



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id  
**LGS00181**  
 Component  
**Middle Biogas Engine**  
 Fluid  
**CITGO PACEMAKER GAS ENGINE LFG LA 40 (--- GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0803416</b>	WC0803422	WC0803415
Sample Date		Client Info		<b>15 Jul 2024</b>	08 Jul 2024	01 Jul 2024
Machine Age	hrs	Client Info		<b>68345</b>	68191	68024
Oil Age	hrs	Client Info		<b>114</b>	430	263
Filter Age	hrs	Client Info		<b>114</b>	430	263
Oil Changed		Client Info		<b>N/A</b>	N/A	N/A
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>NORMAL</b>	ABNORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>45	<b>4</b>	7	5
Chromium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>10	<b>3</b>	2	2
Lead	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	<1
Copper	ppm	ASTM D5185m	>14	<b>1</b>	2	2
Tin	ppm	ASTM D5185m	>13	<b>2</b>	2	2
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>LIGHT</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

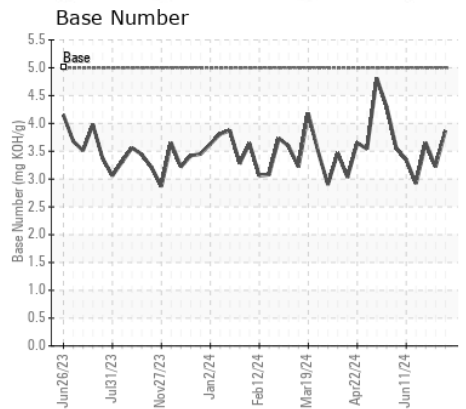
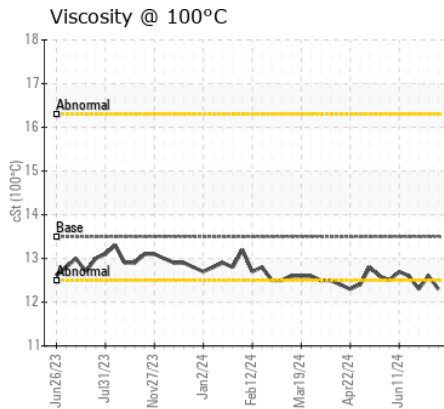
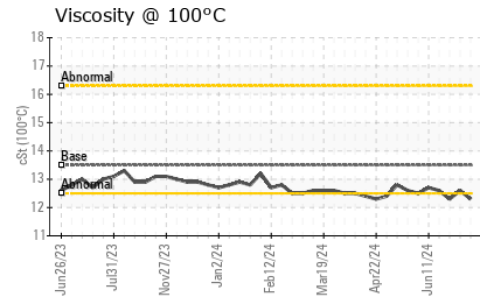
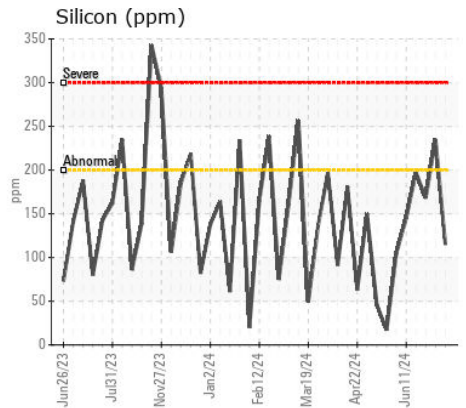
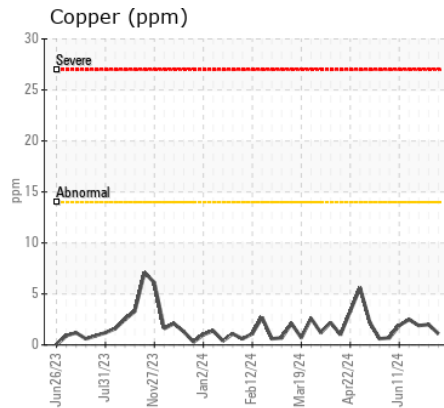
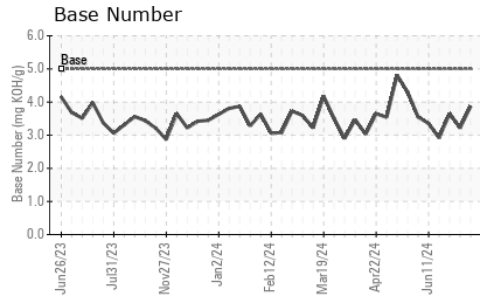
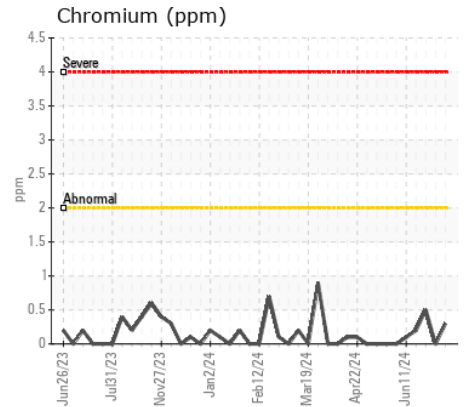
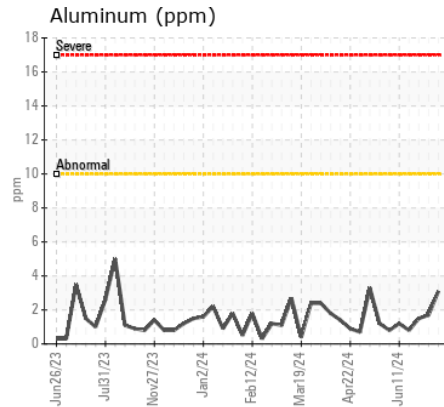
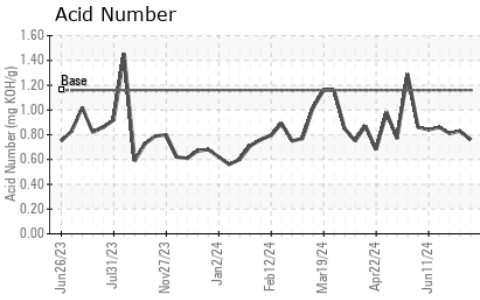
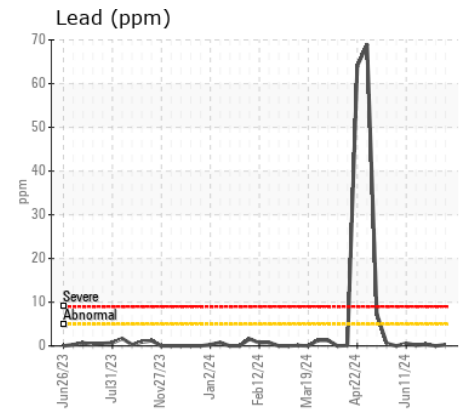
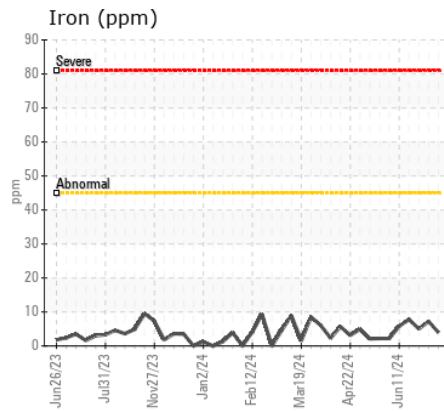
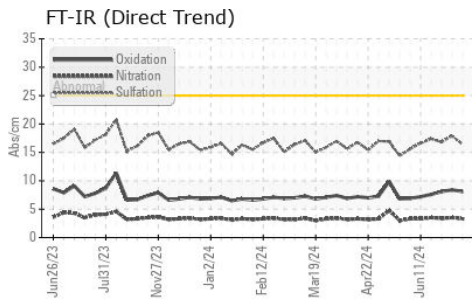
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>200	<b>115</b>	▲ 235	168
