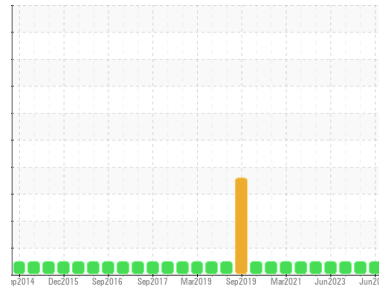




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area

[132445]

Machine Id

0014 HILLE 4 MILL POWER PACK

Component

Hydraulic System

Fluid

MONARCH PREMIUM HYDRAULIC OIL AW R&O 46 (--- LTR)

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

An increase in the iron level is noted. All other component wear rates are normal.

Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

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	WC0487114	WC0378080	WC0378094
Sample Date	Client Info	28 Jun 2024	20 Dec 2023	25 Sep 2023
Machine Age	hrs	0	0	0
Oil Age	hrs	0	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		NORMAL	NORMAL	NORMAL

CONTAMINATION

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	14	13	12
Chromium	ppm	ASTM D5185(m) >20	2	2	2
Nickel	ppm	ASTM D5185(m) >20	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	0	<1
Aluminum	ppm	ASTM D5185(m) >20	1	1	<1
Lead	ppm	ASTM D5185(m) >20	4	6	4
Copper	ppm	ASTM D5185(m) >20	21	17	15
Tin	ppm	ASTM D5185(m) >20	8	8	5
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	
Boron	ppm	ASTM D5185(m)	1	<1	1
Barium	ppm	ASTM D5185(m)	<1	0	<1
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)	<1	<1	<1
Magnesium	ppm	ASTM D5185(m)	30	34	29
Calcium	ppm	ASTM D5185(m)	78	80	76
Phosphorus	ppm	ASTM D5185(m)	409	428	403
Zinc	ppm	ASTM D5185(m)	453	454	449
Sulfur	ppm	ASTM D5185(m)	1296	1418	1287
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m) >15	<1	1	2
Sodium	ppm	ASTM D5185(m)	4	4	3
Potassium	ppm	ASTM D5185(m) >20	<1	0	0

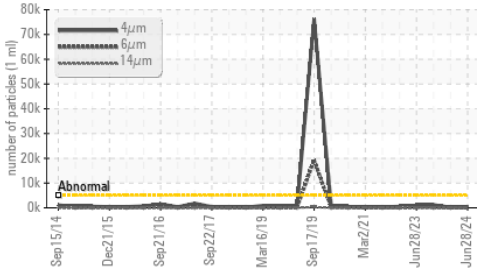
FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >5000	97	195	1209
Particles >6µm	ASTM D7647 >1300	35	37	265
Particles >14µm	ASTM D7647 >160	8	3	14
Particles >21µm	ASTM D7647 >40	3	1	3
Particles >38µm	ASTM D7647 >10	1	1	0
Particles >71µm	ASTM D7647 >3	0	0	0
Oil Cleanliness	ISO 4406 (c) >19/17/14	14/12/10	15/12/9	17/15/11

