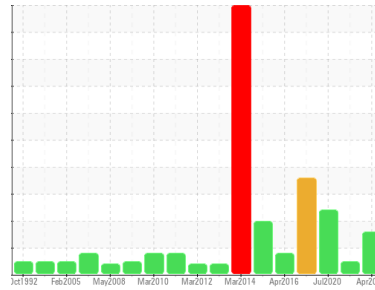




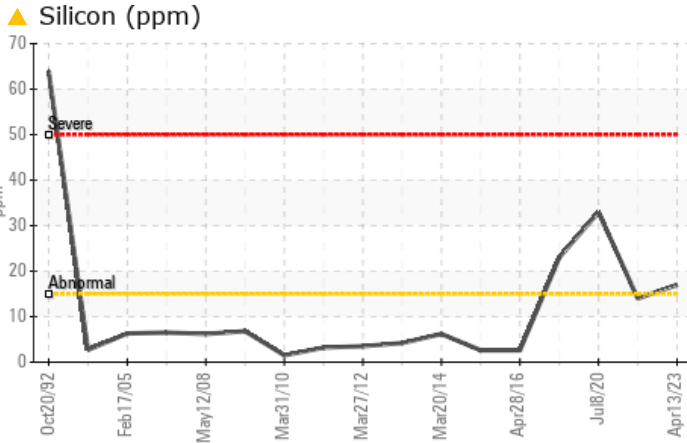
PROBLEM SUMMARY

Area
WHITEDOG FALLS GS
 Machine Id
FP3G1
 Component
Turbine Bearing
 Fluid
ESSO TERESSO ISO 46 (--- GAL)

Sample Rating Trend



COMPONENT CONDITION SUMMARY



RECOMMENDATION

Check seals and/or filters for points of contaminant entry. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. 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 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	NORMAL	ABNORMAL
Silicon	ppm	▲ 17	14	▲ 33

Customer Id: ONTKEE
 Sample No.: WC0806485
 Lab Number: 02559003
 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 advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
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.
Check Breathers	---	---	?	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.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

HISTORICAL DIAGNOSIS

11 Jul 2022 Diag: Kevin Marson

NORMAL



Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

[view report](#)



08 Jul 2020 Diag: Kevin Marson

DIRT



Check seals and/or filters for points of contaminant entry. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. 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 an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Component wear rates appear to be normal (unconfirmed). Silicon ppm levels are abnormally high. Particles >4µm are abnormally high. Particles >6µm are notably high. Elemental level of silicon (Si) above normal indicating ingress of seal material. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

[view report](#)



17 Jul 2018 Diag: Bill Quesnel

DIRT



We advise that you check all areas where dirt can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. 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 an early resample to monitor this condition. No other corrective action is recommended at this time. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. Silicon ppm levels are abnormally high. Particles >14µm are abnormally high. Particles >21µm are abnormally high. Particles >4µm are abnormally high. Particles >6µm are abnormally high. MPC Varnish Potential contamination levels are marginally high. MPC (Membrane Patch Colorimetry) test indicates a light concentration of varnish present. There is a moderate concentration of dirt present in the oil. The water content is negligible. Water Separability results (ASTM D1401) indicate good water shedding properties. Linear Sweep Voltammetry (RULER – ASTM D6971) testing indicates normal levels of anti-oxidants present in the oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

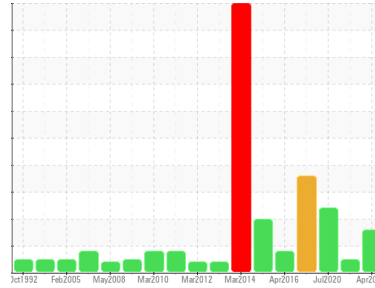
[view report](#)





OIL ANALYSIS REPORT

Sample Rating Trend



Area
WHITEDOG FALLS GS
 Machine Id
FP3G1
 Component
Turbine Bearing
 Fluid
ESSO TERESSO ISO 46 (--- GAL)

DIAGNOSIS

Recommendation

Check seals and/or filters for points of contaminant entry. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. 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 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

Elemental level of silicon (Si) above normal indicating ingress of seal material.

