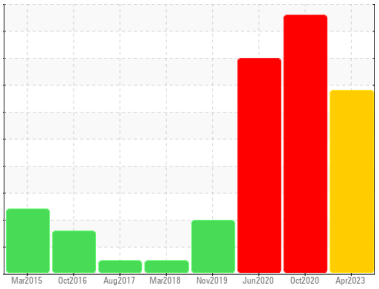
PROBLEM SUMMARY

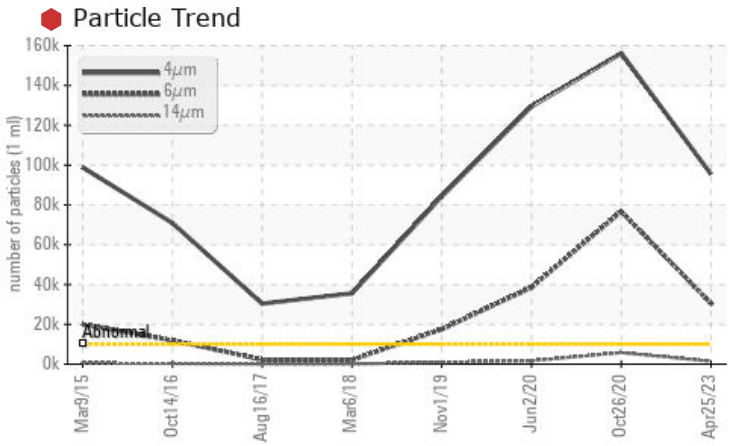
Sample Rating Trend

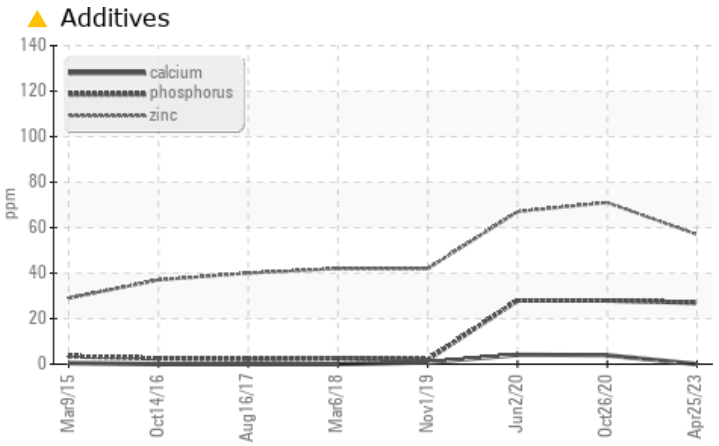


ISO

Machine Id
GFP3 - UNIT 5 GENERATOR DRIVE END BEARING (S/N 720156)
Component
Drive End Generator Bearing
Fluid
ESSO TERESSO ISO 46 (215 LTR)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

We advise that you check all areas where contaminants 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. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	SEVERE
Phosphorus	ppm	ASTM D5185(m)	2.4	▲ **27**	▲ 28	▲ 28
Zinc	ppm	ASTM D5185(m)	0	▲ **57**	▲ 71	▲ 67
Particles >4µm		ASTM D7647	>10000	⬢ **95462**	⬢ 156172	⬢ 129430
Particles >6µm		ASTM D7647	>2500	⬢ **30454**	⬢ 76695	⬢ 38585
Particles >14µm		ASTM D7647	>160	⬢ **1408**	⬢ 5791	⬢ 1635
Particles >21µm		ASTM D7647	>40	▲ **230**	⬢ 1128	⬢ 392
Oil Cleanliness		ISO 4406 (c)	>20/18/14	⬢ **24/22/18**	⬢ 24/23/20	⬢ 24/22/18

Customer Id: NALGRA
Sample No.: WC0701181
Lab Number: 02556556
Test Package: IND 2

To manage this report scan the QR code

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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	---	---	?	Resample in 30-45 days to monitor this situation.
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 Dirt Access	---	---	?	We advise that you check all areas where contaminants can enter the system.
Check Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.
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

ISO

26 Oct 2020 Diag: Kevin Marson

We advise that you check all areas where contaminants can enter the system. We advise that you check for visible metal particles in the oil. 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. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. We suspect that the abnormal contaminant(s) is the result of incorrect sampling technique. DISCLAIMER: Interpretation of laboratory tests is based on sample, as received from client. Source of sample and sampling technique cannot be verified.Light concentration of visible metal present. Bearing wear is indicated. Particles >14µm are severely high. Particles >21µm are severely high. Particles >6µm are severely high. Particles >4µm are severely high. Particles >38µm are abnormally high. Moderate concentration of visible dirt/debris present in the oil. Additive levels indicate the addition of a different brand, or type of 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

