

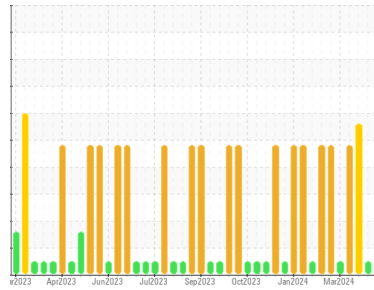


OIL ANALYSIS REPORT



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

Sample Rating Trend



NORMAL

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: 400 hour sample)

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 INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0915823	WC0915818	WC0776765
Sample Date	Client Info		19 Apr 2024	12 Apr 2024	02 Apr 2024
Machine Age	hrs	Client Info	51224	51083	50852
Oil Age	hrs	Client Info	372	221	740
Oil Changed	Client Info		Not Chngd	Not Chngd	Changed
Sample Status			NORMAL	NORMAL	SEVERE

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	<1	1	4
Chromium	ppm	ASTM D5185m >3	<1	0	0
Nickel	ppm	ASTM D5185m	0	<1	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m	0	<1	0
Aluminum	ppm	ASTM D5185m >5	2	3	3
Lead	ppm	ASTM D5185m >8	0	<1	0
Copper	ppm	ASTM D5185m >5	0	2	2
Tin	ppm	ASTM D5185m >3	3	3	▲ 4
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	<1	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	1	2	3
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	<1	2	1
Manganese	ppm	ASTM D5185m	<1	1	<1
Magnesium	ppm	ASTM D5185m	8	13	9
Calcium	ppm	ASTM D5185m	1804	1913	1937
Phosphorus	ppm	ASTM D5185m	280	298	294
Zinc	ppm	ASTM D5185m	336	361	358
Sulfur	ppm	ASTM D5185m	2703	3195	3428

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >180	133	129	▲ 248
Sodium	ppm	ASTM D5185m >20	1	3	1
Potassium	ppm	ASTM D5185m >20	<1	3	<1

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	5.8	5.9	6.6
Sulfation	Abs/.1mm	*ASTM D7415	19.7	20.0	24.0

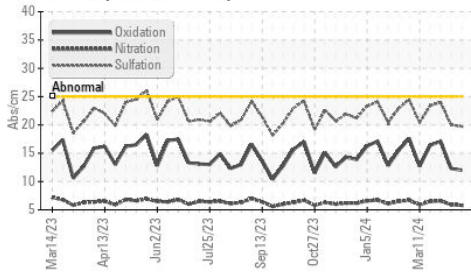
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	12.0	12.3	17.1
Acid Number (AN)	mg KOH/g	ASTM D8045 1.0	1.17	1.04	1.60
Base Number (BN)	mg KOH/g	ASTM D2896 5.4	3.66	3.28	3.06

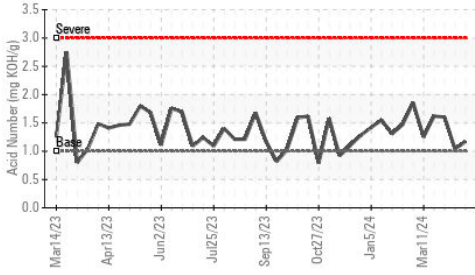


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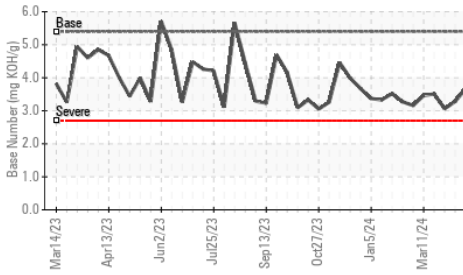
FT-IR (Direct Trend)



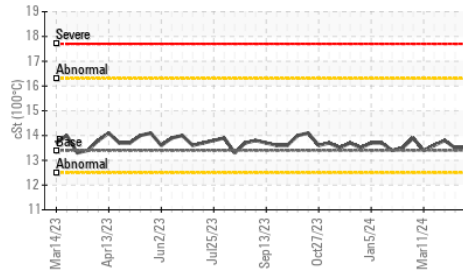
Acid Number



Base Number



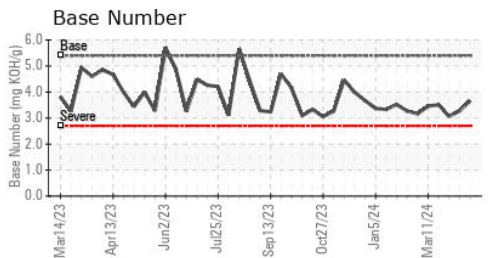
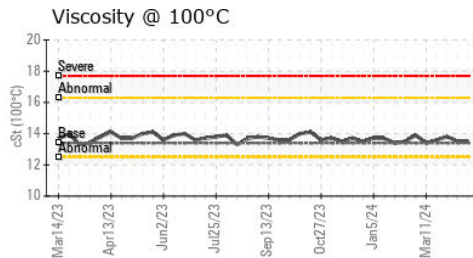
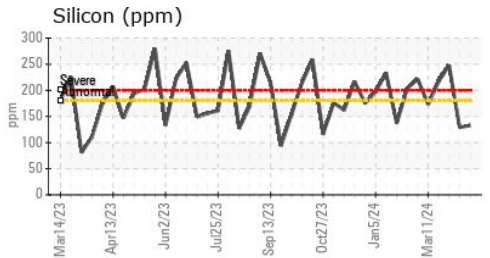
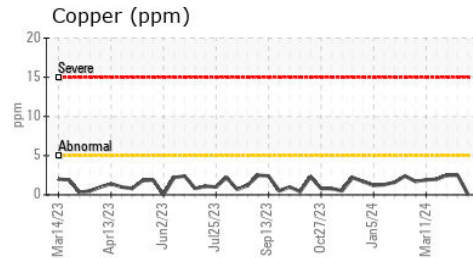
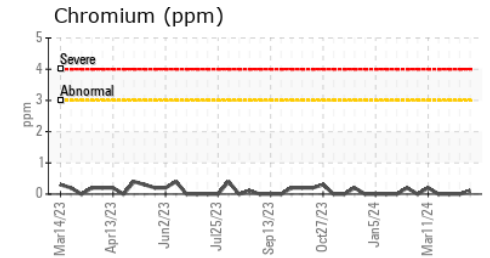
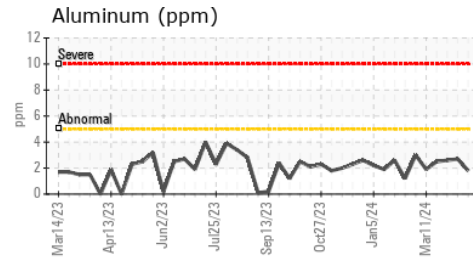
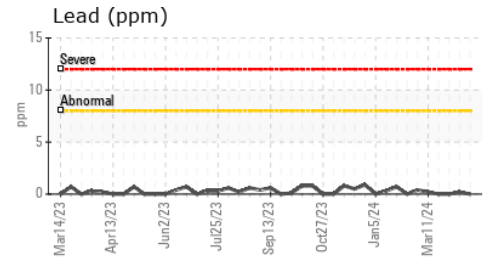
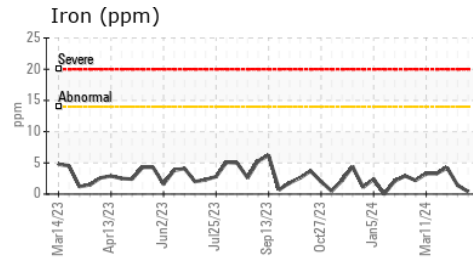
Viscosity @ 100°C



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	13.5	13.8

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : WC0915823
 Lab Number : 06157832
 Unique Number : 10993255
 Test Package : MOB 2

Received : 23 Apr 2024
 Tested : 24 Apr 2024
 Diagnosed : 25 Apr 2024 - Don Baldrige

EDL NA Recips-Brent Run
 Brent Run Power Station, 8383 Vienna Road
 Montrose, MI
 US 48457-9141
 Contact: Rob Stewart
 Rob.Stewart@energydevelopments.com

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)

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F: