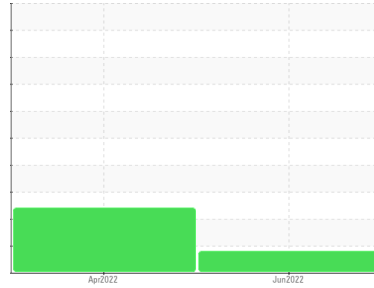




OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area
RIG 2
 Machine Id
R2-TD-DW-NKL
 Component
Gearbox
 Fluid
GEAR OIL ISO 320 (--- GAL)

DIAGNOSIS

▲ Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

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 acceptable for the time in service.

SAMPLE INFORMATION	method	limit/base	current	history1	history2
Sample Number	Client Info		KL0008009	KL0004437	---
Sample Date	Client Info		02 Jun 2022	01 Apr 2022	---
Machine Age	days	Client Info	44721	44649	---
Oil Age	days	Client Info	0	0	---
Oil Changed	Client Info		N/A	N/A	---
Sample Status			ABNORMAL	ABNORMAL	---

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

WEAR METALS	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >200	21	▲ 306	---
Chromium	ppm	ASTM D5185m >10	0	<1	---
Nickel	ppm	ASTM D5185m	0	1	---
Titanium	ppm	ASTM D5185m	0	<1	---
Silver	ppm	ASTM D5185m	<1	0	---
Aluminum	ppm	ASTM D5185m >25	1	8	---
Lead	ppm	ASTM D5185m >50	<1	<1	---
Copper	ppm	ASTM D5185m >200	2	11	---
Tin	ppm	ASTM D5185m >10	0	1	---
Vanadium	ppm	ASTM D5185m	0	0	---
Cadmium	ppm	ASTM D5185m	0	0	---

ADDITIVES	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 50	41	70	---
Barium	ppm	ASTM D5185m 15	2	0	---
Molybdenum	ppm	ASTM D5185m 15	27	12	---
Manganese	ppm	ASTM D5185m	<1	4	---
Magnesium	ppm	ASTM D5185m 50	<1	41	---
Calcium	ppm	ASTM D5185m 50	4	147	---
Phosphorus	ppm	ASTM D5185m 350	239	442	---
Zinc	ppm	ASTM D5185m 100	8	67	---
Sulfur	ppm	ASTM D5185m 12500	7380	6363	---

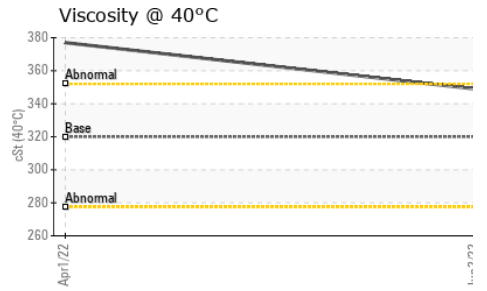
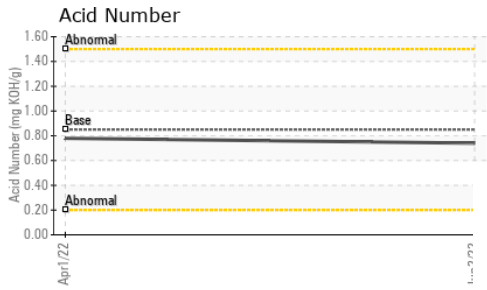
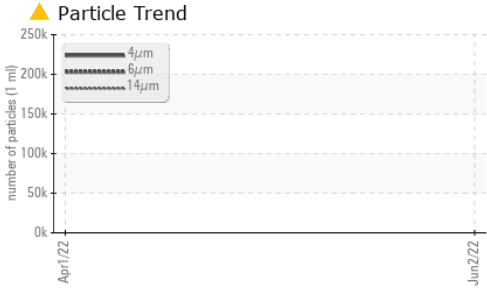
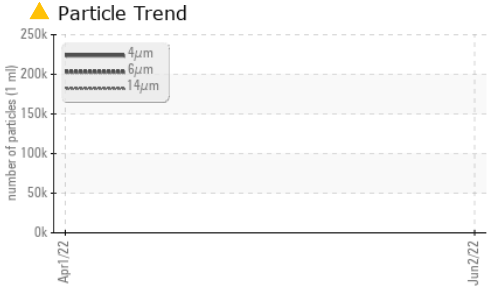
CONTAMINANTS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	4	22	---
Sodium	ppm	ASTM D5185m	0	3	---
Potassium	ppm	ASTM D5185m >20	2	0	---

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		211194	---	---
Particles >6µm	ASTM D7647	>5000	▲ 46489	---	---
Particles >14µm	ASTM D7647	>640	371	---	---
Particles >21µm	ASTM D7647	>160	42	---	---
Particles >38µm	ASTM D7647	>40	2	---	---
Particles >71µm	ASTM D7647	>10	0	---	---
Oil Cleanliness	ISO 4406 (c)	>19/16	▲ 23/16	---	---

FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045 0.85	0.74	0.78	---



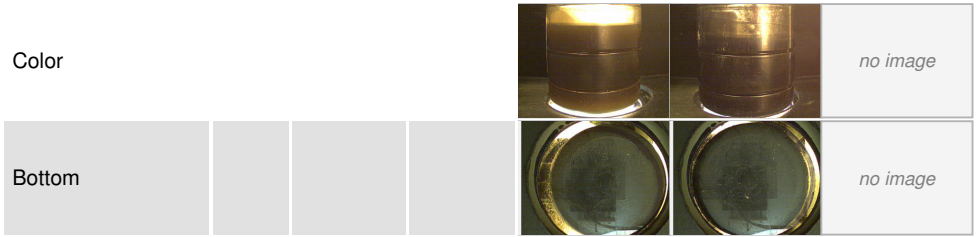
OIL ANALYSIS REPORT



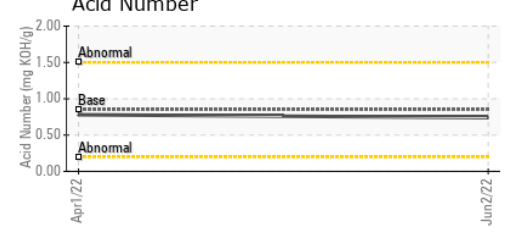
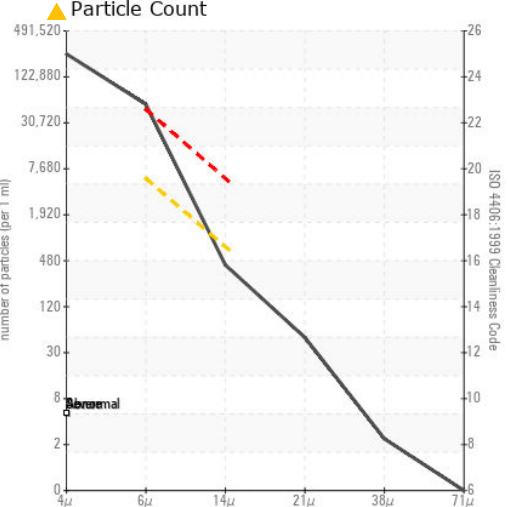
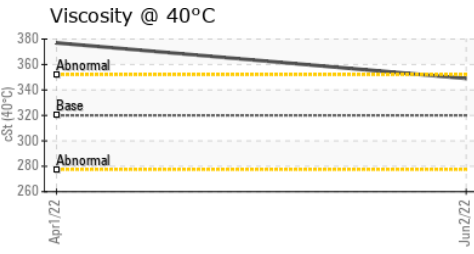
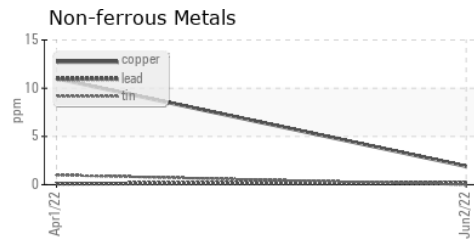
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	▲ MODER	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
Silt	scalar	*Visual	NONE	LIGHT	---
Debris	scalar	*Visual	NONE	LIGHT	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---
Appearance	scalar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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445 320	349	▲ 377	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0008009 **Received** : 13 Jun 2022
Lab Number : 05567149 **Tested** : 14 Jun 2022
Unique Number : 10011549 **Diagnosed** : 15 Jun 2022 - Don Baldrige
Test Package : MOB 2 (Additional Tests: PrtCount)

CITADEL DRILLING
 7550 W I20
 ODESSA, TX
 US 79763

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)