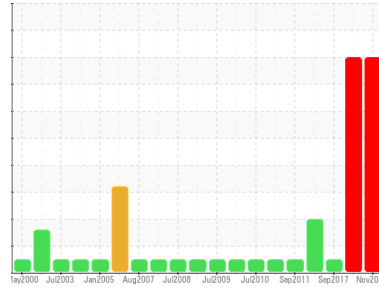




PROBLEM SUMMARY

Sample Rating Trend



WEAR PARTICLES



Machine Id
#1 Primary Air Guide Bearings (S/N 31100-HTR-1-C)
 Component
Bearing
 Fluid
ESSO SPARTAN EP 460 (19 LTR)

COMPONENT CONDITION SUMMARY

No relevant graphs to display

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.

PROBLEMATIC TEST RESULTS

Sample Status	Scale	ASTM	SEVERE	SEVERE	NORMAL
Ferrous Cutting	0-10	D7684*	1	1	

Customer Id: ONTATI
Sample No.: WC0831832
Lab Number: 02604158
Test Package: IND 3



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@wearcheck.com

To change component or sample information:
 Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	We recommend that you drain the oil from the component if this has not already been done.
Resample	---	---	?	We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS

19 Jul 2021 Diag: Kevin Marson

WEAR PARTICLES



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 particle analysis indicates that the ferrous cutting particles are severe. Cutting wear particles are caused by either hard protuberances (mis-aligned components, etc.), or abrasives entering the system and embedding themselves in softer materials (sand, etc.), and gouging out mating surfaces. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

view report



11 Sep 2017 Diag: Kevin Marson

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



26 Jan 2016 Diag: Kevin Marson

VISCOSITY



Due to this condition we recommend the following action... We advise an early resample to confirm this situation. The fluid was specified as ESSO SPARTAN EP 460, however, a fluid match indicates that this fluid is ISO 46 AW Hydraulic Oil. Please confirm the oil type and grade on your next sample. NOTE: The current sample results do not match this units historical trend, indicating the sample may not be from this component/unit. All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. There is no indication of any contamination in the component. Viscosity of sample indicates oil is within ISO 46 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

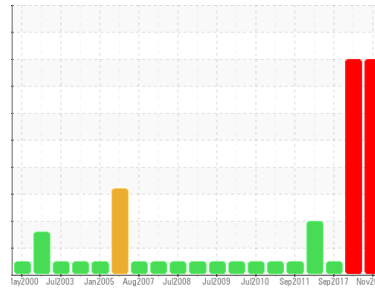
view report





OIL ANALYSIS REPORT

Sample Rating Trend



WEAR PARTICLES



#1 Primary Air Guide Bearings (S/N 31100-HTR-1-C)

Machine Id
 Component
 Bearing
 Fluid
ESSO SPARTAN EP 460 (19 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

Wear particle analysis indicates that the ferrous cutting particles are severe. Cutting wear particles are caused by either hard protuberances (mis-aligned components, etc.), or abrasives entering the system and embedding themselves in softer materials (sand, etc.), and gouging out mating surfaces.

Contaminants

There is no indication of any contamination in the oil.

Oil Condition

The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0831832	WC0599811	WC23005054
Sample Date	Client Info		30 Nov 2023	19 Jul 2021	11 Sep 2017
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			SEVERE	SEVERE	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>2	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		0	0	9
Iron	ppm	ASTM D5185(m) >20	10	8	8
Chromium	ppm	ASTM D5185(m) >20	0	0	0
Nickel	ppm	ASTM D5185(m) >20	<1	<1	0
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	<1	<1	0
Aluminum	ppm	ASTM D5185(m) >20	<1	0	0
Lead	ppm	ASTM D5185(m) >20	<1	0	<1
Copper	ppm	ASTM D5185(m) >20	8	2	<1
Tin	ppm	ASTM D5185(m) >20	0	0	0
Antimony	ppm	ASTM D5185(m)	0	<1	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) .8	20	25	15
Barium	ppm	ASTM D5185(m)	<1	0	<1
Molybdenum	ppm	ASTM D5185(m) .4	0	0	0
Manganese	ppm	ASTM D5185(m)	0	0	0
Magnesium	ppm	ASTM D5185(m) .7	0	0	0
Calcium	ppm	ASTM D5185(m) 17	4	1	20
Phosphorus	ppm	ASTM D5185(m) 250	314	333	199
Zinc	ppm	ASTM D5185(m) 5.5	38	3	5
Sulfur	ppm	ASTM D5185(m)	16643	16578	7258
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

