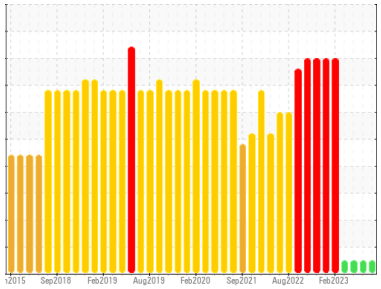
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
BOF/VESSELS
Machine Id
A - 7 Vessel Drive Lube System
Component
Drive End Gearbox
Fluid
ESSO SPARTAN EP 320 (710 GAL)

DIAGNOSIS

Recommendation
Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. Please contact your representative for information regarding the proper sampling kits for your service. 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 INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0850095**	WC0838952	WC0832570
Sample Date		Client Info		**16 Aug 2023**	13 Jul 2023	20 Jun 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**	NORMAL	NORMAL

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*	>99999	**43**	57	41
Iron	ppm	ASTM D5185(m)	>200	**57**	64	57
Chromium	ppm	ASTM D5185(m)	>15	**<1**	<1	<1
Nickel	ppm	ASTM D5185(m)	>15	**<1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	0	0
Aluminum	ppm	ASTM D5185(m)	>25	**1**	1	<1
Lead	ppm	ASTM D5185(m)	>100	**<1**	<1	<1
Copper	ppm	ASTM D5185(m)	>200	**<1**	<1	<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

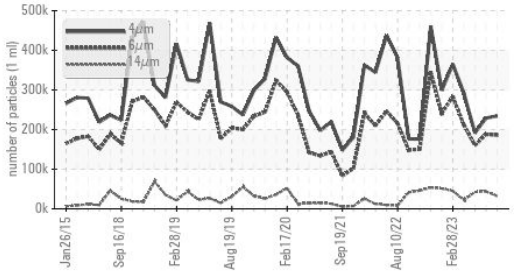
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	.4	**1**	2	2
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**5**	6	6
Manganese	ppm	ASTM D5185(m)		**<1**	<1	<1
Magnesium	ppm	ASTM D5185(m)	0	**1**	2	2
Calcium	ppm	ASTM D5185(m)	0	**4**	6	5
Phosphorus	ppm	ASTM D5185(m)	250	**310**	324	325
Zinc	ppm	ASTM D5185(m)	0	**35**	37	35
Sulfur	ppm	ASTM D5185(m)		**8409**	8569	8758
Lithium	ppm	ASTM D5185(m)		**5**	6	6

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

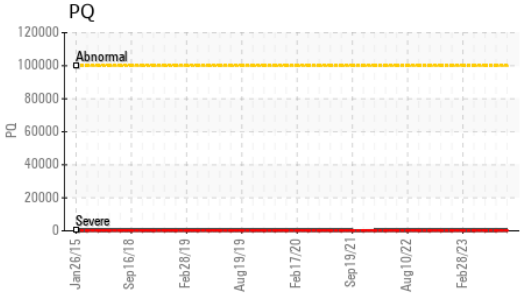
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**234312**	229024	191452
Particles >6µm		ASTM D7647	>10240000	**186100**	188215	159840
Particles >14µm		ASTM D7647	>10240000	**32247**	43654	42506
Particles >21µm		ASTM D7647	>2560000	**3451**	6461	7407
Particles >38µm		ASTM D7647	>640000	**40**	34	43
Particles >71µm		ASTM D7647	>160000	**3**	0	2
Oil Cleanliness		ISO 4406 (c)	>--/30/30	**25/25/22**	25/25/23	25/24/23

OIL ANALYSIS REPORT

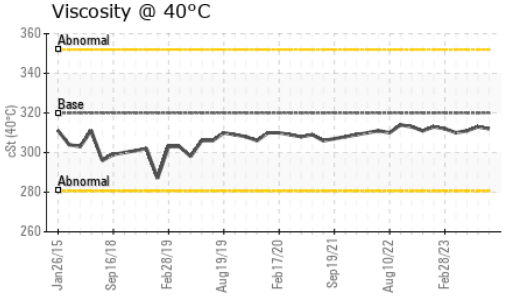
Particle Trend



PQ



Viscosity @ 40°C

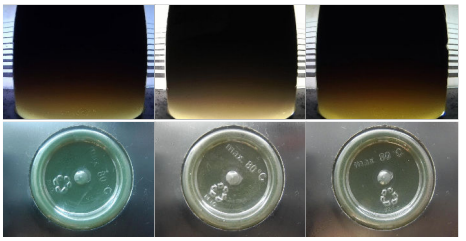


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.75	**0.38**	0.32	0.33

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	LIGHT
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	**VLITE**	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*	>5	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

