



OIL ANALYSIS REPORT

Sample Rating Trend

WATER



Area
RIG 244
 Machine Id
R244-MP-03
 Component
Gearbox
 Fluid
NOT GIVEN (--- GAL)



DIAGNOSIS

Recommendation

We advise that you check all areas where dirt can enter the system. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. Please specify the brand, type, and viscosity of the oil on your next sample. We were unable to perform a particle count due to a high concentration of particles present in this sample.

Wear

Gear wear is indicated.

Contamination

Appearance is milky. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. There is a high concentration of water present in the oil. Moderate concentration of visible dirt/debris present in the oil.

Fluid Condition

The AN level is acceptable for this fluid. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		KL0013153	---	---
Sample Date	Client Info		01 Nov 2023	---	---
Machine Age	Client Info		0	---	---
Oil Age	Client Info		0	---	---
Oil Changed	Client Info		N/A	---	---
Sample Status			SEVERE	---	---

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >20	▲ 122	---	---
Chromium	ppm	ASTM D5185m >10	<1	---	---
Nickel	ppm	ASTM D5185m >10	<1	---	---
Titanium	ppm	ASTM D5185m	<1	---	---
Silver	ppm	ASTM D5185m	0	---	---
Aluminum	ppm	ASTM D5185m >10	▲ 17	---	---
Lead	ppm	ASTM D5185m >10	0	---	---
Copper	ppm	ASTM D5185m >75	8	---	---
Tin	ppm	ASTM D5185m >10	0	---	---
Vanadium	ppm	ASTM D5185m	0	---	---
Cadmium	ppm	ASTM D5185m	0	---	---

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	19	---	---
Barium	ppm	ASTM D5185m	48	---	---
Molybdenum	ppm	ASTM D5185m	0	---	---
Manganese	ppm	ASTM D5185m	<1	---	---
Magnesium	ppm	ASTM D5185m	16	---	---
Calcium	ppm	ASTM D5185m	97	---	---
Phosphorus	ppm	ASTM D5185m	163	---	---
Zinc	ppm	ASTM D5185m	44	---	---
Sulfur	ppm	ASTM D5185m	7586	---	---

CONTAMINANTS

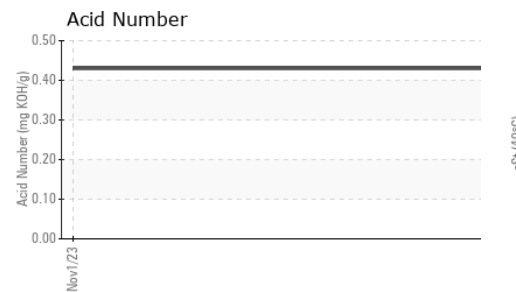
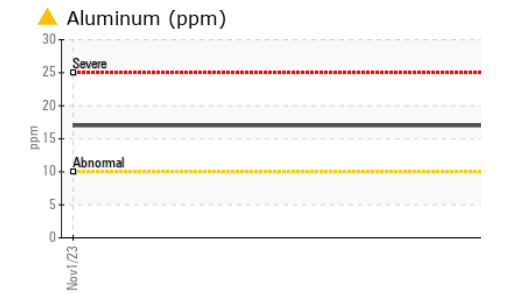
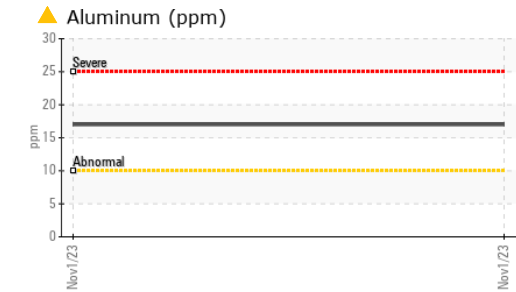
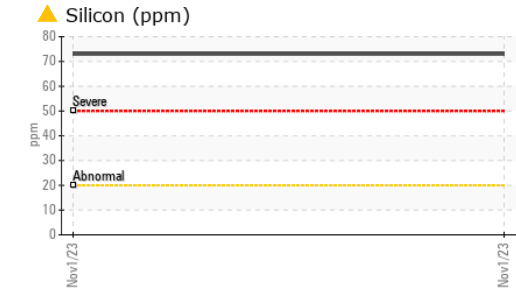
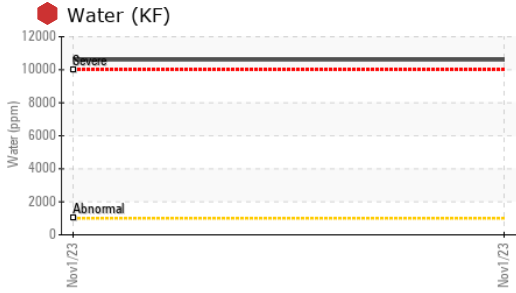
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >20	▲ 73	---	---
Sodium	ppm	ASTM D5185m	276	---	---
Potassium	ppm	ASTM D5185m >20	27	---	---
Water	%	ASTM D6304 >0.1	● 1.06	---	---
ppm Water	ppm	ASTM D6304 >1000	● 10600	---	---

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.43	---	---



OIL ANALYSIS REPORT



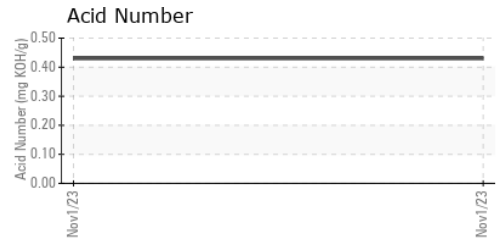
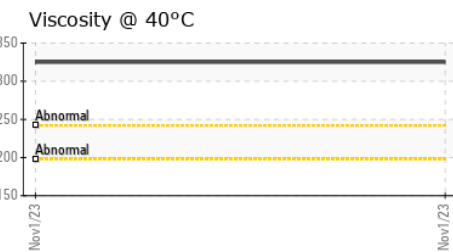
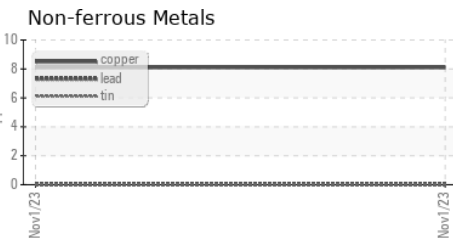
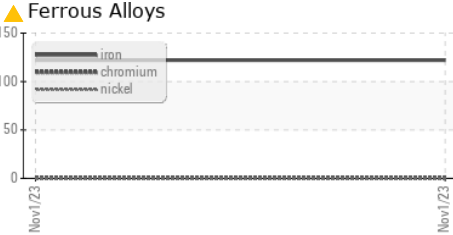
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
Silt	scalar	*Visual	NONE	▲ MODER	---
Debris	scalar	*Visual	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---
Appearance	scalar	*Visual	NORML	▲ MILKY	---
Odor	scalar	*Visual	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.1	◆ 0.2%	---
Free Water	scalar	*Visual		NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	325	---	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
---------------	--------	------------	---------	----------	----------

Color		no image	no image
Bottom		no image	no image

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0013153 **Received** : 06 Nov 2023
Lab Number : 05999027 **Diagnosed** : 08 Nov 2023
Unique Number : 10727387 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: KF, PrtCount)

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)

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