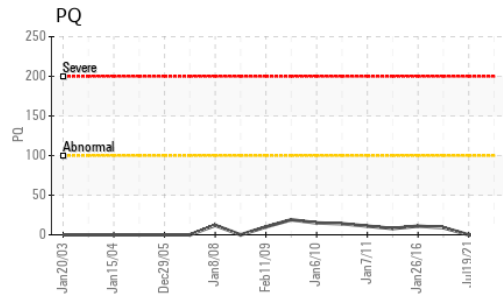
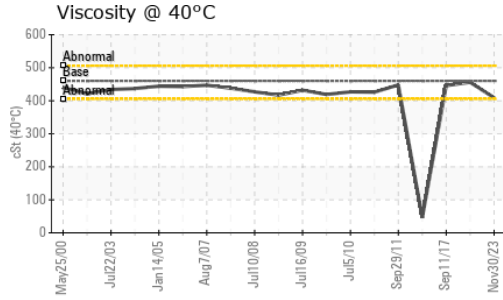
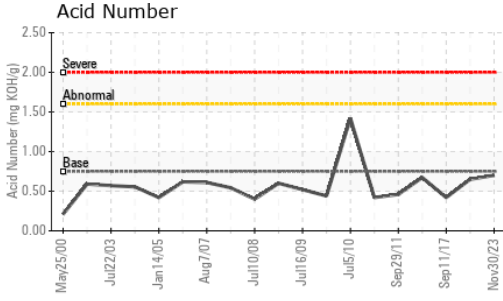
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >15	<1	0	<1
Sodium	ppm	ASTM D5185(m)	<1	<1	6
Potassium	ppm	ASTM D5185(m) >20	<1	<1	0

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974* 0.75	0.70	0.65	0.42



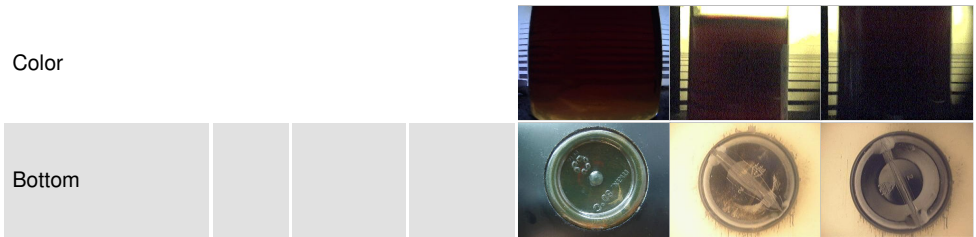
OIL ANALYSIS REPORT



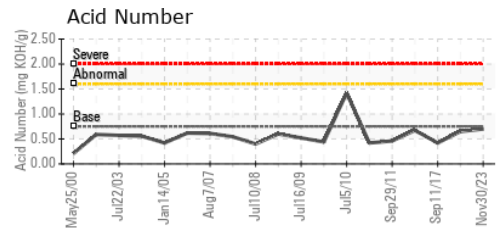
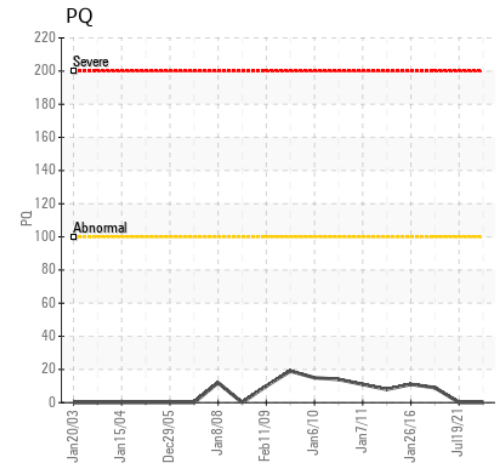
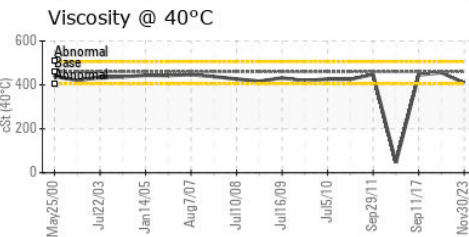
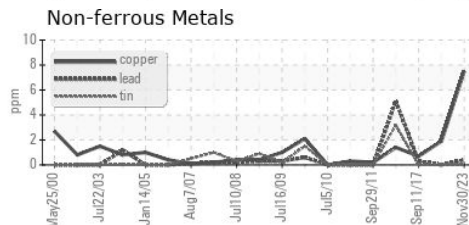
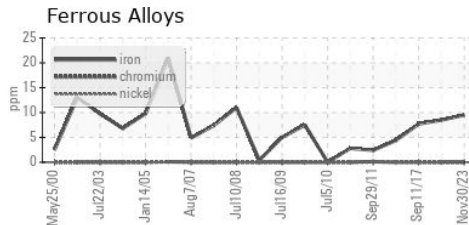
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>2	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	460	409	456

