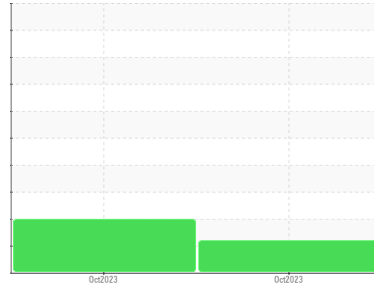




# OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area  
**RIG 813**  
Machine Id  
**R813-MP-2**  
Component  
**Gearbox**  
Fluid  
**GEAR OIL ISO 320 (--- GAL)**

## DIAGNOSIS

### Recommendation

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) GEAR OIL ISO 320. Please confirm. Please specify the component make and model with your next sample.

### Wear

All component wear rates are normal.

### Contamination

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.

### 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 INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>KL0012926</b>	KL0012736	---
Sample Date	Client Info	<b>24 Oct 2023</b>	18 Oct 2023	---
Machine Age	hrs	Client Info	0	---
Oil Age	hrs	Client Info	0	---
Oil Changed	Client Info	<b>N/A</b>	N/A	---
Sample Status		<b>ABNORMAL</b>	ABNORMAL	---

## WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >200	<b>13</b>	78	---
Chromium	ppm	ASTM D5185m >10	<b>&lt;1</b>	<1	---
Nickel	ppm	ASTM D5185m >10	<b>&lt;1</b>	<1	---
Titanium	ppm	ASTM D5185m	<b>0</b>	<1	---
Silver	ppm	ASTM D5185m	<b>0</b>	0	---
Aluminum	ppm	ASTM D5185m >25	<b>&lt;1</b>	11	---
Lead	ppm	ASTM D5185m >50	<b>1</b>	4	---
Copper	ppm	ASTM D5185m >200	<b>97</b>	61	---
Tin	ppm	ASTM D5185m >10	<b>&lt;1</b>	2	---
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	---
Cadmium	ppm	ASTM D5185m	<b>&lt;1</b>	0	---

## ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m 50	<b>&lt;1</b>	17	---
Barium	ppm	ASTM D5185m 15	<b>3</b>	16	---
Molybdenum	ppm	ASTM D5185m 15	<b>&lt;1</b>	<1	---
Manganese	ppm	ASTM D5185m	<b>0</b>	<1	---
Magnesium	ppm	ASTM D5185m 50	<b>2</b>	12	---
Calcium	ppm	ASTM D5185m 50	<b>7</b>	50	---
Phosphorus	ppm	ASTM D5185m 350	<b>179</b>	199	---
Zinc	ppm	ASTM D5185m 100	<b>42</b>	72	---
Sulfur	ppm	ASTM D5185m 12500	<b>13819</b>	9223	---

## CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >50	<b>11</b>	44	---
Sodium	ppm	ASTM D5185m	<b>1</b>	57	---
Potassium	ppm	ASTM D5185m >20	<b>3</b>	6	---

## FLUID CLEANLINESS

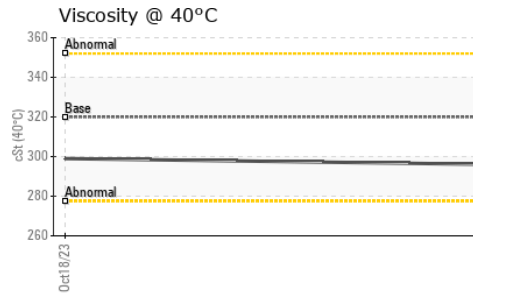
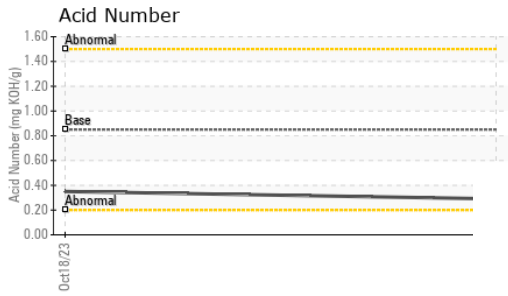
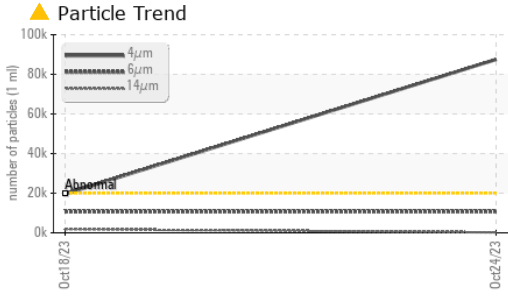
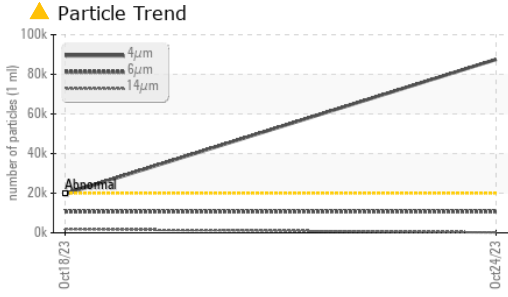
method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >20000	<b>▲ 87534</b>	19600	---
Particles >6µm	ASTM D7647 >5000	<b>▲ 10760</b>	▲ 10677	---
Particles >14µm	ASTM D7647 >640	<b>183</b>	▲ 1817	---
Particles >21µm	ASTM D7647 >160	<b>31</b>	▲ 612	---
Particles >38µm	ASTM D7647 >40	<b>0</b>	▲ 94	---
Particles >71µm	ASTM D7647 >10	<b>0</b>	10	---
Oil Cleanliness	ISO 4406 (c) >21/19/16	<b>▲ 24/21/15</b>	▲ 21/21/18	---

