



OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
11392088
Component
Gearbox
Fluid
{not provided} (--- 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. The fluid was not specified, however, a fluid match indicates that this fluid is ISO 46 Synthetic (PAG) Fire-Resistant Fluid. Please confirm the oil type and grade, and specify the brand of the oil on your next sample. Please specify the component make and model with your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

WEAR

Iron ppm levels are abnormal. A sharp increase in the iron level is noted. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

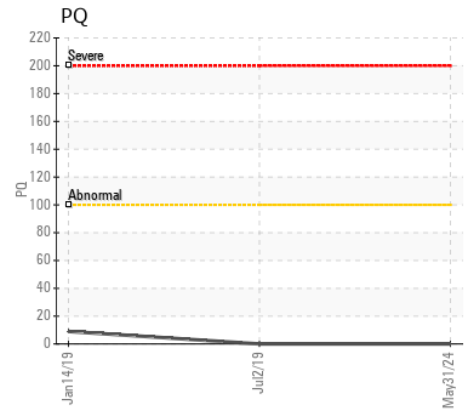
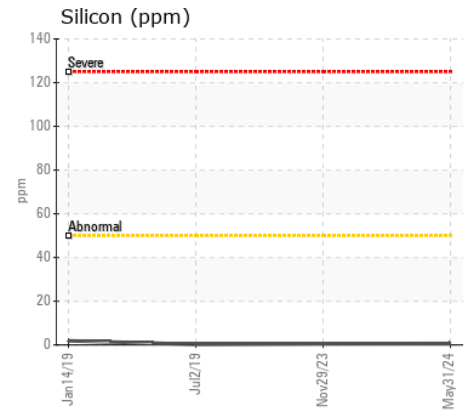
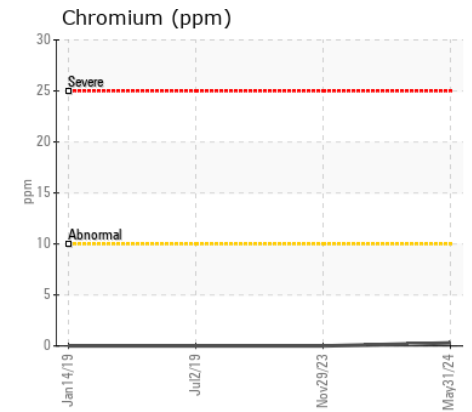
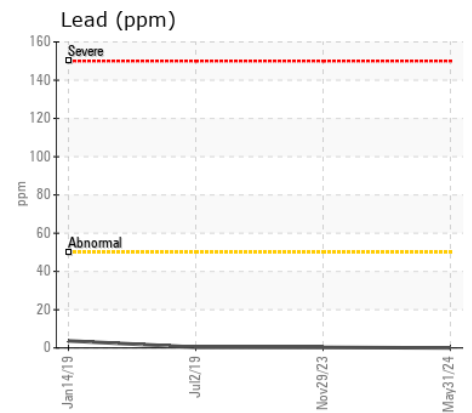
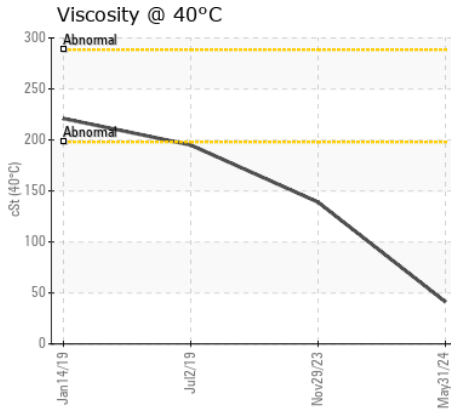
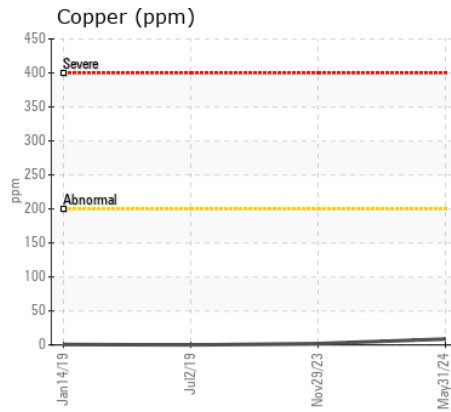
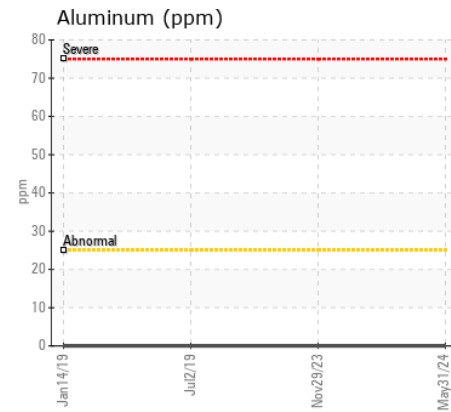
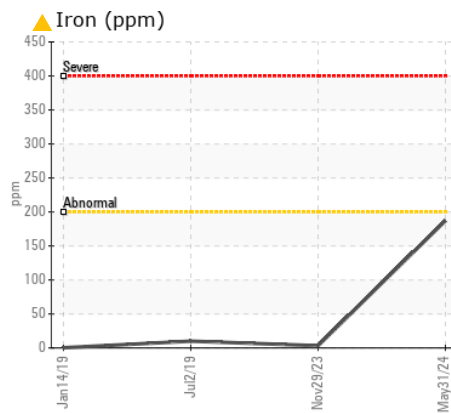
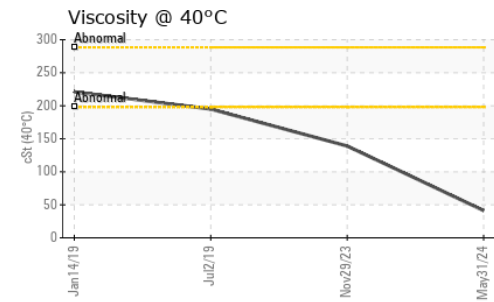
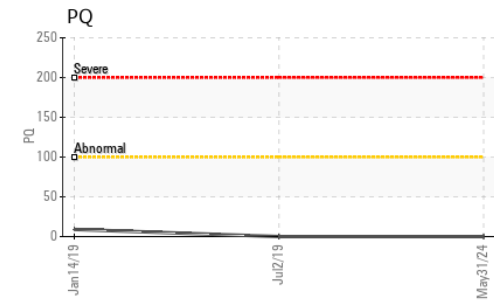
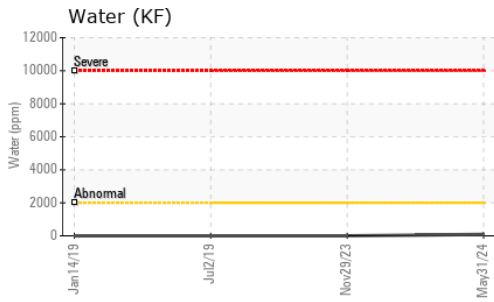
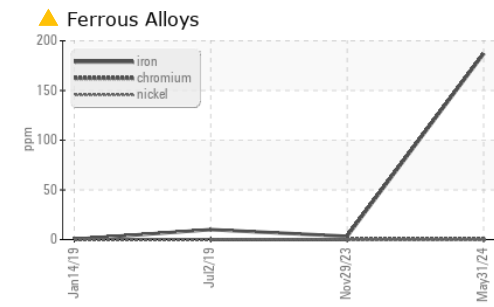
CONTAMINATION

