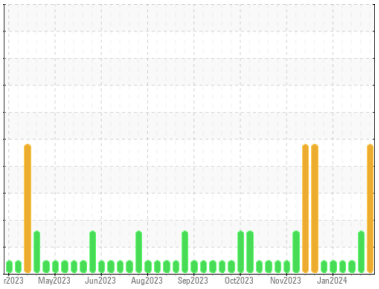
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
HBKM02BE
Component
Biogas Engine
Fluid
SHELL MYSELLA S5 S (48 GAL)

DIAGNOSIS

Recommendation

We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. (Customer Sample Comment: Top Up Amount: 30 GAL)

Wear

All component wear rates are normal.

Contamination

Elemental level of silicon (Si) above normal indicating ingress of seal material.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0775463**	WC0775461	WC0775458
Sample Date		Client Info		**29 Jan 2024**	22 Jan 2024	15 Jan 2024
Machine Age	hrs	Client Info		**104441**	104278	104112
Oil Age	hrs	Client Info		**874**	711	545
Oil Changed		Client Info		**Oil Added**	N/A	Oil Added
Sample Status				**SEVERE**	ABNORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>15	**5**	5	6
Chromium	ppm	ASTM D5185m	>4	**<1**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**0**	<1	0
Titanium	ppm	ASTM D5185m		**0**	<1	0
Silver	ppm	ASTM D5185m	>5	**0**	0	0
Aluminum	ppm	ASTM D5185m	>6	**4**	4	3
Lead	ppm	ASTM D5185m	>9	**<1**	<1	0
Copper	ppm	ASTM D5185m	>6	**2**	2	2
Tin	ppm	ASTM D5185m	>4	**6**	5	4
Vanadium	ppm	ASTM D5185m		**0**	<1	<1
Cadmium	ppm	ASTM D5185m		**0**	<1	0

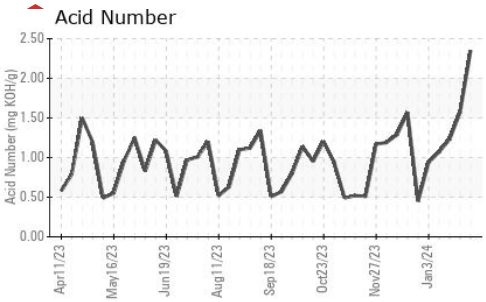
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**4**	4	5
Barium	ppm	ASTM D5185m		**<1**	0	0
Molybdenum	ppm	ASTM D5185m		**5**	6	7
Manganese	ppm	ASTM D5185m		**<1**	0	<1
Magnesium	ppm	ASTM D5185m		**41**	40	66
Calcium	ppm	ASTM D5185m		**1543**	1619	1606
Phosphorus	ppm	ASTM D5185m	300	**345**	362	380
Zinc	ppm	ASTM D5185m		**444**	446	469
Sulfur	ppm	ASTM D5185m		**3221**	4054	3382

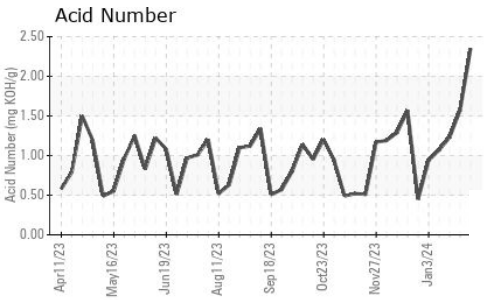
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	**231**	193	162
Sodium	ppm	ASTM D5185m		**2**	0	2
Potassium	ppm	ASTM D5185m	>20	**0**	2	0

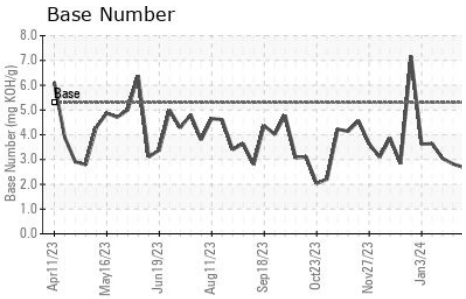
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0	0
Nitration	Abs/cm	*ASTM D7624	>20	**5.5**	5.3	5.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	**24.9**	23.9	22.5

