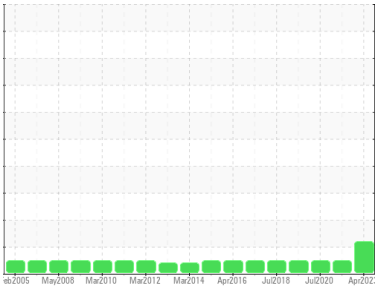
PROBLEM SUMMARY

Sample Rating Trend

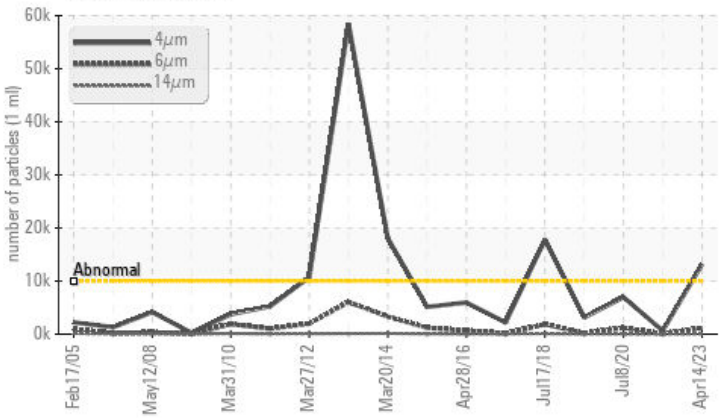


INSOLUBLES

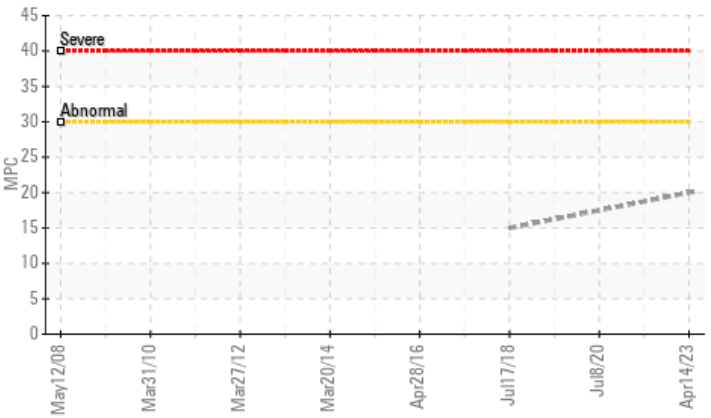
Area
WHITEDOG FALLS GS
Machine Id
FP3G2
Component
Thrust Bearing
Fluid
ESSO TERESSO ISO 46 (--- GAL)

COMPONENT CONDITION SUMMARY

Particle Trend



Varnish Potential



RECOMMENDATION

We recommend you service the filters on this component. 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.

PROBLEMATIC TEST RESULTS

				ATTENTION	NORMAL	NORMAL
Sample Status						
Particles >4µm		ASTM D7647	>10000	▲ **13167**	637	6962
Oil Cleanliness		ISO 4406 (c)	>20/18/14	▲ **21/17/12**	16/14/9	20/17/10
MPC Varnish Potential	Scale	ASTM D7843(m)*	>15	▲ **20**	---	---

PrtFilter

Customer Id: ONTKEE
Sample No.: WC0810873
Lab Number: 02555933
Test Package: AOM 3

To manage this report scan the QR code

To discuss the diagnosis or test data:
Bill Quesnel CLS,OMA II,MLA-III,LLA-I +1 (289)291-4641 x4641
Bill.Quesnel@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

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

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

25 Mar 2019 Diag: Kevin Marson

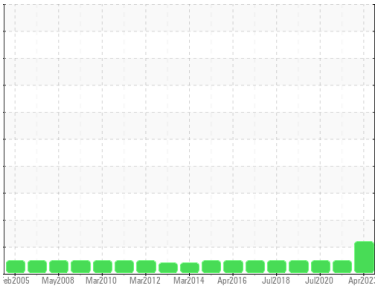
NORMAL

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

OIL ANALYSIS REPORT

Sample Rating Trend



INSOLUBLES

Area
WHITEDOG FALLS GS
Machine Id
FP3G2
Component
Thrust Bearing
Fluid
ESSO TERESSO ISO 46 (--- GAL)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. 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.