There is no indication of any contamination in the oil.

FLUID CONDITION

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		WC0304914	WC0304810	WC
Sample Date		Client Info		31 May 2024	29 Nov 2023	02 Jul 2019
Machine Age	days	Client Info		0	0	0
Oil Age	days	Client Info		0	0	0
Filter Age	days	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	Not Changd
Filter Changed		Client Info		N/A	N/A	Not Changd
Sample Status				ABNORMAL	NORMAL	NORMAL
PQ		ASTM D8184*		0	---	0
Iron	ppm	ASTM D5185(m)	>200	▲ 187	3	10
Chromium	ppm	ASTM D5185(m)	>10	<1	0	0
Nickel	ppm	ASTM D5185(m)	>10	0	<1	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>25	0	0	0
Lead	ppm	ASTM D5185(m)	>50	0	<1	<1
Copper	ppm	ASTM D5185(m)	>200	9	2	0
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185(m)	>50	<1	<1	<1
Potassium	ppm	ASTM D5185(m)	>20	<1	0	0
Water	%	ASTM D6304*	>0.2	0.008	---	---
ppm Water	ppm	ASTM D6304*	>2000	87	---	---
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE	LIGHT
Sand/Dirt	scalar	Visual*	NONE	LIGHT	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	.2%	NEG	NEG
Sodium	ppm	ASTM D5185(m)		<1	<1	0
Boron	ppm	ASTM D5185(m)		0	<1	<1
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)		0	0	0
Manganese	ppm	ASTM D5185(m)		<1	0	<1
Magnesium	ppm	ASTM D5185(m)		<1	0	<1
Calcium	ppm	ASTM D5185(m)		0	<1	<1
Phosphorus	ppm	ASTM D5185(m)		17	60	52
Zinc	ppm	ASTM D5185(m)		8	3	2
Sulfur	ppm	ASTM D5185(m)		379	915	836
Visc @ 40°C	cSt	ASTM D7279(m)		41.3	139	195



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0304914 **Received** : 11 Jun 2024
Lab Number : 02641181 **Tested** : 13 Jun 2024
Unique Number : 5798720 **Diagnosed** : 13 Jun 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: KF, PQ)

Vale - Copper Cliff Smelter
 COPPER CLIFF SMELTER WAREHOUSE, 155 BALSAM ST.
 COPPER CLIFF, ON
 CA P0M 1N0
 Contact: Andy Kozachanko
 andrew.kozachanko@vale.com
 T: (705)682-6687
 F: (705)682-6939

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.