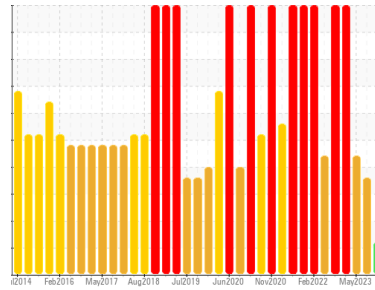




# OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area  
**BRUCE B/0B/54600**  
 Machine Id  
**0B-54600-SG7-Avon Level Gauge**  
 Component  
**Jet Turbine**  
 Fluid  
**SHELL AEROSHELL 500 (--- GAL)**

## DIAGNOSIS

### Recommendation

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

### Wear

All component wear rates are normal.

### Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code.

### Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>WC0628150</b>	WC0535185	WC0548190
Sample Date	Client Info	<b>18 Dec 2023</b>	29 Aug 2023	05 May 2023
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>ABNORMAL</b>	ABNORMAL	SEVERE

## WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m) >2	<b>2</b>	▲ 2	▲ 3
Chromium	ppm	ASTM D5185(m) >1	<b>0</b>	0	0
Nickel	ppm	ASTM D5185(m) >1	<b>0</b>	<1	<1
Titanium	ppm	ASTM D5185(m) >5	<b>0</b>	0	0
Silver	ppm	ASTM D5185(m) >2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185(m) >1	<b>&lt;1</b>	0	0
Lead	ppm	ASTM D5185(m) >2	<b>0</b>	0	<1
Copper	ppm	ASTM D5185(m) >1	<b>&lt;1</b>	<1	<1
Tin	ppm	ASTM D5185(m) >1	<b>0</b>	0	0
Antimony	ppm	ASTM D5185(m)	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Beryllium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185(m)	<b>0</b>	0	0

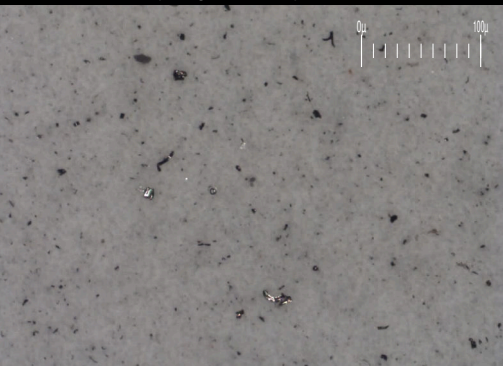
## DR-FERROGRAPHY

method	limit/base	current	history1	history2
Large Particles	DR-Ferr*	<b>40.5</b>	41.0	35.2
Small Particles	DR-Ferr*	<b>11.5</b>	19.7	19.4
Total Particles	DR-Ferr*	<b>52</b>	60.7	54.6
Large Particles Percentage	%	<b>55.8</b>	35.1	28.9
Severity Index	DR-Ferr*	<b>1175</b>	873	556