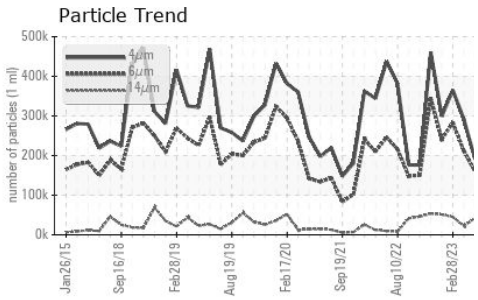
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	320	**312**	313	311

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

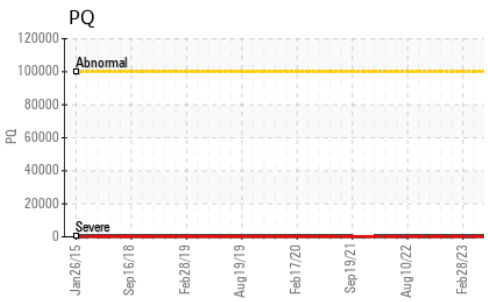


GRAPHS

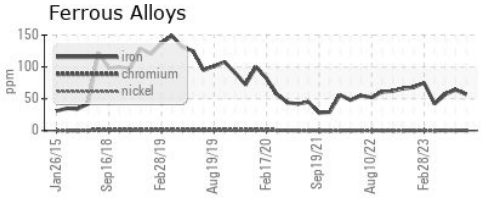
Particle Trend



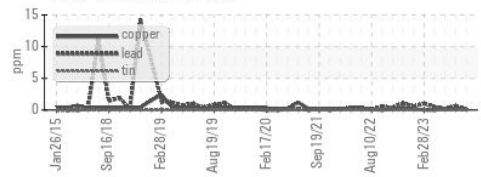
PQ



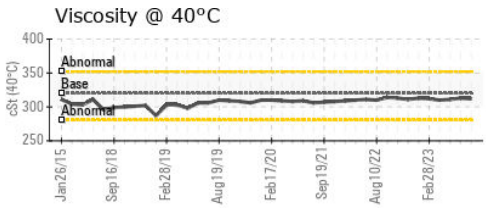
Ferrous Alloys



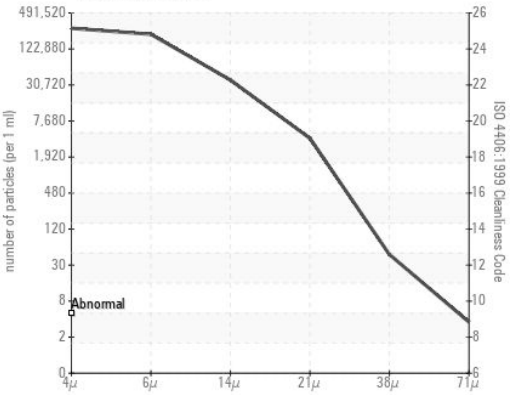
Non-ferrous Metals



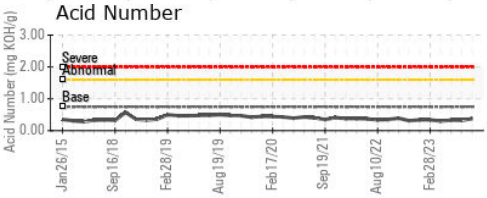
Viscosity @ 40°C



Particle Count



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **STELCO - BOSC - Basic Oxygen Slab Caster**
Sample No. : WC0850095 **Received** : 16 Aug 2023 2330 Regional Road #3, Door: BOSC8
Lab Number : 02576222 **Diagnosed** : 18 Aug 2023 NANTICOKE, ON
Unique Number : 5629282 **Diagnostician** : Kevin Marson CA N0A 1L0
Test Package : IND 2 (Additional Tests: PQ, TAN Man) Contact: Tom Walden

To discuss this sample report, contact Customer Service at 1-800-268-2131. Thomas.Walden@stelco.com
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: (519)587-4541
Validity of results and interpretation are based on the sample and information as supplied. F: (519)587-7702