SAMPLE IMAGES	method	limit/base	current	history1	history2
---------------	--------	------------	---------	----------	----------



GRAPHS



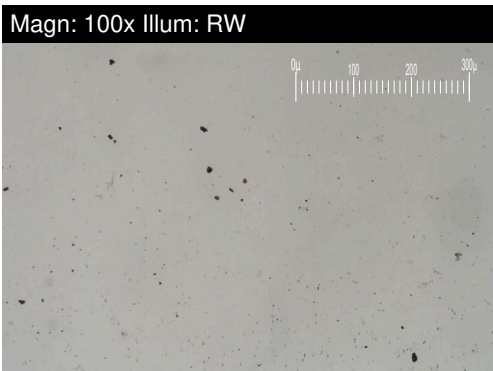
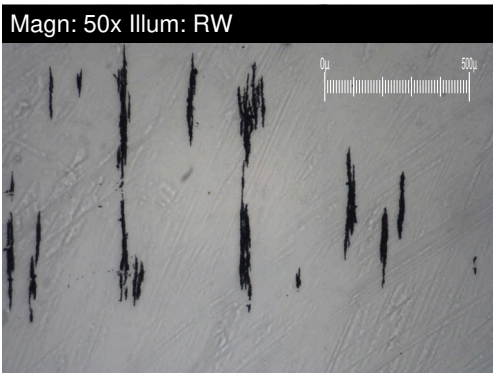
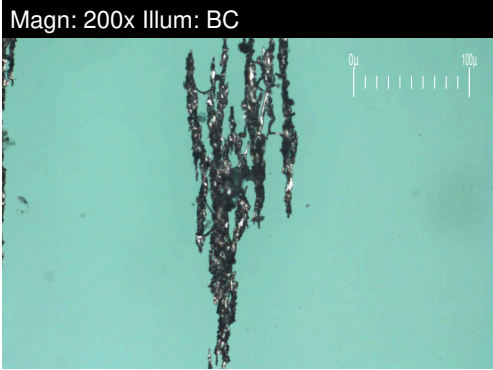
Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0831832 **Received** : 19 Dec 2023
Lab Number : 02604158 **Diagnosed** : 22 Dec 2023
Unique Number : 5697243 **Diagnostician** : Kevin Marson
Test Package : IND 3 (Additional Tests: TAN Man)

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.

Ontario Power Generation
 ATIKOKAN T.G.S., BOX 1900
 ATIKOKAN, ON
 CA P0T 1C0
 Contact: Dale Anthony
 dale.anthony@opg.com
 T:
 F: (807)597-1198

FERROGRAPHY REPORT

Machine Id
#1 Primary Air Guide Bearings (S/N 31100-HTR-1-C)
 Component
Bearing
 Fluid
ESSO SPARTAN EP 460 (19 LTR)

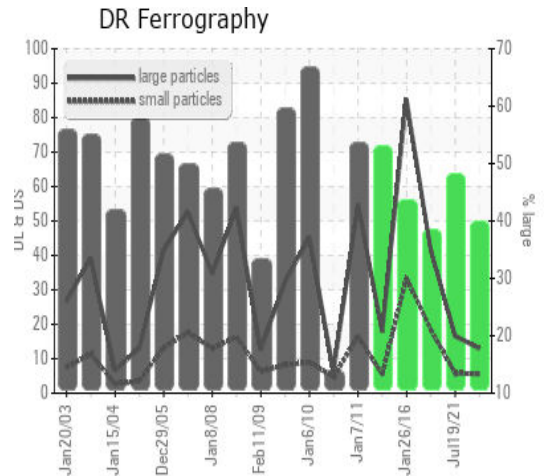


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		13.0	16.6	41.3
Small Particles		DR-Ferr*		5.6	5.8	18.4
Total Particles		DR-Ferr*	>---	18.6	22.4	59.7
Large Particles Percentage	%	DR-Ferr*		39.8	48.2	38.4
Severity Index		DR-Ferr*		96	179	946

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

WEAR

Wear particle analysis indicates that the ferrous cutting particles are severe. Cutting wear particles are caused by either hard protuberances (mis-aligned components, etc.), or abrasives entering the system and embedding themselves in softer materials (sand, etc.), and gouging out mating surfaces.



This page left intentionally blank