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	WC0806485	WC0686301	WC0475103
Sample Date	Client Info	13 Apr 2023	11 Jul 2022	08 Jul 2020
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ABNORMAL	NORMAL	ABNORMAL

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	---	---
Iron	ppm ASTM D5185(m) >20	2	2	2
Chromium	ppm ASTM D5185(m) >20	0	0	0
Nickel	ppm ASTM D5185(m) >20	<1	0	0
Titanium	ppm ASTM D5185(m)	0	0	0
Silver	ppm ASTM D5185(m)	0	0	<1
Aluminum	ppm ASTM D5185(m) >20	<1	<1	<1
Lead	ppm ASTM D5185(m) >20	<1	<1	2
Copper	ppm ASTM D5185(m) >20	<1	<1	<1
Tin	ppm ASTM D5185(m) >20	2	2	1
Antimony	ppm ASTM D5185(m)	0	<1	<1
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	0	0	0
Barium	ppm ASTM D5185(m)	0	0	0
Molybdenum	ppm ASTM D5185(m) 0	0	0	0
Manganese	ppm ASTM D5185(m)	0	0	<1
Magnesium	ppm ASTM D5185(m) 0	0	0	<1
Calcium	ppm ASTM D5185(m) 0	0	<1	2
Phosphorus	ppm ASTM D5185(m) 2.4	0	1	<1
Zinc	ppm ASTM D5185(m) 0	1	1	2
Sulfur	ppm ASTM D5185(m)	2022	1961	2021
Lithium	ppm ASTM D5185(m)	<1	<1	<1

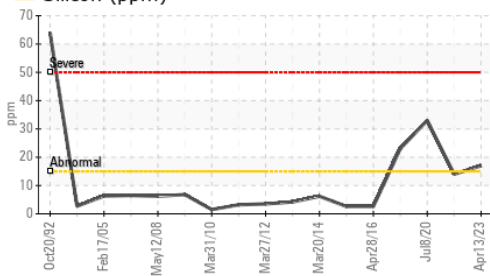
CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >15	▲ 17	14	▲ 33
Sodium	ppm ASTM D5185(m)	<1	<1	1
Potassium	ppm ASTM D5185(m) >20	0	<1	1

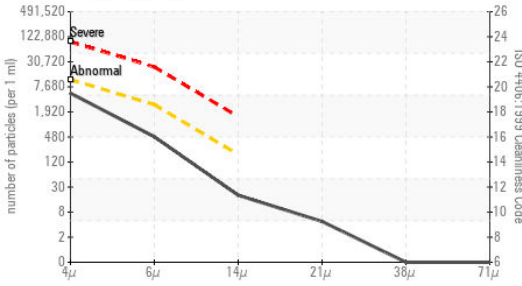


OIL ANALYSIS REPORT

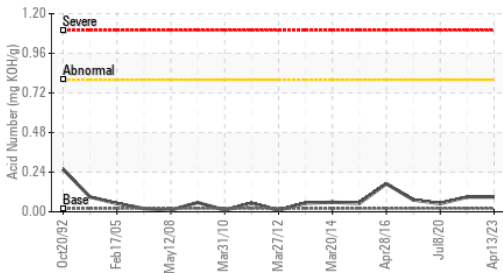
▲ Silicon (ppm)



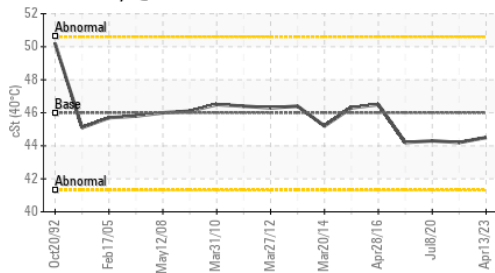
Particle Count



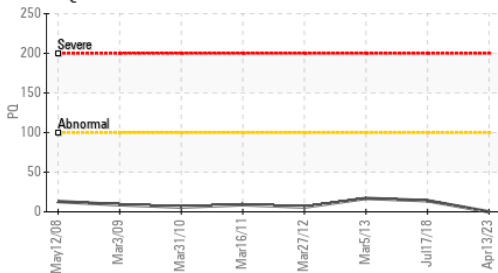
Acid Number



Viscosity @ 40°C



PQ



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>10000	4711	5552	▲ 56904
Particles >6µm	ASTM D7647	>2500	428	175	▲ 4345
Particles >14µm	ASTM D7647	>160	17	4	62
Particles >21µm	ASTM D7647	>40	4	1	25
Particles >38µm	ASTM D7647	>10	0	0	5
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>20/18/14	19/16/11	20/15/9	▲ 23/19/13

FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*	0.02	0.09	0.09	0.05

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	VLITE
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*	>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)	46	44.5	44.2	44.3

SAMPLE IMAGES

Color



Bottom



MPC



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0806485
Lab Number : 02559003
Unique Number : 5580043
Test Package : IND 2 (Additional Tests: PrtCount, TAN Man)

Ontario Power Generation
 KENORA PRODUCTION CENTRE, 200-60 FOURTEENTH ST. N.
 KENORA, ON
 CA P9N 4M9
 Contact: Josh Robinson
 josh.robinson@opg.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.