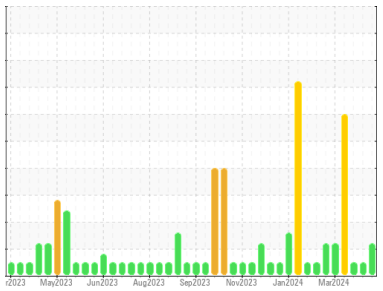
OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Machine Id
Grand Blanc CAT 4 GBLM04BE
Component
Biogas Engine
Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

DIAGNOSIS

Recommendation
The oil is near the end of it`s useful service life, recommend schedule an oil change. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

Contamination
There is no indication of any contamination in the oil.

Fluid Condition
The AN level is at the top-end of the recommended limit. The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0905753**	WC0905738	WC0905743
Sample Date		Client Info		**10 Apr 2024**	03 Apr 2024	25 Mar 2024
Machine Age	hrs	Client Info		**68870**	68701	68503
Oil Age	hrs	Client Info		**0**	0	200
Oil Changed		Client Info		**N/A**	N/A	Changed
Sample Status				**ABNORMAL**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	**<1.0**	<1.0	<1.0
Water		WC Method	>.11	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>15	**6**	3	2
Chromium	ppm	ASTM D5185m	>4	**<1**	0	0
Nickel	ppm	ASTM D5185m		**1**	0	0
Titanium	ppm	ASTM D5185m		**<1**	<1	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>6	**2**	2	1
Lead	ppm	ASTM D5185m	>9	**4**	0	<1
Copper	ppm	ASTM D5185m	>6	**2**	<1	<1
Tin	ppm	ASTM D5185m	>4	**3**	<1	0
Vanadium	ppm	ASTM D5185m		**<1**	<1	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**3**	3	4
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**3**	1	<1
Manganese	ppm	ASTM D5185m		**1**	0	0
Magnesium	ppm	ASTM D5185m		**10**	8	7
Calcium	ppm	ASTM D5185m		**1786**	1731	1591
Phosphorus	ppm	ASTM D5185m		**288**	237	232
Zinc	ppm	ASTM D5185m		**335**	313	278
Sulfur	ppm	ASTM D5185m		**3317**	3125	2677

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	**153**	114	75
Sodium	ppm	ASTM D5185m	>21	**0**	1	2
Potassium	ppm	ASTM D5185m	>20	**3**	0	0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0.1	0
Nitration	Abs/cm	*ASTM D7624		**5.7**	5.5	5.4
Sulfation	Abs/.1mm	*ASTM D7415		**22.9**	21.3	19.0

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414		**14.3**	12.8	10.8
Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	▲ **2.04**	1.64	1.18
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	**2.22**	2.56	3.69

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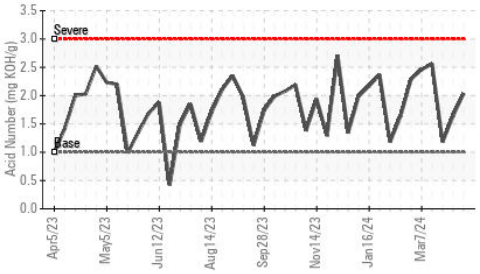
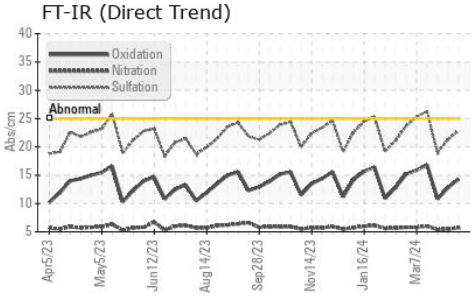
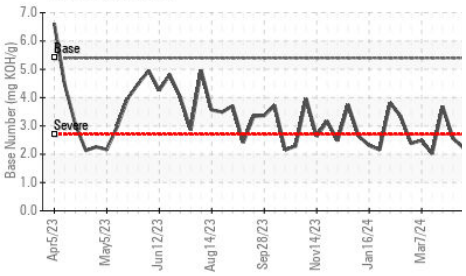
Acid Number



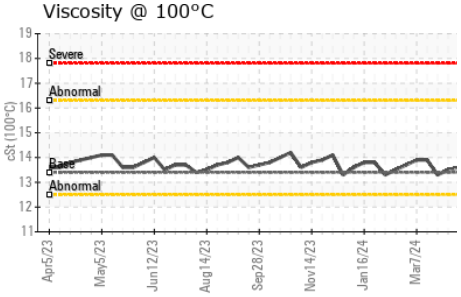
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

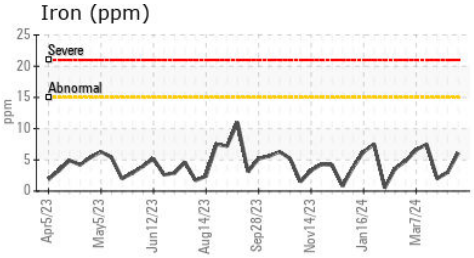


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>.11	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

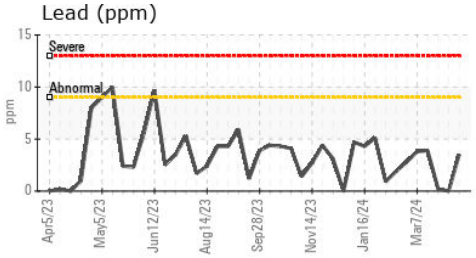
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.4	**13.6**	13.5	13.3

GRAPHS

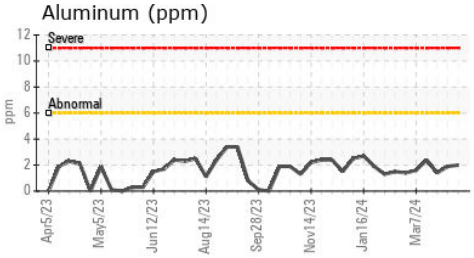
Iron (ppm)



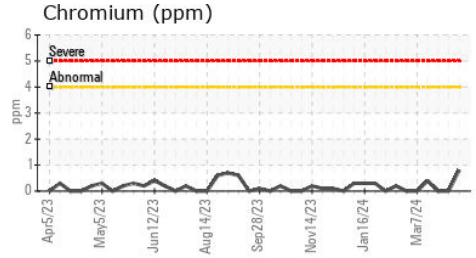
Lead (ppm)



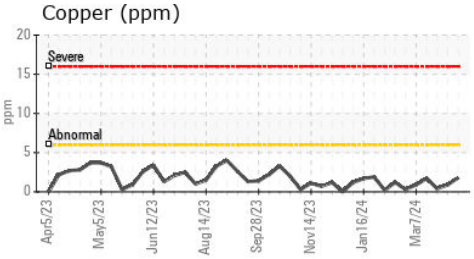
Aluminum (ppm)



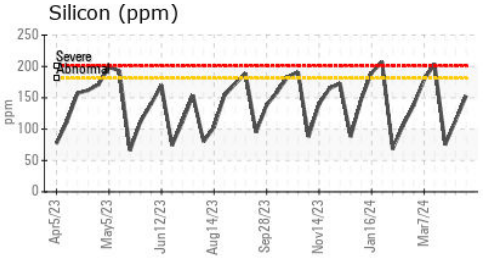
Chromium (ppm)



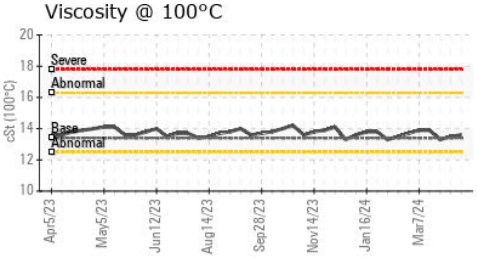
Copper (ppm)



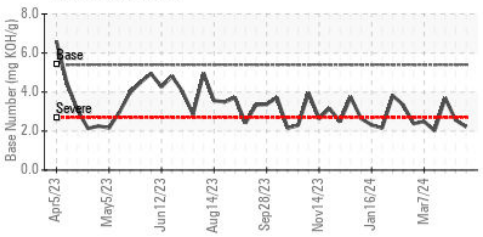
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0905753
Lab Number : 06146061
Unique Number : 10976139
Test Package : MOB 2

Received : 11 Apr 2024
Tested : 12 Apr 2024
Diagnosed : 15 Apr 2024 - Don Baldridge

EDL NA Recips-Grand Blanc
Grand Blanc Powerstation, 2361 West Grand Blanc Road
Grand Blanc, MI
US 48439
Contact: Tony Saint Marie
tony.saintmarie@edlenergy.com
T:
F:

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)

Report Id: EDLGRA [WUSCAR] 06146061 (Generated: 04/15/2024 19:57:36) Rev: 1

Submitted By: Tony Saint Marie