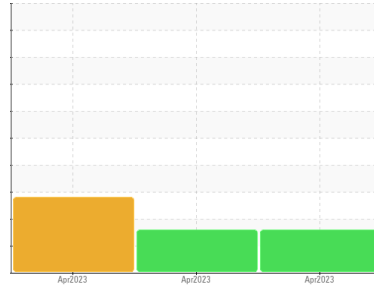




# OIL ANALYSIS REPORT

## Sample Rating Trend



ISO



Area  
**RIG 879**  
 Machine Id  
**R879-P-01**  
 Component  
**Pump Drive**  
 Fluid  
**NOT GIVEN (--- GAL)**

### DIAGNOSIS

#### Recommendation

We recommend you service the filters on this component. Please specify the brand, type, and viscosity of the oil on your next sample. Please note that this is a corrected copy.

#### Wear

All component wear rates are normal.

#### Contamination

There is a high amount of particulates present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

#### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

### SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>KL0012418</b>	KL0009708	KL0011839
Sample Date	Client Info		<b>23 Apr 2023</b>	19 Apr 2023	16 Apr 2023
Machine Age	days	Client Info	<b>45039</b>	45035	45027
Oil Age	days	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>N/A</b>	Not Changd	N/A
Sample Status			<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

### WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >500	<b>70</b>	85	117
Chromium	ppm	ASTM D5185m >15	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185m >10	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >20	<b>6</b>	10	12
Lead	ppm	ASTM D5185m	<b>0</b>	0	0
Copper	ppm	ASTM D5185m >35	<b>4</b>	4	5
Tin	ppm	ASTM D5185m >4	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

### ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>0</b>	0	4
Barium	ppm	ASTM D5185m	<b>4</b>	5	11
Molybdenum	ppm	ASTM D5185m	<b>9</b>	10	12
Manganese	ppm	ASTM D5185m	<b>0</b>	<1	1
Magnesium	ppm	ASTM D5185m	<b>9</b>	14	25
Calcium	ppm	ASTM D5185m	<b>502</b>	597	714
Phosphorus	ppm	ASTM D5185m	<b>31</b>	34	39
Zinc	ppm	ASTM D5185m	<b>19</b>	14	20
Sulfur	ppm	ASTM D5185m	<b>8531</b>	9421	9304

### CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >75	<b>40</b>	50	▲ 63
Sodium	ppm	ASTM D5185m	<b>284</b>	383	430
Potassium	ppm	ASTM D5185m >20	<b>5</b>	4	5

### FLUID CLEANLINESS

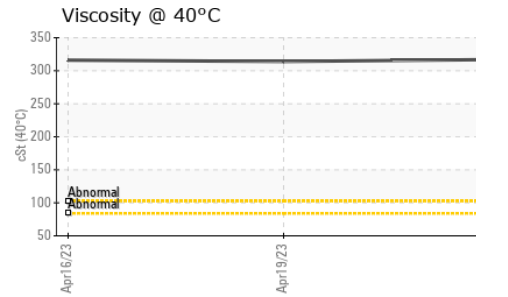
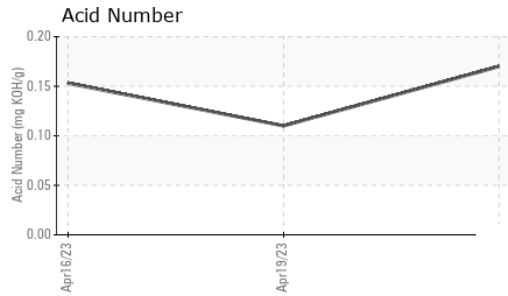
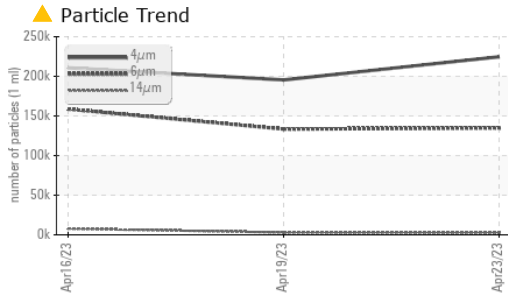
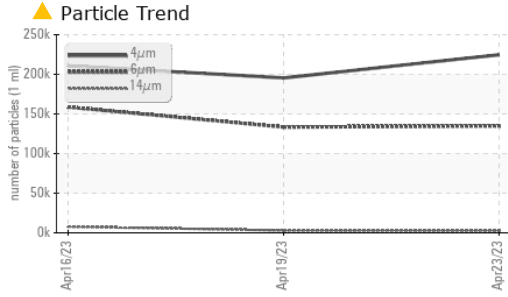
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>224656</b>	195447	210765
Particles >6µm	ASTM D7647	>5000	▲ <b>134880</b>	▲ 133368	▲ 158621
Particles >14µm	ASTM D7647	>640	▲ <b>2590</b>	▲ 2875	▲ 7757
Particles >21µm	ASTM D7647	>160	▲ <b>218</b>	▲ 82	95
Particles >38µm	ASTM D7647	>40	<b>2</b>	1	1
Particles >71µm	ASTM D7647	>10	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>19/16	▲ <b>24/19</b>	▲ 24/19	▲ 24/20

### FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>0.17</b>	0.11	0.153



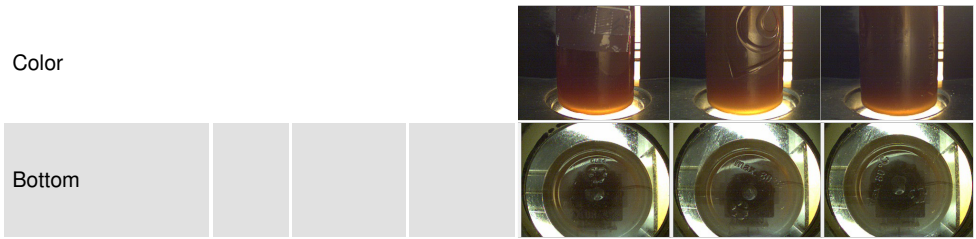
# OIL ANALYSIS REPORT



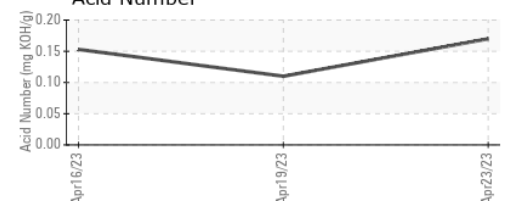
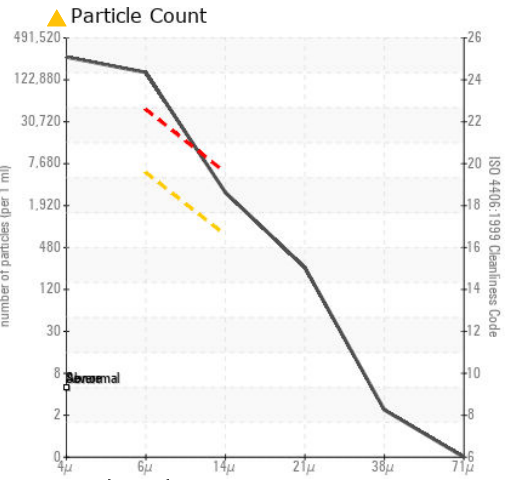
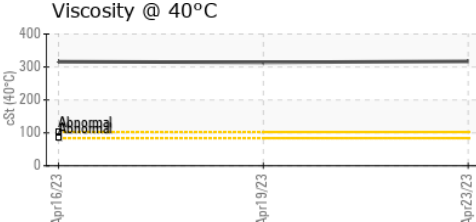
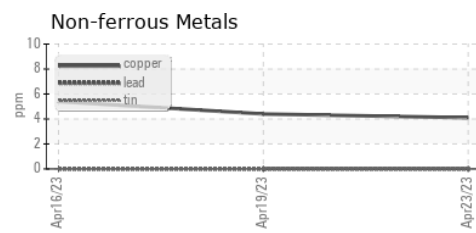
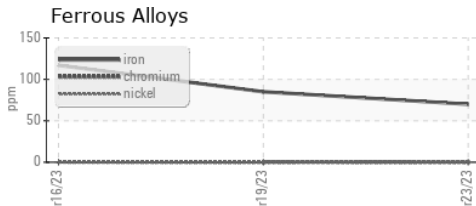
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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	317	314	316

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



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : KL0012418 Received : 01 May 2023  
 Lab Number : 05833876 Diagnosed : 03 May 2023  
 Unique Number : 10452679 Diagnostician : Doug Bogart  
 Test Package : MOB 2 ( Additional Tests: PrtCount )

**PATTERSON - UTI DRILLING**  
 9915 WEST INDUSTRIAL  
 MIDLAND, TX  
 US 79706  
 Contact: MICHEAL EASTMAN  
 micheal.eastman@patenergy.com  
 T: (325)716-8686  
 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)