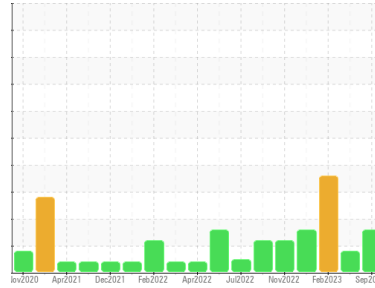




# OIL ANALYSIS REPORT

Sample Rating Trend



## VISCOSITY



Area  
**RIG 6**  
 Machine Id  
**R6-P-03G NKL**  
 Component  
**Gearbox**  
 Fluid  
**GEAR OIL ISO 320 (--- GAL)**

### DIAGNOSIS

#### ▲ Recommendation

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### ▲ Contamination

There is a high amount of particulates present in the oil.

#### ▲ Fluid Condition

The oil viscosity is higher than normal. Confirm oil type. The AN level is acceptable for this fluid.

### SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>KL0012956</b>	KL0012705	KLM2328905
Sample Date	Client Info		<b>13 Sep 2023</b>	28 Jul 2023	08 Feb 2023
Machine Age	days	Client Info	<b>45180</b>	45134	44960
Oil Age	days	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>N/A</b>	N/A	N/A
Sample Status			<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

### WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >200	<b>13</b>	23	40
Chromium	ppm	ASTM D5185m >10	<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 >25	<b>&lt;1</b>	6	▲ 18
Lead	ppm	ASTM D5185m >50	<b>0</b>	0	0
Copper	ppm	ASTM D5185m >200	<b>6</b>	4	14
Tin	ppm	ASTM D5185m >10	<b>0</b>	0	<1
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 50	<b>3</b>	10	0
Barium	ppm	ASTM D5185m 15	<b>0</b>	15	52
Molybdenum	ppm	ASTM D5185m 15	<b>0</b>	0	<1
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m 50	<b>25</b>	32	30
Calcium	ppm	ASTM D5185m 50	<b>59</b>	96	239
Phosphorus	ppm	ASTM D5185m 350	<b>188</b>	256	120
Zinc	ppm	ASTM D5185m 100	<b>1</b>	2	26
Sulfur	ppm	ASTM D5185m 12500	<b>7013</b>	9531	7170

### CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	<b>20</b>	28	▲ 85
Sodium	ppm	ASTM D5185m	<b>229</b>	260	654
Potassium	ppm	ASTM D5185m >20	<b>6</b>	8	27

### FLUID CLEANLINESS

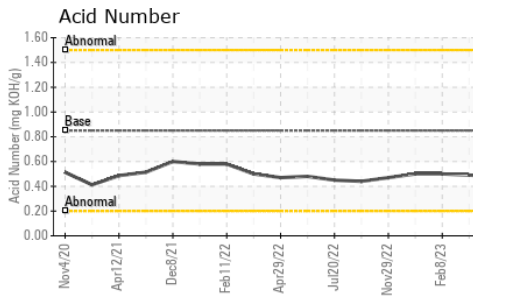
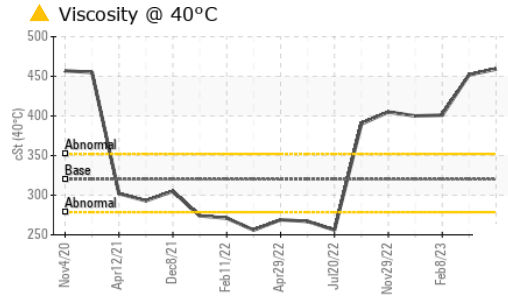
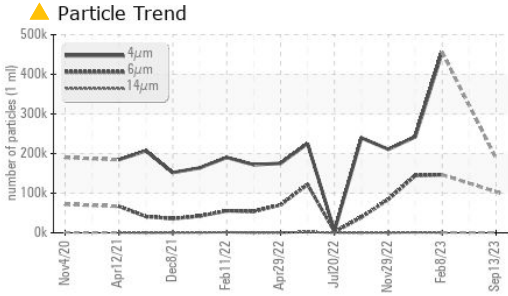
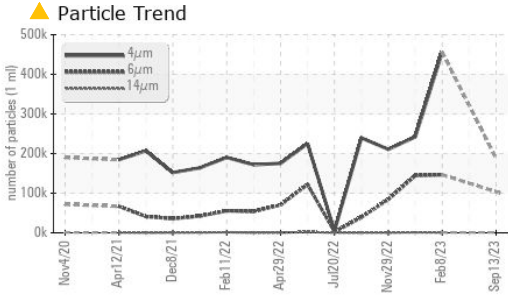
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>188337</b>	---	455657
Particles >6µm	ASTM D7647	>5000	▲ <b>103510</b>	---	▲ 146538
Particles >14µm	ASTM D7647	>640	▲ <b>840</b>	---	444
Particles >21µm	ASTM D7647	>160	<b>22</b>	---	32
Particles >38µm	ASTM D7647	>40	<b>0</b>	---	0
Particles >71µm	ASTM D7647	>10	<b>0</b>	---	0
Oil Cleanliness	ISO 4406 (c)	>19/16	▲ <b>24/17</b>	---	▲ 24/16

### FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045 0.85	<b>0.48</b>	0.49	0.50



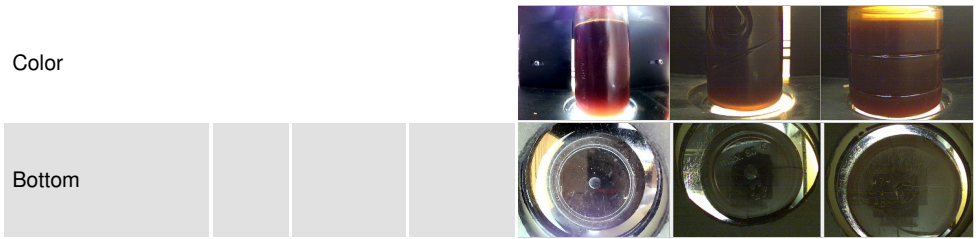
# OIL ANALYSIS REPORT



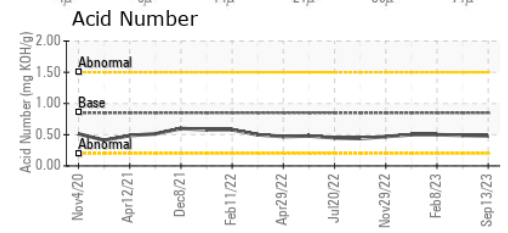
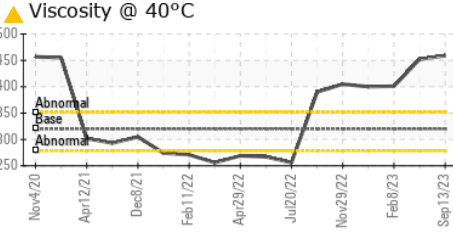
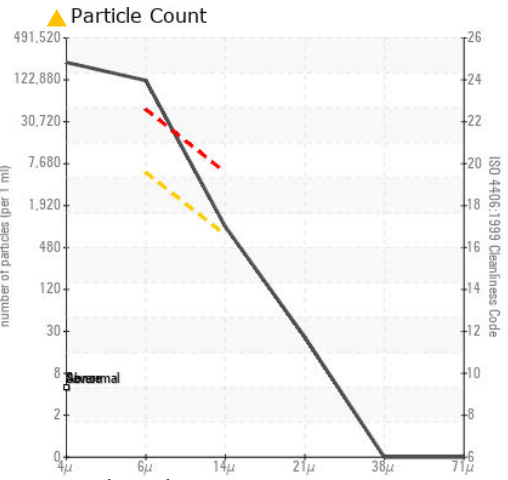
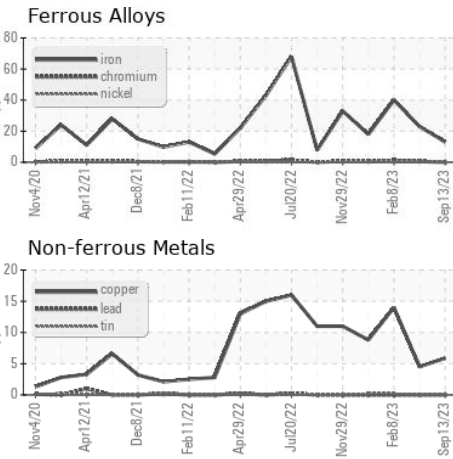
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	▲ 459	▲ 452

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



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : KL0012956 **Received** : 29 Sep 2023  
**Lab Number** : 05965361 **Diagnosed** : 02 Oct 2023  
**Unique Number** : 10671912 **Diagnostician** : Don Baldrige  
**Test Package** : MOB 2 ( Additional Tests: PrtCount )

**CITADEL DRILLING**  
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 ODESSA, TX  
 US 79763  
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 mcombden@citadelldrilling.com  
 T: (780)955-5509  
 F:

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)