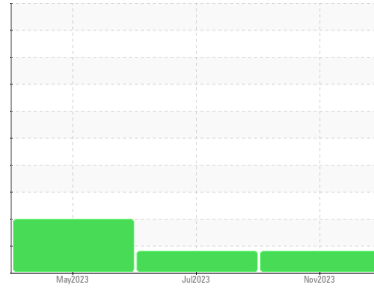




# PROBLEM SUMMARY

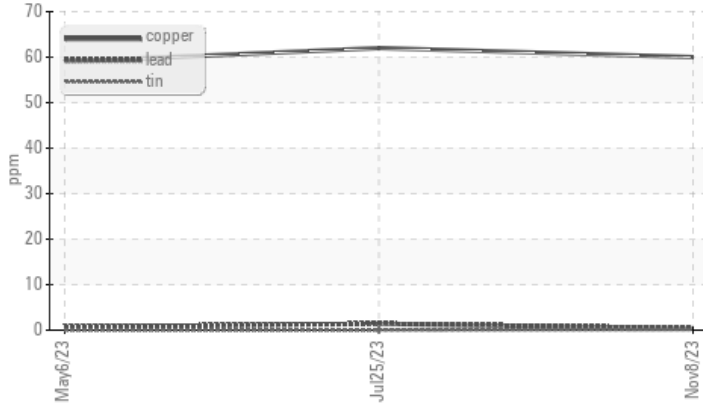
Area  
**SEAWARD EXPLORER**  
 Machine Id  
**Explorer - Hydraulics**  
 Component  
**1 Steering**  
 Fluid  
**SHELL TELLUS T46 (60 GAL)**

Sample Rating Trend



## COMPONENT CONDITION SUMMARY

### ▲ Non-ferrous Metals



## RECOMMENDATION

No corrective action is recommended at this time.  
 Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

Sample Status				<b>ABNORMAL</b>	MARGINAL	ABNORMAL
Copper	ppm	ASTM D5185m	>30	▲ 60	▲ 62	▲ 59

Customer Id: SEANEW  
 Sample No.: WC0859364  
 Lab Number: 06012337  
 Test Package: MAR 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

*There are no recommended actions for this sample.*

## HISTORICAL DIAGNOSIS

### 25 Jul 2023 Diag: Doug Bogart

#### WEAR



No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level is abnormal. All other component wear rates are normal. The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### 06 May 2023 Diag: Don Baldrige

#### WEAR



No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level is abnormal. All other component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the fluid. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

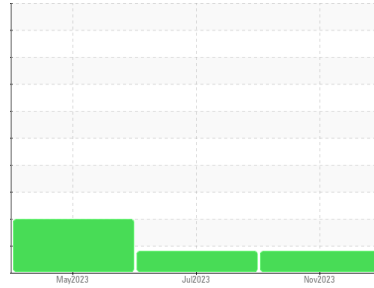
view report





# OIL ANALYSIS REPORT

Sample Rating Trend



**WEAR**



Area  
**SEAWARD EXPLORER**  
 Machine Id  
**Explorer - Hydraulics**  
 Component  
**1 Steering**  
 Fluid  
**SHELL TELLUS T46 (60 GAL)**

## DIAGNOSIS

### Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

### Wear

The copper level is abnormal. All other component wear rates are normal.

### Contamination

The amount and size of particulates present in the system are acceptable. 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		<b>WC0859364</b>	WC0818089	WC0686478
Sample Date	Client Info		<b>08 Nov 2023</b>	25 Jul 2023	06 May 2023
Machine Age	hrs	Client Info	<b>7266</b>	6937	6301
Oil Age	hrs	Client Info	<b>7266</b>	0	0
Oil Changed	Client Info		<b>Not Chngd</b>	N/A	Not Chngd
Sample Status			<b>ABNORMAL</b>	MARGINAL	ABNORMAL

## CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method		<b>NEG</b>	NEG	NEG

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >60	<b>6</b>	7	7
Chromium	ppm	ASTM D5185m >12	<b>1</b>	<1	1
Nickel	ppm	ASTM D5185m >6	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >4	<b>0</b>	0	0
Lead	ppm	ASTM D5185m >12	<b>&lt;1</b>	1	<1
Copper	ppm	ASTM D5185m >30	<b>▲ 60</b>	▲ 62	▲ 59
Tin	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Vanadium	ppm	ASTM D5185m	<b>&lt;1</b>	<1	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	<b>0</b>	0	0
Barium	ppm	ASTM D5185m 0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m 0	<b>0</b>	0	0
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m 0	<b>0</b>	2	0
Calcium	ppm	ASTM D5185m 48	<b>29</b>	45	37
Phosphorus	ppm	ASTM D5185m 337	<b>323</b>	381	333
Zinc	ppm	ASTM D5185m 426	<b>372</b>	396	386
Sulfur	ppm	ASTM D5185m 2280	<b>1236</b>	1656	1450

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >10	<b>&lt;1</b>	<1	<1
Sodium	ppm	ASTM D5185m	<b>5</b>	6	4
Potassium	ppm	ASTM D5185m >20	<b>0</b>	0	<1

## FLUID CLEANLINESS

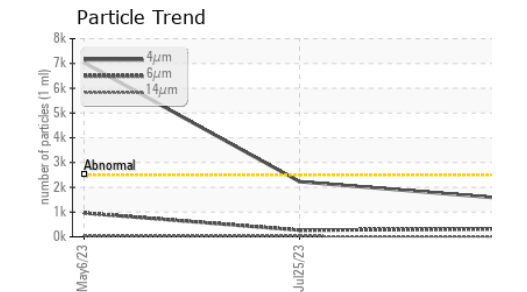
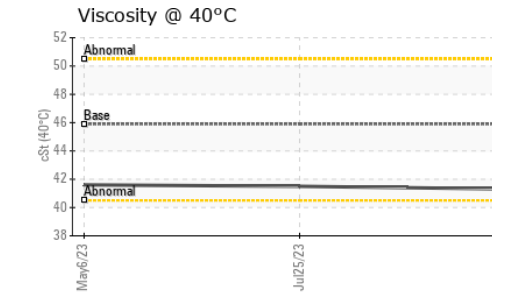
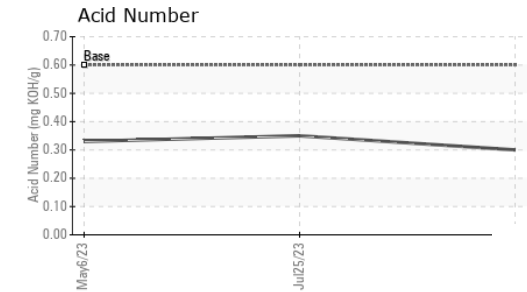
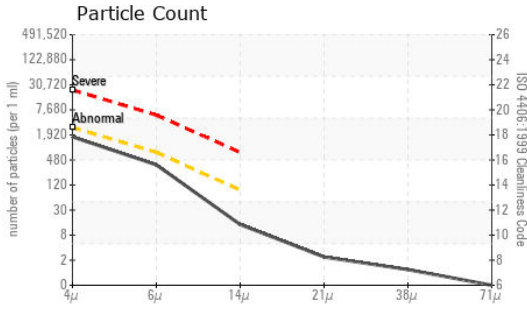
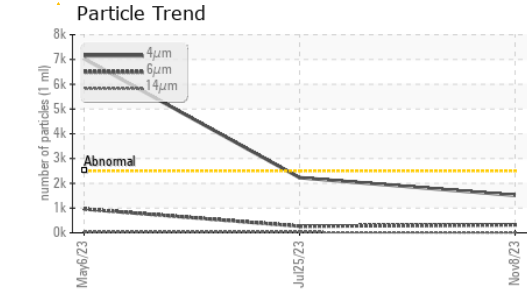
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	<b>1511</b>	2227	▲ 7030
Particles >6µm	ASTM D7647	>640	<b>323</b>	267	▲ 960
Particles >14µm	ASTM D7647	>80	<b>12</b>	25	27
Particles >21µm	ASTM D7647	>20	<b>2</b>	8	6
Particles >38µm	ASTM D7647	>4	<b>1</b>	0	1
Particles >71µm	ASTM D7647	>3	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>18/16/13	<b>18/16/11</b>	18/15/12	▲ 20/17/12

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045 .6	<b>0.30</b>	0.35	0.33



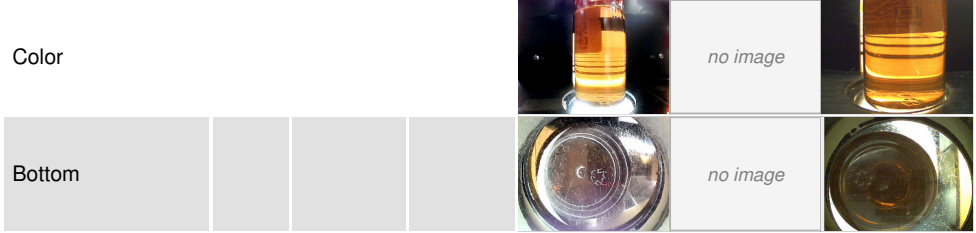
# OIL ANALYSIS REPORT



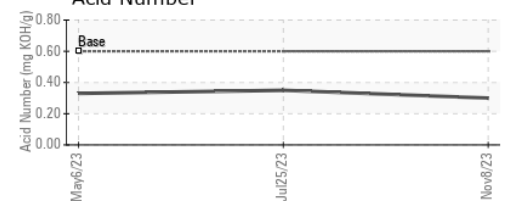
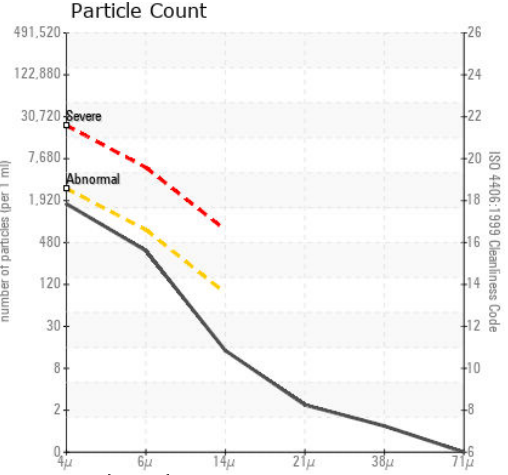
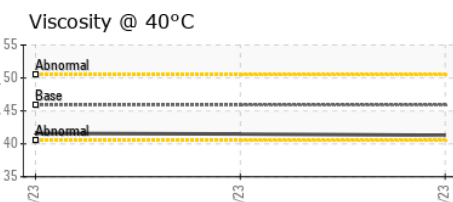
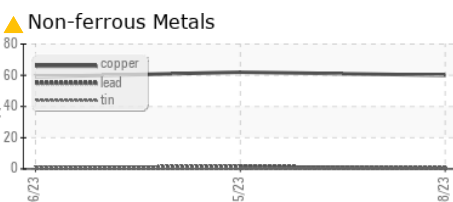
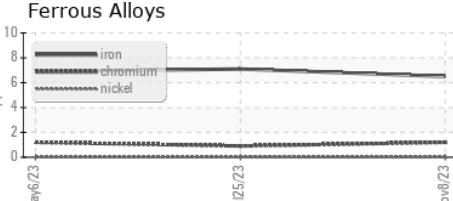
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	45.9	41.3	41.5

## SAMPLE IMAGES



## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0859364 **Received** : 20 Nov 2023  
**Lab Number** : 06012337 **Diagnosed** : 22 Nov 2023  
**Unique Number** : 10751481 **Diagnostician** : Don Baldrige  
**Test Package** : MAR 2 ( Additional Tests: PrtCount )

**SEAWARD SERVICES**  
 222 PEARL ST  
 NEW ALBANY, IN  
 US 47150  
 Contact: PETER CHARBONNET  
 PCHARBONNET@HMS-SEAWARD.COM  
 T:  
 F:

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)