

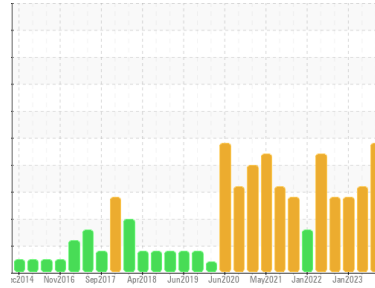


# PROBLEM SUMMARY

Sample Rating Trend

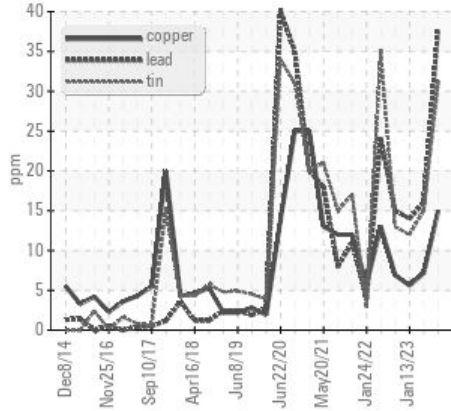
DIRT

Area  
**Hauser**  
 Machine Id  
**HAU06-1 Turbine Thrust Bearing**  
 Component  
**Case Drain Turbine Bearing**  
 Fluid  
**CONOCO MULTIPURPOSE R&O OIL ISO 68 (10 GAL)**

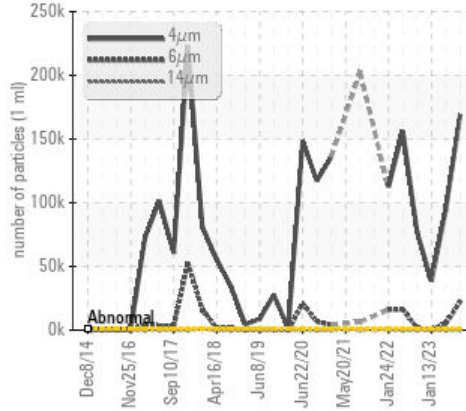


## COMPONENT CONDITION SUMMARY

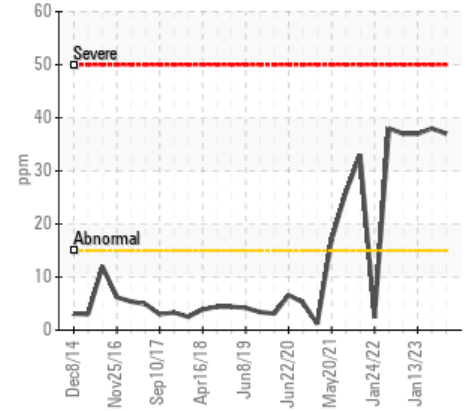
### ▲ Non-ferrous Metals



### ▲ Particle Trend



### ▲ Silicon (ppm)



## RECOMMENDATION

We recommend you service the filters on this component if applicable. We recommend an early resample to monitor this condition.

## PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Lead	ppm	ASTM D5185m	>20	▲ 38	16	14
Tin	ppm	ASTM D5185m	>20	▲ 31	15	12
Silicon	ppm	ASTM D5185m	>15	▲ 37	▲ 38	▲ 37
Particles >4µm		ASTM D7647	>640	▲ 169031	▲ 94663	▲ 38774
Particles >6µm		ASTM D7647	>160	▲ 22447	▲ 5273	▲ 628
Particles >14µm		ASTM D7647	>40	▲ 50	▲ 48	27
Oil Cleanliness		ISO 4406 (c)	>16/14/12	▲ 25/22/13	▲ 24/20/13	▲ 22/16/12

Customer Id: PPLBUT  
 Sample No.: WC0757670  
 Lab Number: 05936099  
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
 Don Baldrige +1  
[don.b505@comcast.net](mailto:don.b505@comcast.net)

To change component or sample information:  
 Customer Service +1 1-800-237-1369  
[customerservice@wearcheck.com](mailto:customerservice@wearcheck.com)

## RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component if applicable.
Resample	---	---	?	We recommend an early resample to monitor this condition.

## HISTORICAL DIAGNOSIS

### 21 Apr 2023 Diag: Don Baldrige

DIRT



We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor. All component wear rates are normal. There is a high amount of particulates present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### 13 Jan 2023 Diag: Don Baldrige

DIRT



We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor. Please note that this is a corrected copy for data entry updates. All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### 06 Nov 2022 Diag: Don Baldrige

DIRT



We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor. All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. Elemental level of silicon (Si) above normal. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

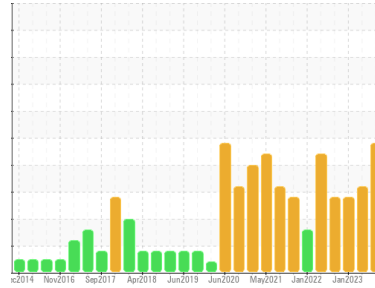
view report





# OIL ANALYSIS REPORT

Sample Rating Trend



DIRT



Area  
**Hauser**  
 Machine Id  
**HAU06-1 Turbine Thrust Bearing**  
 Component  
**Case Drain Turbine Bearing**  
 Fluid  
**CONOCO MULTIPURPOSE R&O OIL ISO 68 (10 GAL)**

## DIAGNOSIS

### Recommendation

We recommend you service the filters on this component if applicable. We recommend an early resample to monitor this condition.

