MOB II WEAR CHECK

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
RIG 6
Machine Id
R6-G-04 NKL
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

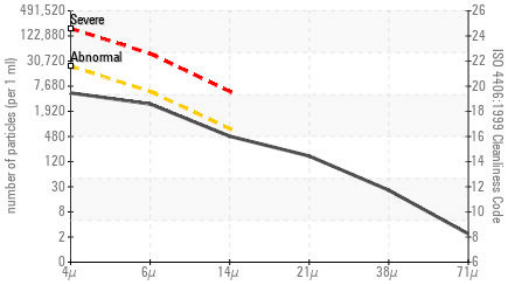
The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil.

FLUID CONDITION

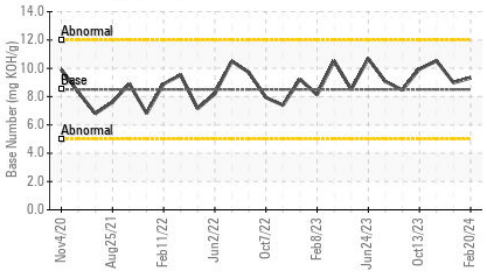
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0014029	KL0013985	KL0013179
Sample Date		Client Info		20 Feb 2024	05 Jan 2024	18 Nov 2023
Machine Age	days	Client Info		45342	45297	45248
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	ABNORMAL	ATTENTION
Iron	ppm	ASTM D5185m	>100	3	8	<1
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	4	2
Lead	ppm	ASTM D5185m	>40	<1	2	0
Copper	ppm	ASTM D5185m	>330	1	2	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>25	10	▲ 108	17
Potassium	ppm	ASTM D5185m	>20	1	2	0
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.2	0.2	0.1
Nitration	Abs/cm	*ASTM D7624	>20	7.8	8.2	5.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.4	23.5	23.3
Particles >4µm		ASTM D7647	>20000	4611	6064	7569
Particles >6µm		ASTM D7647	>5000	2512	3303	4123
Particles >14µm		ASTM D7647	>640	427	562	● 702
Particles >21µm		ASTM D7647	>160	144	189	● 236
Particles >38µm		ASTM D7647	>40	22	29	36
Particles >71µm		ASTM D7647	>10	2	3	4
Oil Cleanliness		ISO 4406 (c)	>21/19/16	19/19/16	20/19/16	● 20/19/17
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	>0.2	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m	>216	<1	0	<1
Boron	ppm	ASTM D5185m	250	293	336	364
Barium	ppm	ASTM D5185m	10	0	0	0
Molybdenum	ppm	ASTM D5185m	100	128	127	125
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m	450	638	668	682
Calcium	ppm	ASTM D5185m	3000	1462	1577	1550
Phosphorus	ppm	ASTM D5185m	1150	710	754	721
Zinc	ppm	ASTM D5185m	1350	849	856	858
Sulfur	ppm	ASTM D5185m	4250	2396	2823	2449
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.1	18.1	16.6
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	9.32	8.98	10.52
Visc @ 100°C	cSt	ASTM D445	14.4	12.9	13.4	13.7

