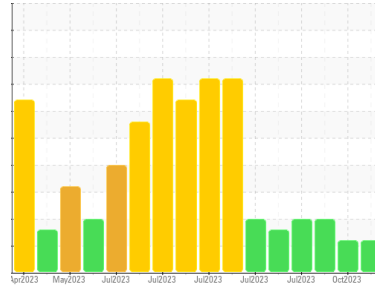




# OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area  
**RIG 879**  
 Machine Id  
**R879-P-02**  
 Component  
**Gearbox**  
 Fluid  
**GEAR OIL ISO 320 (--- GAL)**

## DIAGNOSIS

### Recommendation

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

### Wear

All component wear rates are normal.

### Contamination

There is a high amount of silt (particulates < 14 microns in size) present 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>KL0012925</b>	KL0012731	KL0012742
Sample Date	Client Info	<b>24 Oct 2023</b>	03 Oct 2023	13 Sep 2023
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	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 >200	<b>31</b>	46	141
Chromium	ppm	ASTM D5185m >10	<b>&lt;1</b>	<1	2
Nickel	ppm	ASTM D5185m >10	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185m >25	<b>&lt;1</b>	4	9
Lead	ppm	ASTM D5185m >50	<b>0</b>	0	0
Copper	ppm	ASTM D5185m >200	<b>3</b>	4	7
Tin	ppm	ASTM D5185m >10	<b>0</b>	<1	0
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>&lt;1</b>	0	0

## ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m 50	<b>4</b>	2	0
Barium	ppm	ASTM D5185m 15	<b>4</b>	7	20
Molybdenum	ppm	ASTM D5185m 15	<b>5</b>	6	11
Manganese	ppm	ASTM D5185m	<b>0</b>	<1	2
Magnesium	ppm	ASTM D5185m 50	<b>8</b>	8	11
Calcium	ppm	ASTM D5185m 50	<b>23</b>	35	58
Phosphorus	ppm	ASTM D5185m 350	<b>134</b>	156	190
Zinc	ppm	ASTM D5185m 100	<b>103</b>	92	102
Sulfur	ppm	ASTM D5185m 12500	<b>10232</b>	8220	10599

## CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >50	<b>15</b>	20	42
Sodium	ppm	ASTM D5185m	<b>44</b>	71	155
Potassium	ppm	ASTM D5185m >20	<b>3</b>	3	4

## FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >20000	<b>▲ 117393</b>	▲ 149849	▲ 248920
Particles >6µm	ASTM D7647 >5000	<b>▲ 27813</b>	▲ 28183	▲ 165379
Particles >14µm	ASTM D7647 >640	<b>140</b>	102	▲ 4938
Particles >21µm	ASTM D7647 >160	<b>19</b>	10	▲ 309
Particles >38µm	ASTM D7647 >40	<b>0</b>	1	2
Particles >71µm	ASTM D7647 >10	<b>0</b>	1	0
Oil Cleanliness	ISO 4406 (c) >21/19/16	<b>▲ 24/22/14</b>	▲ 24/22/14	▲ 25/25/19

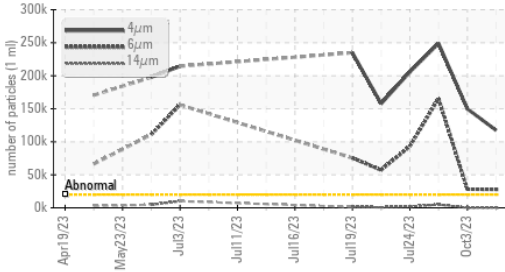
## FLUID DEGRADATION

method	limit/base	current	history1	history2	
Acid Number (AN)	mg KOH/g	ASTM D8045 0.85	<b>0.48</b>	0.46	0.46

