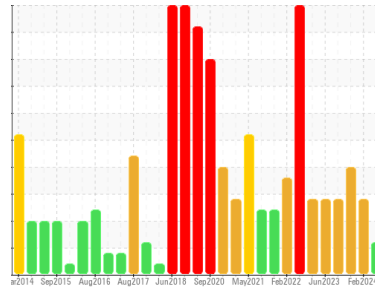




OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area

BRUCE A/0A/54600

Machine Id

0A-54600-SG3-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. The ferrography results are normal indicating no abnormal wear in the system.

Contaminants

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.

Oil 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		WC0628152	WC0628166	WC0650238
Sample Date	Client Info		02 Apr 2024	05 Feb 2024	16 Oct 2023
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	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m) >2	<1	<1	<1
Chromium	ppm	ASTM D5185(m) >1	0	0	0
Nickel	ppm	ASTM D5185(m) >1	0	0	0
Titanium	ppm	ASTM D5185(m) >5	0	0	0
Silver	ppm	ASTM D5185(m) >2	0	0	<1
Aluminum	ppm	ASTM D5185(m) >1	0	<1	<1
Lead	ppm	ASTM D5185(m) >2	0	0	<1
Copper	ppm	ASTM D5185(m) >1	0	<1	<1
Tin	ppm	ASTM D5185(m) >1	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) 0	<1	0	<1
Barium	ppm	ASTM D5185(m) 0	0	0	<1
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	995	1028	1029
Zinc	ppm	ASTM D5185(m) 5	<1	<1	<1
Sulfur	ppm	ASTM D5185(m) 0	20	0	2
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >5	4	▲ 5	▲ 6
Sodium	ppm	ASTM D5185(m) >5	0	0	<1
Potassium	ppm	ASTM D5185(m) >20	<1	<1	0
Water	%	ASTM D6304* >0.05	0.034	0.017	0.047
ppm Water	ppm	ASTM D6304* >500	349	171	471.3

FLUID CLEANLINESS

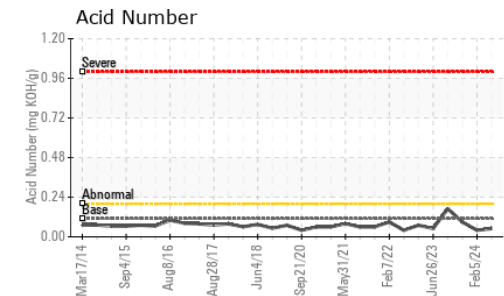
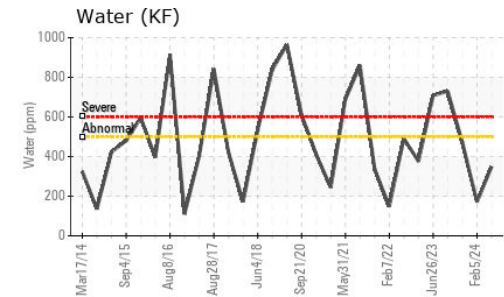
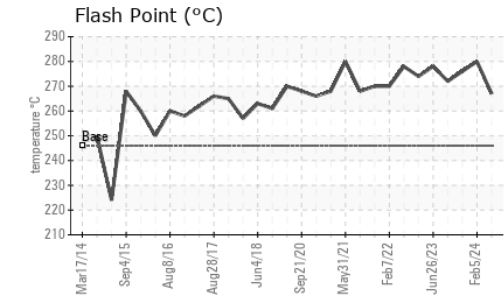
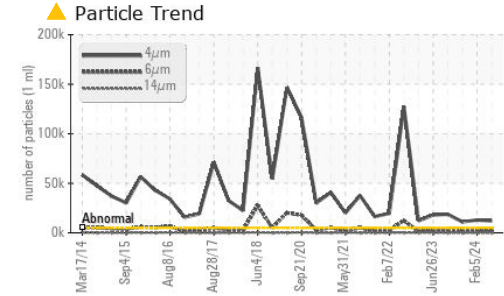
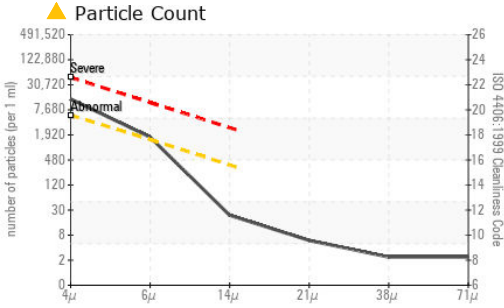
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	▲ 12152	▲ 12899	▲ 11031
Particles >6µm	ASTM D7647	>1300	● 1488	● 1669	1184
Particles >14µm	ASTM D7647	>320	20	26	14
Particles >21µm	ASTM D7647	>80	5	5	3
Particles >38µm	ASTM D7647	>20	2	1	2
Particles >71µm	ASTM D7647	>4	2	1	1
Oil Cleanliness	ISO 4406 (c)	>19/17/15	▲ 21/18/11	▲ 21/18/12	▲ 21/17/11

