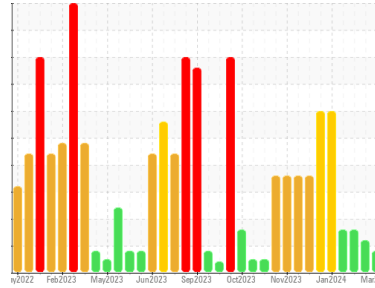




OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Area
BRUCE B/0B/54300
 Machine Id
0B-54300-EPG1-E2
 Component
Diesel Engine
 Fluid
SHELL ROTELLA T4 15W40 (30 LTR)

DIAGNOSIS

Recommendation

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil. The water content is negligible. Tests confirm the presence of fuel in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			WC0896856	WC0896855	WC0896845
Sample Date	Client Info			13 Mar 2024	12 Mar 2024	14 Feb 2024
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed	Client Info			N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	ATTENTION

CONTAMINATION		method	limit/base	current	history1	history2
Glycol	WC Method			NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>200	2	2	1
Chromium	ppm	ASTM D5185(m)	>20	0	0	0
Nickel	ppm	ASTM D5185(m)	>2	<1	0	<1
Titanium	ppm	ASTM D5185(m)	>2	0	0	0
Silver	ppm	ASTM D5185(m)	>2	0	0	0
Aluminum	ppm	ASTM D5185(m)	>30	1	1	1
Lead	ppm	ASTM D5185(m)	>30	<1	<1	0
Copper	ppm	ASTM D5185(m)	>30	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>15	0	0	0
Antimony	ppm	ASTM D5185(m)		0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		241	240	253
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)		26	27	26
Manganese	ppm	ASTM D5185(m)		0	0	0
Magnesium	ppm	ASTM D5185(m)		8	7	7
Calcium	ppm	ASTM D5185(m)		2217	2216	2220
Phosphorus	ppm	ASTM D5185(m)		653	646	659
Zinc	ppm	ASTM D5185(m)		719	715	719
Sulfur	ppm	ASTM D5185(m)		2455	2447	2498
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

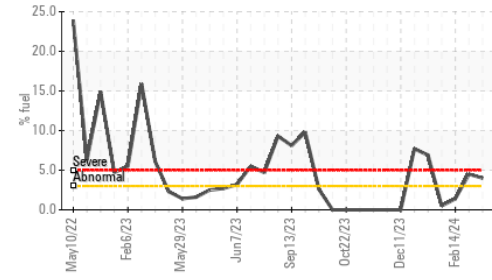
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>30	21	13	14
Sodium	ppm	ASTM D5185(m)		6	5	<1
Potassium	ppm	ASTM D5185(m)	>20	3	3	2
Fuel	%	ASTM D7593*	>3.0	4	4.5	1.4
Water	%	ASTM D6304*	>0.2	0.012	0.035	---
ppm Water	ppm	ASTM D6304*	>2000	123	353	---

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	0	0	0
Nitration	Abs/cm	ASTM D7624*	>20	2.8	2.8	2.7
Sulfation	Abs.1mm	ASTM D7415*	>30	14.9	14.9	14.5

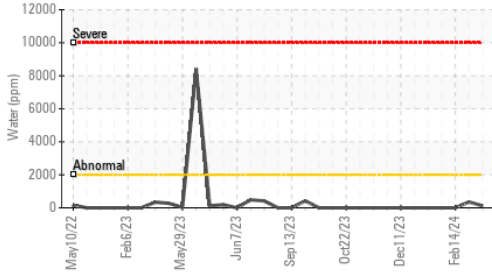


OIL ANALYSIS REPORT

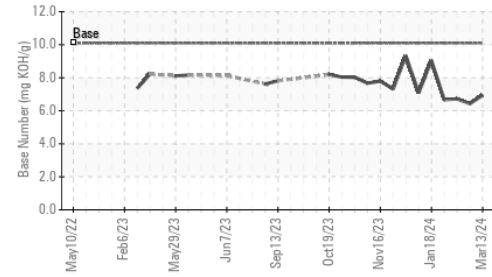
Fuel Dilution



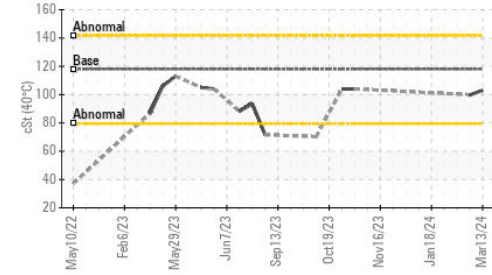
Water (KF)



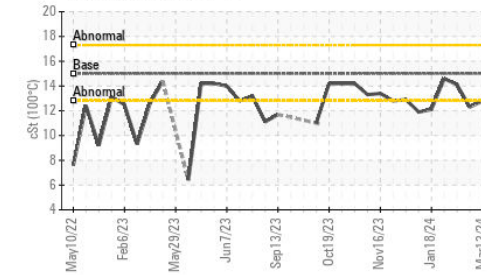
Base Number



Viscosity @ 40°C



Viscosity @ 100°C



FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs./1mm	ASTM D7414*	>25	6.8	6.7	6.7
Acid Number (AN)	mg KOH/g	ASTM D974*		1.63	2.45	---
Base Number (BN)	mg KOH/g	ASTM D2896*	10.1	6.94	6.43	6.72

VISUAL

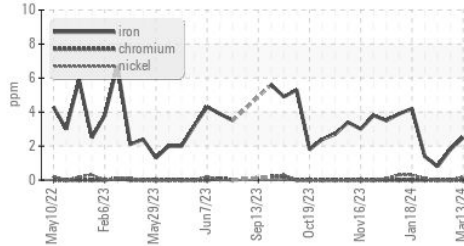
	method	limit/base	current	history1	history2	
White Metal	scalar	Visual*	NONE	NONE	NONE	---
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	---
Precipitate	scalar	Visual*	NONE	NONE	NONE	---
Silt	scalar	Visual*	NONE	NONE	NONE	---
Debris	scalar	Visual*	NONE	NONE	NONE	---
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	---
Appearance	scalar	Visual*	NORML	NORML	NORML	---
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

FLUID PROPERTIES

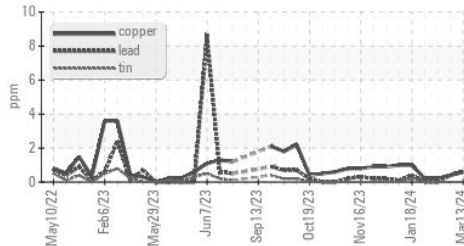
	method	limit/base	current	history1	history2	
Visc @ 40°C	cSt	ASTM D7279(m)	118	103	99.8	---
Visc @ 100°C	cSt	ASTM D7279(m)	15	12.8	▲ 12.3	14.1
Viscosity Index (VI)	Scale	ASTM D2270*	133	119	115	---

GRAPHS

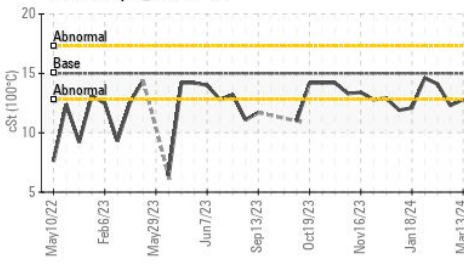
Ferrous Alloys



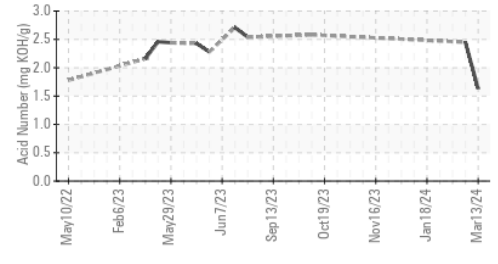
Non-ferrous Metals



Viscosity @ 100°C



Acid Number



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9

Sample No. : WC0896856

Lab Number : 02622965

Unique Number : 5748084

Test Package : IND 2 (Additional Tests: FT-IR, KV100, PercentFuel, TAN Man, TBN, VI)

Received : 19 Mar 2024

Tested : 21 Mar 2024

Diagnosed : 21 Mar 2024 - Kevin Marson

Bruce Power - Bruce A PdM

P.O.Box 1540, 177 Tie Road., RM-222 U2 Column 2N11 615

Tiverton, ON

CA N0G 2T0

Contact: Bradley Mangotich

bradley.mangotich@brucepower.com

T: (519)361-2673

F:

To discuss this sample report, contact Customer Service at 1-800-268-2131.

Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.

Validity of results and interpretation are based on the sample and information as supplied.