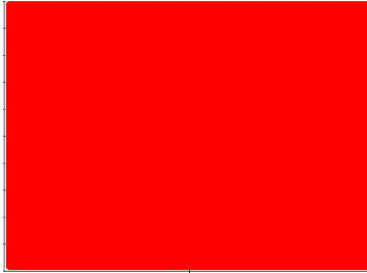




Machine Id
NO UNIT PC0051045

Component
Rear Differential

Fluid
{not provided} (--- GAL)



Mar2023

DIAGNOSIS

Recommendation

We advise that you check all areas where dirt can enter the system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

Copper and lead and tin ppm levels are severe. PQ levels are abnormal. Iron ppm levels are abnormal. Aluminum ppm levels are noted. Gear wear is indicated. Thrust washer and/or bearing/bushing wear is indicated. The high ferrous density (PQ) index indicates that abnormal wear is occurring.

Contamination

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The water content is negligible. High amount of ingressed dirt has caused abrasive wear to the component.

Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		PC0051045	---	---
Sample Date	Client Info		14 Mar 2023	---	---
Machine Age	hrs	Client Info	0	---	---
Oil Age	hrs	Client Info	0	---	---
Oil Changed	Client Info		N/A	---	---
Sample Status			SEVERE	---	---

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		▲ 888	---	---
Iron	ppm	ASTM D5185(m) >500	▲ 2475	---	---
Chromium	ppm	ASTM D5185(m) >10	4	---	---
Nickel	ppm	ASTM D5185(m) >10	4	---	---
Titanium	ppm	ASTM D5185(m)	6	---	---
Silver	ppm	ASTM D5185(m)	0	---	---
Aluminum	ppm	ASTM D5185(m) >25	▲ 65	---	---
Lead	ppm	ASTM D5185(m) >25	● 137	---	---
Copper	ppm	ASTM D5185(m) >100	● 1101	---	---
Tin	ppm	ASTM D5185(m) >10	● 41	---	---
Antimony	ppm	ASTM D5185(m) >5	<1	---	---
Vanadium	ppm	ASTM D5185(m)	<1	---	---
Beryllium	ppm	ASTM D5185(m)	0	---	---
Cadmium	ppm	ASTM D5185(m)	<1	---	---

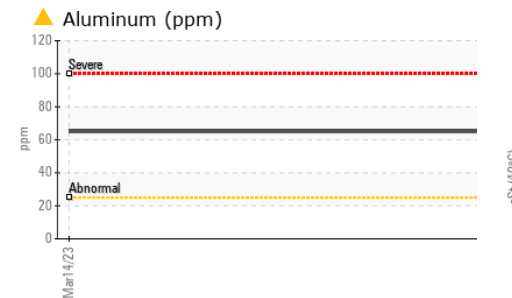
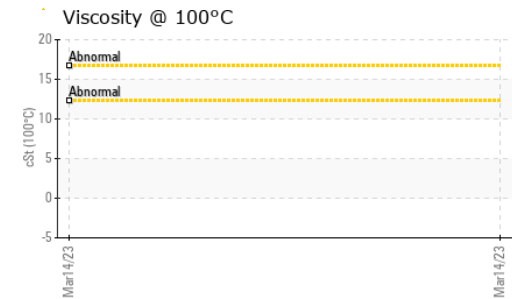
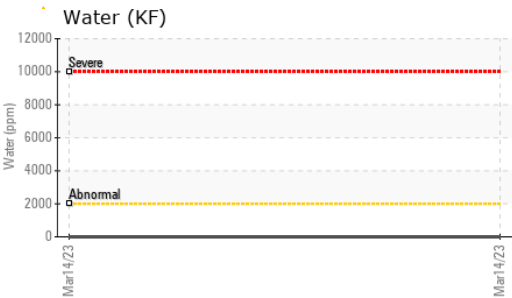
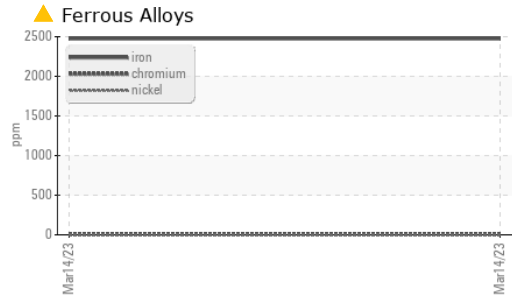
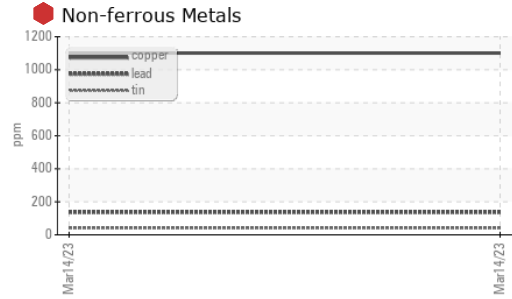
ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	26	---	---
Barium	ppm	ASTM D5185(m)	0	---	---
Molybdenum	ppm	ASTM D5185(m)	2	---	---
Manganese	ppm	ASTM D5185(m)	21	---	---
Magnesium	ppm	ASTM D5185(m)	96	---	---
Calcium	ppm	ASTM D5185(m)	2590	---	---
Phosphorus	ppm	ASTM D5185(m)	985	---	---
Zinc	ppm	ASTM D5185(m)	1454	---	---
Sulfur	ppm	ASTM D5185(m)	2658	---	---
Lithium	ppm	ASTM D5185(m)	<1	---	---

