

LIEBHERR

CONSTRUCTION EQUIPMENT



[[CLEVELAND CLIFFS]] LIEBHERR LH60M 1217-96222-Diesel E

Sample No: LH0258853

Oil Type: DIESEL ENGINE OIL SAE 5W40



FINKBINER EQUIPMENT CO.

15 W 400 N FRONTAGE RD

BURR RIDGE, IL

US 60527

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Sample Information

Sample Number	LH0258853	LH0200086	LHMC119743	LHMC119728
Sample Date	05 Apr 2024	15 Mar 2023	27 Aug 2019	28 Jun 2019
Machine Hours	8533	8059	7502	6994
Oil Hours	500	0	0	0
Oil Changed	Changed	Changed	N/A	N/A
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL



Oil Condition

Visc @ 100°C	cSt	12.1	12.5	12.0	13.1
Base Number (BN)	mg KOH/g	5.7	6.7	---	---
Oxidation (PA)	%	68	65	61	63



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.1	0.1	0.1	0.1
Nitration (PA)	%	85	73	78	62
Sulfation (PA)	%	61	58	55	54
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	10	10	10	7
Sodium	ppm	2	3	2	3
Potassium	ppm	3	7	6	4



Wear Metals

Iron	ppm	8	8	7	5
Copper	ppm	4	9	10	28
Lead	ppm	0	<1	1	0
Tin	ppm	0	<1	<1	0
Aluminum	ppm	1	2	3	2
Chromium	ppm	0	<1	<1	<1
Molybdenum	ppm	22	26	30	22
Nickel	ppm	0	<1	0	<1
Titanium	ppm	0	<1	0	0
Silver	ppm	0	0	<1	<1
Manganese	ppm	0	<1	<1	2
Vanadium	ppm	0	<1	0	0



Additives

Calcium	ppm	1525	2036	2526	2354
Magnesium	ppm	579	106	100	141
Zinc	ppm	927	1129	1054	1167
Phosphorus	ppm	820	925	922	932
Barium	ppm	<1	0	0	<1
Boron	ppm	71	151	127	154

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: LEC0033

Unique No: 10995166

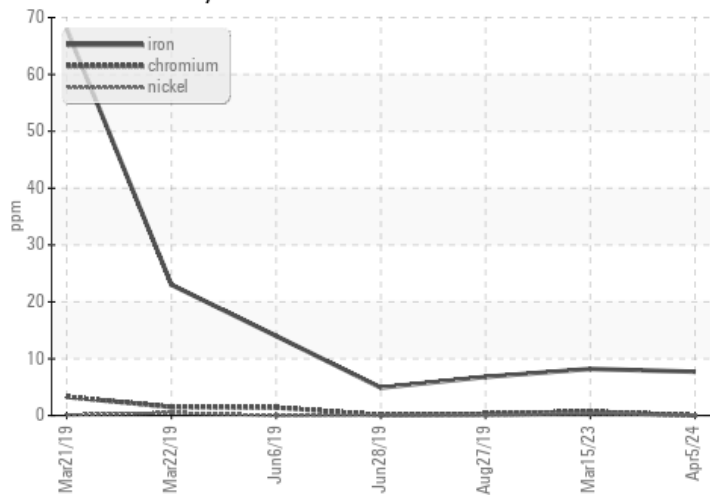
Signed: Sean Felton

Report Date: 29 Apr 2024

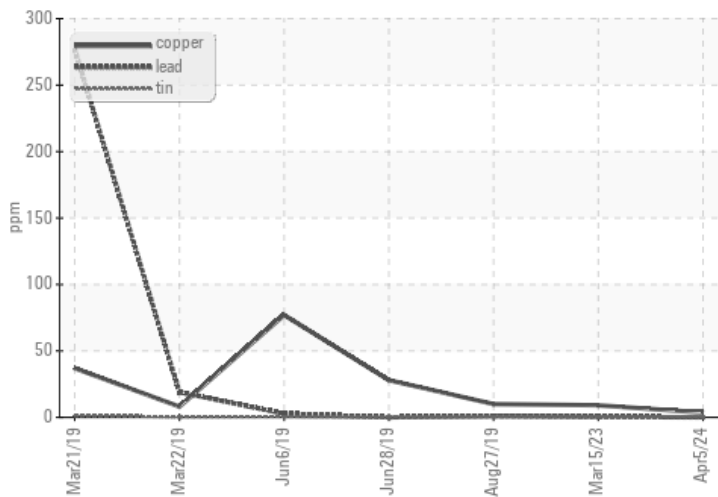


Graphs

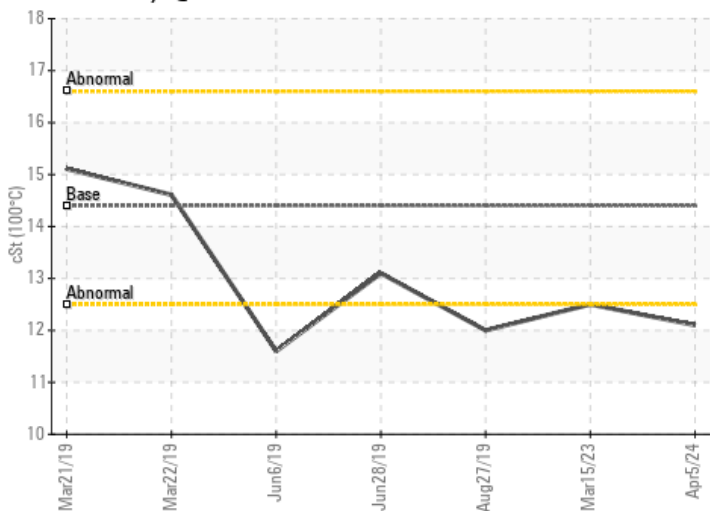
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