Wear

All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.

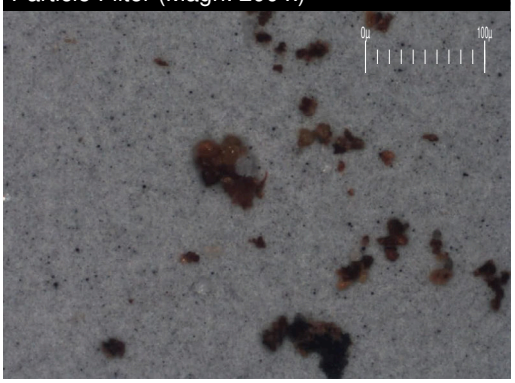
Contaminants

There is a light amount of silt (particulates < 14 microns in size) present in the oil. MPC (Membrane Patch Colorimetry) test indicates a light concentration of varnish present. The water content is negligible.

Oil Condition

Rust Prevention test (ASTM D665) indicates the oil retains good anti-corrosion properties. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Particle Filter (Magn: 200 x)



SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0810873**	WC0686302	WC0475107
Sample Date		Client Info		**14 Apr 2023**	11 Jul 2022	08 Jul 2020
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				**ATTENTION**	NORMAL	NORMAL

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	---	---
Iron	ppm	ASTM D5185(m)	>85	**2**	<1	<1
Chromium	ppm	ASTM D5185(m)	>20	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>20	**0**	0	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	<1
Aluminum	ppm	ASTM D5185(m)	>40	**<1**	<1	<1
Lead	ppm	ASTM D5185(m)	>60	**<1**	1	<1
Copper	ppm	ASTM D5185(m)	>7	**<1**	<1	<1
Tin	ppm	ASTM D5185(m)	>40	**<1**	<1	<1
Antimony	ppm	ASTM D5185(m)		**<1**	0	<1
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	<1

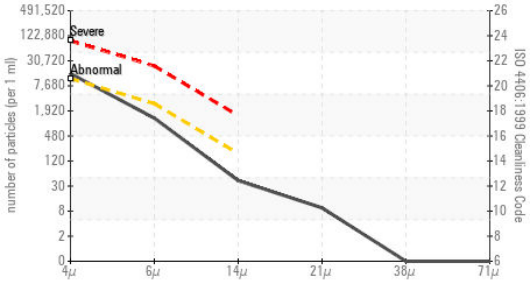
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**0**	0	0
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)	0	**1**	0	0
Calcium	ppm	ASTM D5185(m)	0	**<1**	0	0
Phosphorus	ppm	ASTM D5185(m)	2.4	**2**	2	2
Zinc	ppm	ASTM D5185(m)	0	**4**	2	3
Sulfur	ppm	ASTM D5185(m)		**2149**	2206	2210
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	**4**	4	4
Sodium	ppm	ASTM D5185(m)		**<1**	<1	0
Potassium	ppm	ASTM D5185(m)	>20	**1**	0	2
Water	%	ASTM D6304*	>2	**0.00**	---	---
ppm Water	ppm	ASTM D6304*		**0.00**	---	---

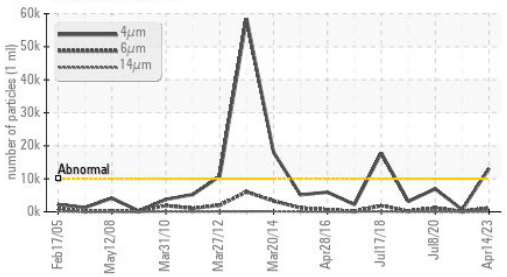
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		**0**	---	---
Nitration	Abs/cm	ASTM D7624*		**2.7**	---	---
Sulfation	Abs/.1mm	ASTM D7415*		**13.1**	---	---