## FERROGRAPHY

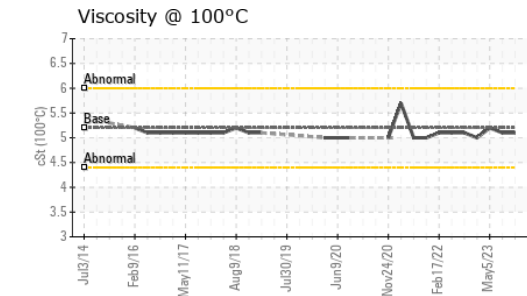
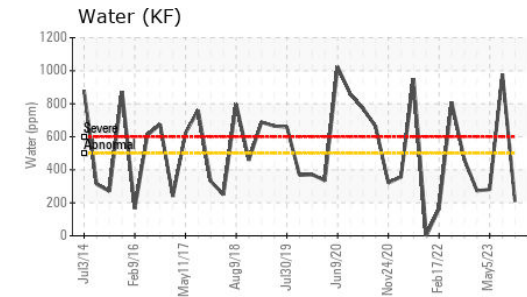
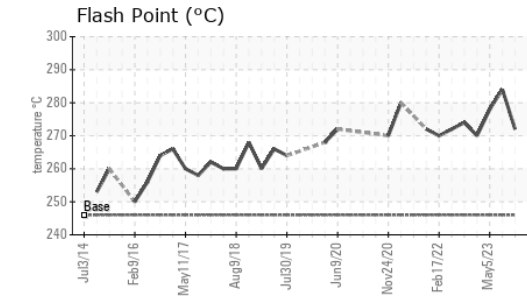
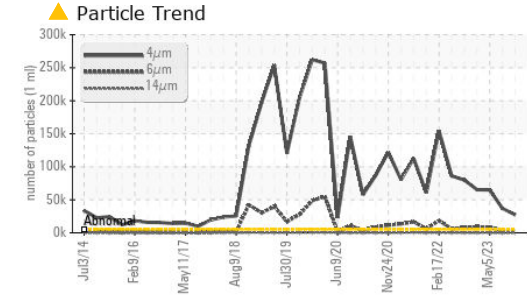
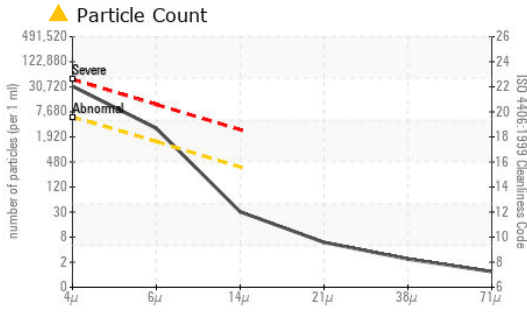
method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*	4	4
Ferrous Sliding	Scale 0-10	ASTM D7684*		
Ferrous Cutting	Scale 0-10	ASTM D7684*		▲ 1
Ferrous Rolling	Scale 0-10	ASTM D7684*	2	1
Ferrous Break-in	Scale 0-10	ASTM D7684*		
Ferrous Spheres	Scale 0-10	ASTM D7684*		
Ferrous Black Oxides	Scale 0-10	ASTM D7684*		
Ferrous Red Oxides	Scale 0-10	ASTM D7684*		
Ferrous Corrosive	Scale 0-10	ASTM D7684*	1	1
Ferrous Other	Scale 0-10	ASTM D7684*		
Nonferrous Rubbing	Scale 0-10	ASTM D7684*		
Nonferrous Sliding	Scale 0-10	ASTM D7684*		
Nonferrous Cutting	Scale 0-10	ASTM D7684*		
Nonferrous Rolling	Scale 0-10	ASTM D7684*		
Nonferrous Other	Scale 0-10	ASTM D7684*		
Carbonaceous Material	Scale 0-10	ASTM D7684*		
Lubricant Degradation	Scale 0-10	ASTM D7684*		
Sand/Dirt	Scale 0-10	ASTM D7684*	1	1
Fibres	Scale 0-10	ASTM D7684*		
Spheres	Scale 0-10	ASTM D7684*		
Other	Scale 0-10	ASTM D7684*	2	2

Particle Filter (Magn: 200 x)





# OIL ANALYSIS REPORT



ADDITIVES	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185(m)	0	0	<1	0
Barium	ppm	ASTM D5185(m)	0	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0	0
Manganese	ppm	ASTM D5185(m)	0	0	0	0
Magnesium	ppm	ASTM D5185(m)	0	0	0	0
Calcium	ppm	ASTM D5185(m)	0	0	0	0
Phosphorus	ppm	ASTM D5185(m)	1000	1042	1075	1079
Zinc	ppm	ASTM D5185(m)	5	<1	1	<1
Sulfur	ppm	ASTM D5185(m)	0	0	2	<1
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>5	2	2	2
Sodium	ppm	ASTM D5185(m)	>5	0	<1	<1
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	0
Water	%	ASTM D6304*	>0.05	0.020	0.098	0.028
ppm Water	ppm	ASTM D6304*	>500	208	980.0	280.9

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	▲ 27347	▲ 36957	● 64915
Particles >6µm	ASTM D7647	>1300	▲ 2686	▲ 3166	▲ 8381
Particles >14µm	ASTM D7647	>320	27	106	78
Particles >21µm	ASTM D7647	>80	5	35	15
Particles >38µm	ASTM D7647	>20	2	2	1
Particles >71µm	ASTM D7647	>4	1	0	1
Oil Cleanliness	ISO 4406 (c)	>19/17/15	▲ 22/19/12	▲ 22/19/14	● 23/20/13

FLUID DEGRADATION	method	limit/base	current	history1	history2	
Acid Number (AN)	mg KOH/g	ASTM D974*	0.11	0.01	0.03	0.02

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*	>0.05	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)	25.3	23.9	25.2	25.4
Visc @ 100°C	cSt	ASTM D7279(m)	5.2	5.1	5.1	5.2
Viscosity Index (VI)	Scale	ASTM D2270*	141	148	134	140
COC Flash Point	°C	ASTM D92*	246	272	284	278



**Laboratory Sample No.** : WC0628150  
**Lab Number** : 02604948  
**Unique Number** : 5698033  
**Test Package** : IND2+ ( Additional Tests: A-FERR, BottomAnalysis, DR-FERR, PrtFilter, Spat, VI, Visual )

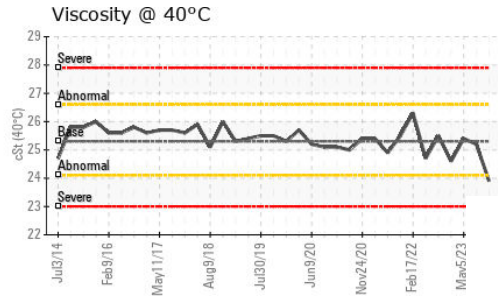
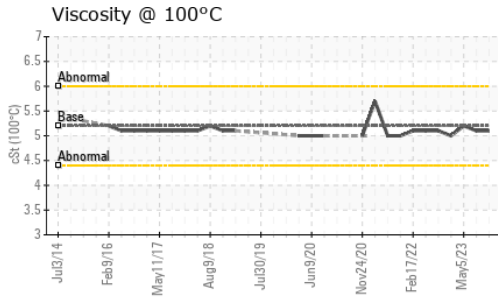
: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
 : 22 Dec 2023  
 : 28 Dec 2023  
 : Kevin Marson