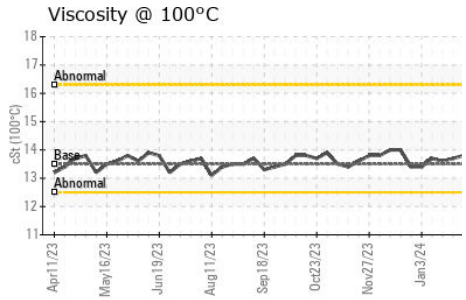
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**18.3**	17.5	16.2
Acid Number (AN)	mg KOH/g	ASTM D8045		**2.35**	1.57	1.23
Base Number (BN)	mg KOH/g	ASTM D2896	5.3	**2.68**	2.82	3.04

OIL ANALYSIS REPORT





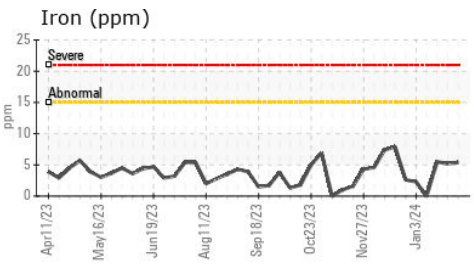


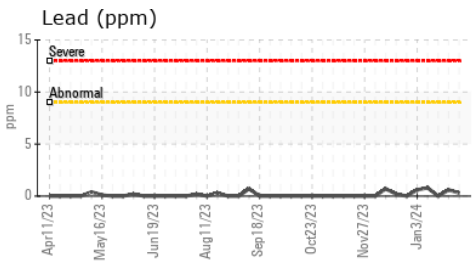


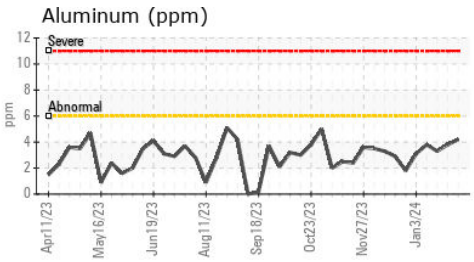
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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
Free Water	scalar	*Visual		**NEG**	NEG	NEG

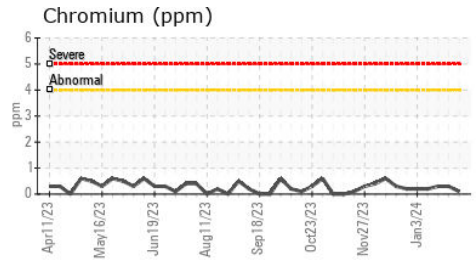
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.5	**13.8**	13.7	13.6

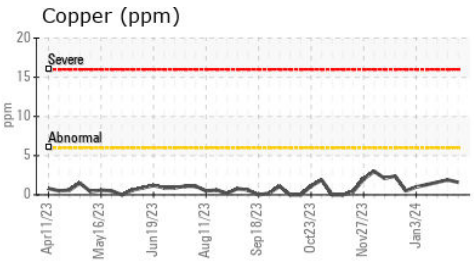
GRAPHS

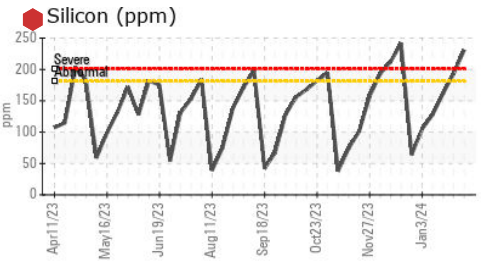


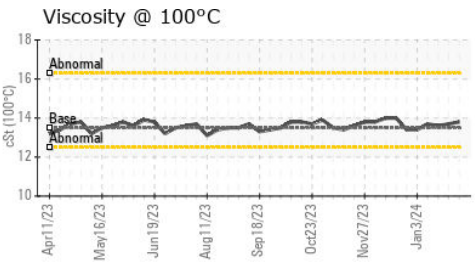


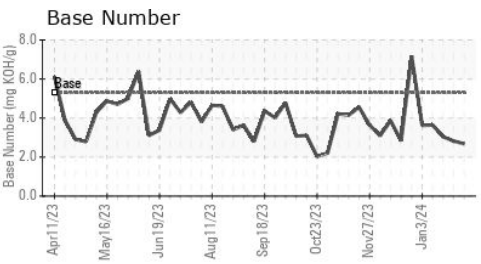












Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0775463 **Recieved** : 01 Feb 2024
Lab Number : 06077056 **Diagnosed** : 02 Feb 2024
Unique Number : 10859147 **Diagnostician** : Sean Felton
Test Package : MOB 2

Certificate L2367

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)

EDL NA Recips-Honeybrook
Honey Brook Powerstation, 481 S. Churchtown Road
Narvon, PA
US 17555-9574
Contact: Christian Adames
Christian.Adames@edlenergy.com
T:
F: