

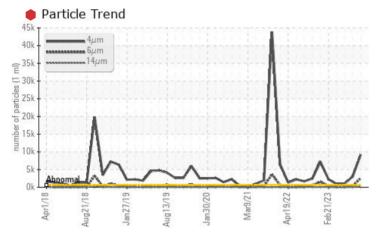
PROBLEM SUMMARY

Area #7 Blast Furnace Machine Id BISCHOFF SCRUBBER HYD (IRN040) (S/N 1000033964) Component

Hydraulic System

AW HYDRAULIC OIL ISO 22 (800 LTR)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. Please specify the brand, type, and viscosity of the oil on your next sample.

PROBLEMATIC TEST RESULTS								
Sample Status			SEVERE	ABNORMAL	ATTENTION			
Particles >4µm	ASTM D7647	>640	9160	A 3007	1 032			
Particles >6µm	ASTM D7647	>160	e 2594	283	129			
Particles >14µm	ASTM D7647	>40	<u> </u>	19	9			
Particles >21µm	ASTM D7647	>10	91	7	2			
Particles >38µm	ASTM D7647	>3	<u> </u>	1	0			
Oil Cleanliness	ISO 4406 (c)	>16/14/12	🛑 20/19/15	🔺 19/15/11	1 7/14/10			

Customer Id: ALGSSM Sample No.: WC0780650 Lab Number: 02608735 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Wes Davis +1 905-569-8600 x223 wesd@wearcheck.ca

To change component or sample information: Gloria Gonzalez +1 (289)291-4643 x4643 gloria.gonzalez@wearcheck.com



RECOMMENDED	RECOMMENDED ACTIONS							
Action	Status	Date	Done By	Description				
Change Filter			?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.				
Resample			?	Resample in 30-45 days to monitor this situation.				
Information Required			?	Please specify the brand, type, and viscosity of the oil on your next sample.				
Check Breathers			?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.				
Check Dirt Access			?	We advise that you check all areas where contaminants can enter the system.				
Filter Fluid			?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.				

HISTORICAL DIAGNOSIS

25 Oct 2023 Diag: Wes Davis



ISO

ISO

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. Please specify the brand, type, and viscosity of the oil on your next sample.All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.



view report

27 Jun 2023 Diag: Kevin Marson

We recommend you service the filters on this component. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.All component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

03 May 2023 Diag: Kevin Marson

We recommend you service the filters on this component. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.All component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. Viscosity of sample indicates oil is within ISO 22 range, advise investigate. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.







OIL ANALYSIS REPORT

Area #7 Blast Furnace Machine Id **BISCHOFF SCRUBBER HYD (IRN040) (S/N 1000033964)**

Hydraulic System

AW HYDRAULIC OIL ISO 22 (800 LTR)

DIAGNOSIS

Recommendation

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates (2 to 100 microns in size) present in the oil. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code.

Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

Sample Rating Trend

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0780650	WC0689830	WC0689954
Sample Date		Client Info		14 Jan 2024	25 Oct 2023	27 Jun 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				SEVERE	ABNORMAL	ATTENTION
CONTAMINATION	N	method	limit/base	current	history1	history2
Water		WC Method	>0.05	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	<1	1	2
Chromium	ppm	ASTM D5185(m)	>20	0	0	0
Nickel	ppm	ASTM D5185(m)	>20	0	<1	0
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>20	<1	0	<1
Lead	ppm	ASTM D5185(m)	>20	0	<1	0
Copper	ppm	ASTM D5185(m)	>20	<1	2	2
Tin	ppm	ASTM D5185(m)	>20	<1	0	0
Antimony	ppm	ASTM D5185(m)		0	0	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
ADDITIVES Boron	ppm	method ASTM D5185(m)	limit/base 5	current 0	history1 <1	history2 <1
	ppm ppm		5			
Boron		ASTM D5185(m)	5	0	<1	<1
Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	5 5	0 0	<1 <1	<1 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5	0 0 0	<1 <1 0	<1 0 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25	0 0 0 0	<1 <1 0 0	<1 0 0 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25	0 0 0 <1	<1 <1 0 0 0	<1 0 0 0 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200 300	0 0 0 <1 56	<1 <1 0 0 0 42	<1 0 0 0 <1 42
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200 300	0 0 0 <1 56 333	<1 <1 0 0 0 42 305	<1 0 0 <1 42 324
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200 300 370	0 0 0 <1 56 333 411	<1 <1 0 0 0 42 305 387	<1 0 0 <1 42 324 367
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200 300 370	0 0 0 <1 56 333 411 798	<1 <1 0 0 0 42 305 387 741	<1 0 0 <1 42 324 367 686
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370 2500	0 0 0 <1 56 333 411 798 <1	<1 <1 0 0 42 305 387 741 <1	<1 0 0 <1 42 324 367 686 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370 2500	0 0 0 <1 56 333 411 798 <1 current	<1 <1 0 0 42 305 387 741 <1 history1	<1 0 0 <1 42 324 367 686 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) method ASTM D5185(m)	5 5 25 200 300 370 2500	0 0 0 <1 56 333 411 798 <1 current 0	<1 <1 0 0 0 42 305 387 741 <1 history1 0	<1 0 0 <1 42 324 367 686 <1 history2 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200 300 370 2500 2500 limit/base >15	0 0 0 <1 56 333 411 798 <1 Current 0 0	<1 <1 0 0 42 305 387 741 <1 history1 0 0	<1 0 0 <1 42 324 367 686 <1 history2 <1 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 5 200 300 370 2500 2500 imit/base >15 >20	0 0 0 <1 56 333 411 798 <1 current 0 0 0 <1	<1 <1 0 0 0 42 305 387 741 <1 history1 0 0 0 0	<1 0 0 <1 42 324 367 686 <1 history2 <1 <1 <1 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 5 200 300 370 2500 2500 Imit/base >20 Imit/base >20	0 0 0 <1 56 333 411 798 <1 current 0 0 <1 current	<1 <1 0 0 4 305 387 741 <1 history1 0 0 0 0 history1	<1 0 0 <1 42 324 367 686 <1 history2 <1 <1 <1 <1 <1 <1 <1 History2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 5 200 300 370 2500 2500 Imit/base >20 Imit/base >20	0 0 0 2 3 3 3 3 3 3 3 4 1 7 9 8 <1 0 0 0 <1 0 0 <1 0 0 0 <1 0 0 0 0 <1 0 0 0 0	<1 <1 0 0 42 305 387 741 <1 history1 0 0 0 0 0 history1	<1 0 0 4 42 324 367 686 <1 bistory2 <1 <1 <1 <1 <1 <1 1 3 1032
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	5 5 5 200 300 370 2500 2500 2500 imit/base >15 >20 imit/base >640 >160 >40	0 0 0 2 3 3 3 3 3 3 3 4 1 7 98 3 3 4 1 7 98 3 2 1 0 0 0 3 1 0 0 2 1 0 0 1 2 1 0 0 2 1 1 0 0 1 1 1 5 6 3 3 3 1 4 1 1 5 6 3 3 3 1 4 1 1 5 6 3 3 3 1 4 1 1 5 6 3 3 3 1 4 1 1 5 6 3 3 3 1 4 1 1 5 6 3 3 3 1 4 1 1 5 6 3 3 3 1 4 1 1 5 6 3 3 3 1 4 1 1 5 6 3 3 3 1 4 1 1 5 6 3 3 3 1 4 1 1 5 6 3 3 3 1 4 1 1 5 6 1 3 3 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 3 1 4 1 1 7 9 8 1 1 1 1 1 7 9 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<1 <1 0 0 0 42 305 387 741 <1	<1 0 0 4 42 324 367 686 <1 bistory2 <1 <1 <1 <1 <1 <1 <1 <1 1 1032 129
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	5 5 5 200 300 370 2500 2500 2500 imit/base >15 >20 imit/base >640 >160 >40	0 0 0 2 3 3 3 3 3 3 4 1 7 98 3 3 4 1 7 98 3 3 3 4 1 7 98 3 3 3 4 1 7 98 3 3 3 4 1 7 98 3 3 3 4 1 1 7 98 3 3 3 4 1 1 7 98 3 3 3 4 1 1 7 98 3 3 1 4 1 7 98 3 3 1 4 1 7 98 3 3 1 4 1 7 98 3 3 1 4 1 7 98 3 1 9 9 9 9 1 9 9 9 9 1 9 9 9 1 9 1 9 9 1 9 1 9 1 9 1 9 1	<1 <1 0 0 42 305 387 741 <1 • • • • • • • • • • • • • • • • • •	<1 0 0 4 42 324 367 686 <1 • • • • • • • • • • • • • • • • • •
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	5 5 5 25 200 300 370 2500 2500 2500 imit/base >15 >20 imit/base >640 >160 >40 >10	0 0 0 (1 56 333 411 798 <1 0 (urrent 0 0 <1 0 <1 0 <1 0 2 594 282 9 10	<1 <1 0 0 42 305 387 741 <1 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	<1 0 0 4 3 324 367 686 <1 bistory2 <1 <1 <1 <1 <1 <1 <1 <1 1 3 1032 129 9 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium PtUID CLEANLIN Particles >4µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	5 5 5 25 200 300 370 2500 2500 2500 imit/base >15 >20 imit/base >640 >160 >40 >10	0 0 0 2 3 3 3 3 4 1 5 6 3 3 3 4 1 7 98 <1 0 0 <1 0 0 <1 0 0 <1 0 0 <1 0 0 2 5 9 4 0 0 2 5 9 4 1 0 0 0 2 5 9 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<1 <1 0 0 42 305 387 741 <1 <1 history1 0 0 0 0 0 0 0 0 2 8 307 × 19 7 1	<1 0 0 3 4 3 3 2 4 3 3 6 7 6 8 6 8 6 8 6 3 7 6 8 6 8 6 8 6 7 1 8 7 7 8 8 7 8 7 8 7 8 7 8 7 8 7 8 7

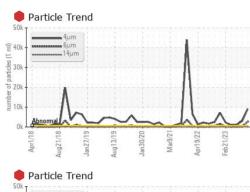
amenance rechnology - Algoma Reliability - ALGSSIM

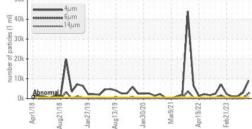


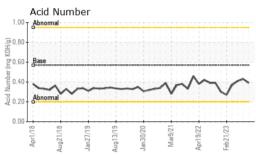
OIL ANALYSIS REPORT

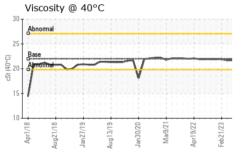
Color

Bottom

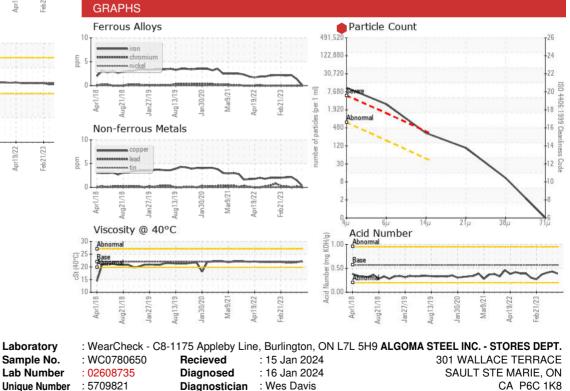








FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.57	0.39	0.43	0.41
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	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*	>0.05	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	22	22.3	21.8	21.7
SAMPLE IMAGE	S	method	limit/base	current	history1	history2



 Accredited Laboratory
 Unique Number
 : 5709821
 Diagnostician
 : Wes Davis

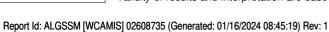
 Test Package
 : IND 2

 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.

301 WALLACE TERRACE SAULT STE MARIE, ON CA P6C 1K8 Contact: Algoma Reliability algomareliability@algoma.com T: (705)206-1059 F: (705)945-3585



Ĥ

CALA

ISO 17025:2017

Contact/Location: Maintenance Technology - Algoma Reliability - ALGSSM