Particle Filter (Magn: 200 x)





OIL ANALYSIS REPORT

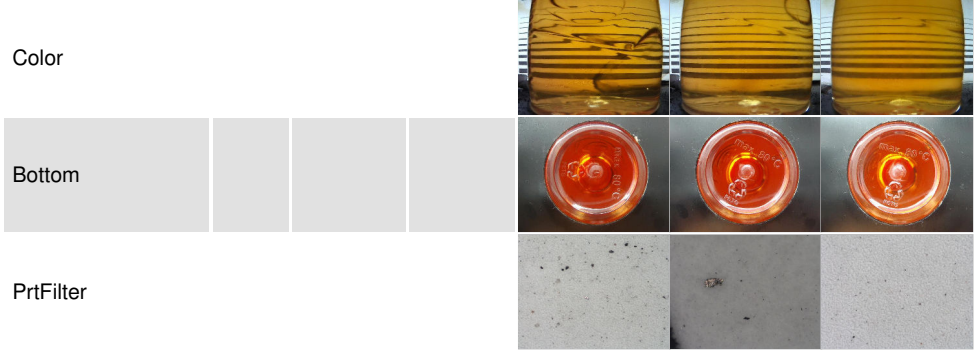


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.11	0.05	0.04	0.09

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	VLITE	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	25.5	25.9	25.4
Visc @ 100°C	cSt	ASTM D7279(m)	5.2	5.1	5.1	5
Viscosity Index (VI)	Scale	ASTM D2270*	141	131	127	125
COC Flash Point	°C	ASTM D92*	246	267	280	276

SAMPLE IMAGES



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0628152
Lab Number : **02627686**
Unique Number : 5760818
Test Package : IND2+ (Additional Tests: A-FERR, BottomAnalysis, DR-FERR, PrtFilter, Spat, TAN Man, VI, Visc)

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:



FERROGRAPHY REPORT

Area
BRUCE A/0A/54600
 Machine Id
0A-54600-SG3-Avon Level Gauge
 Component
Jet Turbine
 Fluid
SHELL AEROSHELL 500 (--- GAL)

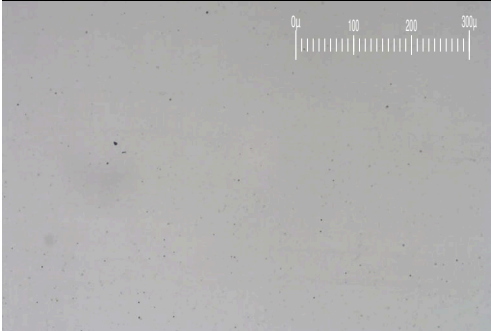
Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW



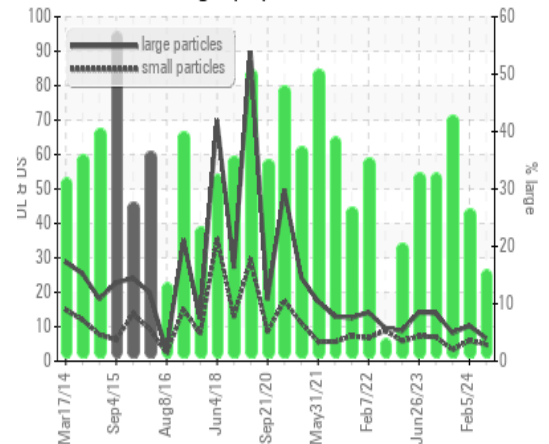
DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		6.6	10.3	8.2
Small Particles		DR-Ferr*		4.8	6.0	3.3
Total Particles		DR-Ferr*	>---	11.4	16.3	11.5
Large Particles Percentage	%	DR-Ferr*		15.8	26.4	42.6
Severity Index		DR-Ferr*		12	44	40

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		3	3	3
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				▲ 1
Ferrous Rolling	Scale 0-10	ASTM D7684*		1	1	2
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*		1	1	1
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
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	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		1	1	1

WEAR

All component wear rates are normal.
 The ferrography results are normal indicating no abnormal wear in the system.

DR Ferrography



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