



OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ABNORMAL

Machine Id
10568550
Component
Gearbox
Fluid
SHELL OMALA 220 (--- GAL)

RECOMMENDATION

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.

WEAR

PQ levels are severe. Iron ppm levels are abnormal. Gear wear is indicated. The very high ferrous density (PQ) index indicates that severe wear is occurring.

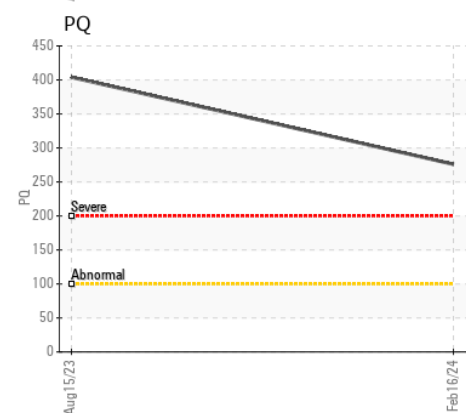
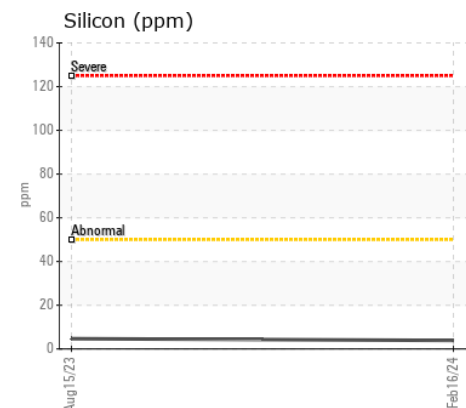
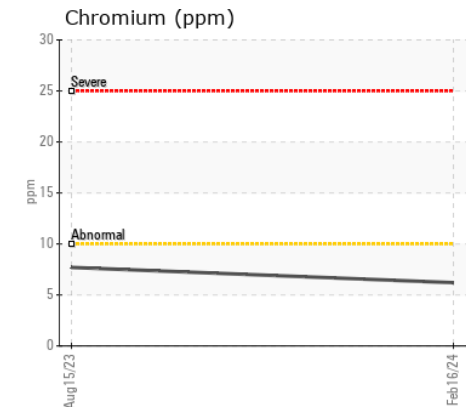
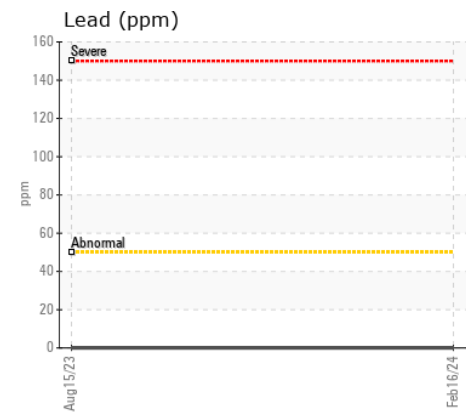
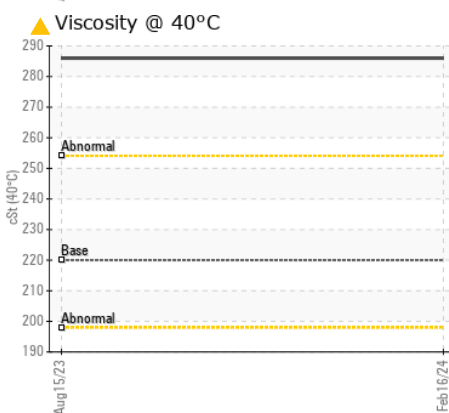
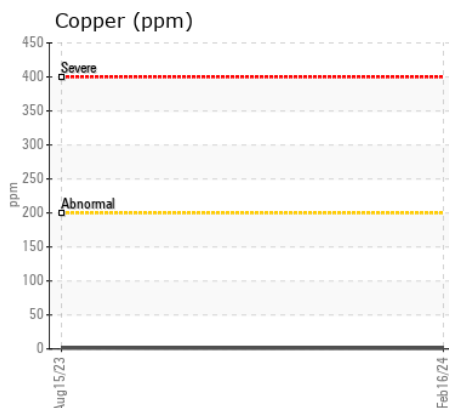
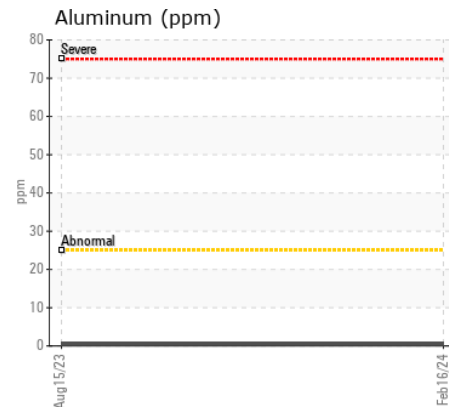
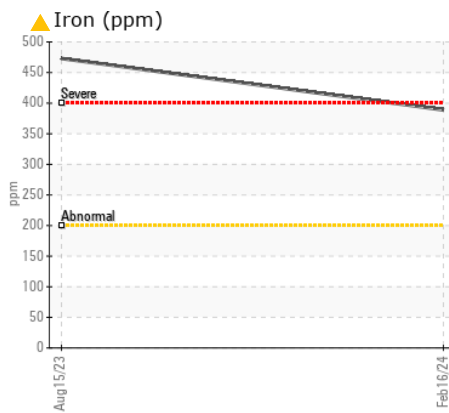
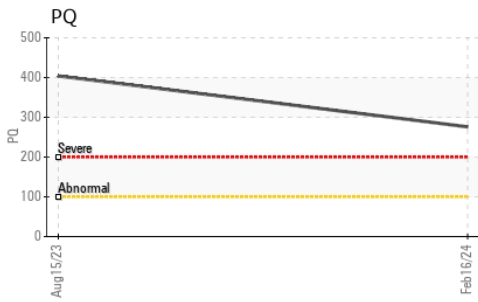
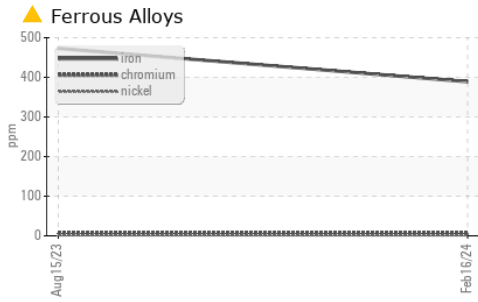
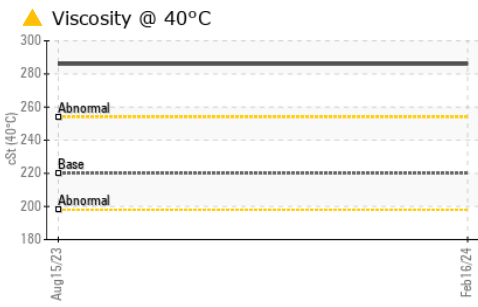
CONTAMINATION