OIL ANALYSIS REPORT

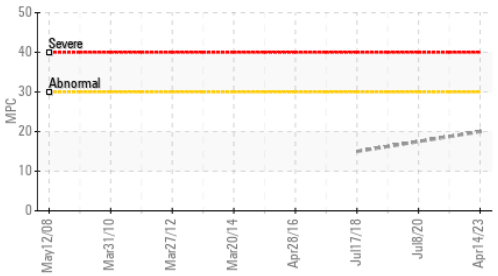
Particle Count



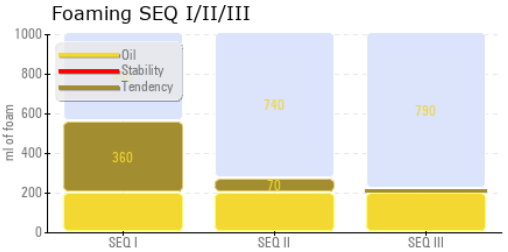
Particle Trend



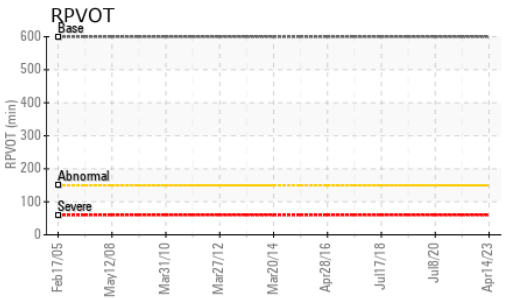
Varnish Potential



Foaming SEQ I/II/III



RPVOT



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>10000	▲ **13167**	637	6962
Particles >6µm		ASTM D7647	>2500	**1130**	93	1197
Particles >14µm		ASTM D7647	>160	**36**	3	8
Particles >21µm		ASTM D7647	>40	**8**	1	2
Particles >38µm		ASTM D7647	>10	**0**	1	0
Particles >71µm		ASTM D7647	>3	**0**	1	0
Oil Cleanliness		ISO 4406 (c)	>20/18/14	▲ **21/17/12**	16/14/9	20/17/10

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*		**4.3**	---	---
Acid Number (AN)	mg KOH/g	ASTM D974*	0.02	**0.14**	0.11	0.13
Anti-Oxidant 1	%	ASTM D6971*	<25	**97**	---	---
Anti-Oxidant 2	%	ASTM D6971*	<25	**46**	---	---
MPC Varnish Potential	Scale	ASTM D7843(m)*	>15	▲ **20**	---	---

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*	>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	**45.7**	46.0	45.7
Visc @ 100°C	cSt	ASTM D7279(m)	6.36	**6.8**	---	---
Viscosity Index (VI)	Scale	ASTM D2270*	81	**102**	---	---
Separability	oil/h2o/em	ASTM D1401*	//	**41/39/0 (20)**	---	---
Air Release Time	min	ASTM D3427*		**7.10**	---	---
Foam Tendency	I/II/III	ASTM D892*	50	**360/70/20**	---	---
Foam Stability	I/II/III	ASTM D892*	0	**0/0/0**	---	---
ASTM Color	scalar	ASTM D1500*		**L3.5**	---	---
Rust Prevention	PASS/FAIL	ASTM D665*		**PASS**	---	---
Oxidation Test (RPVOT)	minutes	ASTM D2272*	600	**518**	---	---

SEDIMENT		method	limit/base	current	history1	history2
Pentane Insolubles	%	ASTM D893(m)*		**0.015**	---	---
Toluene Insolubles	%	ASTM D893(m)*		**0.004**	---	---

CALA ISO 17025:2017 Accredited Laboratory

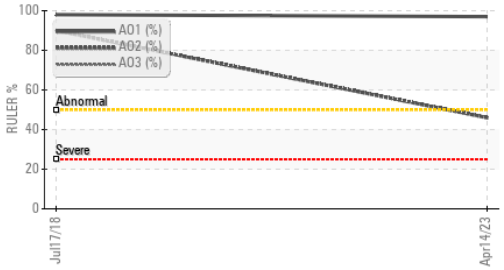
Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0810873 **Received** : 08 May 2023
Lab Number : 02555933 **Diagnosed** : 15 May 2023
Unique Number : 5576973 **Diagnostician** : Bill Quesnel
Test Package : AOM 3 (Additional Tests: BottomAnalysis, FilterPatch, PrtFilter, TolInsol)

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.

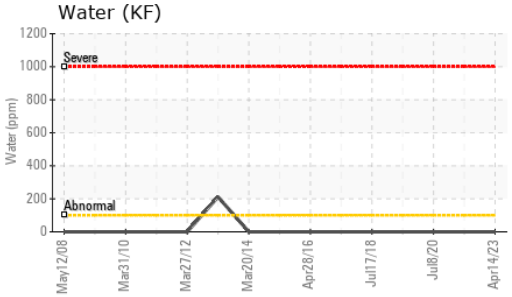
Ontario Power Generation
KENORA PRODUCTION CENTRE, 200-60 FOURTEENTH ST N.
KENORA, ON
CA P9N 4M9
Contact: Josh Robinson
josh.robinson@opg.com
T:
F:

OIL ANALYSIS REPORT

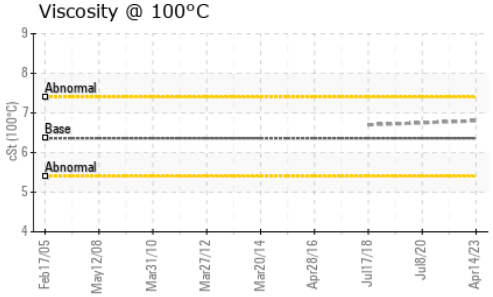
Remaining Life (RULER)



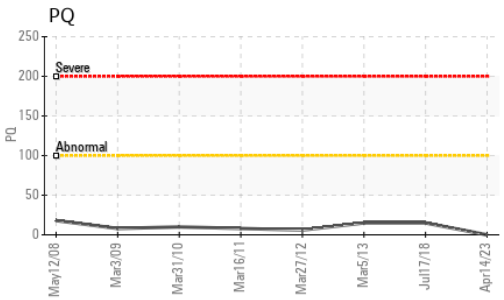
Water (KF)



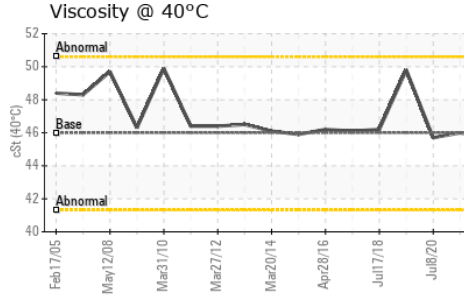
Viscosity @ 100°C

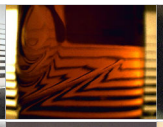
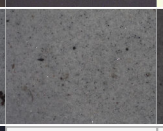
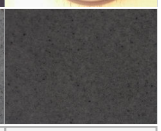
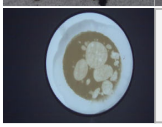


PQ



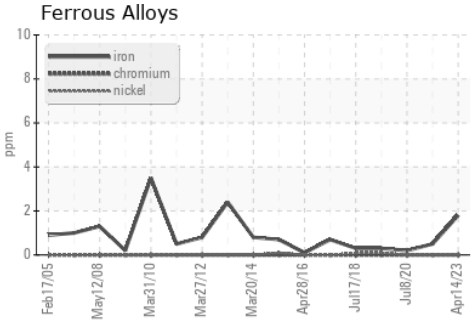
Viscosity @ 40°C



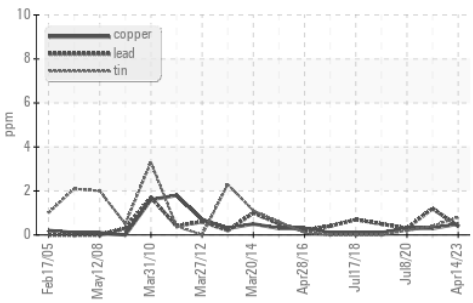
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
PrtFilter					
MPC				*no image*	*no image*

