



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
E-3 - RICHLAND CREEK
 Component
Biogas Engine
 Fluid
MAHLER Q8 Mahler G8 SAE 40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0944661	WC0944692	WC0914257
Sample Date		Client Info		18 Jun 2024	03 Jun 2024	14 May 2024
Machine Age	hrs	Client Info		50929	50575	50261
Oil Age	hrs	Client Info		478	165	3633
Filter Age	hrs	Client Info		478	3947	3633
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

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

CONTAMINATION

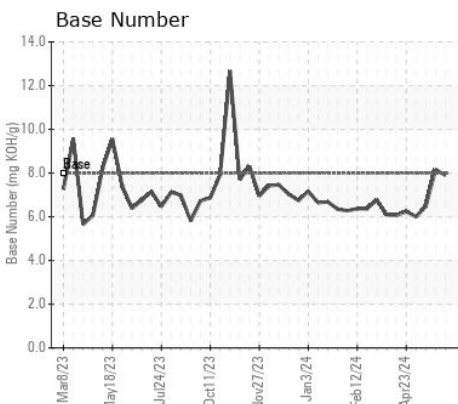
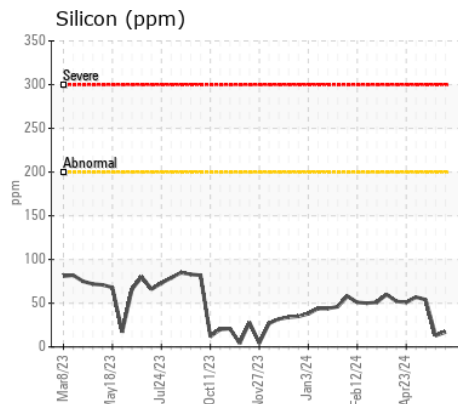
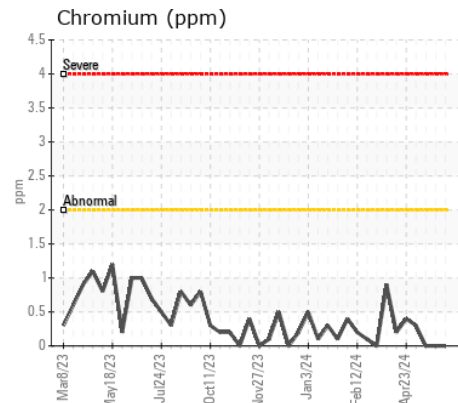
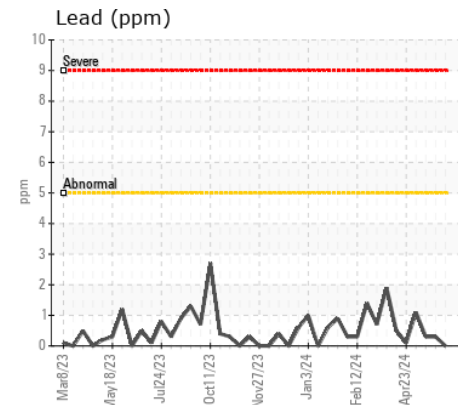
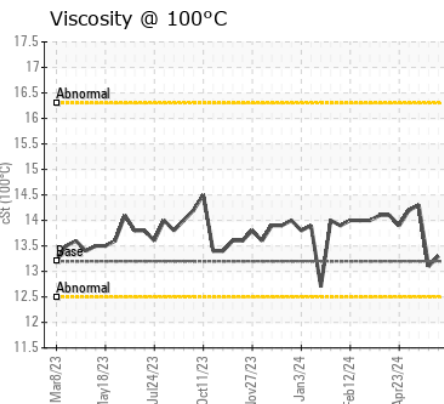
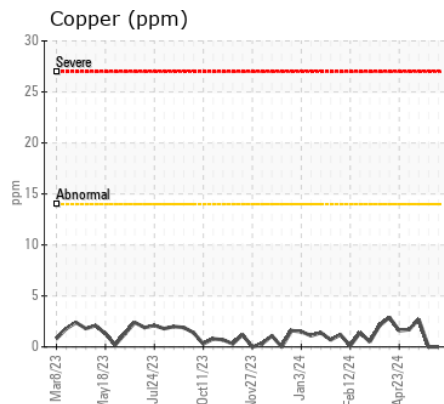
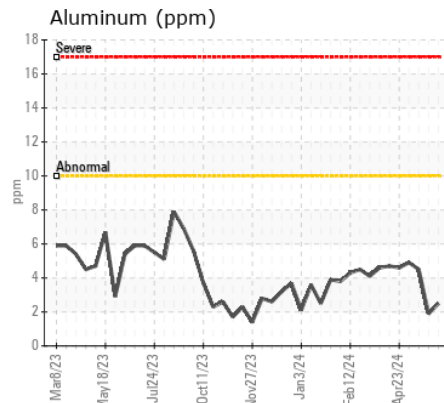
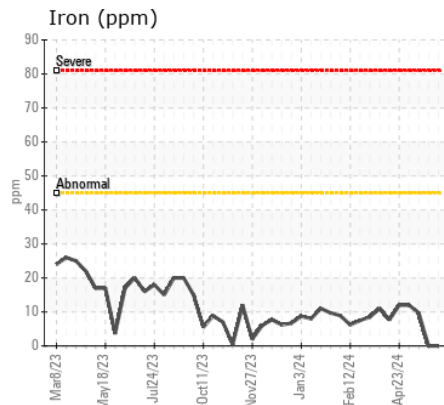
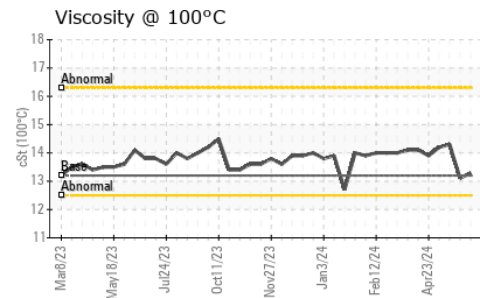
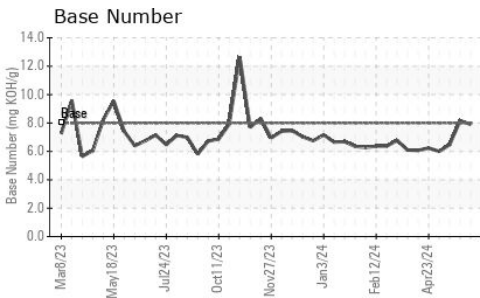
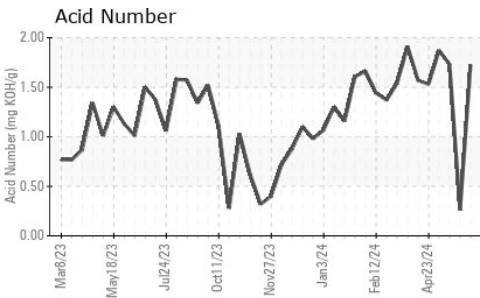
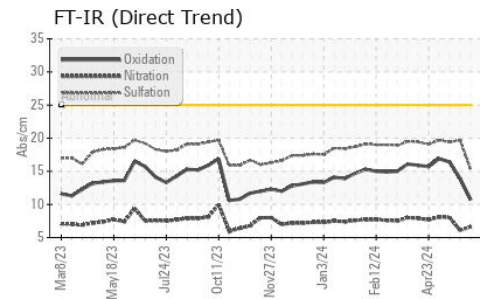
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>200	17	13	54
