs	Client Info		44556	44478	44406
Oil Age	hrs	Client Info		242	164	92
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINATION	J	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.11	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>15	2	2	8
Chromium	ppm	ASTM D5185m		0	0	<1
Nickel	ppm	ASTM D5185m		0	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>6	1	2	3
Lead	ppm	ASTM D5185m	>9	0	<1	3
Copper	ppm	ASTM D5185m		<1	<1	2
Tin	ppm	ASTM D5185m	>4	<1	1	4
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		mathad				bister .0
ADDITIVE5		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	current	history1 <1	<1
	ppm ppm		iimi/base		· · · · ·	
Boron		ASTM D5185m	limi/base	<1	<1	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m		<1 0	<1 0 <1 <1	<1 2 1 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		<1 0 0 0 5	<1 0 <1 <1 23	<1 2 1 <1 7
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 0 0 5 1664	<1 0 <1 <1 23 1645	<1 2 1 <1 7 1876
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 0 0 5 1664 262	<1 0 <1 23 1645 261	<1 2 1 <1 7 1876 260
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 0 0 5 1664 262 308	<1 0 <1 23 1645 261 306	<1 2 1 <1 7 1876 260 338
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 0 0 5 1664 262	<1 0 <1 23 1645 261 306 2699	<1 2 1 <1 7 1876 260 338 3965
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 0 0 5 1664 262 308 3119 current	<1 0 <1 <1 23 1645 261 306 2699 history1	<1 2 1 <1 7 1876 260 338 3965 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	limit/base	<1 0 0 5 1664 262 308 3119 current 50	<1 0 <1 <1 23 1645 261 306 2699 history1 26	<1 2 1 <1 7 1876 260 338 3965 history2 125
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >181 >21	<1 0 0 5 1664 262 308 3119 current 50 <1	<1 0 <1 23 1645 261 306 2699 history1 26 2	<1 2 1 <1 7 1876 260 338 3965 history2 125 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	limit/base	<1 0 0 5 1664 262 308 3119 current 50	<1 0 <1 <1 23 1645 261 306 2699 history1 26	<1 2 1 <1 7 1876 260 338 3965 history2 125
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >181 >21	<1 0 0 5 1664 262 308 3119 current 50 <1 2	<1 0 <1 23 1645 261 306 2699 history1 26 2 2 2 2 history1	<1 2 1 4 5 6 6 7 1876 260 338 3965 6 125 0 3 6 125 0 3 6 125 0 1 125 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	limit/base >181 >21 >20	<1 0 0 5 1664 262 308 3119 <u>current</u> 50 <1 2 <u>current</u> 0	<1 0 <1 23 1645 261 306 2699 history1 26 2 2 2 history1 0	<1 2 1 4 1 5 1 7 1876 260 338 3965 6 125 0 3 125 0 3 history2 125 0 3 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 ASTM D5185m	limit/base >181 >21 >20	<1 0 0 5 1664 262 308 3119 <i>current</i> 50 <1 2 <i>current</i> 0 5.0	<1 0 <1 23 1645 261 306 2699 history1 26 2 2 2 history1 0 4.9	<1 2 1 2 1 1 1 7 1876 260 338 3965 history2 125 0 3 history2 0.1 5.1</th
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 ASTM D5185m	limit/base >181 >21 >20	<1 0 0 5 1664 262 308 3119 <u>current</u> 50 <1 2 <u>current</u> 0	<1 0 <1 23 1645 261 306 2699 history1 26 2 2 2 history1 0	<1 2 1 4 1 5 1 5 1 5 1 5 1 5 1 5 5 5 5 5 5 5
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 ASTM D7844 *ASTM D7624	limit/base >181 >21 >20	<1 0 0 0 5 1664 262 308 3119 Current 50 <11 2 Current 0 50 19.7	<1 0 <1 23 1645 261 306 2699 history1 26 2 2 2 2 history1 0 4.9 17.2 history1	<1 2 1 2 1 1 1 7 1876 260 338 3965 history2 125 0 33 history2 0.1 5.1 26.3 history2</th
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	limit/base >181 >21 >20 limit/base	<1 0 0 0 0 5 1664 262 308 3119 Current 50 <1 2 Current 0 5.0 19.7 Current 10.1	<1 0 <1 23 1645 261 306 2699 history1 26 2 2 2 history1 0 4.9 17.2 history1 8.4	<1 2 1 2 1 1 1 7 1876 260 338 3965 history2 125 0 33 history2 0.1 5.1 26.3 history2 14.0</th
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 ASTM D7844 *ASTM D7624	limit/base >181 >21 >20 limit/base	<1 0 0 0 0 5 1664 262 308 3119 current 50 <1 2 current 0 5.0 19.7 current 10.1 1.20	<1 0 <1 1 23 1645 261 306 2699 history1 26 2 2 bistory1 0 4.9 17.2 history1 8.4 0.81	<1 2 1 3 4 5 5 6 7 1876 260 338 3965 125 0 125 0 33 125 0 33 125 0 125 0 3 125 0 125 0 125 0 125 0 125 0 125 0 125 125 0 125 125 125 1 125 1 125 1 1 1 1 1 1 1 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	limit/base >181 >21 >20 limit/base	<1 0 0 0 0 5 1664 262 308 3119 Current 50 <1 2 Current 0 5.0 19.7 Current 10.1	<1 0 <1 23 1645 261 306 2699 history1 26 2 2 2 history1 0 4.9 17.2 history1 8.4	<1 2 1 2 1 1 1 7 1876 260 338 3965 history2 125 0 33 history2 0.1 5.1 26.3 history2 14.0</th



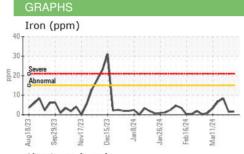
OIL ANALYSIS REPORT

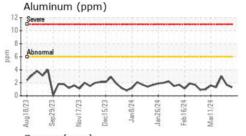


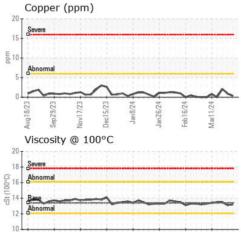


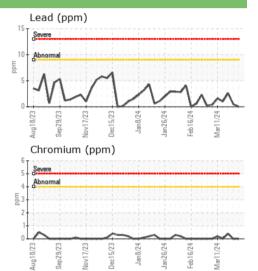


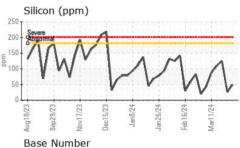
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.11	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.4	13.2	13.1	13.5

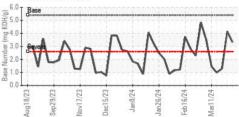












EDL NA Recips-Watervliet Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : WC0895532 Received Watervliet Powerstation, 3563 Hennessey Road : 27 Mar 2024 Lab Number : 06130800 : 28 Mar 2024 Watervliet, MI Tested Unique Number : 10950265 : 01 Apr 2024 - Jonathan Hester US 49098 Diagnosed Test Package : MOB 2 Contact: Scott Eastman Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. scott.eastman@edlenergy.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Т: F:

Feb16/24

Jan 26/24

Mar11/24

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Dec15/73 an8/24

Aug18/23 -

Sep29/23 Nov17/23