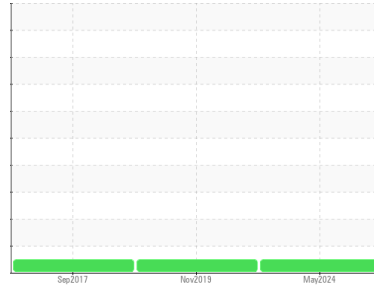




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
33-FDR-101

Component
Gearbox

Fluid
SHELL OMALA S2 GX 220 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.
 NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

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			WC0884199	WC0346636	WC0282727
Sample Date	Client Info			14 May 2024	06 Nov 2019	25 Sep 2017
Machine Age	yrs	Client Info		0	27	0
Oil Age	yrs	Client Info		0	2	0
Oil Changed	Client Info			Not Changed	Not Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>0.2	NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		15	6	8
Iron	ppm	ASTM D5185(m)	>200	24	9	7
Chromium	ppm	ASTM D5185(m)	>15	0	<1	0
Nickel	ppm	ASTM D5185(m)	>15	<1	<1	0
Titanium	ppm	ASTM D5185(m)		0	<1	0
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>25	<1	2	<1
Lead	ppm	ASTM D5185(m)	>100	0	<1	<1
Copper	ppm	ASTM D5185(m)	>200	3	<1	<1
Tin	ppm	ASTM D5185(m)	>25	0	0	0
Antimony	ppm	ASTM D5185(m)	>5	0	<1	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

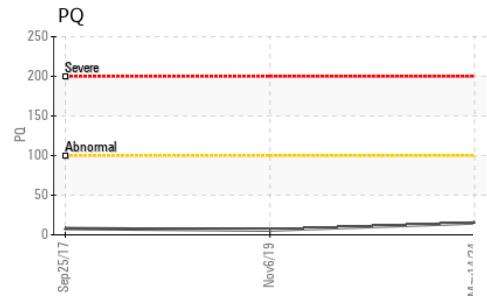
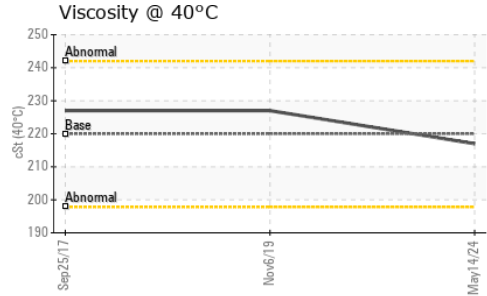
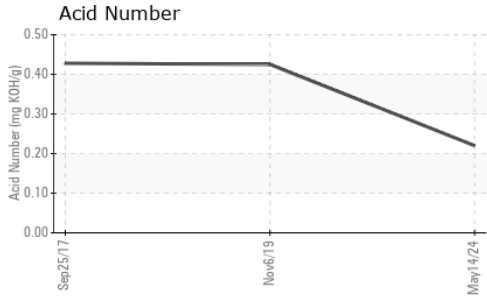
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	6.2	<1	2	2
Barium	ppm	ASTM D5185(m)	0.0	1	<1	<1
Molybdenum	ppm	ASTM D5185(m)	0	0	<1	0
Manganese	ppm	ASTM D5185(m)		<1	<1	<1
Magnesium	ppm	ASTM D5185(m)	0	1	<1	<1
Calcium	ppm	ASTM D5185(m)	0.0	27	2	2
Phosphorus	ppm	ASTM D5185(m)	290	274	294	294
Zinc	ppm	ASTM D5185(m)	3.8	78	1	1
Sulfur	ppm	ASTM D5185(m)	8167	8298	8330	9738
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>50	11	5	6
Sodium	ppm	ASTM D5185(m)		5	0	<1
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	<1

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		0.22	0.425	0.428



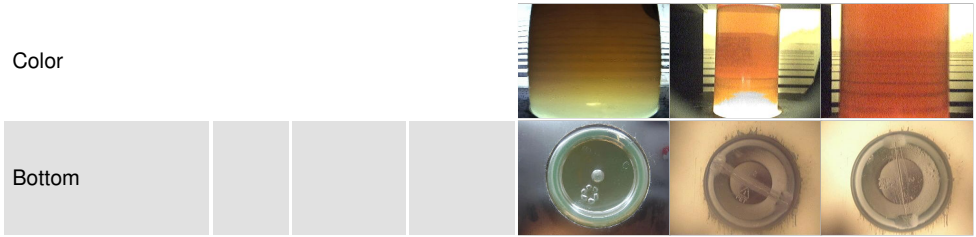
OIL ANALYSIS REPORT



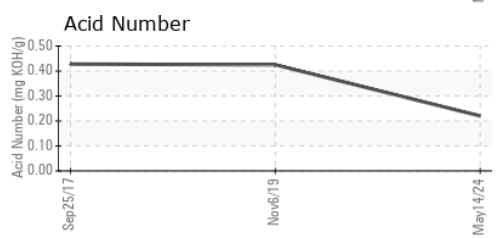
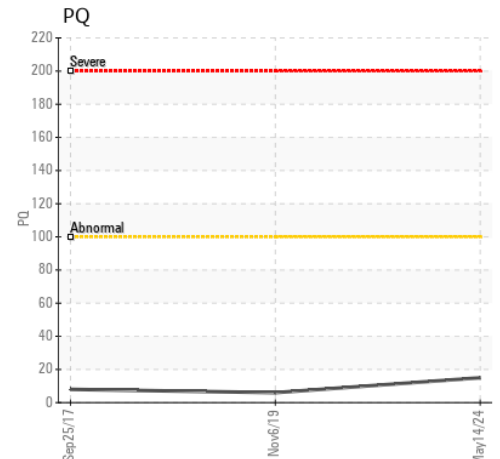
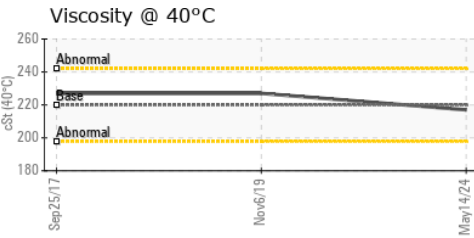
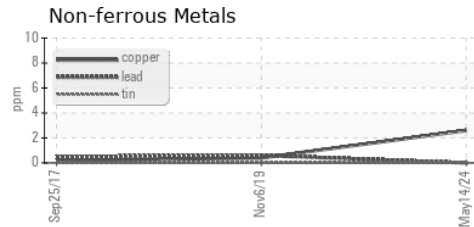
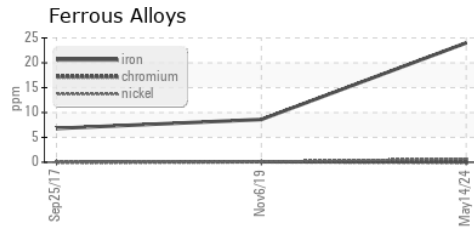
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	VLITE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	VLITE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	220	217	227

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0884199 **Received** : 10 Jun 2024
Lab Number : 02640859 **Tested** : 11 Jun 2024
Unique Number : 5798398 **Diagnosed** : 11 Jun 2024 - Wes Davis
Test Package : IND 2

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.