Potassium	ppm	ASTM D5185m	>20	3	0	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	6.6	6.1	8.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	15.3	19.7	19.4
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		2	<1	2
Boron	ppm	ASTM D5185m		0	0	2
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		0	<1	2
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		12	4	0
Calcium	ppm	ASTM D5185m		2312	2350	2573
Phosphorus	ppm	ASTM D5185m		452	417	444
Zinc	ppm	ASTM D5185m		505	477	541
Sulfur	ppm	ASTM D5185m		2784	2716	2859
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.7	13.9	16.4
Acid Number (AN)	mg KOH/g	ASTM D8045		1.723	0.26	1.73
Base Number (BN)	mg KOH/g	ASTM D2896	8.0	7.90	8.16	6.47
Visc @ 100°C	cSt	ASTM D445	13.2	13.3	13.1	14.3



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0944661
Lab Number : 06216349
Unique Number : 11089213
Test Package : MOB 2
Received : 20 Jun 2024
Tested : 25 Jun 2024
Diagnosed : 25 Jun 2024 - Jonathan Hester

CUBE DISTRICT ENERGY - MAS GEORGIA LFG PLANT SITE
 5691 S RICHLAND CREEK RD
 BUFORD, GA
 US 30518
 Contact: RYAN INGALLS
 ryan.ingalls@cubedistrictenergy.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)