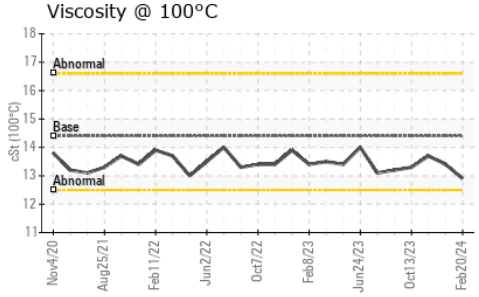
Particle Count



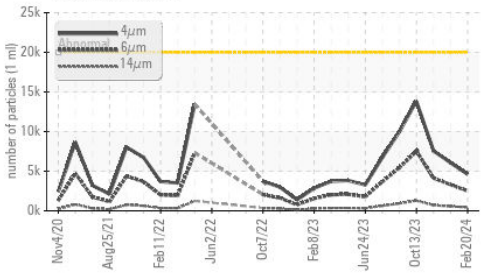
Base Number



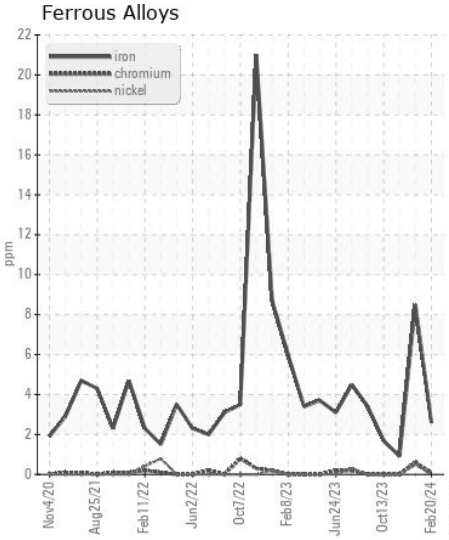
Viscosity @ 100°C



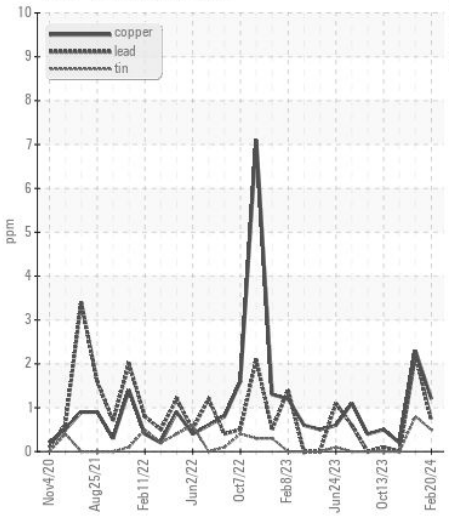
Particle Trend



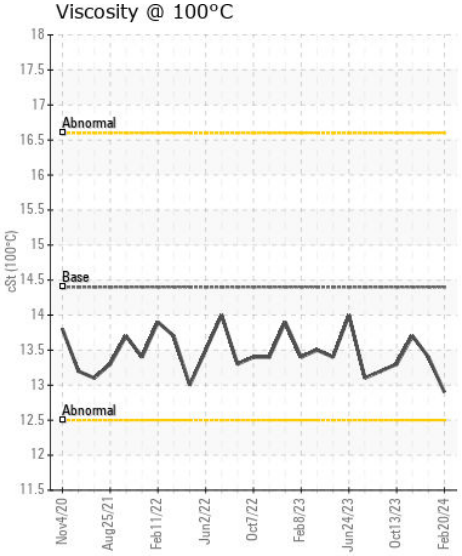
Ferrous Alloys



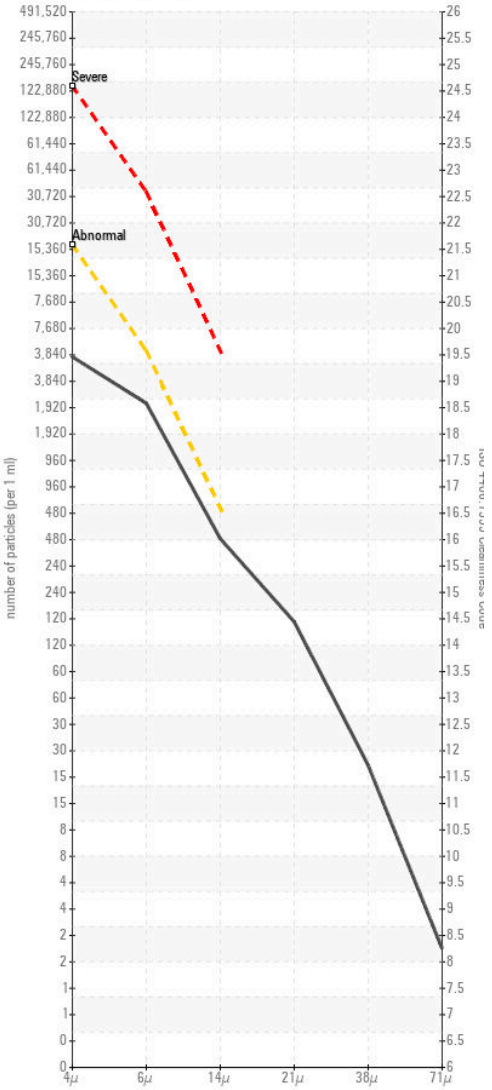
Non-ferrous Metals



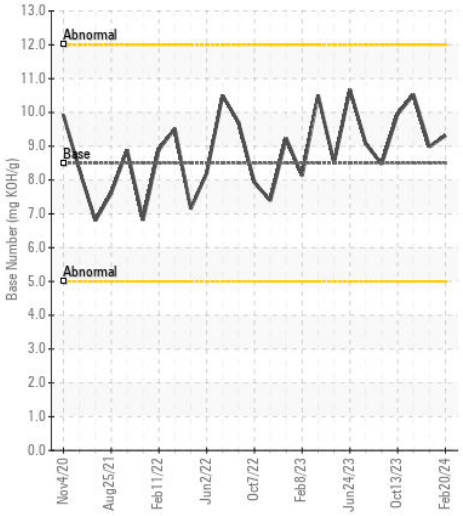
Viscosity @ 100°C



Particle Count



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0014029
Lab Number : 06105418
Unique Number : 10903648
Test Package : MOB 2 (Additional Tests: PrtCount)

Received : 29 Feb 2024
Tested : 06 Mar 2024
Diagnosed : 06 Mar 2024 - Jonathan Hester

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)

CITADEL DRILLING
7550 W I20
ODESSA, TX
US 79763
Contact: MIKE COMBDEN
mcombden@citadeldrilling.com
T: (780)955-5509
F: