

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR LH50 1203-77107 - Diesel Engine

Sample No: LH0290238

Oil Type: CHEVRON DELO LE 5W40



**AMERICAN STATE EQUIPMENT CO.**  
 2400 NORTH 14TH AVENUE  
 WAUSAU, WI  
 US 54401  
 Contact: CHRIS BARTNIK  
 cbartnik@amstate.com  
 T: (715)675-6900  
 F: (715)675-9748



#### Sample Information

Sample Number	LH0290238	LH0258793	LH0272548	LH0243353
Sample Date	28 May 2024	01 Mar 2024	28 Nov 2023	30 Aug 2023
Machine Hours	21593	20946	20037	19522
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	ABNORMAL	ABNORMAL	NORMAL



#### Oil Condition

Visc @ 100°C	cSt	14.0	13.0	13.5	14.2
Base Number (BN)	mg KOH/g	7.2	6.1	8.6	7.5
Oxidation (PA)	%	74	95	70	63



#### Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	2.5	3.1	1.7	1.9
Nitration (PA)	%	113	142	112	100
Sulfation (PA)	%	77	93	66	66
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	9	12	23	8
Sodium	ppm	24	139	1096	4
Potassium	ppm	3	15	97	2



#### Wear Metals

Iron	ppm	35	56	35	31
Copper	ppm	8	11	32	5
Lead	ppm	3	10	4	<1
Tin	ppm	<1	1	1	<1
Aluminum	ppm	9	13	11	7
Chromium	ppm	<1	2	2	1
Molybdenum	ppm	3	7	8	11
Nickel	ppm	0	0	1	0
Titanium	ppm	90	86	92	78
Silver	ppm	0	0	0	0
Manganese	ppm	<1	1	1	<1
Vanadium	ppm	<1	<1	1	<1



#### Additives

Calcium	ppm	1328	1349	1315	1371
Magnesium	ppm	736	720	615	788
Zinc	ppm	1201	1241	1098	1242
Phosphorus	ppm	988	994	909	1032
Barium	ppm	0	0	11	0
Boron	ppm	25	16	27	24

#### Diagnosis

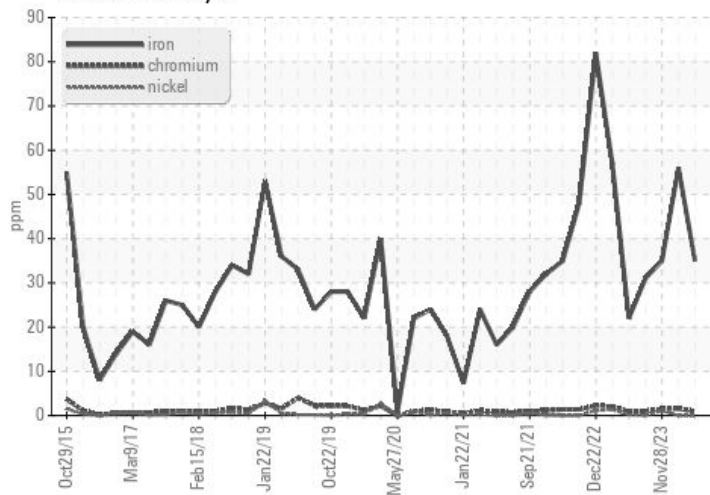
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: LEC0008  
 Unique No: 11060680  
 Signed: Don Baldrige  
 Report Date: 05 Jun 2024

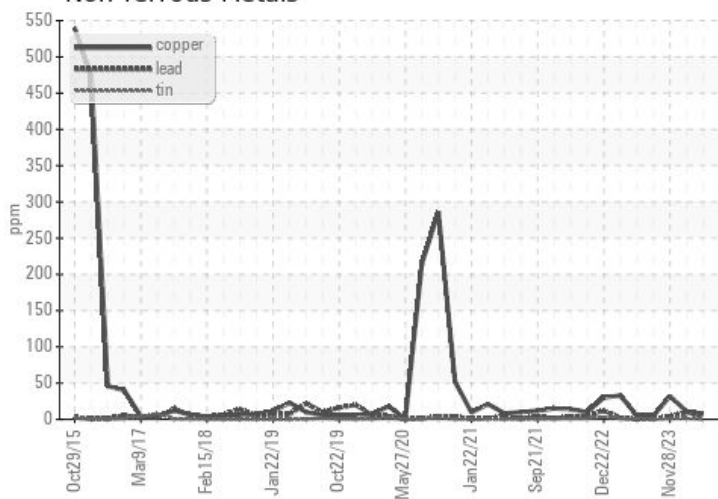


### Graphs

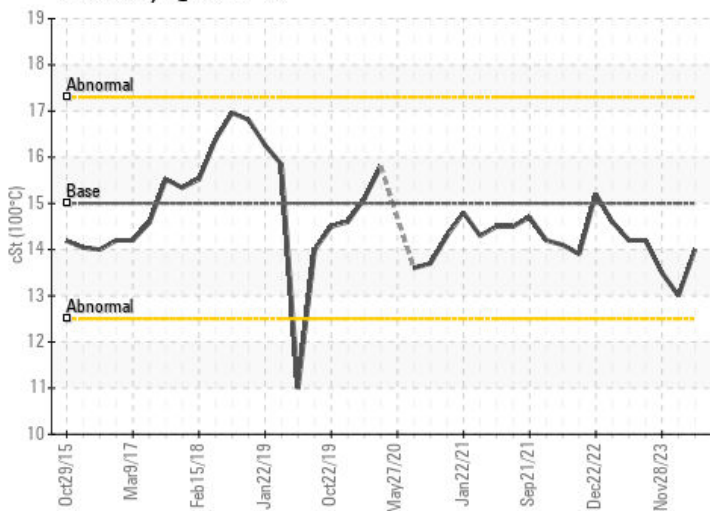
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

