



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
ENG 5
Component
Right 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		WC0881525	WC0881546	WC0881541
Sample Date		Client Info		22 Jan 2024	04 Dec 2023	20 Nov 2023
Machine Age	hrs	Client Info		88248	87078	86751
Oil Age	hrs	Client Info		263	1087	760
Filter Age	hrs	Client Info		263	1087	760
Oil Changed		Client Info		Changed	N/A	N/A
Filter Changed		Client Info		Changed	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>45	2	6	3
Chromium	ppm	ASTM D5185m	>2	<1	<1	0
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>5	<1	0	<1
Aluminum	ppm	ASTM D5185m	>10	3	3	3
Lead	ppm	ASTM D5185m	>5	5	2	2
Copper	ppm	ASTM D5185m	>14	2	1	<1
Tin	ppm	ASTM D5185m	>13	3	4	3
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

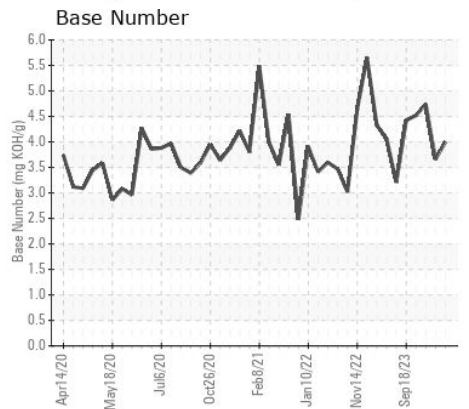
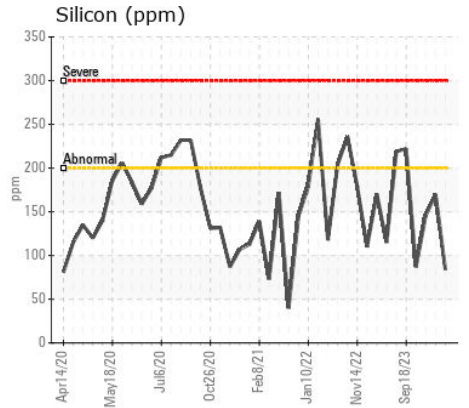
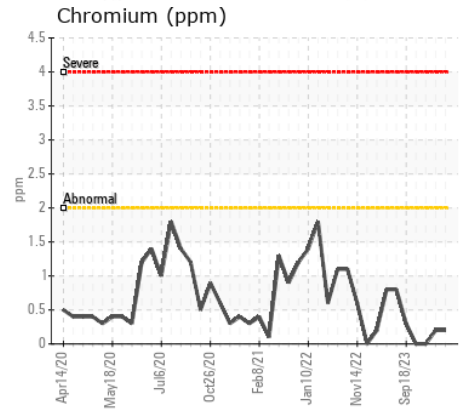
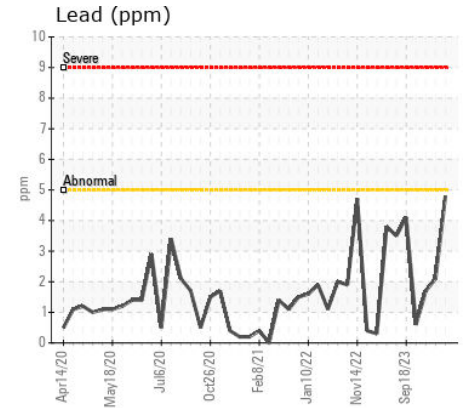
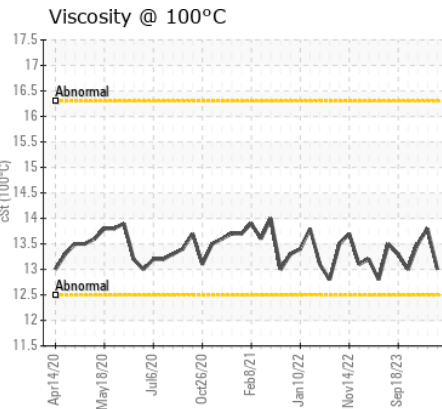
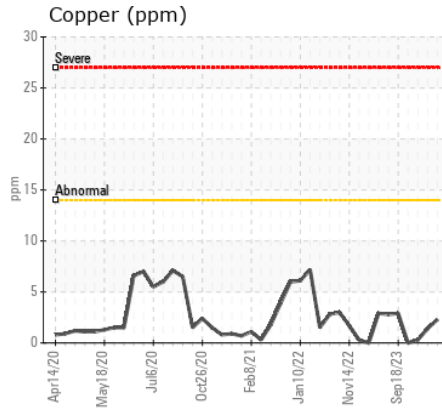
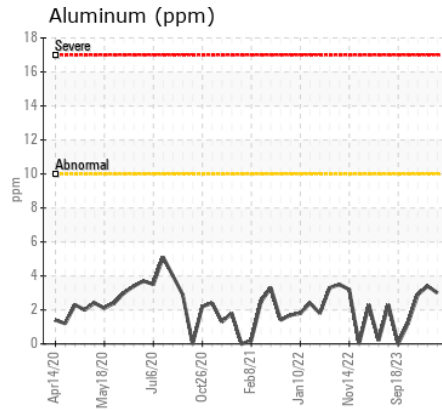
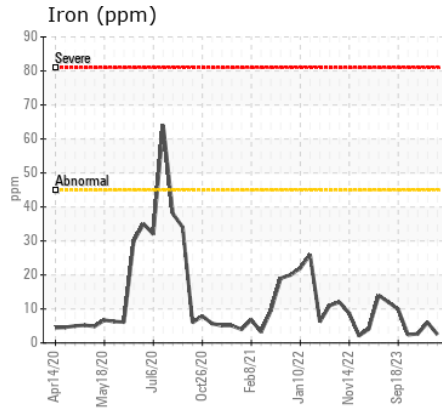
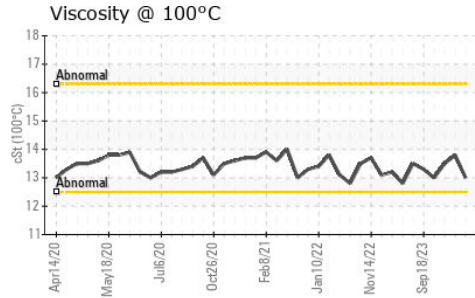
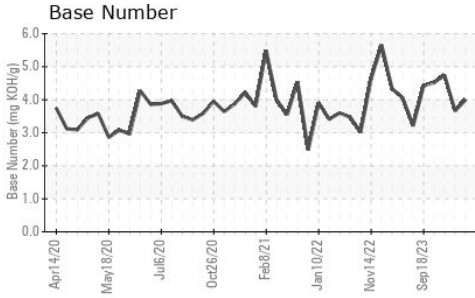
