

# **OIL ANALYSIS REPORT**

SAB2 SAB2 G23 Governor

**Hydraulic System** 

ESSO TERESSO ISO 46 (6160 LTR)

# 

Sample Rating Trend



## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

### Wear

Component wear rates appear to be normal (unconfirmed).

#### Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

#### **Fluid Condition**

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0890868	WC0801617	WC0858098
Sample Date		Client Info		27 Mar 2024	07 Jan 2024	25 Oct 2023
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				NORMAL	ABNORMAL	NORMAL
CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.05	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	<1	<1	<1
Chromium	ppm	ASTM D5185(m)	>20	0	0	0
Nickel	ppm	ASTM D5185(m)	>20	0	<1	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	0	<1
Aluminum	ppm	ASTM D5185(m)	>20	0	<1	0
Lead	ppm	ASTM D5185(m)	>20	0	<1	<1
Copper	ppm	ASTM D5185(m)		0	<1	0
Tin	ppm	ASTM D5185(m)	>20	0	0	0
Antimony	ppm	ASTM D5185(m)		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	1-1-	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	0	0	<1
Barium	ppm	ASTM D5185(m)		0	0	0
Makabalaasasaa						
Molybaenum	mqq	ASTM D5185(m)	0	0	0	0
Molybdenum Manganese	ppm	ASTM D5185(m) ASTM D5185(m)	0	0		
Manganese	ppm	. ,	0		0	0
	ppm	ASTM D5185(m) ASTM D5185(m)	0	0	0	0
Manganese Magnesium Calcium	ppm ppm	ASTM D5185(m)	0	0	0 0 0	0 0 0
Manganese Magnesium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 2.4	0 0 0	0 0 0	0 0 0
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 2.4	0 0 0 2	0 0 0 0	0 0 0 0 2
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 2.4	0 0 0 2 <1	0 0 0 0 1 <1	0 0 0 0 2 <1
Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 2.4	0 0 0 2 <1 1694	0 0 0 0 1 <1 1848	0 0 0 0 2 <1 1728
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 2.4 0	0 0 0 2 <1 1694	0 0 0 0 1 <1 1848	0 0 0 0 2 <1 1728
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  ASTM D5185(m)	0 0 2.4 0	0 0 0 2 <1 1694 <1	0 0 0 0 1 <1 1848 <1 history1	0 0 0 0 2 <1 1728 <1 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  MASTM D5185(m)  MASTM D5185(m)  MASTM D5185(m)	0 0 2.4 0	0 0 0 2 <1 1694 <1 current	0 0 0 0 1 <1 1848 <1 history1	0 0 0 0 2 <1 1728 <1 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  METHOD  ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 2.4 0 limit/base >15	0 0 0 2 <1 1694 <1 current	0 0 0 0 1 <1 1848 <1 history1	0 0 0 0 2 <1 1728 <1 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  MEthod ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 2.4 0 limit/base >15 >20	0 0 0 2 <1 1694 <1 current 0 0	0 0 0 0 1 <1 1848 <1 history1 0 0	0 0 0 0 2 <1 1728 <1 history2 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium  FLUID CLEANLING Particles >4µm	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  METHOD  ASTM D5185(m)	0 0 2.4 0 limit/base >15 >20 limit/base	0 0 0 2 <1 1694 <1 current 0 0 <1 current	0 0 0 1 <1 1848 <1 history1 0 0 <1 history1  5626	0 0 0 0 2 <1 1728 <1 history2 0 0 0 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium  FLUID CLEANLING Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  METHOD  ASTM D5185(m)	0 0 2.4 0 limit/base >15 >20 limit/base >2500	0 0 0 2 <1 1694 <1 current 0 0 <1 current	0 0 0 0 1 <1 1848 <1 history1 0 0 <1	0 0 0 0 2 <1 1728 <1 history2 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium  FLUID CLEANLING Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  METHOD  ASTM D5185(m)  ASTM D5185(m)	0 0 2.4 0 limit/base >15 >20 limit/base >2500 >640 >80	0 0 0 2 <1 1694 <1 current 0 0 <1 current 212 73 8	0 0 0 1 <1 1848 <1 history1 0 0 <1 history1  1665 111	0 0 0 0 2 <1 1728 <1 history2 0 0 0 history2 475 143 10
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium  FLUID CLEANLINI Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  METHOD  METHOD  ASTM D5185(m)  METHOD  ASTM D5185(m)	0 0 2.4 0 limit/base >15 >20 limit/base >2500 >640 >80	0 0 0 2 <1 1694 <1 current 0 0 <1 current 212 73 8	0 0 0 1 <1 1848 <1 history1 0 0 <1 history1 △ 5626 △ 1665 ○ 111 22	0 0 0 0 2 <1 1728 <1 history2 0 0 0 history2 475 143
Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium  FLUID CLEANLING Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  METHOD  ASTM D5185(m)  METHOD  ASTM D5185(m)  ASTM D7647  ASTM D7647  ASTM D7647	0 0 2.4 0 limit/base >15 >20 limit/base >2500 >640 >80 >20 >4	0 0 0 2 <1 1694 <1 current 0 0 <1 current 212 73 8	0 0 0 1 <1 1848 <1 history1 0 0 <1 history1  1665 111	0 0 0 0 2 <1 1728 <1 history2 0 0 0 history2 475 143 10 3

ISO 4406 (c) >18/16/13

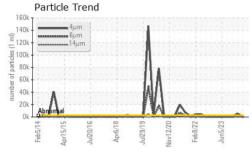
15/13/10

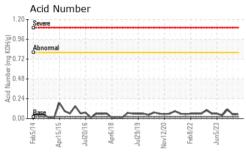
**2**0/18/14

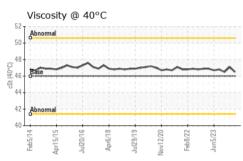
Oil Cleanliness

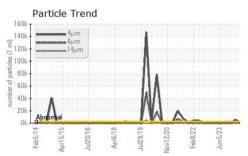


# **OIL ANALYSIS REPORT**

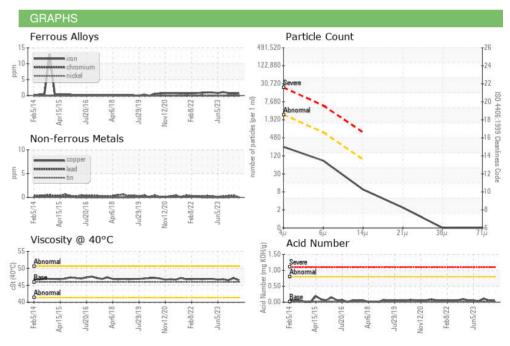








FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.02	0.05	0.05	0.11
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	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
<b>Emulsified Water</b>	scalar	Visual*	>0.05	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	46	46.5	47.1	46.5
SAMPLE IMAGES	;	method	limit/base	current	history1	history2
Color						WC0858098
Bottom				(G)		





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No.

: WC0890868 Lab Number : 02625203

Unique Number : 5750322

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received Tested

Diagnosed

: 28 Mar 2024 : 01 Apr 2024

: 01 Apr 2024 - Kevin Marson

**Ontario Power Generation** NIAGARA PLANT GROUP,, 14000 NIAGARA PKWY NIAGARA ON THE LAKE, ON

CA LOS 1J0 Contact: Michael Brochu mike.brochu@opg.com

T: (905)357-0322 F: (905)374-5466

Test Package : IND 2 (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.