

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR R934CEW 031290-027 - Diesel Engine

Sample No: LH0178195

Oil Type: KENDALL 10W30



#### SAMPLE INFORMATION

Sample Number	LH0178195	LH0247113	LH0235012	LH0224443
Sample Date	16 Nov 2023	21 Jun 2023	24 Nov 2022	16 May 2022
Machine Hours	17500	17080	16500	16000
Oil Hours	500	580	500	500
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

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#### OIL CONDITION

Visc @ 100°C	cSt	11.8	11.4	11.6	11.8
Oxidation (PA)	%	60	58	59	52



#### CONTAMINATION

Soot %	%	2.1	1.7	1.1	0.5
Nitration (PA)	%	69	68	60	47
Sulfation (PA)	%	63	60	60	57
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	8	9	8	9
Sodium	ppm	2	2	2	4
Potassium	ppm	0	<1	0	<1

#### 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 condition of the oil is acceptable for the time in service.



#### WEAR METALS

Iron	ppm	22	30	12	5
Copper	ppm	4	7	2	3
Lead	ppm	<1	<1	0	<1
Tin	ppm	<1	<1	<1	<1
Aluminum	ppm	1	1	1	1
Chromium	ppm	<1	<1	0	0
Molybdenum	ppm	68	71	62	59
Nickel	ppm	0	<1	0	<1
Titanium	ppm	0	<1	<1	0
Silver	ppm	<1	0	0	0
Manganese	ppm	0	<1	<1	<1
Vanadium	ppm	0	0	0	0



#### ADDITIVES

Calcium	ppm	1767	1726	1751	1055
Magnesium	ppm	438	446	492	981
Zinc	ppm	1196	1169	1185	1201
Phosphorus	ppm	996	1045	1072	1097
Barium	ppm	<1	0	0	0
Boron	ppm	62	62	76	6

Depot: DOMBUR

Unique No: 5682136

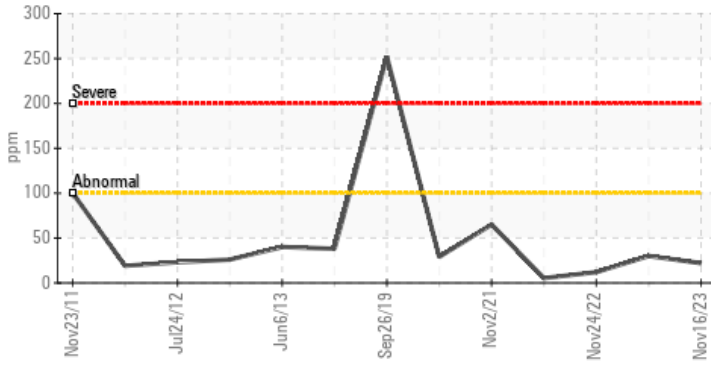
Signed: Wes Davis

Report Date: 17 Nov 2023

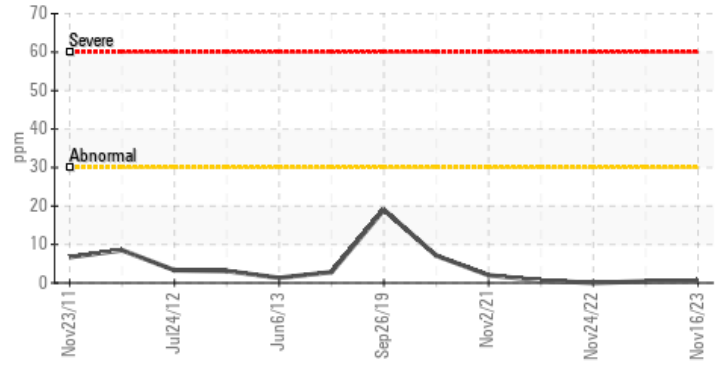


### GRAPHS

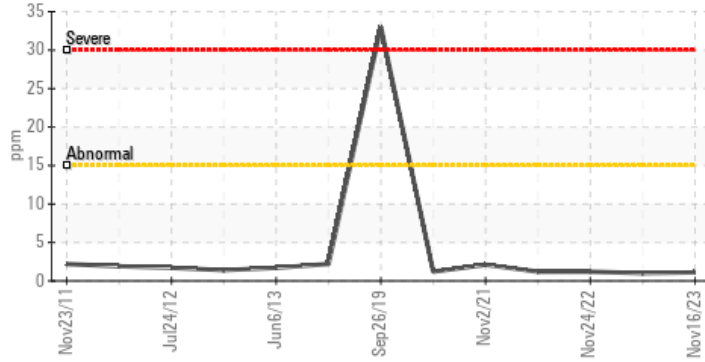
Iron (ppm)



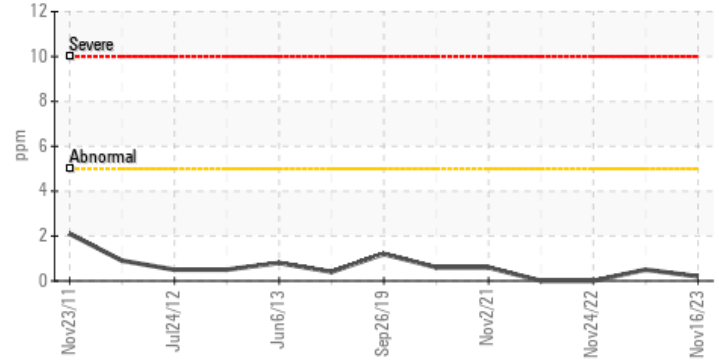
Lead (ppm)



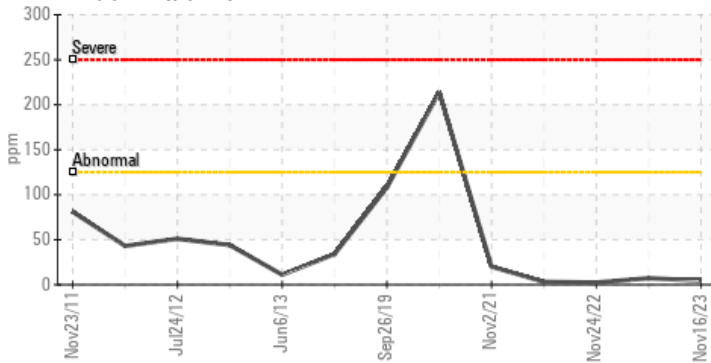
Aluminum (ppm)



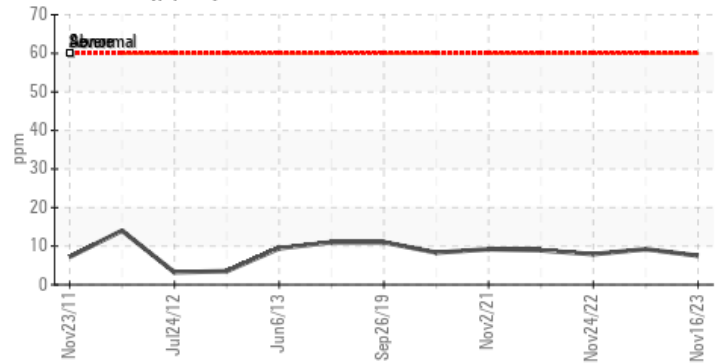
Chromium (ppm)



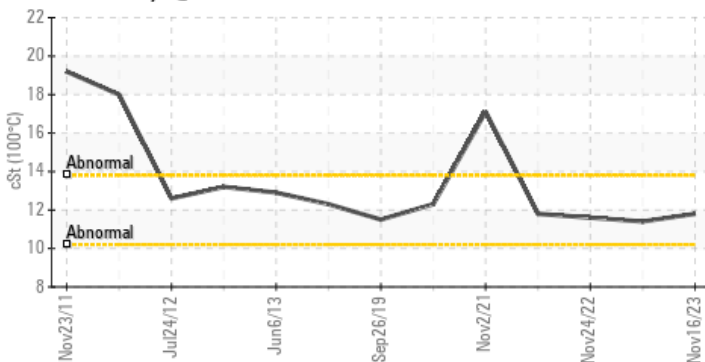
Copper (ppm)



Silicon (ppm)



Viscosity @ 100°C



Soot %

