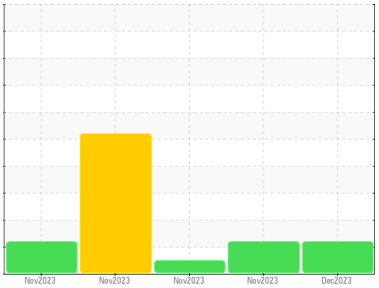
OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
RIG 816
Machine Id
R816-MP-02
Component
Gearbox
Fluid
NOT GIVEN (--- GAL)

DIAGNOSIS

Recommendation

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 diagnostic comment updates.

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		**KL0013156**	KL0013028	KL0013023
Sample Date		Client Info		**01 Dec 2023**	14 Nov 2023	10 Nov 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	---

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	**32**	36	30
Chromium	ppm	ASTM D5185m	>10	**<1**	<1	0
Nickel	ppm	ASTM D5185m	>10	**<1**	0	0
Titanium	ppm	ASTM D5185m		**<1**	<1	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	**1**	2	2
Lead	ppm	ASTM D5185m	>50	**0**	0	0
Copper	ppm	ASTM D5185m	>200	**24**	23	21
Tin	ppm	ASTM D5185m	>10	**0**	0	0
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

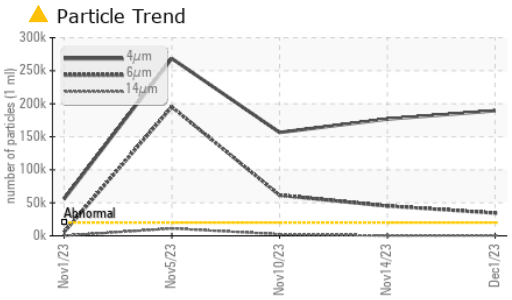
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**<1**	<1	<1
Barium	ppm	ASTM D5185m		**0**	0	<1
Molybdenum	ppm	ASTM D5185m		**<1**	0	0
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**1**	0	0
Calcium	ppm	ASTM D5185m		**24**	12	16
Phosphorus	ppm	ASTM D5185m		**133**	124	123
Zinc	ppm	ASTM D5185m		**33**	31	40
Sulfur	ppm	ASTM D5185m		**8565**	7162	7527

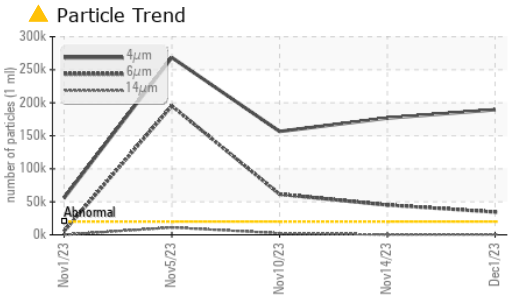
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**12**	10	14
Sodium	ppm	ASTM D5185m		**6**	15	12
Potassium	ppm	ASTM D5185m	>20	**2**	<1	<1

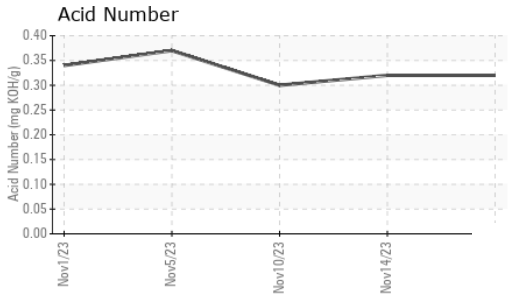
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	▲ **189400**	▲ 176787	▲ 156542
Particles >6µm		ASTM D7647	>5000	▲ **34425**	▲ 45122	▲ 61493
Particles >14µm		ASTM D7647	>640	**470**	350	▲ 2321
Particles >21µm		ASTM D7647	>160	**58**	25	▲ 266
Particles >38µm		ASTM D7647	>40	**1**	0	3
Particles >71µm		ASTM D7647	>10	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **25/22/16**	▲ 25/23/16	▲ 24/23/18

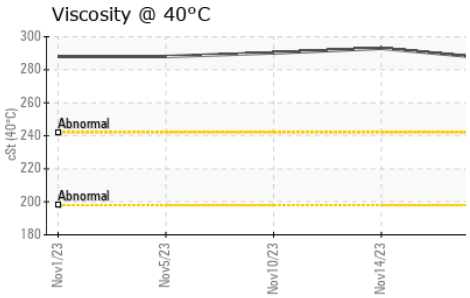
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.32**	0.32	0.30

OIL ANALYSIS REPORT



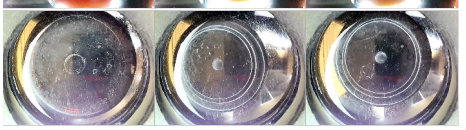




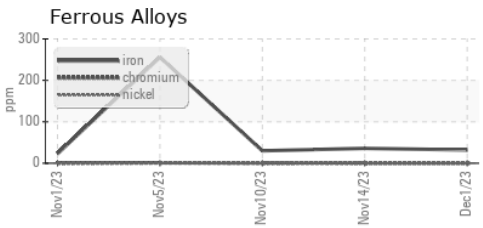


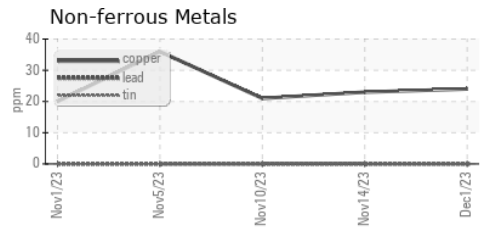
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

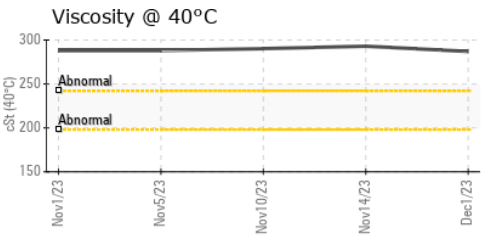
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445		**287**	293	290.2

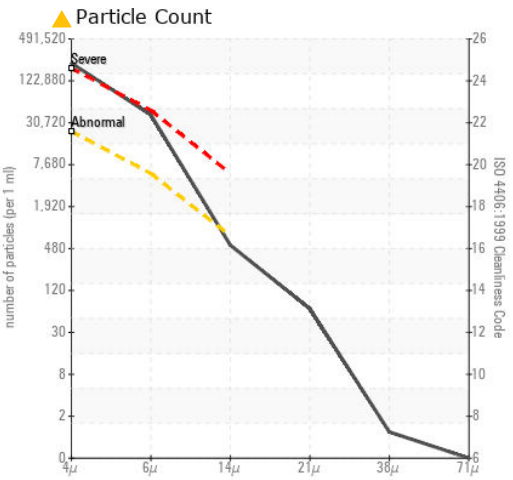
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

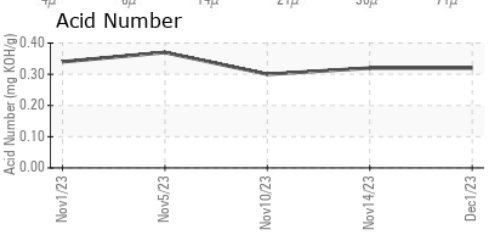
GRAPHS











Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0013156 **Received** : 07 Dec 2023
Lab Number : 06027704 **Diagnosed** : 08 Dec 2023
Unique Number : 10777495 **Diagnostician** : Doug Bogart
Test Package : MOB 2 (Additional Tests: 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