



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
RIG 2
Machine Id
Component
R2-TD-HYD
Component
Hydraulic System
Fluid
AW HYDRAULIC OIL ISO 32 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0014436	KL0014237	KL0013897
Sample Date		Client Info		16 Jun 2024	03 Apr 2024	15 Feb 2024
Machine Age	days	Client Info		45449	45375	45337
Oil Age	days	Client Info		0	0	0
Filter Age	days	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>20	0	0	0
Chromium	ppm	ASTM D5185m	>10	0	0	0
Nickel	ppm	ASTM D5185m	>10	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	0	1	0
Lead	ppm	ASTM D5185m	>10	0	0	0
Copper	ppm	ASTM D5185m	>75	0	<1	<1
Tin	ppm	ASTM D5185m	>10	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

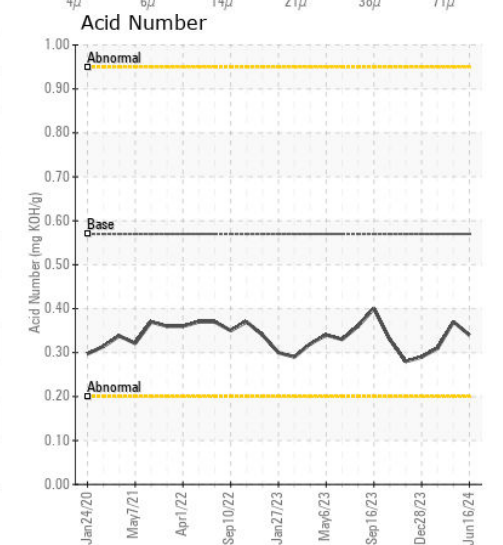
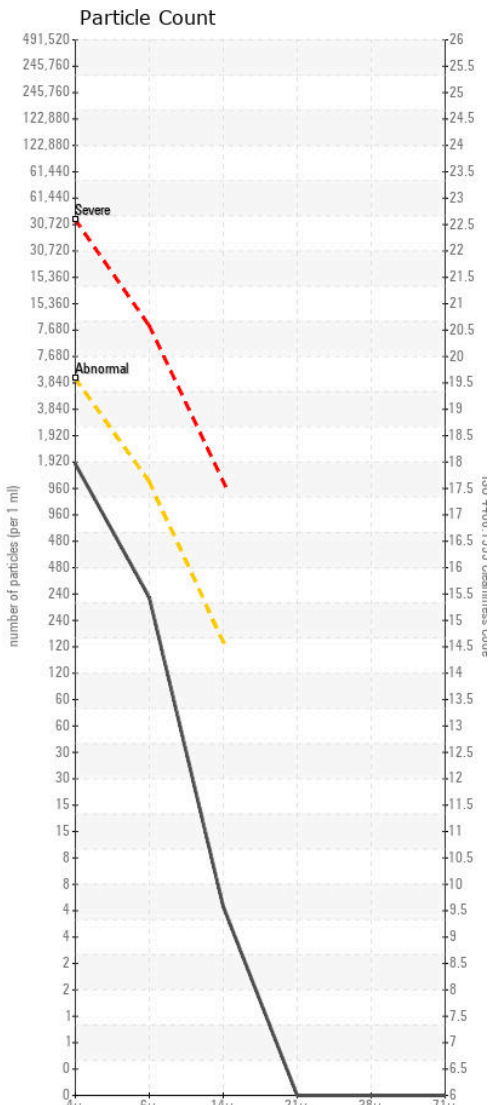
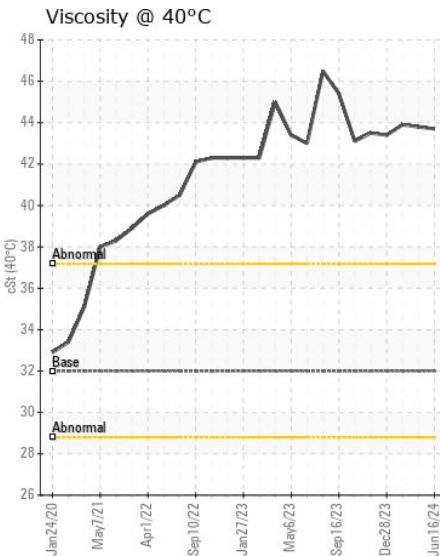
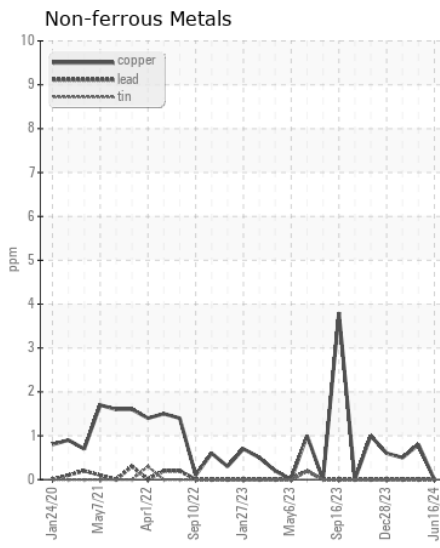
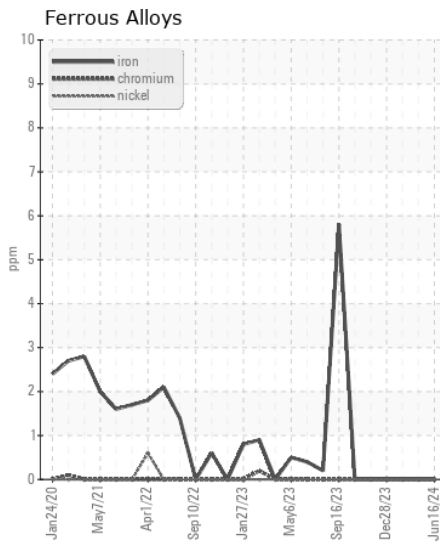
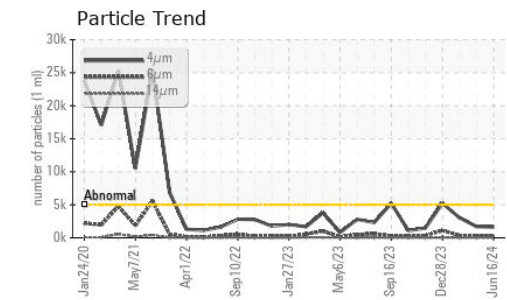
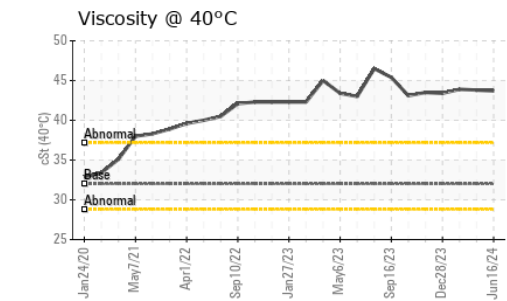
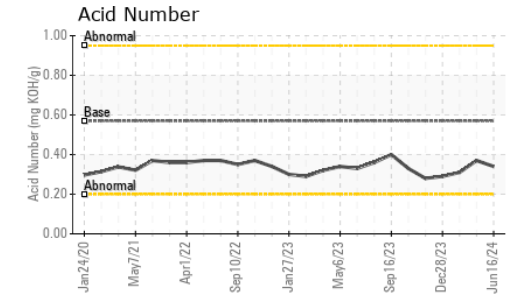
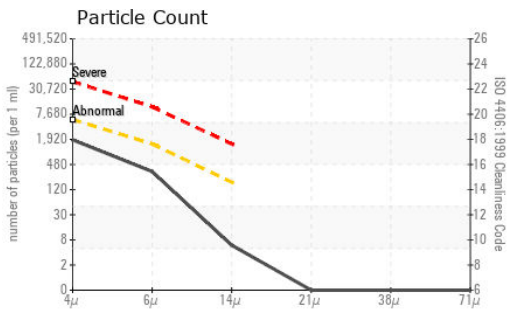
There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

Silicon	ppm	ASTM D5185m	>20	<1	0	0
Potassium	ppm	ASTM D5185m	>20	<1	2	0
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>5000	1636	1704	3037
Particles >6µm		ASTM D7647	>1300	286	252	346
Particles >14µm		ASTM D7647	>160	5	21	10
Particles >21µm		ASTM D7647	>40	0	7	3
Particles >38µm		ASTM D7647	>10	0	1	0
Particles >71µm		ASTM D7647	>3	0	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	18/15/10	18/15/12	19/16/10
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	>0.1	NEG	NEG	NEG

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		2	0	2
Boron	ppm	ASTM D5185m	5	0	0	0
Barium	ppm	ASTM D5185m	5	0	0	0
Molybdenum	ppm	ASTM D5185m	5	0	0	0
Manganese	ppm	ASTM D5185m		<1	0	0
Magnesium	ppm	ASTM D5185m	25	<1	<1	0
Calcium	ppm	ASTM D5185m	200	80	43	37
Phosphorus	ppm	ASTM D5185m	300	330	342	281
Zinc	ppm	ASTM D5185m	370	413	388	363
Sulfur	ppm	ASTM D5185m	2500	926	729	649
Acid Number (AN)	mg KOH/g	ASTM D8045	0.57	0.34	0.37	0.31
Visc @ 40°C	cSt	ASTM D445	32	43.7	43.8	43.9



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : KL0014436

Lab Number : 06226764

Unique Number : 11110257

Test Package : MOB 2

Received : 02 Jul 2024

Tested : 03 Jul 2024

Diagnosed : 05 Jul 2024 - Doug Bogart

CITADEL DRILLING

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ODESSA, TX

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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)