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	2	<1
Fuel	%	ASTM D3524	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0</b>	0	0
Nitration	Abs/cm	*ASTM D7624	>20	<b>3.3</b>	3.5	3.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>16.4</b>	17.9	16.8
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	LIGHT	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	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		<b>0</b>	2	0
Boron	ppm	ASTM D5185m		<b>&lt;1</b>	4	2
Barium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>6</b>	6	16
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Magnesium	ppm	ASTM D5185m		<b>33</b>	38	36
Calcium	ppm	ASTM D5185m		<b>1431</b>	1570	1570
Phosphorus	ppm	ASTM D5185m		<b>269</b>	304	319
Zinc	ppm	ASTM D5185m		<b>355</b>	370	393
Sulfur	ppm	ASTM D5185m		<b>2682</b>	3603	3212
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>8.1</b>	8.4	8.1
Acid Number (AN)	mg KOH/g	ASTM D8045	1.16	<b>0.76</b>	0.83	0.81
Base Number (BN)	mg KOH/g	ASTM D2896	5	<b>3.87</b>	3.22	3.65
Visc @ 100°C	cSt	ASTM D445	13.5	<b>12.3</b>	12.6	12.3



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0803416  
**Lab Number** : 06239317  
**Unique Number** : 11128151  
**Test Package** : MOB 2 ( Additional Tests: FuelDilution )

**BLACK OAK**  
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 HARTVILLE, MO  
 US 65667  
 Contact: CHIP MATHEWS  
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 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)