**Bruce Power - Bruce A PdM**  
 P.O.Box 1540, 177 Tie Road., RM-222 U2 Column 2N11 615  
 Tiverton, ON  
 CA N0G 2T0  
 Contact: Pierre Adouki  
 pierre.adouki@brucepower.com

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.

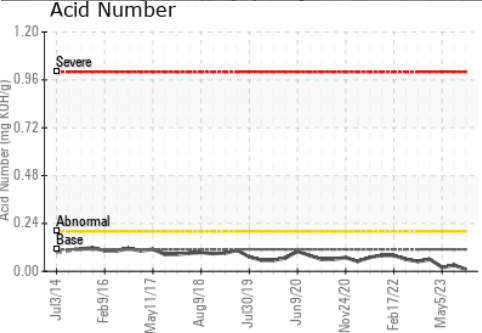
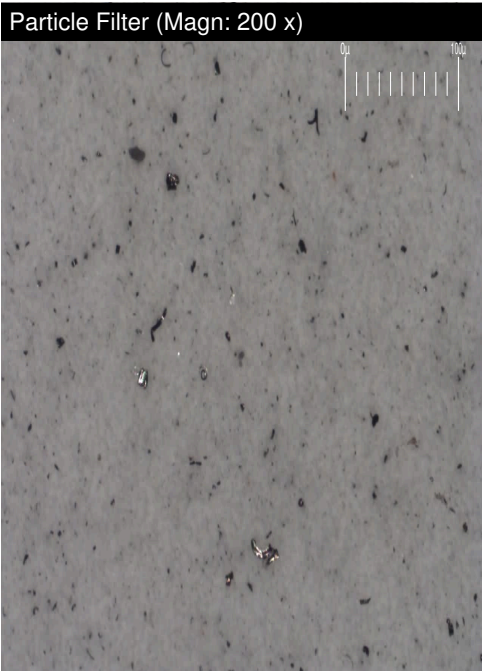
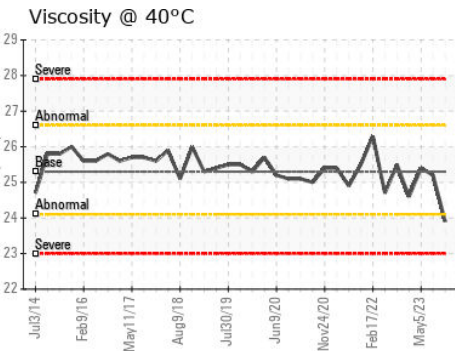
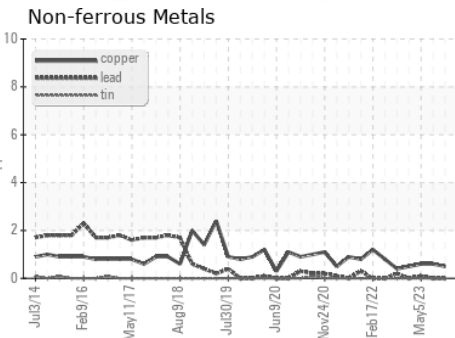
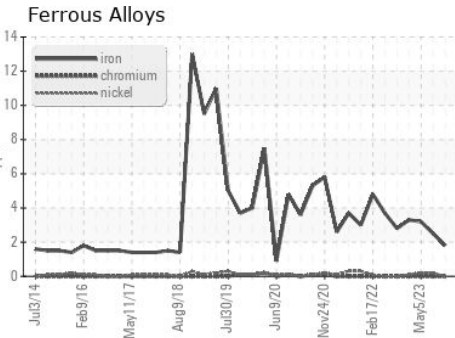
T: (519)361-2673  
 F:

# OIL ANALYSIS REPORT



SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
PrtFilter					

## GRAPHS



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0628150 **Received** : 22 Dec 2023  
**Lab Number** : 02604948 **Diagnosed** : 28 Dec 2023  
**Unique Number** : 5698033 **Diagnostician** : Kevin Marson  
**Test Package** : IND2+ ( Additional Tests: A-FERR, BottomAnalysis, DR-FERR, PrtFilter, Spat, VI, Visual )

**Bruce Power - Bruce A PdM**  
 P.O.Box 1540, 177 Tie Road., RM-222 U2 Column 2N11 615  
 Tiverton, ON  
 CA N0G 2T0  
**Contact:** Pierre Adouki  
 pierre.adouki@brucepower.com  
**T:** (519)361-2673  
**F:**

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