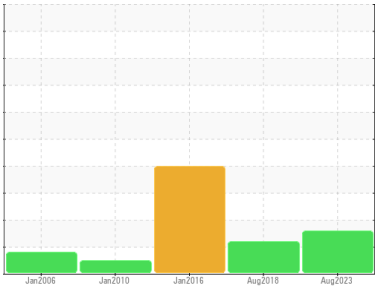
PROBLEM SUMMARY

Sample Rating Trend

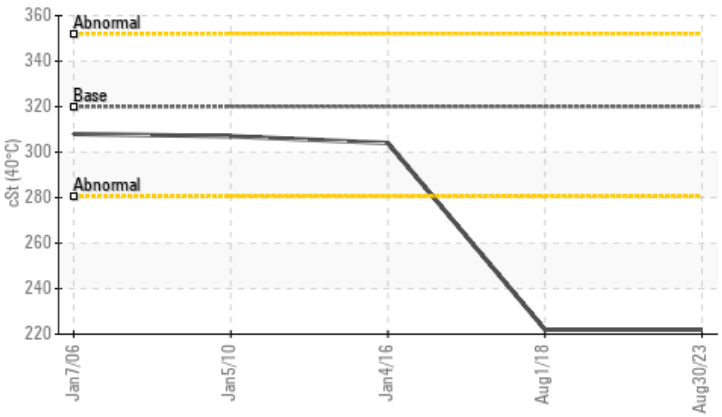


VISCOSITY

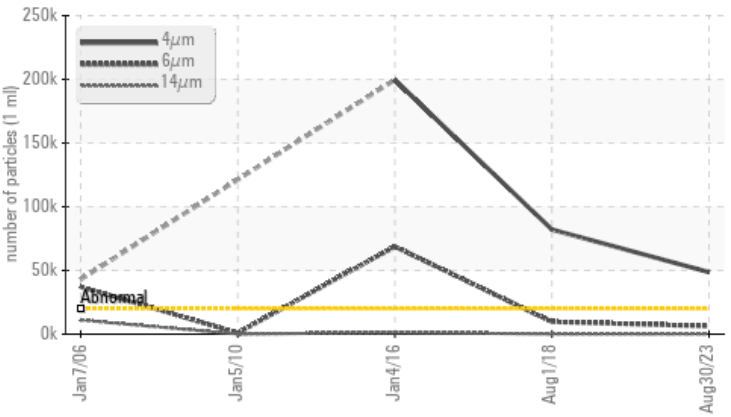
Area
SAB2
Machine Id
South Crane Trolley
Component
Gearbox
Fluid
ESSO SPARTAN EP 320 (--- LTR)

COMPONENT CONDITION SUMMARY

Viscosity @ 40°C



Particle Trend



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.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	ABNORMAL	SEVERE
Particles >4µm		ASTM D7647	>20000	▲ **48654**	▲ 82123	⬢ 199632
Particles >6µm		ASTM D7647	>5000	▲ **6268**	▲ 9658	⬢ 68734
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **23/20/15**	▲ 24/20/14	⬢ 25/23/17
Visc @ 40°C	cSt	ASTM D7279(m)	320	▲ **222**	▲ 222	304

Customer Id: ONTQUE
Sample No.: WC0565995
Lab Number: 02579811
Test Package: IND 2

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

HISTORICAL DIAGNOSIS

01 Aug 2018 Diag: Bill Quesnel

VISCOSITY

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.All component wear rates are normal. Particles >4µm are abnormally high. Particles >6µm are notably high. Viscosity of sample indicates oil is within ISO 220 range, advise investigate. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

04 Jan 2016 Diag: Kevin Marson

ISO

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.Lead ppm levels are noted. All other component wear rates are normal. Particles >6µm are severely high. Particles >4µm are severely high. Particles >14µm are notably high. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

05 Jan 2010 Diag:

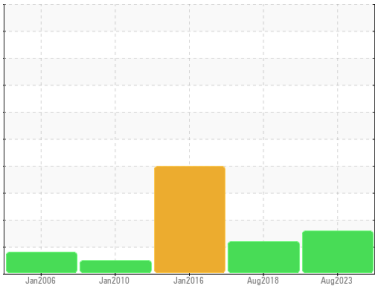
WEAR

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Cleanliness target codes are in part dependent on the system filter micron ratings. Please provide the micron rating of the filters in this system for future samples.All component wear rates are normal. A decrease in the lead level is noted. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The condition of the oil is acceptable for the time in service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Area
SAB2
Machine Id
South Crane Trolley
Component
Gearbox
Fluid
ESSO SPARTAN EP 320 (--- LTR)

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.

Fluid Condition

Viscosity of sample indicates oil is within ISO 220 range, advise investigate. 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		**WC0565995**	WC02238638	WC
Sample Date		Client Info		**30 Aug 2023**	01 Aug 2018	04 Jan 2016
Machine Age	yrs	Client Info		**0**	0	0
Oil Age	yrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	SEVERE

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	---	---
Iron	ppm	ASTM D5185(m)	>200	**6**	5	26
Chromium	ppm	ASTM D5185(m)	>15	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>15	**<1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>25	**0**	0	<1
Lead	ppm	ASTM D5185(m)	>100	**30**	40	▲ 401
Copper	ppm	ASTM D5185(m)	>200	**<1**	0	<1
Tin	ppm	ASTM D5185(m)	>25	**0**	0	0
Antimony	ppm	ASTM D5185(m)	>5	**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

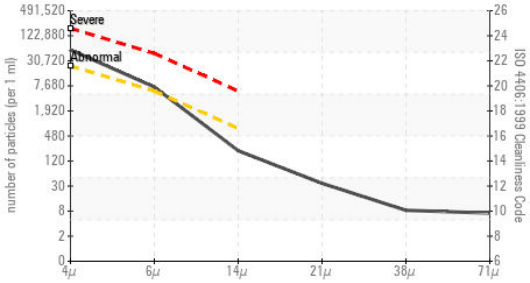
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	.4	**<1**	<1	<1
Barium	ppm	ASTM D5185(m)		**0**	0	<1
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	<1	<1
Magnesium	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Calcium	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Phosphorus	ppm	ASTM D5185(m)	250	**389**	402	305
Zinc	ppm	ASTM D5185(m)	0	**3**	2	4
Sulfur	ppm	ASTM D5185(m)		**2058**	2155	6343
Lithium	ppm	ASTM D5185(m)		**<1**	0	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>50	**19**	21	6
Sodium	ppm	ASTM D5185(m)		**<1**	0	2
Potassium	ppm	ASTM D5185(m)	>20	**0**	0	<1

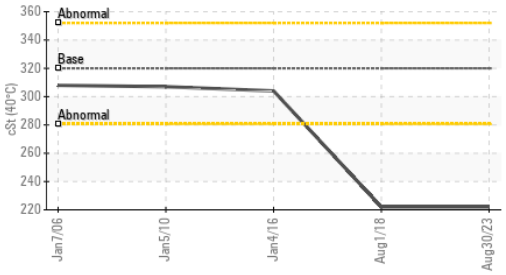
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	▲ **48654**	▲ 82123	⬢ 199632
Particles >6µm		ASTM D7647	>5000	▲ **6268**	▲ 9658	⬢ 68734
Particles >14µm		ASTM D7647	>640	**187**	151	▲ 1275
Particles >21µm		ASTM D7647	>160	**31**	22	224
Particles >38µm		ASTM D7647	>40	**7**	0	10
Particles >71µm		ASTM D7647	>10	**6**	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **23/20/15**	▲ 24/20/14	⬢ 25/23/17

OIL ANALYSIS REPORT

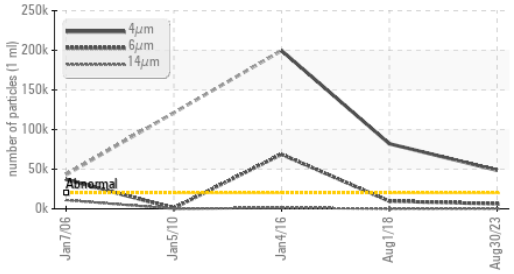
Particle Count



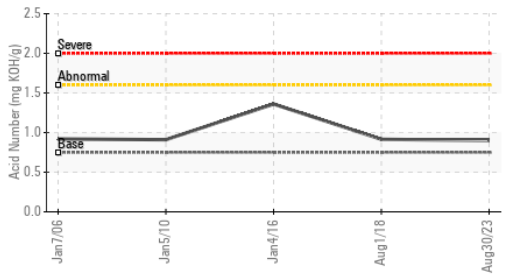
Viscosity @ 40°C



Particle Trend



Acid Number

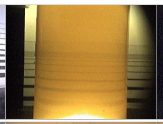


PQ

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.75	**0.90**	0.915	1.36

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	VLITE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	VLITE
Debris	scalar	Visual*	NONE	**VLITE**	VLITE	LIGHT
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*	>0.2	**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)	320	▲ **222**	▲ 222	304

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
PrtFilter			*no image*	*no image*	*no image*

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0565995 **Received** : 31 Aug 2023
Lab Number : 02579811 **Diagnosed** : 05 Sep 2023
Unique Number : 5632871 **Diagnostician** : Kevin Marson
Test Package : IND 2 (Additional Tests: PQ, PrtCount)

Ontario Power Generation
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NIAGARA ON THE LAKE, ON
CA L0S 1J0
Contact: Michael Brochu
mike.brochu@opg.com
T: (905)357-0322
F: (905)374-5466

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.