### Wear

The lead level is abnormal. The tin level is abnormal.

### Contamination

There is a high amount of particulates present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

### 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	<b>WC0757670</b>	WC0757706	WC0757697
Sample Date	Client Info	<b>19 Aug 2023</b>	21 Apr 2023	13 Jan 2023
Machine Age	yrs Client Info	<b>0</b>	0	0
Oil Age	yrs Client Info	<b>0</b>	0	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

## WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >20	<b>16</b>	8	5
Chromium	ppm ASTM D5185m >20	<b>0</b>	0	0
Nickel	ppm ASTM D5185m >20	<b>&lt;1</b>	0	0
Titanium	ppm ASTM D5185m	<b>&lt;1</b>	0	0
Silver	ppm ASTM D5185m	<b>0</b>	0	0
Aluminum	ppm ASTM D5185m >20	<b>2</b>	0	0
Lead	ppm ASTM D5185m >20	<b>▲ 38</b>	16	14
Copper	ppm ASTM D5185m >20	<b>15</b>	7	6
Tin	ppm ASTM D5185m >20	<b>▲ 31</b>	15	12
Vanadium	ppm ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m	<b>0</b>	0	0
Barium	ppm ASTM D5185m	<b>1</b>	0	1
Molybdenum	ppm ASTM D5185m	<b>0</b>	0	0
Manganese	ppm ASTM D5185m	<b>&lt;1</b>	<1	<1
Magnesium	ppm ASTM D5185m	<b>&lt;1</b>	<1	<1
Calcium	ppm ASTM D5185m	<b>2</b>	<1	<1
Phosphorus	ppm ASTM D5185m	<b>8</b>	6	7
Zinc	ppm ASTM D5185m	<b>18</b>	18	18
Sulfur	ppm ASTM D5185m	<b>17</b>	15	8

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >15	<b>▲ 37</b>	▲ 38	▲ 37
Sodium	ppm ASTM D5185m	<b>0</b>	0	0
Potassium	ppm ASTM D5185m >20	<b>1</b>	<1	<1

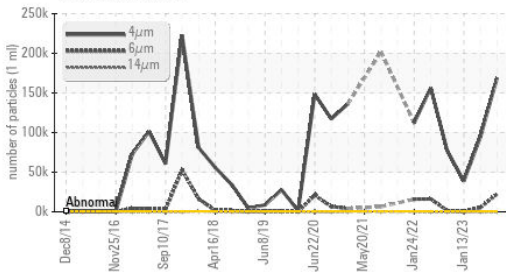
## FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >640	<b>▲ 169031</b>	▲ 94663	▲ 38774
Particles >6µm	ASTM D7647 >160	<b>▲ 22447</b>	▲ 5273	▲ 628
Particles >14µm	ASTM D7647 >40	<b>▲ 50</b>	▲ 48	27
Particles >21µm	ASTM D7647 >10	<b>10</b>	6	8
Particles >38µm	ASTM D7647 >3	<b>0</b>	0	1
Particles >71µm	ASTM D7647 >3	<b>0</b>	0	1
Oil Cleanliness	ISO 4406 (c) >16/14/12	<b>▲ 25/22/13</b>	▲ 24/20/13	▲ 22/16/12

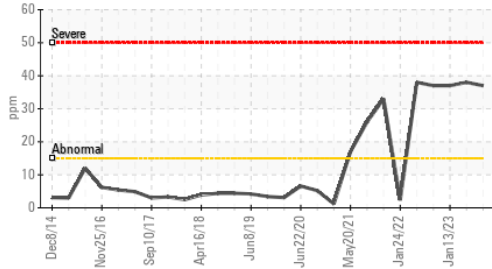
## FLUID DEGRADATION

method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D8045 0.14	<b>0.087</b>	0.197	0.076

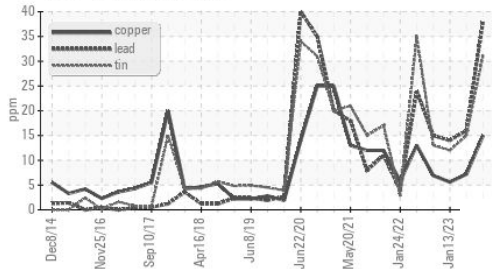
### ▲ Particle Trend



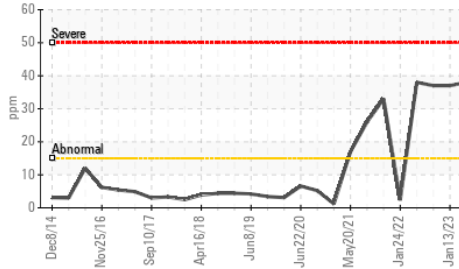
### ▲ Silicon (ppm)



