



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
ENG 4C
Component
Biogas Engine
Fluid
AMERICAN REFINING GROUP LOW ASH 40 (110 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0909644	WC0909636	WC0909626
Sample Date		Client Info		08 Apr 2024	01 Apr 2024	26 Feb 2024
Machine Age	hrs	Client Info		83893	83723	82892
Oil Age	hrs	Client Info		266	96	811
Filter Age	hrs	Client Info		266	96	811
Oil Changed		Client Info		N/A	Changed	N/A
Filter Changed		Client Info		N/A	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>45	4	3	3
Chromium	ppm	ASTM D5185m	>2	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	1	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>10	2	2	4
Lead	ppm	ASTM D5185m	>5	2	1	1
Copper	ppm	ASTM D5185m	>14	2	<1	3
Tin	ppm	ASTM D5185m	>13	4	2	5
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

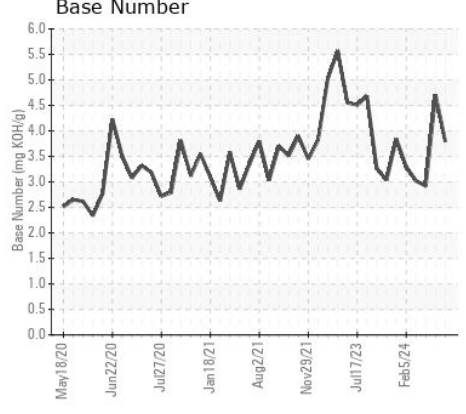
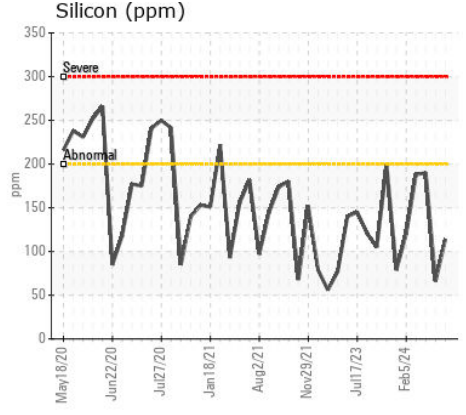
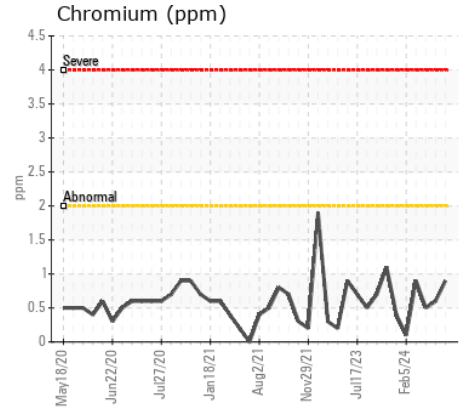
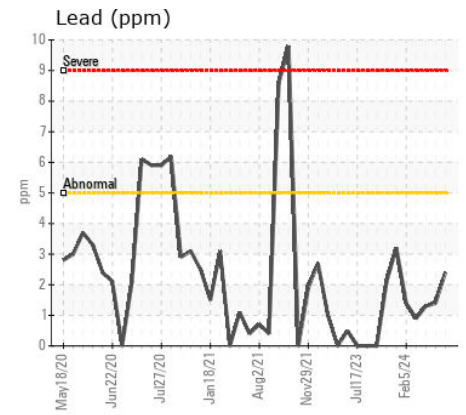
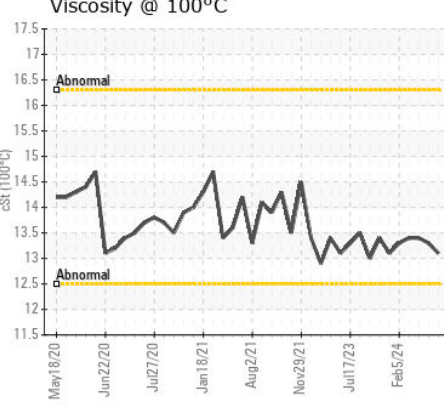
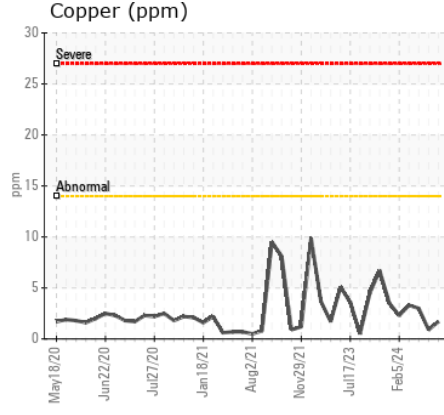
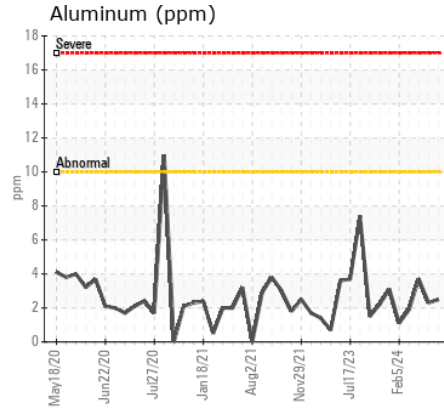
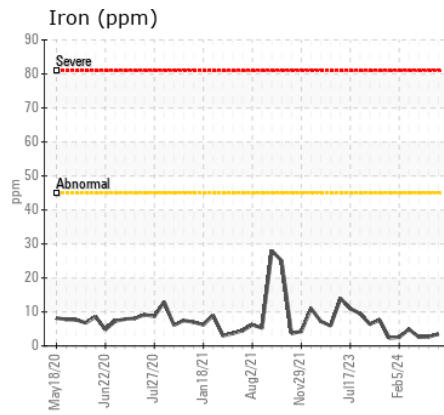
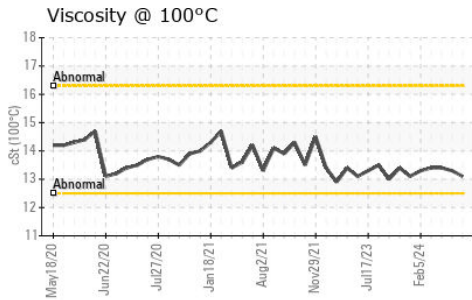
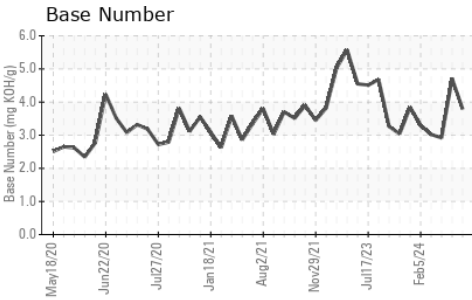
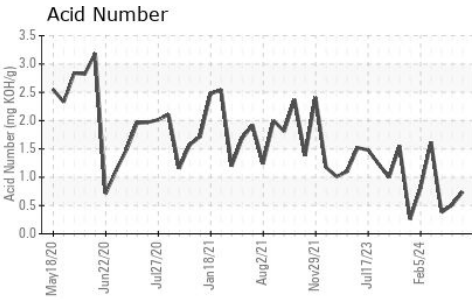
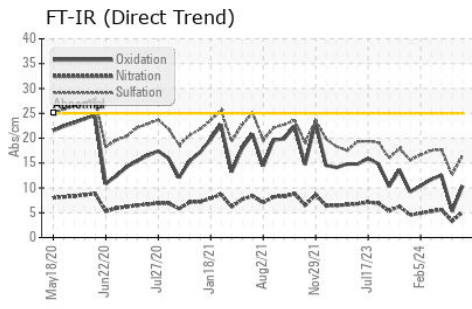
