



WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
MCKENZIE M
Component
Port Main Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (20 GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0071318	MW0048136	MW0048180
Sample Date		Client Info		20 May 2024	23 Feb 2024	06 Dec 2023
Machine Age	hrs	Client Info		8259	7201	6403
Oil Age	hrs	Client Info		1058	798	1024
Filter Age	hrs	Client Info		1058	798	1024
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	ABNORMAL

WEAR

The lead level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	11	10	11
Chromium	ppm	ASTM D5185m	>8	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>3	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	3	6	4
Lead	ppm	ASTM D5185m	>18	▲ 26	8	▲ 48
Copper	ppm	ASTM D5185m	>80	2	2	2
Tin	ppm	ASTM D5185m	>14	0	<1	1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

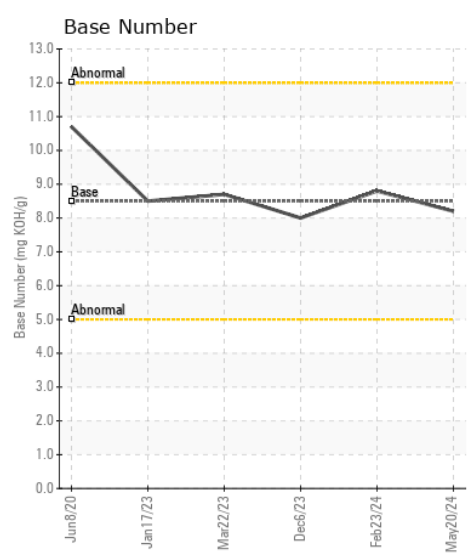
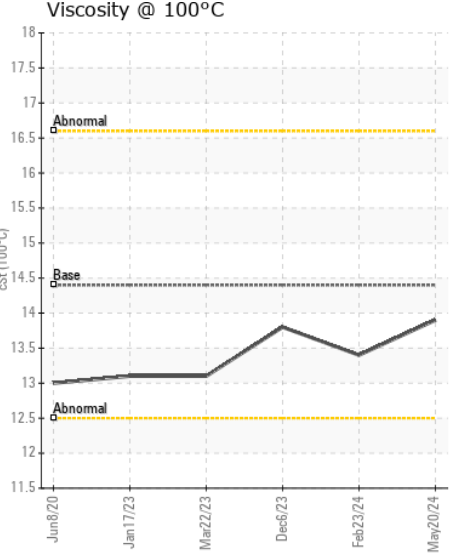
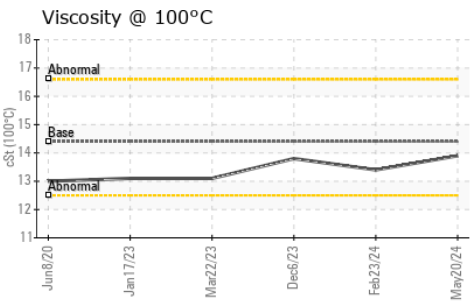
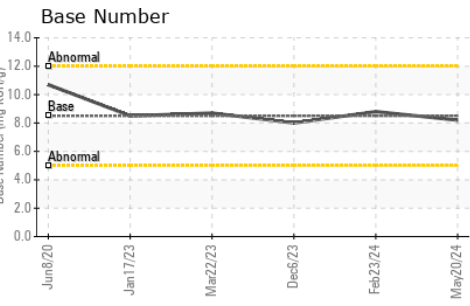
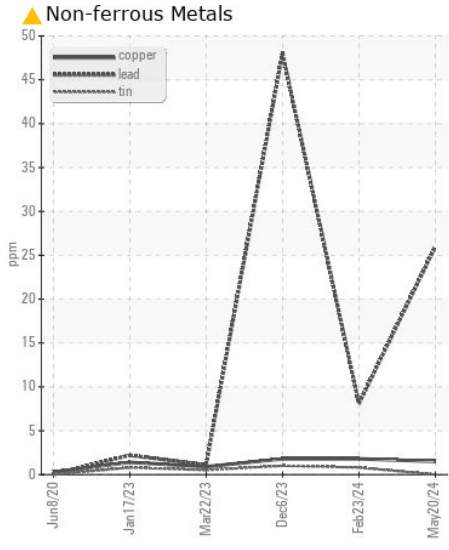
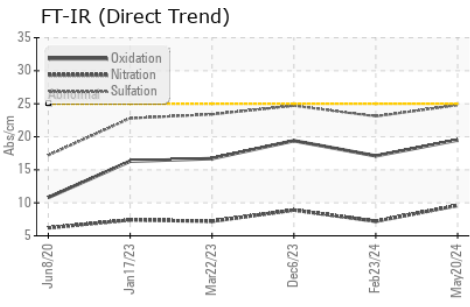
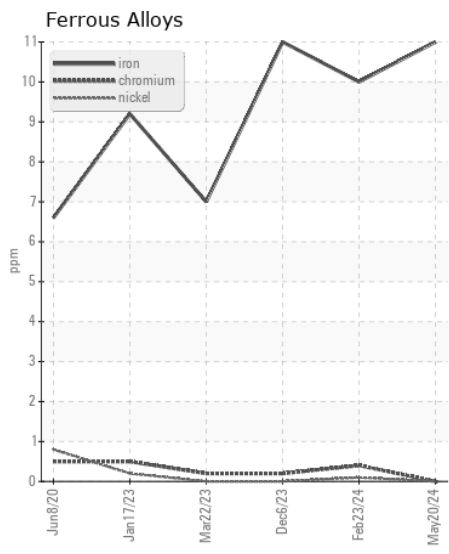
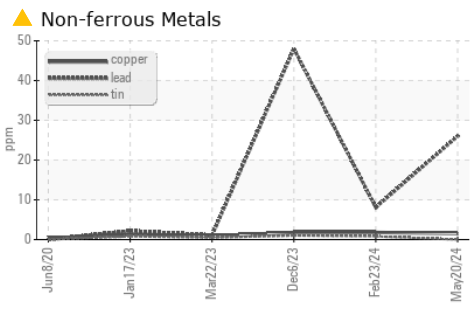
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	5	8	5
Potassium	ppm	ASTM D5185m	>20	0	3	<1
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.6	0.3	0.5
Nitration	Abs/cm	*ASTM D7624	>20	9.6	7.2	8.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	24.8	23.1	24.7
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 BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>158	2	1	2
Boron	ppm	ASTM D5185m	250	257	445	263
Barium	ppm	ASTM D5185m	10	0	2	0
Molybdenum	ppm	ASTM D5185m	100	140	181	129
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	450	779	887	692
Calcium	ppm	ASTM D5185m	3000	1954	2218	1572
Phosphorus	ppm	ASTM D5185m	1150	830	1037	764
Zinc	ppm	ASTM D5185m	1350	1012	1222	883
Sulfur	ppm	ASTM D5185m	4250	3211	3948	2435
Oxidation	Abs/.1mm	*ASTM D7414	>25	19.5	17.1	19.4
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	8.2	8.8	8.0
Visc @ 100°C	cSt	ASTM D445	14.4	13.9	13.4	13.8



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0071318
Lab Number : 06211315
Unique Number : 11084179
Test Package : MAR 2
Received : 17 Jun 2024
Tested : 19 Jun 2024
Diagnosed : 19 Jun 2024 - Don Baldrige

ARTCO - ADM AG SERVICES & OIL SEEDS
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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)