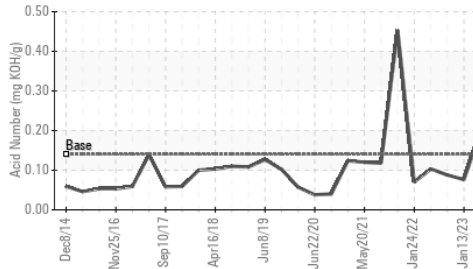
### ▲ Non-ferrous Metals



### ▲ Silicon (ppm)



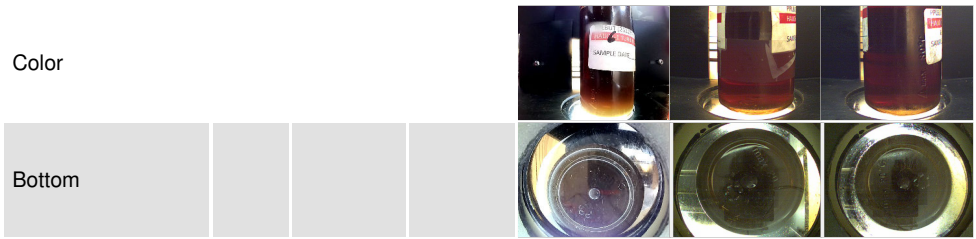
### Acid Number



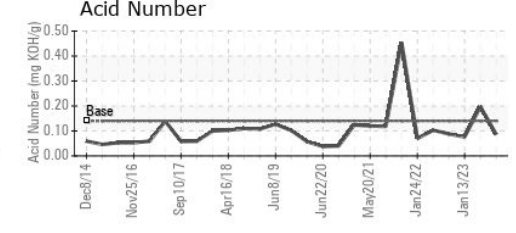
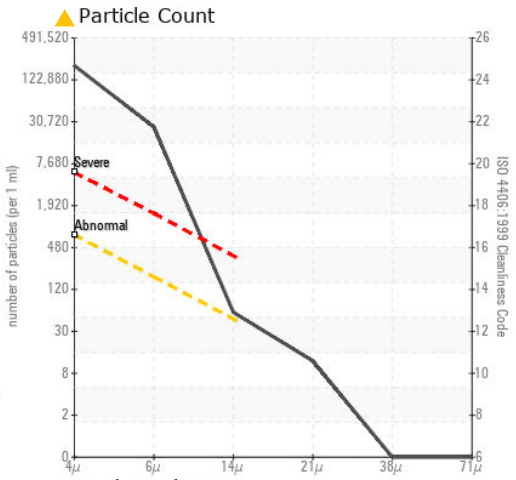
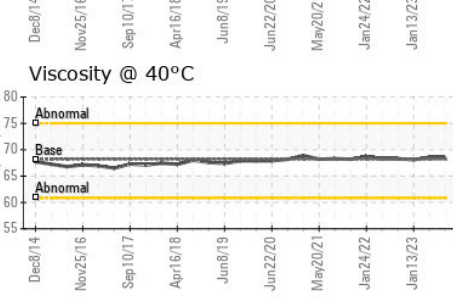
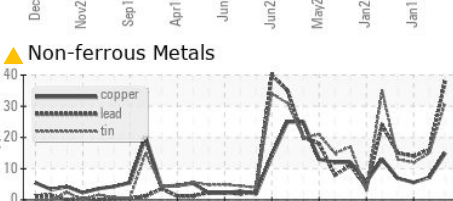
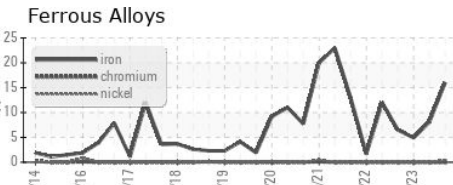
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	68.2	68.5	68.6

SAMPLE IMAGES	method	limit/base	current	history1	history2
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## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0757670 **Received** : 28 Aug 2023  
**Lab Number** : 05936099 **Diagnosed** : 29 Aug 2023  
**Unique Number** : 10621370 **Diagnostician** : Don Baldrige  
**Test Package** : IND 2 ( Additional Tests: PrtCount )

**NORTHWESTERN ENERGY**  
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 GREAT FALLS, MT  
 US 59404  
 Contact: BRIAN WARD  
 brian.ward@northwestern.com  
 T:  
 F: (406)533-3401

Certificate L2367  
 To discuss this sample report, contact Customer Service at 1-800-237-1369.  
 \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.  
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)