## FLUID DEGRADATION

method	limit/base	current	history1	history2	
Acid Number (AN)	mg KOH/g	ASTM D8045 0.85	<b>0.29</b>	0.35	---



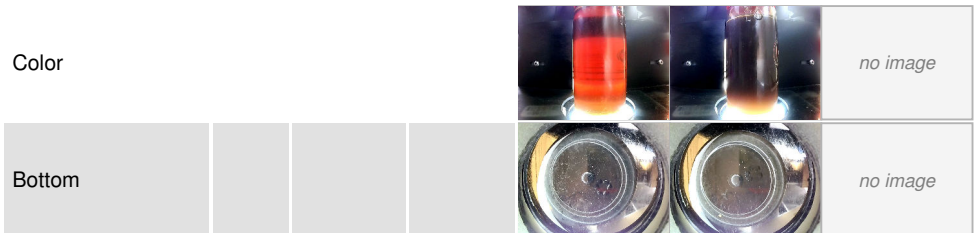
# OIL ANALYSIS REPORT



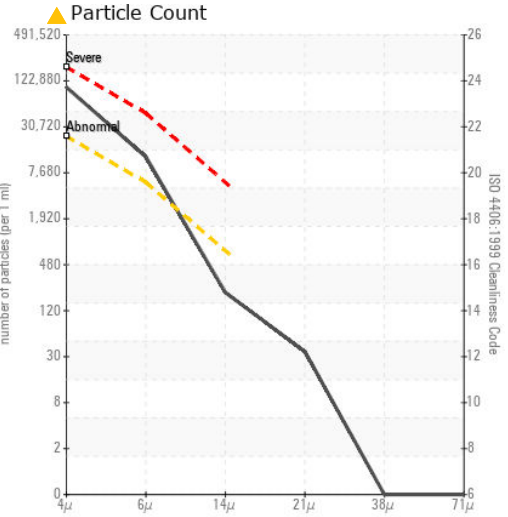
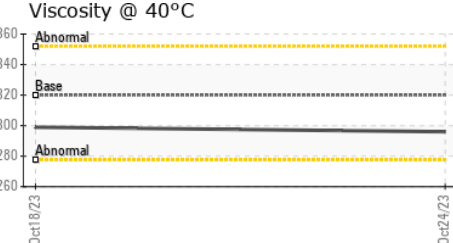
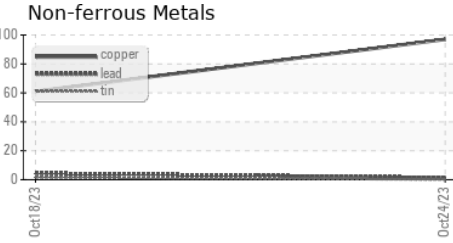
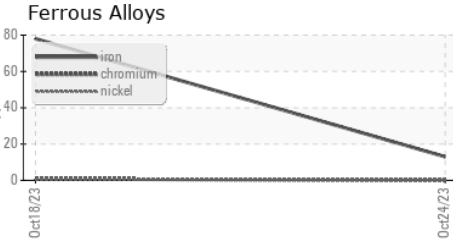
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
Silt	scalar	*Visual	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.2	NEG	0.2%
Free Water	scalar	*Visual		NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445 320	296	299	---

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



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : KL0012926 **Received** : 02 Nov 2023  
**Lab Number** : 05997345 **Diagnosed** : 03 Nov 2023  
**Unique Number** : 10725705 **Diagnostician** : Wes Davis  
**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

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)