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >75	▲ 293	---	---
Sodium	ppm	ASTM D5185(m)	95	---	---
Potassium	ppm	ASTM D5185(m) >20	38	---	---
Water	%	ASTM D6304* >.2	0.00	---	---
ppm Water	ppm	ASTM D6304* >2000	0.00	---	---

OIL ANALYSIS REPORT



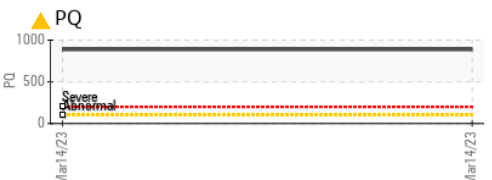
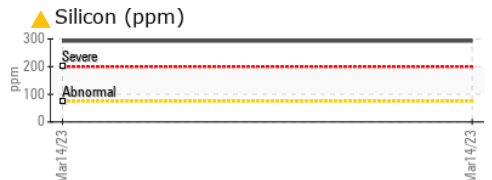
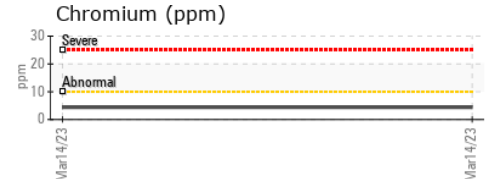
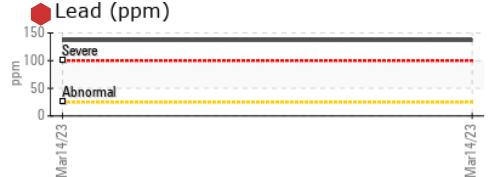
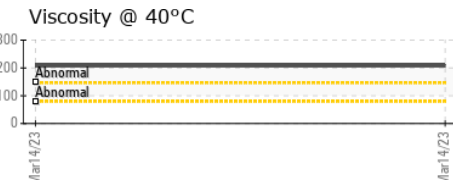
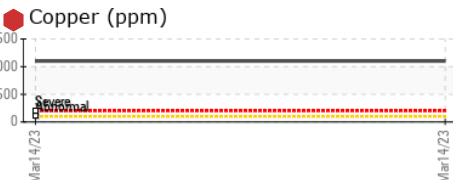
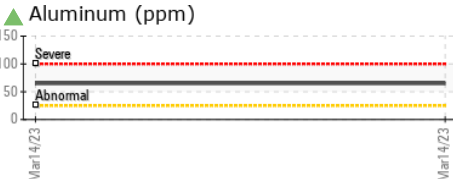
PARAMETER	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	---
Yellow Metal	scalar	Visual*	NONE	NONE	---
Precipitate	scalar	Visual*	NONE	NONE	---
Silt	scalar	Visual*	NONE	LIGHT	---
Debris	scalar	Visual*	NONE	NONE	---
Sand/Dirt	scalar	Visual*	NONE	NONE	---
Appearance	scalar	Visual*	NORML	NORML	---
Odor	scalar	Visual*	NORML	NORML	---
Emulsified Water	scalar	Visual*	>.2	1%	---
Free Water	scalar	Visual*		NEG	---

PARAMETER	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	208	---	---

PARAMETER	method	limit/base	current	history1	history2
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PARAMETER	method	limit/base	current	history1	history2
Color				no image	no image
Bottom				no image	no image

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0051045 **Received** : 15 Mar 2023
Lab Number : 02545583 **Diagnosed** : 20 Mar 2023
Unique Number : 5542588 **Diagnostician** : Kevin Marson
Test Package : MOB 1 (Additional Tests: KF, KV100, PQ, VI)

Lakeshore Gold Timmins West
 Timmins, ON
 CA
 Contact: Dale Arseneau
 darseneau@ca.panamericansilver.com
 T: (705)269-4344
 F:

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.