

LIEBHERR

CONSTRUCTION EQUIPMENT



[[CLEVELAND CLIFF]] LIEBHERR LH60 111784-1217 - Diesel Engin

Sample No: LH0267583

Oil Type: LIEBHERR 5W40



SAMPLE INFORMATION

Sample Number	LH0267583	LH0254620	LH0254400	LH0236172
Sample Date	28 Oct 2023	19 Jul 2023	07 May 2023	21 Oct 2022
Machine Hours	9344	8874	8332	7309
Oil Hours	0	500	500	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	ATTENTION

FINKBINER EQUIPMENT CO.

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BURR RIDGE, IL
US 60527
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F: (630)654-3792



OIL CONDITION

Visc @ 100°C	cSt	14.5	12.7	12.8	11.8
Base Number (BN)	mg KOH/g	8.1	5.5	4.9	5.4
Oxidation (PA)	%	51	72	68	88



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.1	0.1	0.1	0.2
Nitration (PA)	%	68	88	81	93
Sulfation (PA)	%	50	60	54	70
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	2.3
Silicon	ppm	10	9	10	7
Sodium	ppm	1	2	1	<1
Potassium	ppm	5	4	3	3



WEAR METALS

Iron	ppm	3	7	6	7
Copper	ppm	1	2	1	3
Lead	ppm	<1	<1	<1	<1
Tin	ppm	0	<1	<1	<1
Aluminum	ppm	2	3	<1	2
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	2	8	9	23
Nickel	ppm	<1	0	<1	0
Titanium	ppm	<1	<1	<1	<1
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	1228	1314	1423	1606
Magnesium	ppm	657	647	572	357
Zinc	ppm	800	804	877	1018
Phosphorus	ppm	710	676	727	835
Barium	ppm	9	0	0	<1
Boron	ppm	100	29	40	41

Diagnosis

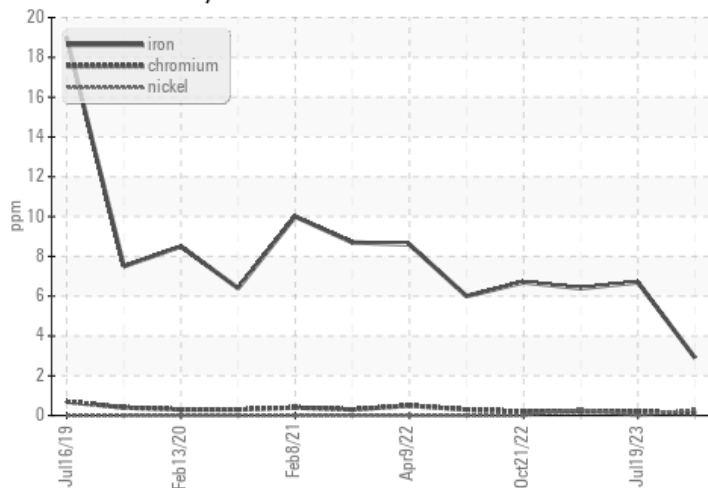
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: LEC0033
Unique No: 10752278
Signed: Wes Davis
Report Date: 21 Nov 2023

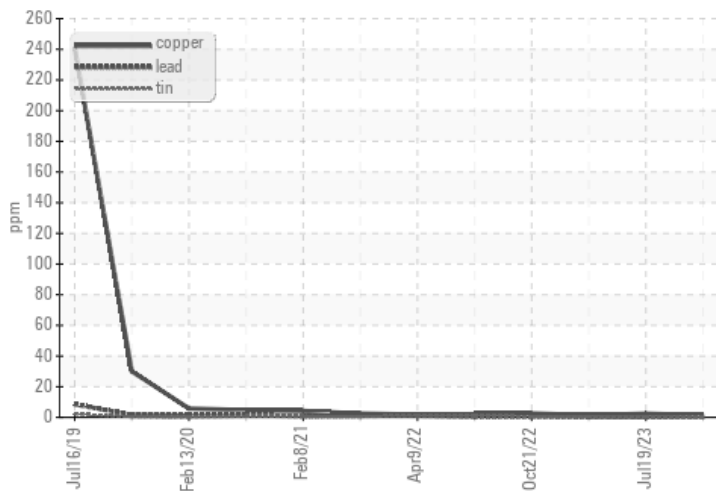


GRAPHS

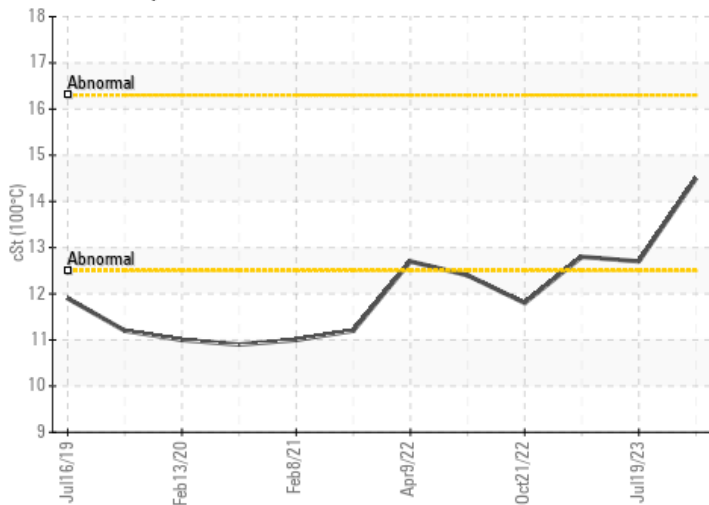
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