GRAPHS

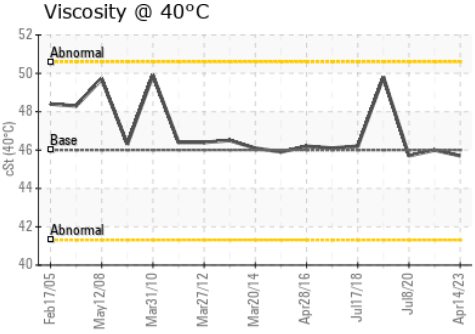
Ferrous Alloys



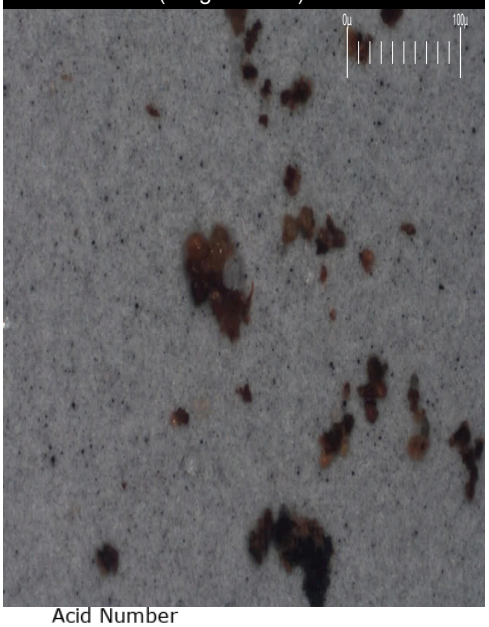
Non-ferrous Metals



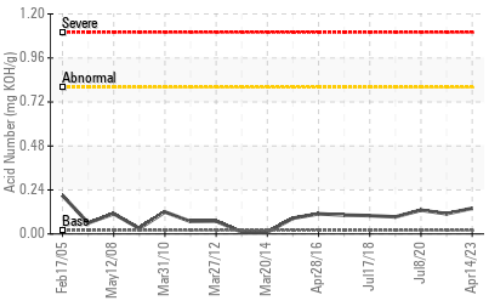
Viscosity @ 40°C



Particle Filter (Magn: 200 x)



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0810873 **Received** : 08 May 2023
Lab Number : 02555933 **Diagnosed** : 15 May 2023
Unique Number : 5576973 **Diagnostician** : Bill Quesnel
Test Package : AOM 3 (Additional Tests: BottomAnalysis, FilterPatch, PrtFilter, TolInsol)

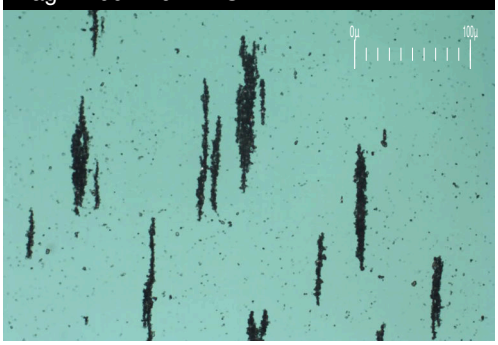
To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

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

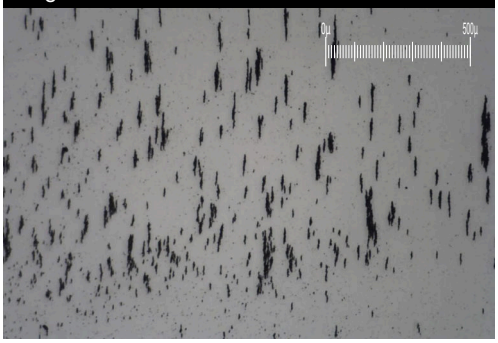
FERROGRAPHY REPORT

Area
WHITEDOG FALLS GS
Machine Id
FP3G2
Component
Thrust Bearing
Fluid
ESSO TERESSO ISO 46 (--- GAL)

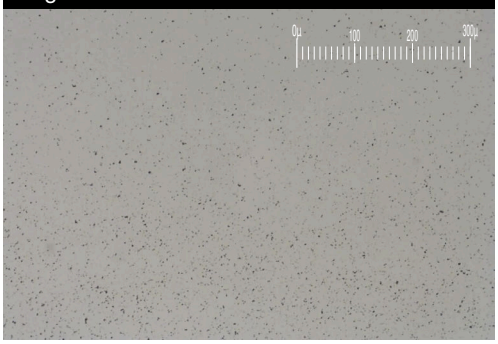
Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW

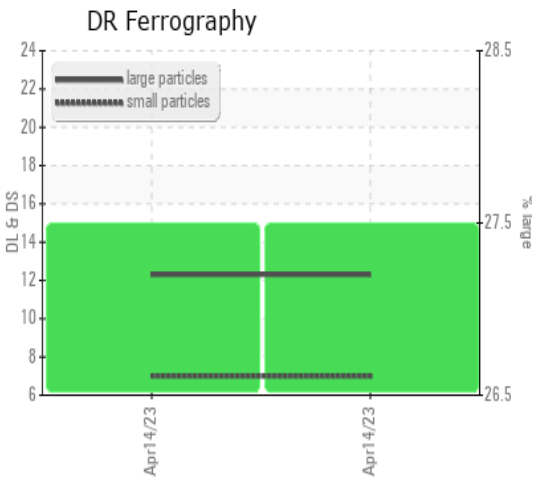


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		**12.3**	---	---
Small Particles		DR-Ferr*		**7.0**	---	---
Total Particles		DR-Ferr*	>---	**19.3**	---	---
Large Particles Percentage	%	DR-Ferr*		**27.5**	---	---
Severity Index		DR-Ferr*		**65**	---	---

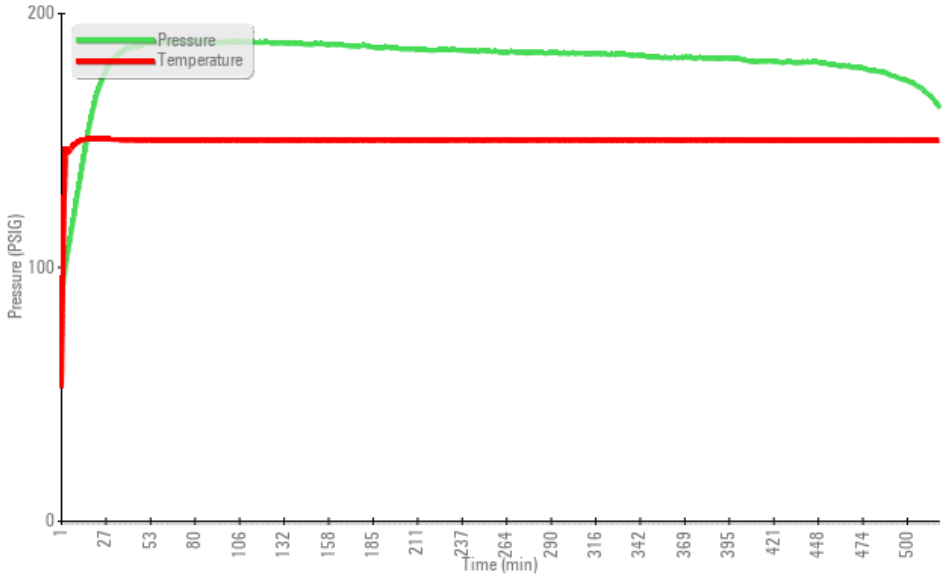
FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		**4**		
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		**1**		
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 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**		
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**		
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		**2**		

WEAR

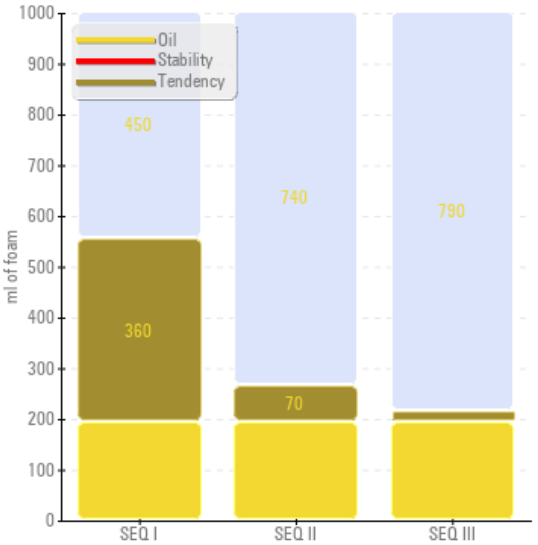
All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.



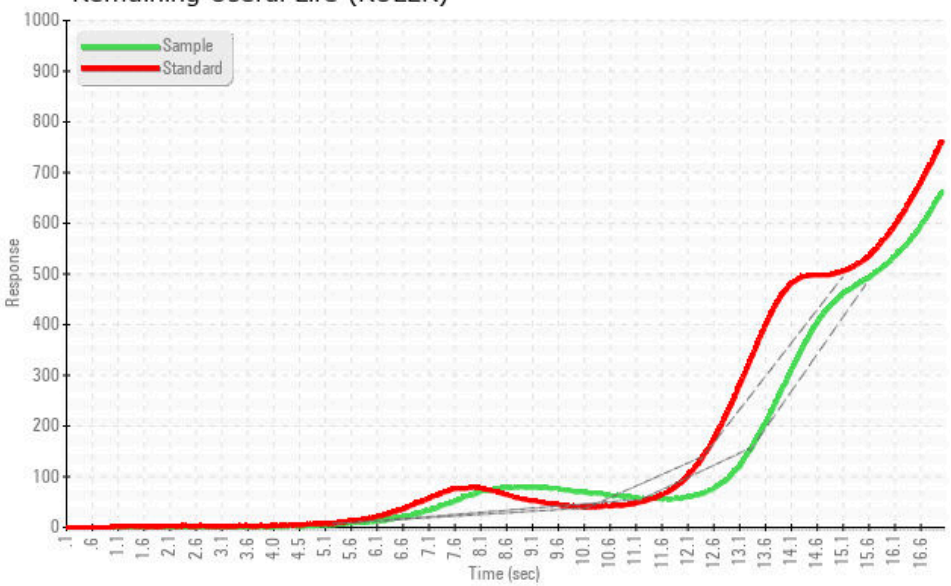
Rotating Pressure Vessel Oxidation Test



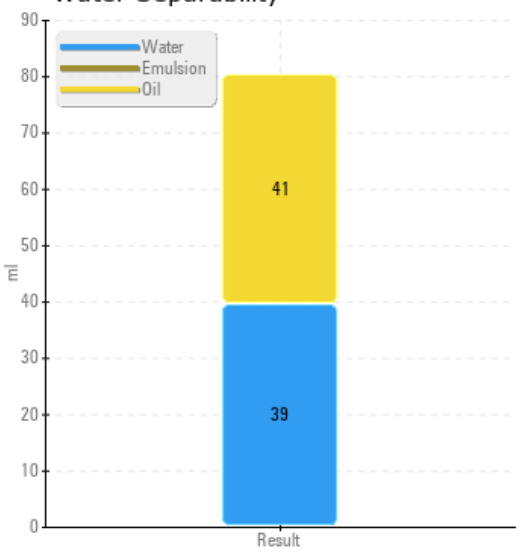
Foaming SEQ I/II/III



Remaining Useful Life (RULER)

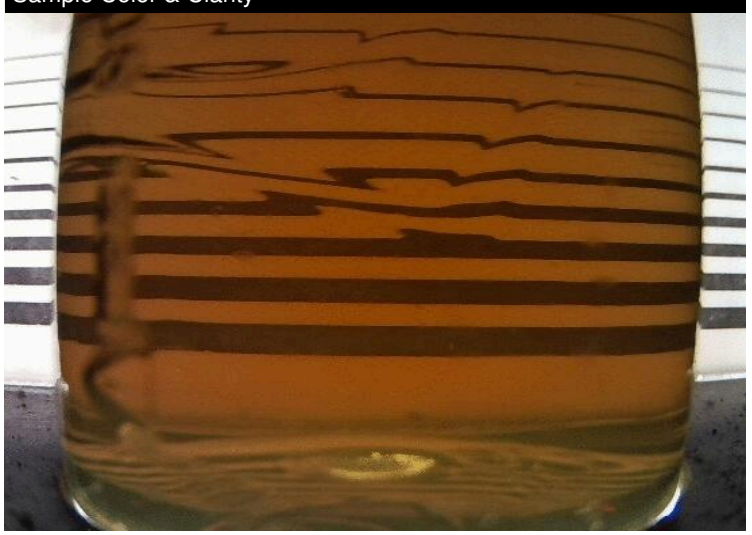


Water Separability



MPC (Varnish Test)

Sample Color & Clarity



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