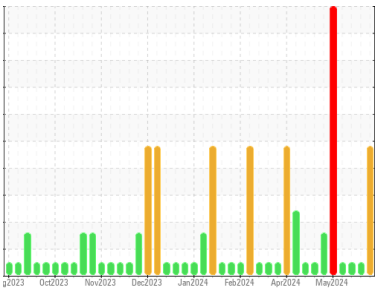
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

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

DIAGNOSIS

▲ Recommendation
We advise that you inspect for possible wear. We recommend an early resample to monitor this condition. Please note that this is a corrected copy for laboratory data updates to add PQ.

▲ Wear
The very high ferrous density (PQ) index indicates that severe wear is occurring. 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		**WC0775492**	WC0775484	WC0775167
Sample Date		Client Info		**10 Jun 2024**	06 Jun 2024	29 May 2024
Machine Age	hrs	Client Info		**107278**	107197	107015
Oil Age	hrs	Client Info		**442**	361	179
Oil Changed		Client Info		**Oil Added**	Oil Added	Oil Added
Sample Status				**SEVERE**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	**<1.0**	<1.0	<1.0
Water		WC Method		**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184		▲ **22**	10	---
Iron	ppm	ASTM D5185m	>14	**5**	4	4
Chromium	ppm	ASTM D5185m	>3	**<1**	<1	<1
Nickel	ppm	ASTM D5185m		**0**	0	<1
Titanium	ppm	ASTM D5185m		**0**	<1	<1
Silver	ppm	ASTM D5185m		**0**	0	<1
Aluminum	ppm	ASTM D5185m	>5	**3**	3	2
Lead	ppm	ASTM D5185m	>8	**<1**	<1	<1
Copper	ppm	ASTM D5185m	>5	**1**	1	1
Tin	ppm	ASTM D5185m	>3	▲ **4**	3	2
Vanadium	ppm	ASTM D5185m		**<1**	<1	<1
Cadmium	ppm	ASTM D5185m		**0**	0	<1

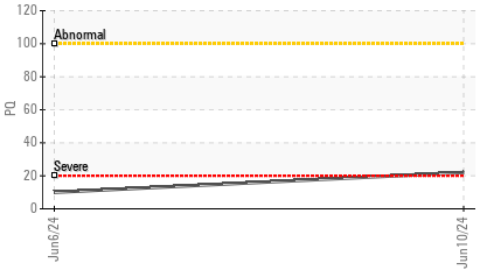
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**42**	39	35
Barium	ppm	ASTM D5185m		**0**	0	2
Molybdenum	ppm	ASTM D5185m		**8**	9	12
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**92**	93	108
Calcium	ppm	ASTM D5185m		**1878**	1823	1644
Phosphorus	ppm	ASTM D5185m	300	**513**	518	585
Zinc	ppm	ASTM D5185m		**662**	651	665
Sulfur	ppm	ASTM D5185m		**4368**	4338	3976

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>180	**165**	141	95
Sodium	ppm	ASTM D5185m	>20	**2**	2	<1
Potassium	ppm	ASTM D5185m	>20	**1**	1	2

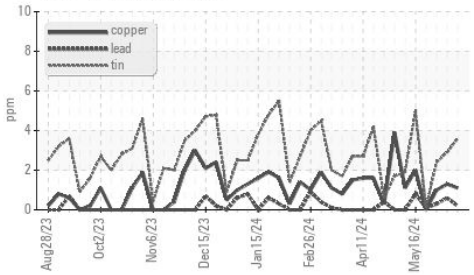
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0.1	0.1
Nitration	Abs/cm	*ASTM D7624		**5.0**	4.9	5.2
Sulfation	Abs/.1mm	*ASTM D7415		**20.8**	20.3	25.9