ISO

02 Jun 2020 Diag: Kevin Marson

We advise that you check all areas where contaminants 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. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation.All component wear rates are normal. Particles >14µm are severely high. Particles >21µm are severely high. Particles >6µm are severely high. Particles >4µm are severely high. Particles >38µm are abnormally high. Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

ISO

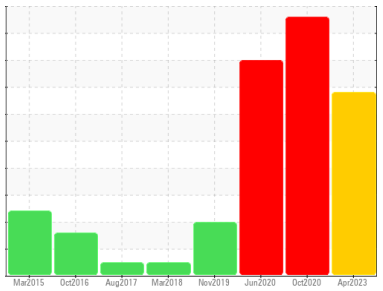
01 Nov 2019 Diag: Kevin Marson

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.All component wear rates are normal. Particles >4µm are severely high. Particles >6µm are abnormally high. Particles >14µm are notably high. Particles >21µm are notably high. 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



ISO

Machine Id
GFP3 - UNIT 5 GENERATOR DRIVE END BEARING (S/N 720156)
Component
Drive End Generator Bearing
Fluid
ESSO TERESSO ISO 46 (215 LTR)

DIAGNOSIS

Recommendation

We advise that you check all areas where contaminants 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. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates (2 to 100 microns in size) present in the oil.

Fluid Condition

Additive levels indicate the addition of a different brand, or type of 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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0701181**	WC0509199	WC0396555
Sample Date		Client Info		**25 Apr 2023**	26 Oct 2020	02 Jun 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				**SEVERE**	SEVERE	SEVERE

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	**1**	1	2
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**	<1	<1
Aluminum	ppm	ASTM D5185(m)	>20	**0**	<1	<1
Lead	ppm	ASTM D5185(m)	>20	**2**	4	2
Copper	ppm	ASTM D5185(m)	>20	**18**	18	12
Tin	ppm	ASTM D5185(m)	>20	**3**	2	<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	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**0**	<1	0
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	<1	<1
Magnesium	ppm	ASTM D5185(m)	0	**0**	0	0
Calcium	ppm	ASTM D5185(m)	0	**0**	4	4
Phosphorus	ppm	ASTM D5185(m)	2.4	▲ **27**	▲ 28	▲ 28
Zinc	ppm	ASTM D5185(m)	0	▲ **57**	▲ 71	▲ 67
Sulfur	ppm	ASTM D5185(m)		**1255**	1443	1419
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

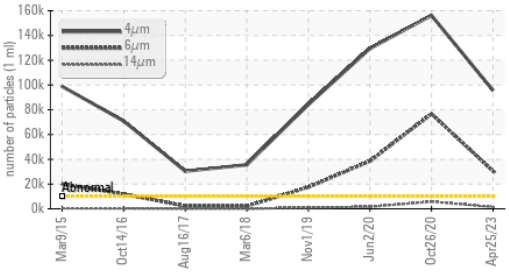
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	**0**	2	<1
Sodium	ppm	ASTM D5185(m)		**<1**	<1	0
Potassium	ppm	ASTM D5185(m)	>20	**0**	<1	<1

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>10000	⬢ **95462**	⬢ 156172	⬢ 129430
Particles >6µm		ASTM D7647	>2500	⬢ **30454**	⬢ 76695	⬢ 38585
Particles >14µm		ASTM D7647	>160	⬢ **1408**	⬢ 5791	⬢ 1635
Particles >21µm		ASTM D7647	>40	▲ **230**	⬢ 1128	⬢ 392
Particles >38µm		ASTM D7647	>10	**2**	▲ 29	▲ 22
Particles >71µm		ASTM D7647	>3	**1**	0	3
Oil Cleanliness		ISO 4406 (c)	>20/18/14	⬢ **24/22/18**	⬢ 24/23/20	⬢ 24/22/18

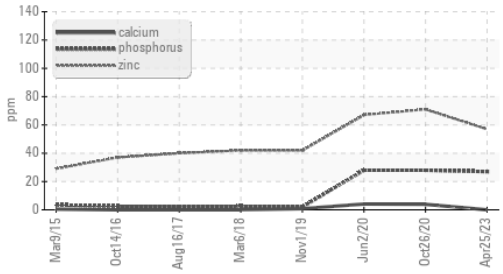
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.02	**0.13**	0.14	0.07

OIL ANALYSIS REPORT

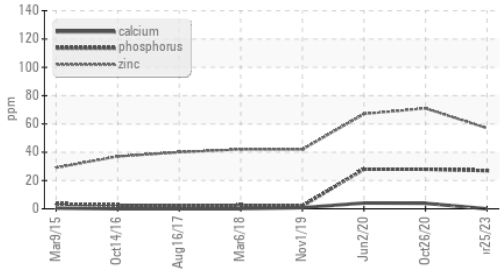
Particle Trend



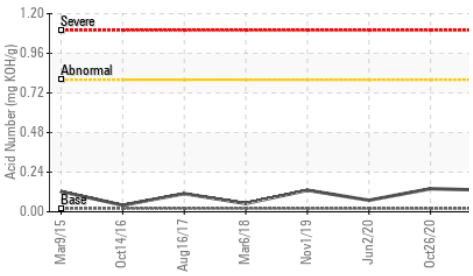
Additives



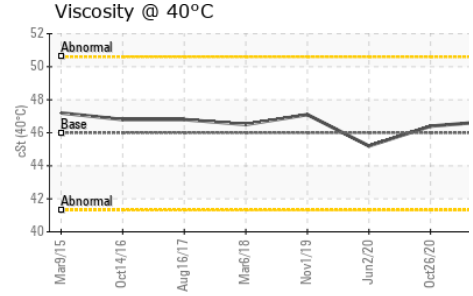
Additives



Acid Number

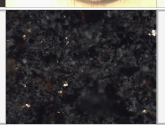


Viscosity @ 40°C



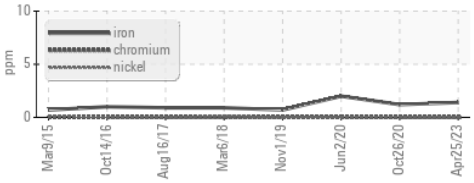
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	VLITE
Yellow Metal	scalar	Visual*	NONE	**NONE**	▲ LIGHT	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	VLITE
Debris	scalar	Visual*	NONE	**NONE**	▲ LTMOD	VLITE
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	**46.7**	46.4	45.2

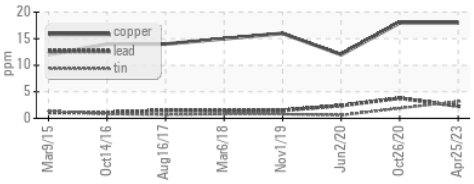
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
PrtFilter			*no image*		*no image*

GRAPHS

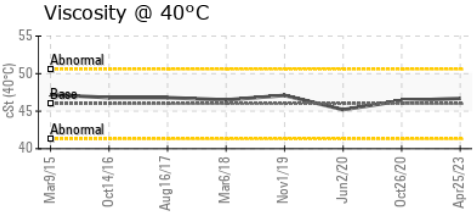
Ferrous Alloys



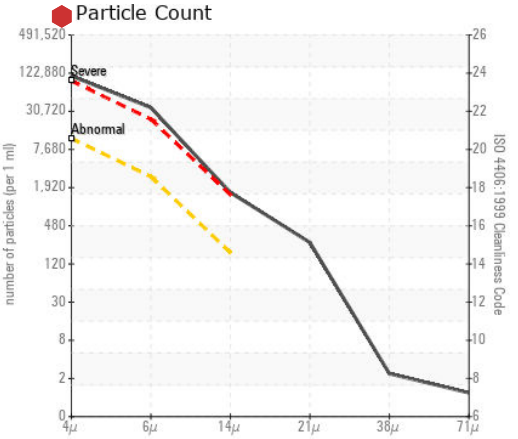
Non-ferrous Metals



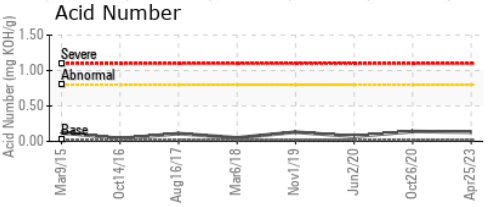
Viscosity @ 40°C



Particle Count



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **Nalcor Energy - Grand Falls-Windsor**
Sample No. : WC0701181 **Received** : 10 May 2023 25 Hardy Avenue
Lab Number : 02556556 **Diagnosed** : 11 May 2023 Grand Falls-Windsor, NL
Unique Number : 5577596 **Diagnostician** : Kevin Marson CA A2A 2P8
Test Package : IND 2 (Additional Tests: TAN Man) Contact: Phillip Winsor

To discuss this sample report, contact Customer Service at 1-800-268-2131. philipwinsor@nlh.nl.ca
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: (709)486-8714
Validity of results and interpretation are based on the sample and information as supplied. F: