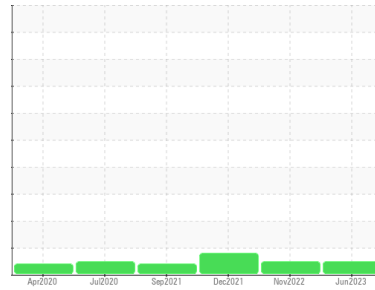




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
GARAGE
 Machine Id
4100-VMC-010 (S/N 2701U21218)

Component
Hydraulic System
 Fluid
ESSO HYDRAUL EXTRA (135 LTR)

DIAGNOSIS

Recommendation

Échantillonner de nouveau l'équipement au prochain intervalle de vidange afin d'en surveiller la condition.

Wear

Les taux d'usure de tous les composants sont normaux.

Contamination

La propreté du système est acceptable pour votre objectif de propreté ISO 4406. La teneur en eau est négligeable. La propreté du système et du fluide est acceptable.

Fluid Condition

Le AN est acceptable pour ce fluide. L'état de l'huile permet d'en prolonger l'utilisation.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0732801	WC0732791	WC0603455
Sample Date	Client Info		15 Jun 2023	21 Nov 2022	14 Dec 2021
Machine Age	hrs	Client Info	16020	10916	10916
Oil Age	hrs	Client Info	16020	10916	10916
Oil Changed	Client Info		N/A	N/A	Not Changd
Sample Status			NORMAL	NORMAL	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m)	>20	13	6	7
Chromium	ppm	ASTM D5185(m)	>20	3	<1	<1
Nickel	ppm	ASTM D5185(m)	>20	<1	<1	<1
Titanium	ppm	ASTM D5185(m)		0	<1	0
Silver	ppm	ASTM D5185(m)		0	0	0
Aluminum	ppm	ASTM D5185(m)	>20	1	<1	1
Lead	ppm	ASTM D5185(m)	>20	<1	<1	1
Copper	ppm	ASTM D5185(m)	>20	4	4	15
Tin	ppm	ASTM D5185(m)	>20	0	<1	<1
Antimony	ppm	ASTM D5185(m)		<1	<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)		5	6	2
Barium	ppm	ASTM D5185(m)		0	0	<1
Molybdenum	ppm	ASTM D5185(m)		2	2	1
Manganese	ppm	ASTM D5185(m)		<1	<1	<1
Magnesium	ppm	ASTM D5185(m)		15	15	12
Calcium	ppm	ASTM D5185(m)		3516	3694	3516
Phosphorus	ppm	ASTM D5185(m)		1158	1148	1122
Zinc	ppm	ASTM D5185(m)		1239	1243	1267
Sulfur	ppm	ASTM D5185(m)		3366	3424	3398
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS

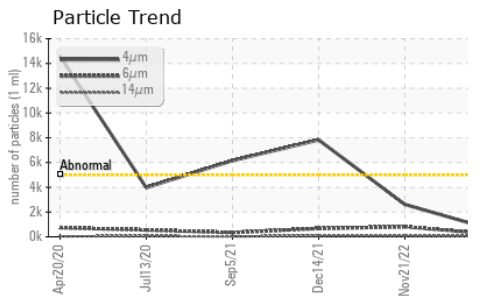
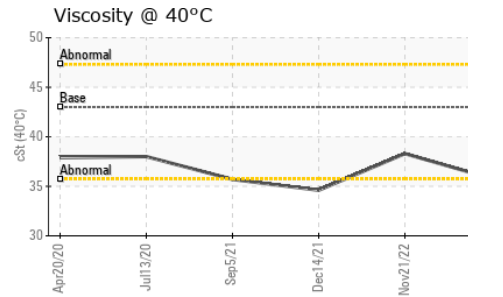
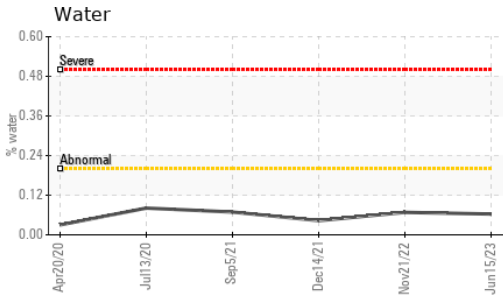
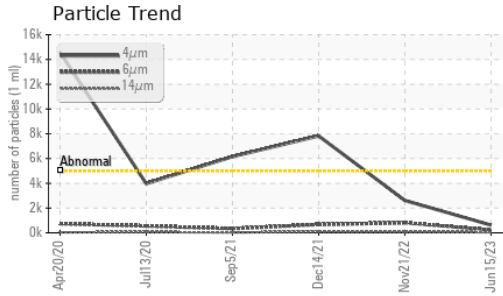
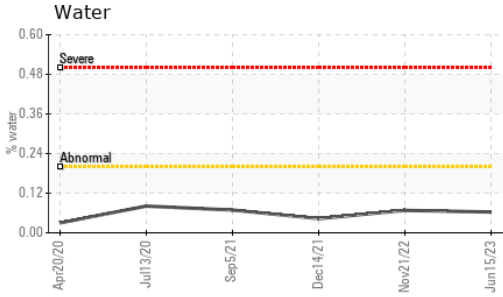
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>15	2	2	2
Sodium	ppm	ASTM D5185(m)		3	2	3
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	2
Water	%	ASTM D6304*	>0.2	0.063	0.068	0.043
ppm Water	ppm	ASTM D6304*	>2000	639.7	683.0	439.6

FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	620	2614	▲ 7824
Particles >6µm	ASTM D7647	>1300	231	811	669
Particles >14µm	ASTM D7647	>160	39	85	93
Particles >21µm	ASTM D7647	>40	14	25	25
Particles >38µm	ASTM D7647	>10	3	0	0
Particles >71µm	ASTM D7647	>3	2	0	0
Oil Cleanliness	ISO 4406 (c)	>19/17/14	16/15/12	19/17/14	▲ 20/17/14



OIL ANALYSIS REPORT

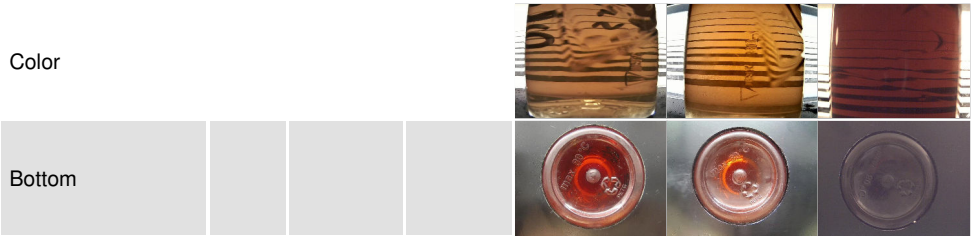


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		1.58	1.58	2.03

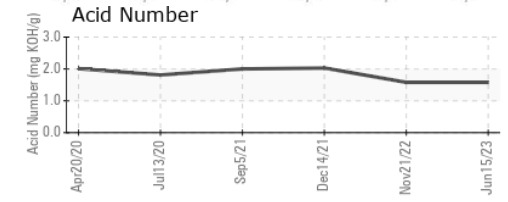
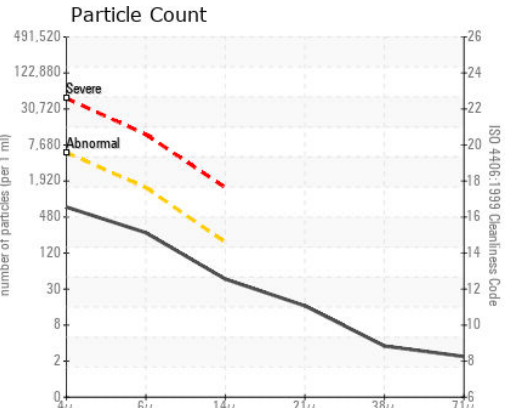
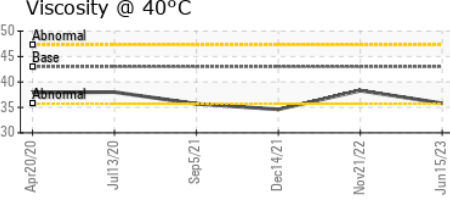
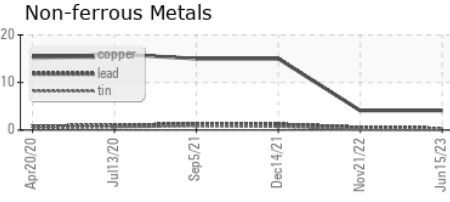
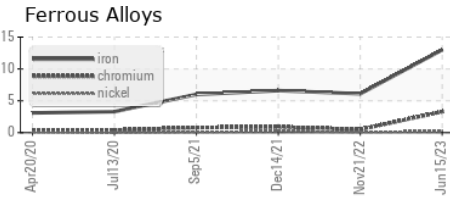
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	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)	43	35.8	38.3	▲ 34.6

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. : WC0732801 **Received** : 21 Jun 2023
Lab Number : **02565573** **Diagnosed** : 22 Jun 2023
Unique Number : 5594614 **Diagnostician** : Wes Davis
Test Package : IND 2 (Additional Tests: KF)

RTA - ALMA
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 ALMA, QC
 CA G8B 6T3
 Contact: Jean-Denis Fortin
 jean-denis.fortin2@riotinto.com
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 F: (418)480-6004

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.