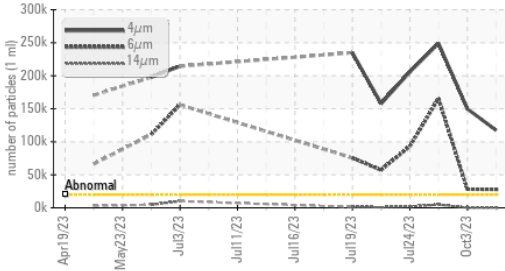


# OIL ANALYSIS REPORT

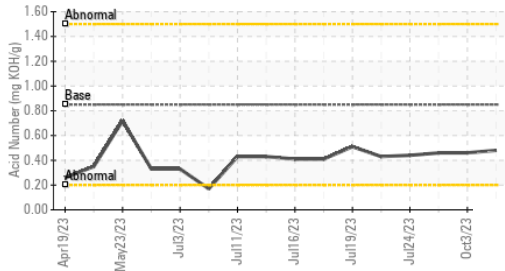
### ▲ Particle Trend



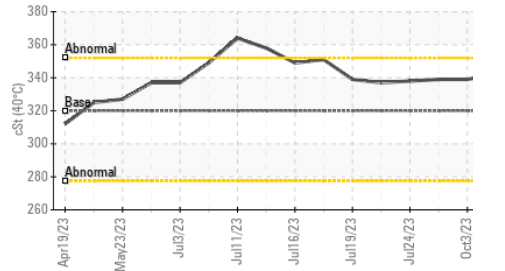
### ▲ Particle Trend



### Acid Number



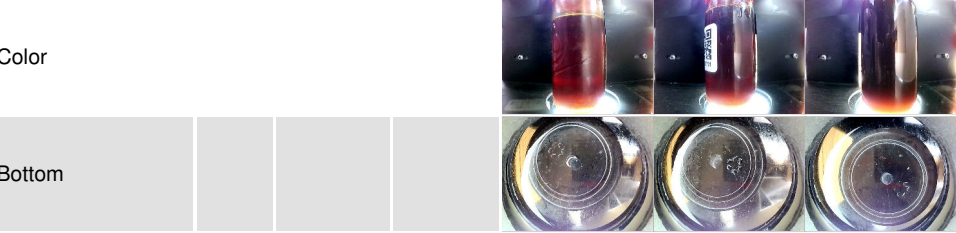
### Viscosity @ 40°C



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	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

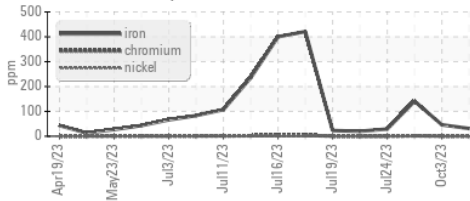
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445 320	<b>342</b>	339	339

SAMPLE IMAGES	method	limit/base	current	history1	history2
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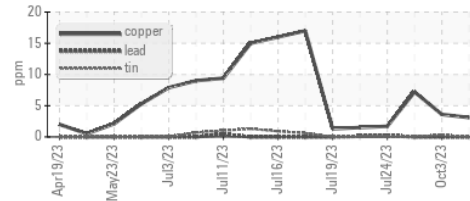


### GRAPHS

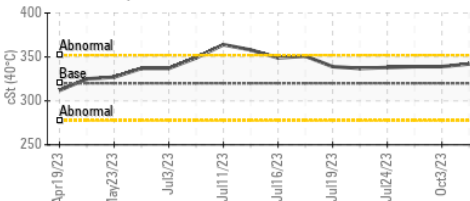
#### Ferrous Alloys



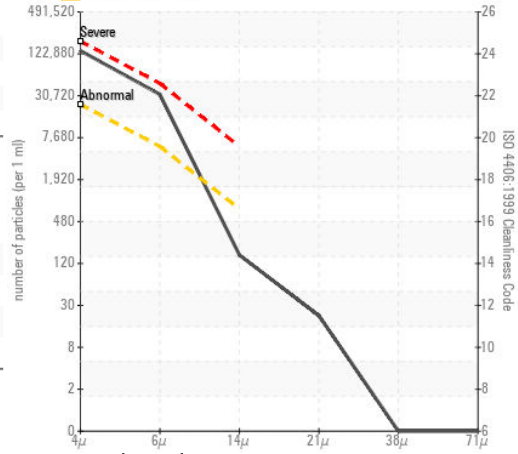
#### Non-ferrous Metals



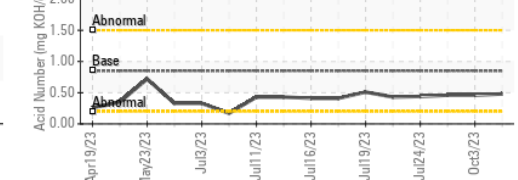
#### Viscosity @ 40°C



#### ▲ Particle Count



#### Acid Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : KL0012925 **Received** : 02 Nov 2023  
**Lab Number** : 05997343 **Diagnosed** : 05 Nov 2023  
**Unique Number** : 10725703 **Diagnostician** : Don Baldrige  
**Test Package** : MOB 2 ( Additional Tests: PrtCount )

**PATTERSON - UTI DRILLING**  
 9915 WEST INDUSTRIAL  
 MIDLAND, TX  
 US 79706  
 Contact: RICKY MATA  
 ricky.mata@patenergy.com  
 T: (832)219-4559  
 F: (432)561-9388

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)