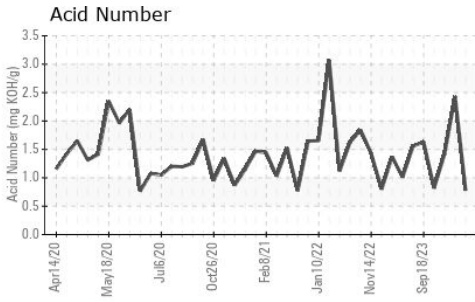
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>200	84	170	146
Potassium	ppm	ASTM D5185m	>20	3	<1	1
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	0.1
Nitration	Abs/cm	*ASTM D7624	>20	5.7	7.4	6.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.0	20.4	19.5
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		3	2	2
Boron	ppm	ASTM D5185m		7	4	5
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		8	4	4
Manganese	ppm	ASTM D5185m		2	<1	0
Magnesium	ppm	ASTM D5185m		42	38	33
Calcium	ppm	ASTM D5185m		1462	1481	1440
Phosphorus	ppm	ASTM D5185m		357	335	338
Zinc	ppm	ASTM D5185m		458	437	403
Sulfur	ppm	ASTM D5185m		3013	2820	2761
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.8	17.5	15.6
Acid Number (AN)	mg KOH/g	ASTM D8045		0.78	2.43	1.42
Base Number (BN)	mg KOH/g	ASTM D2896		4.00	3.66	4.74
Visc @ 100°C	cSt	ASTM D445		13.0	13.8	13.5



Certificate L2367

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

Sample No. : WC0881525

Lab Number : 06077796

Unique Number : 10859887

Test Package : MOB 2

Received : 01 Feb 2024

Tested : 02 Feb 2024

Diagnosed : 04 Feb 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)