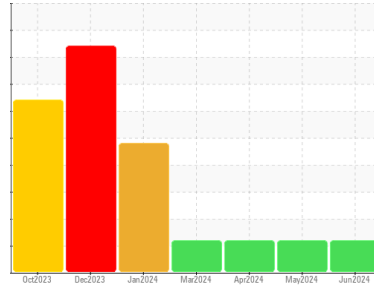




OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area
RIG 274
 Machine Id
R274-MP-03
 Component
Gearbox
 Fluid
 {not provided} (--- GAL)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on 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			KL0014481	KL0014284	KL0014294
Sample Date	Client Info			11 Jun 2024	06 May 2024	02 Apr 2024
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	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	22	9	15
Chromium	ppm	ASTM D5185m	>10	0	0	0
Nickel	ppm	ASTM D5185m	>10	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	<1	0
Aluminum	ppm	ASTM D5185m	>25	5	3	0
Lead	ppm	ASTM D5185m	>50	0	0	0
Copper	ppm	ASTM D5185m	>200	4	4	3
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		3	0	0
Barium	ppm	ASTM D5185m		0	<1	<1
Molybdenum	ppm	ASTM D5185m		0	0	0
Manganese	ppm	ASTM D5185m		<1	0	0
Magnesium	ppm	ASTM D5185m		4	1	<1
Calcium	ppm	ASTM D5185m		21	26	10
Phosphorus	ppm	ASTM D5185m		123	135	123
Zinc	ppm	ASTM D5185m		24	16	0
Sulfur	ppm	ASTM D5185m		10770	9682	9379

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	19	17	8
Sodium	ppm	ASTM D5185m		9	2	6
Potassium	ppm	ASTM D5185m	>20	5	1	0

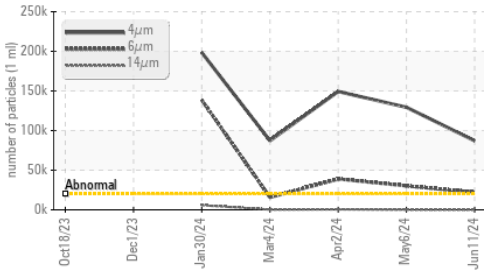
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	▲ 87152	▲ 129409	▲ 149313	
Particles >6µm	ASTM D7647	>5000	▲ 22135	▲ 30242	▲ 38955	
Particles >14µm	ASTM D7647	>640	148	158	625	
Particles >21µm	ASTM D7647	>160	20	15	112	
Particles >38µm	ASTM D7647	>40	1	0	2	
Particles >71µm	ASTM D7647	>10	0	0	0	
Oil Cleanliness	ISO 4406 (c)	>21/19/16	▲ 24/22/14	▲ 24/22/14	▲ 24/22/16	

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.43	0.35	0.36

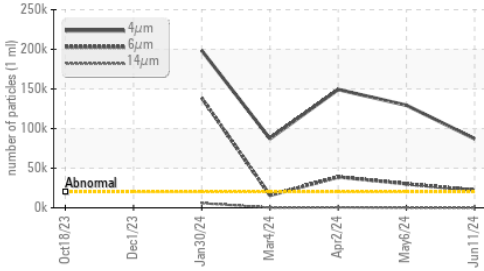


OIL ANALYSIS REPORT

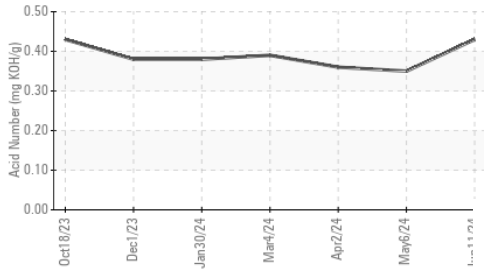
▲ Particle Trend



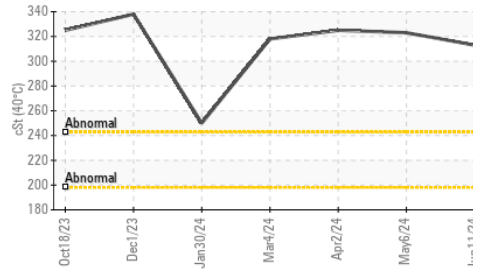
▲ Particle Trend



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	313	323	325

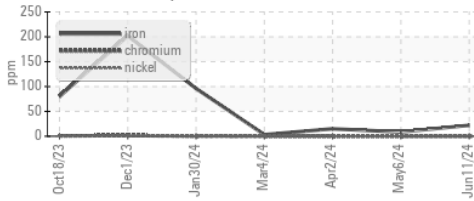
SAMPLE IMAGES

Color

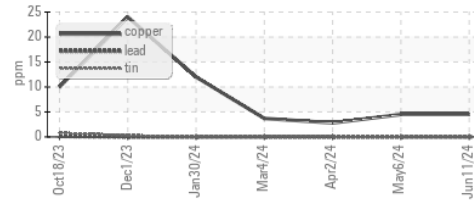
Bottom

GRAPHS

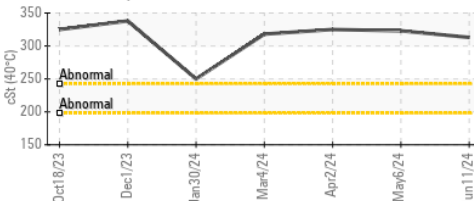
Ferrous Alloys



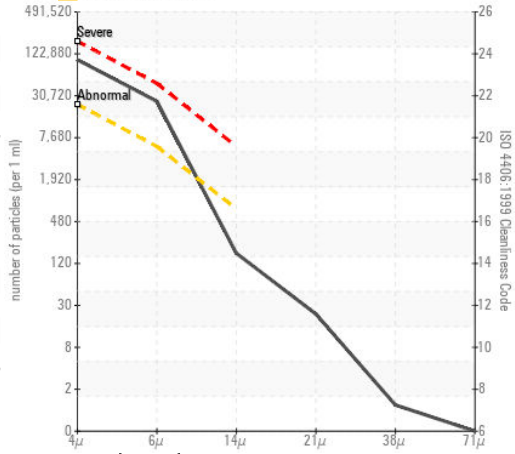
Non-ferrous Metals



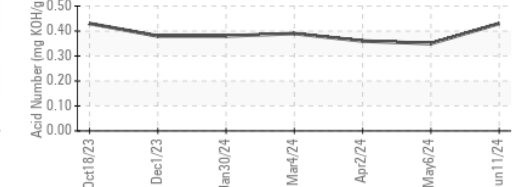
Viscosity @ 40°C



▲ Particle Count



Acid Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0014481 **Received** : 20 Jun 2024
Lab Number : 06215785 **Tested** : 21 Jun 2024
Unique Number : 11088649 **Diagnosed** : 21 Jun 2024 - 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

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)