

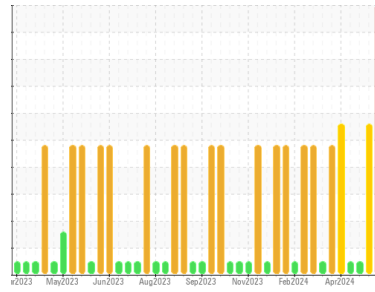


OIL ANALYSIS REPORT



Machine Id
Brent Run CAT 3 BRRM03BE
 Component
Biogas Engine
 Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

Sample Rating Trend



DIAGNOSIS

▲ Recommendation

Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. (Customer Sample Comment: End of life sample. Oil and filters got changed due to bad sample)

▲ Wear

The tin level is abnormal.

▲ Contamination

Elemental level of silicon (Si) above normal.

Fluid Condition

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

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0776766	WC0915800	WC0915823
Sample Date	Client Info		09 May 2024	30 Apr 2024	19 Apr 2024
Machine Age	hrs	Client Info	51671	51433	51224
Oil Age	hrs	Client Info	819	581	372
Oil Changed	Client Info		Changed	Not Changd	Not Changed
Sample Status			SEVERE	SEVERE	NORMAL

CONTAMINATION

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

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >14	5	5	<1
Chromium	ppm	ASTM D5185m >3	<1	0	<1
Nickel	ppm	ASTM D5185m	<1	0	0
Titanium	ppm	ASTM D5185m	<1	0	0
Silver	ppm	ASTM D5185m	<1	0	0
Aluminum	ppm	ASTM D5185m >5	4	3	2
Lead	ppm	ASTM D5185m >8	2	<1	0
Copper	ppm	ASTM D5185m >5	3	2	0
Tin	ppm	ASTM D5185m >3	▲ 6	▲ 5	3
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	20	<1	1
Barium	ppm	ASTM D5185m	<1	0	0
Molybdenum	ppm	ASTM D5185m	3	1	<1
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m	14	8	8
Calcium	ppm	ASTM D5185m	1977	1975	1804
Phosphorus	ppm	ASTM D5185m	296	283	280
Zinc	ppm	ASTM D5185m	409	338	336
Sulfur	ppm	ASTM D5185m	3107	3138	2703

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >180	▲ 255	▲ 237	133
Sodium	ppm	ASTM D5185m >20	1	1	1
Potassium	ppm	ASTM D5185m >20	3	0	<1

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0.1	0.1	0
Nitration	Abs/cm	*ASTM D7624	6.6	6.3	5.8
Sulfation	Abs/.1mm	*ASTM D7415	24.3	22.8	19.7

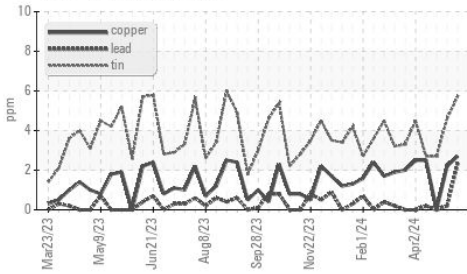
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	17.6	16.1	12.0
Acid Number (AN)	mg KOH/g	ASTM D8045 1.0	1.66	2.775	1.17
Base Number (BN)	mg KOH/g	ASTM D2896 5.4	3.28	2.93	3.66

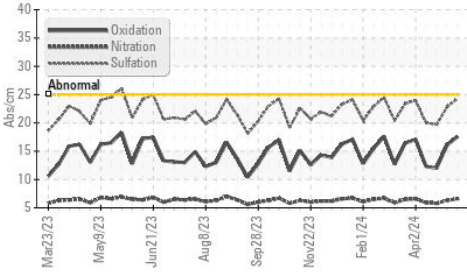


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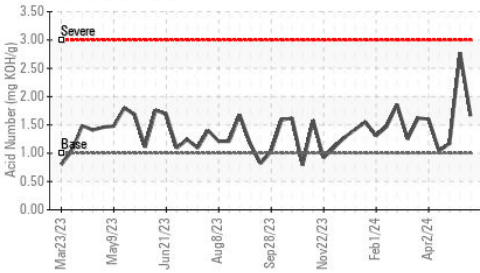
▲ Non-ferrous Metals



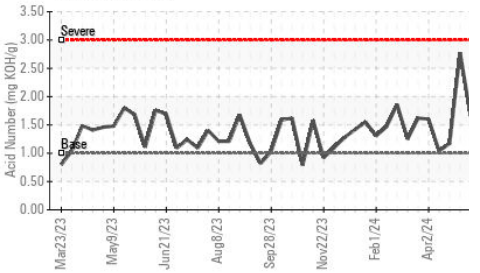
FT-IR (Direct Trend)



