

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR LH110 155976-1227 - Diesel Engine

Sample No: LH0267559

Oil Type: DIESEL ENGINE OIL SAE 15W40



**KINDER MORGAN**

4301 IVERSON

TRINITY, AL

US 35601

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#### Sample Information

Sample Number	LH0267559	LH0267531	LH0258471	LH0280572
Sample Date	26 Apr 2024	18 Apr 2024	27 Mar 2024	23 Feb 2024
Machine Hours	1769	1623	1266	995
Oil Hours	146	628	271	0
Oil Changed	Not Changd	Changed	Not Changd	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL



#### Oil Condition

Visc @ 100°C	cSt	13.0	12.5	12.8	12.6
Base Number (BN)	mg KOH/g	7.2	6.6	7.5	6.9
Oxidation (PA)	%	60	71	63	79



#### Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.1	0.2	0.1	0.1
Nitration (PA)	%	49	70	56	67
Sulfation (PA)	%	56	59	56	62
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	10	10	10	9
Sodium	ppm	3	<1	3	2
Potassium	ppm	3	3	1	<1



#### Wear Metals

Iron	ppm	4	6	4	6
Copper	ppm	12	72	6	28
Lead	ppm	<1	1	<1	0
Tin	ppm	<1	<1	<1	<1
Aluminum	ppm	3	3	4	3
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	80	86	87	82
Nickel	ppm	<1	<1	<1	<1
Titanium	ppm	<1	<1	<1	<1
Silver	ppm	1	0	0	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	<1	<1	<1	0



#### Additives

Calcium	ppm	1243	1348	1348	1270
Magnesium	ppm	384	403	431	488
Zinc	ppm	1067	1179	1204	1201
Phosphorus	ppm	895	1080	1096	950
Barium	ppm	1	1	0	2
Boron	ppm	394	391	427	299

#### Diagnosis

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample. 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: KINTRI

Unique No: 11048760

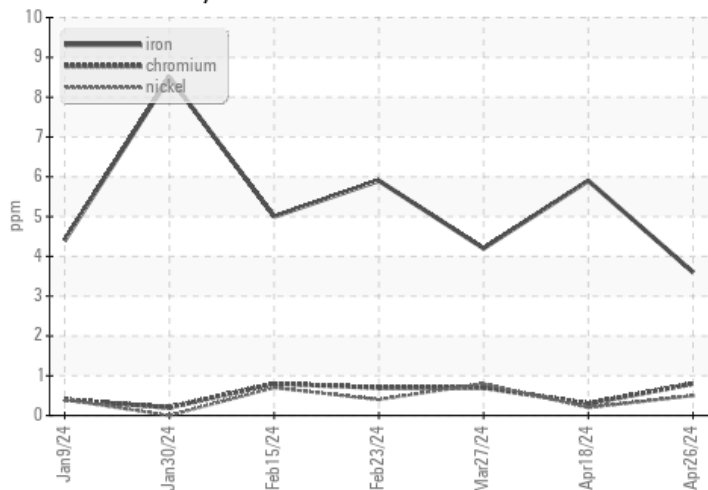
Signed: Wes Davis

Report Date: 29 May 2024

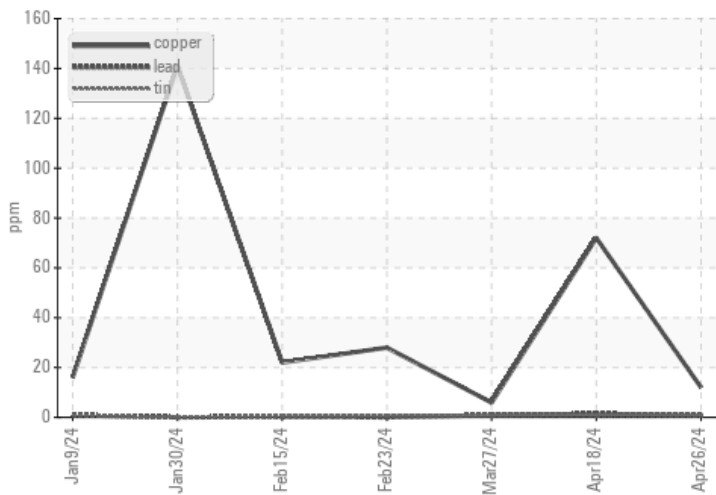


### Graphs

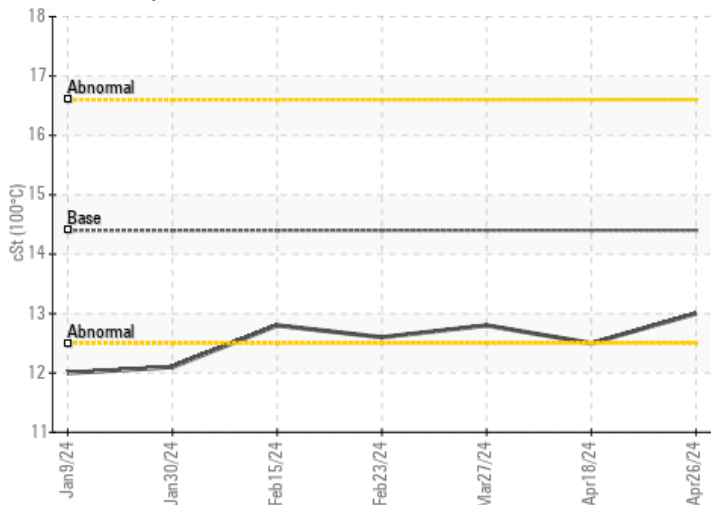
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