OIL ANALYSIS REPORT

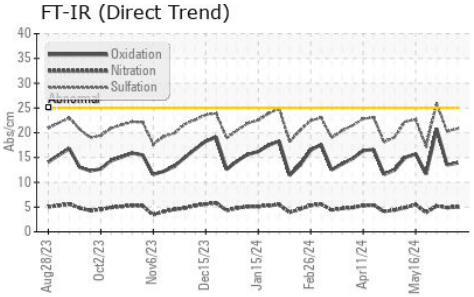
PQ



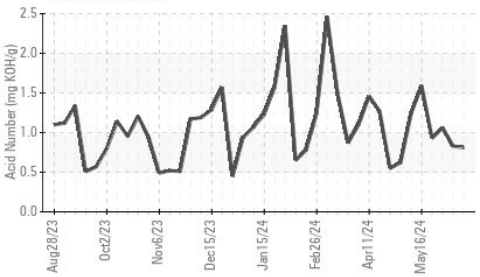
Non-ferrous Metals



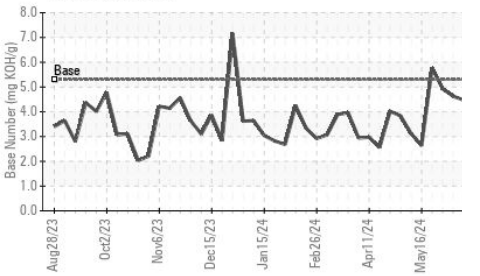
FT-IR (Direct Trend)



Acid Number



Base Number



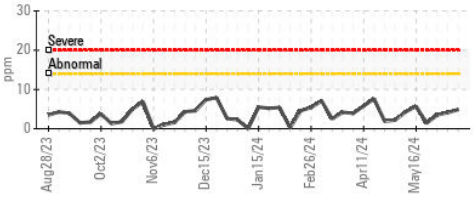
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414		**13.9**	13.5	20.8
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.81**	0.83	1.06
Base Number (BN)	mg KOH/g	ASTM D2896	5.3	**4.47**	4.63	4.93

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		**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

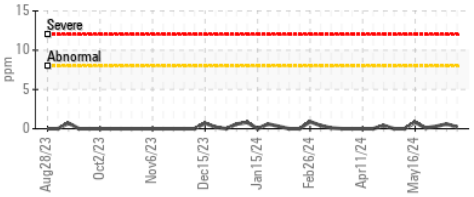
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.5	**13.9**	13.5	13.4

GRAPHS

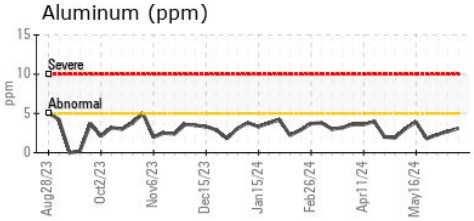
Iron (ppm)



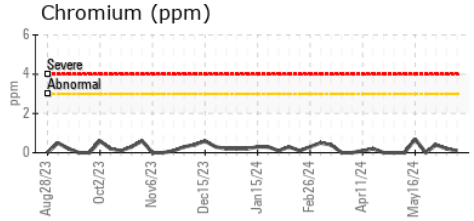
Lead (ppm)



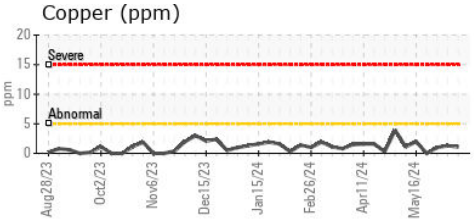
Aluminum (ppm)



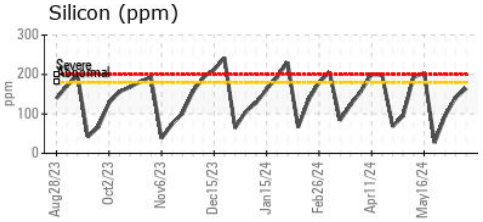
Chromium (ppm)



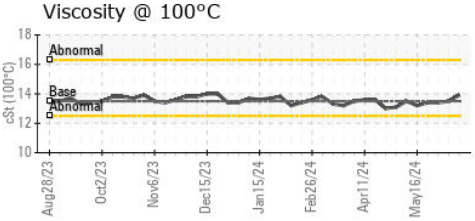
Copper (ppm)



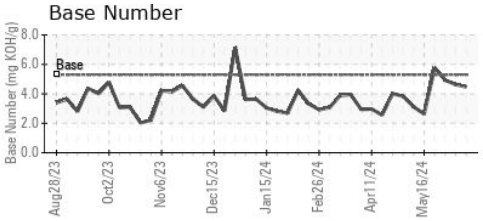
Silicon (ppm)



Viscosity @ 100°C



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0775492
Lab Number : 06207997
Unique Number : 11075458
Test Package : MOB 2 (Additional Tests: PQ)

Received : 12 Jun 2024
Tested : 14 Jun 2024
Diagnosed : 19 Jun 2024 - Jonathan Hester

Certificate L2367

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:

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)