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>200	114	66	190
Potassium	ppm	ASTM D5185m	>20	2	1	0
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0	0	0
Nitration	Abs/cm	*ASTM D7624	>20	5.1	3.3	5.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.5	12.6	17.7
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	>0.1	NEG	NEG	NEG

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.

Sodium	ppm	ASTM D5185m		0	<1	1
Boron	ppm	ASTM D5185m		0	0	2
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		5	4	3
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		20	21	18
Calcium	ppm	ASTM D5185m		1385	1346	1255
Phosphorus	ppm	ASTM D5185m		366	326	306
Zinc	ppm	ASTM D5185m		428	428	392
Sulfur	ppm	ASTM D5185m		3320	3055	2631
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.4	5.3	12.5
Acid Number (AN)	mg KOH/g	ASTM D8045		0.74	0.51	0.38
Base Number (BN)	mg KOH/g	ASTM D2896		3.79	4.71	2.92
Visc @ 100°C	cSt	ASTM D445		13.1	13.3	13.4



Certificate L2367

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

Sample No. : WC0909644

Lab Number : 06146048

Unique Number : 10976126

Test Package : MOB 2

Received : 11 Apr 2024

Tested : 12 Apr 2024

Diagnosed : 15 Apr 2024 - Don Baldrige

BROOME ENERGY

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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)