There is no indication of any contamination in the oil.

FLUID CONDITION

Viscosity of sample indicates oil is within ISO 320 range, advise investigate. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0884657	WC0304898	---
Sample Date		Client Info		16 Feb 2024	15 Aug 2023	---
Machine Age	hrs	Client Info		0	0	---
Oil Age	hrs	Client Info		0	0	---
Filter Age	hrs	Client Info		0	0	---
Oil Changed		Client Info		N/A	N/A	---
Filter Changed		Client Info		N/A	N/A	---
Sample Status				ABNORMAL	ABNORMAL	---
PQ		ASTM D8184*		276	▲ 404	---
Iron	ppm	ASTM D5185(m)	>200	▲ 389	▲ 473	---
Chromium	ppm	ASTM D5185(m)	>10	6	8	---
Nickel	ppm	ASTM D5185(m)	>10	1	1	---
Titanium	ppm	ASTM D5185(m)		0	0	---
Silver	ppm	ASTM D5185(m)		0	0	---
Aluminum	ppm	ASTM D5185(m)	>25	<1	<1	---
Lead	ppm	ASTM D5185(m)	>50	0	0	---
Copper	ppm	ASTM D5185(m)	>200	1	2	---
Tin	ppm	ASTM D5185(m)	>10	0	0	---
Vanadium	ppm	ASTM D5185(m)		0	0	---
White Metal	scalar	Visual*	NONE	NONE	VLITE	---
Yellow Metal	scalar	Visual*	NONE	NONE	VLITE	---
Silicon	ppm	ASTM D5185(m)	>50	4	5	---
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	---
Water		WC Method	>0.2	NEG	NEG	---
Silt	scalar	Visual*	NONE	VLITE	NONE	---
Debris	scalar	Visual*	NONE	NONE	NONE	---
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	---
Appearance	scalar	Visual*	NORML	NORML	NORML	---
Odor	scalar	Visual*	NORML	NORML	NORML	---
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	---
Sodium	ppm	ASTM D5185(m)		<1	<1	---
Boron	ppm	ASTM D5185(m)	4.4	2	2	---
Barium	ppm	ASTM D5185(m)	0.0	0	<1	---
Molybdenum	ppm	ASTM D5185(m)	0	0	0	---
Manganese	ppm	ASTM D5185(m)		2	3	---
Magnesium	ppm	ASTM D5185(m)	0	<1	<1	---
Calcium	ppm	ASTM D5185(m)	0	13	15	---
Phosphorus	ppm	ASTM D5185(m)	215	271	302	---
Zinc	ppm	ASTM D5185(m)	0	10	12	---
Sulfur	ppm	ASTM D5185(m)	7039	10047	9758	---
Visc @ 40°C	cSt	ASTM D7279(m)	220	▲ 286	▲ 286	---



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0884657 **Received** : 29 Feb 2024
Lab Number : 02619008 **Tested** : 29 Feb 2024
Unique Number : 5736118 **Diagnosed** : 01 Mar 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: PQ)

Vale - Copper Cliff Smelter
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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.