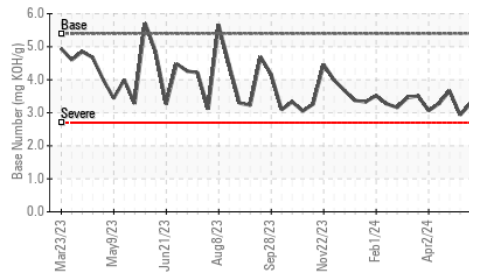
Acid Number



Acid Number



Base Number

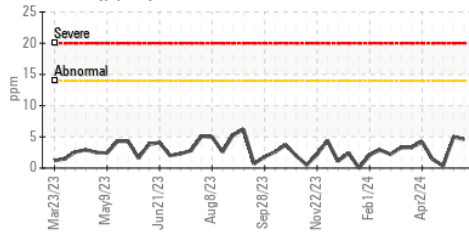


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

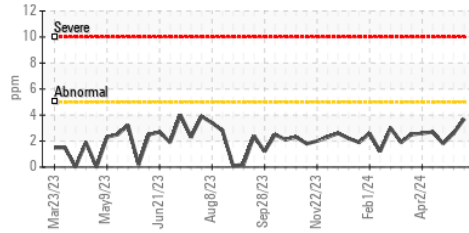
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.4	14.1	13.9

GRAPHS

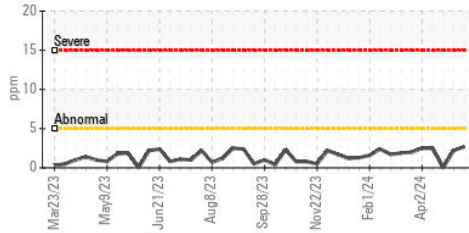
Iron (ppm)



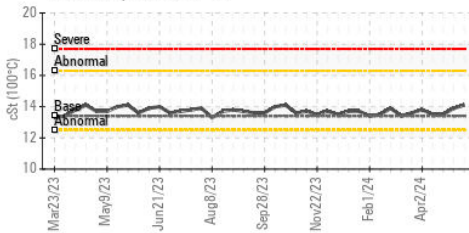
Aluminum (ppm)



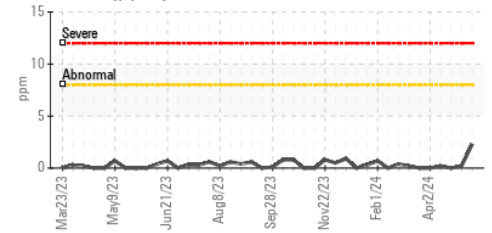
Copper (ppm)



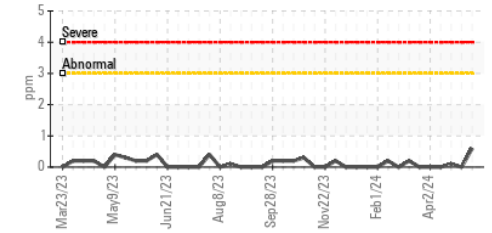
Viscosity @ 100°C



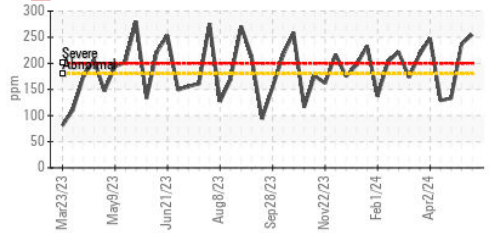
Lead (ppm)



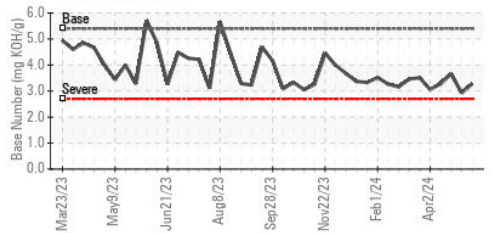
Chromium (ppm)



▲ Silicon (ppm)



Base Number



Certificate L2367

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

Sample No. : WC0776766

Lab Number : 06181520

Unique Number : 11032846

Test Package : MOB 2

Received : 16 May 2024

Tested : 17 May 2024

Diagnosed : 20 May 2024 - Sean Felton

EDL NA Recips-Brent Run

Brent Run Power Station, 8383 Vienna Road

Montrose, MI

US 48457-9141

Contact: Rob Stewart

Rob.Stewart@energydevelopments.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)