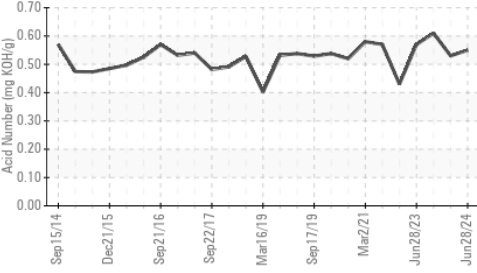


OIL ANALYSIS REPORT

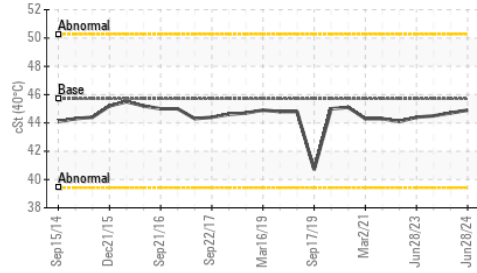
Particle Trend



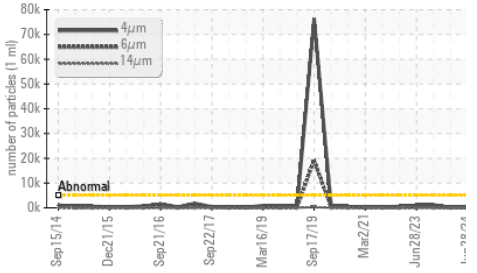
Acid Number



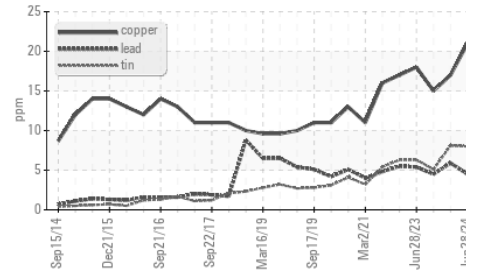
Viscosity @ 40°C



Particle Trend



Non-ferrous Metals



FLUID DEGRADATION method limit/base current history1 history2

Acid Number (AN) mg KOH/g ASTM D974* **0.55** 0.53 0.61

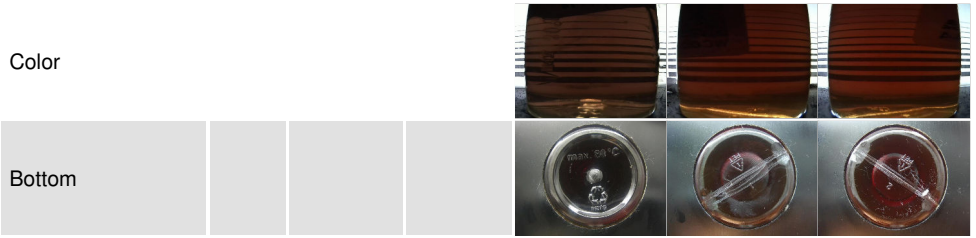
VISUAL method limit/base current history1 history2

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 PROPERTIES method limit/base current history1 history2

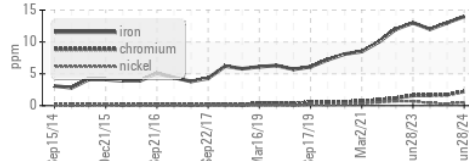
Visc @ 40°C cSt ASTM D7279(m) 45.7 **44.9** 44.7 44.5

SAMPLE IMAGES method limit/base current history1 history2

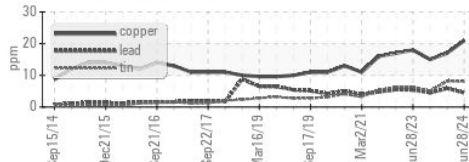


GRAPHS

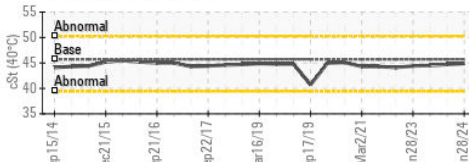
Ferrous Alloys



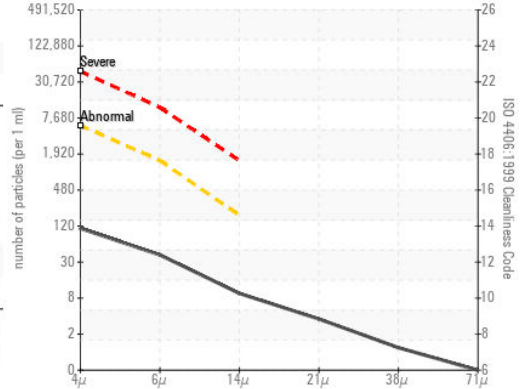
Non-ferrous Metals



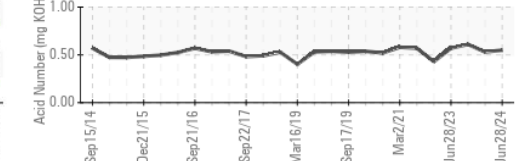
Viscosity @ 40°C



Particle Count



Acid Number



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0487114 **Received** : 02 Jul 2024
Lab Number : **02644849** **Tested** : 03 Jul 2024
Unique Number : 5802388 **Diagnosed** : 03 Jul 2024 - Kevin Marson
Test Package : IND 2

HENDRICKSON CANADA LTD.
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 sbhatt@hendrickson-intl.com
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 F: (519)271-3103

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.