

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR R944C 032007-793 - Diesel Engine

Sample No: LH0244861

Oil Type: CONOCO PHILLIPS GUARDOL ECT 15W40



#### SAMPLE INFORMATION

Sample Number	LH0244861	LH0244640	LH0244634	LH0244658
Sample Date	03 Oct 2023	17 Aug 2023	23 Jun 2023	09 May 2023
Machine Hours	21029	20644	20967	19836
Oil Hours	300	300	300	250
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ABNORMAL	ABNORMAL	ABNORMAL	NORMAL

**NILES IRON & METAL CO. INC.**

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#### OIL CONDITION

Visc @ 100°C	cSt	14.9	14.9	14.9	13.9
Base Number (BN)	mg KOH/g	5.1	3.9	6.1	6.9
Oxidation (PA)	%	45	51	56	53

#### Diagnosis

The oil change at the time of sampling has been noted. All component wear rates are normal. Light concentration of carbon/soot present in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.



#### CONTAMINATION

Soot %	%	3.4	3.4	3	2.6
Nitration (PA)	%	72	78	77	73
Sulfation (PA)	%	64	64	65	63
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	4	5	6	6
Sodium	ppm	0	2	0	2
Potassium	ppm	2	2	2	4



#### WEAR METALS

Iron	ppm	14	18	20	18
Copper	ppm	1	<1	<1	<1
Lead	ppm	<1	0	0	2
Tin	ppm	<1	0	0	<1
Aluminum	ppm	2	<1	2	<1
Chromium	ppm	<1	1	<1	1
Molybdenum	ppm	30	25	29	28
Nickel	ppm	<1	0	0	<1
Titanium	ppm	6	9	10	6
Silver	ppm	0	0	0	1
Manganese	ppm	<1	<1	<1	1
Vanadium	ppm	<1	0	0	<1



#### ADDITIVES

Calcium	ppm	1325	1433	1470	1434
Magnesium	ppm	431	524	491	542
Zinc	ppm	1028	1160	1147	1178
Phosphorus	ppm	853	953	980	919
Barium	ppm	10	0	0	0
Boron	ppm	17	23	28	26

Depot: NILNIL

Unique No: 10698977

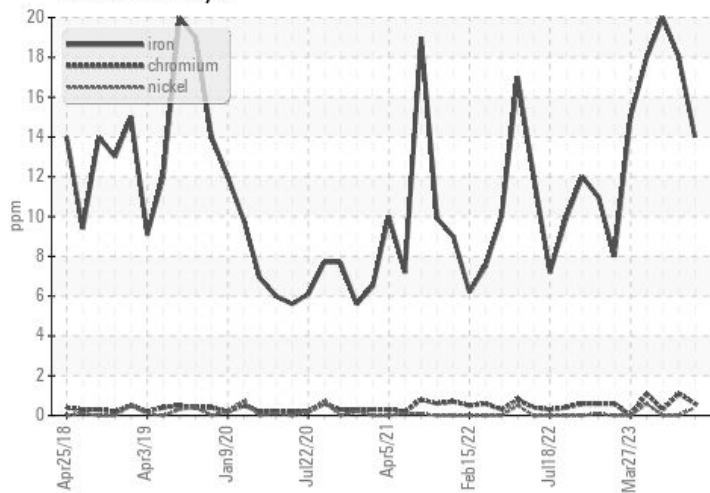
Signed: Wes Davis

Report Date: 18 Oct 2023

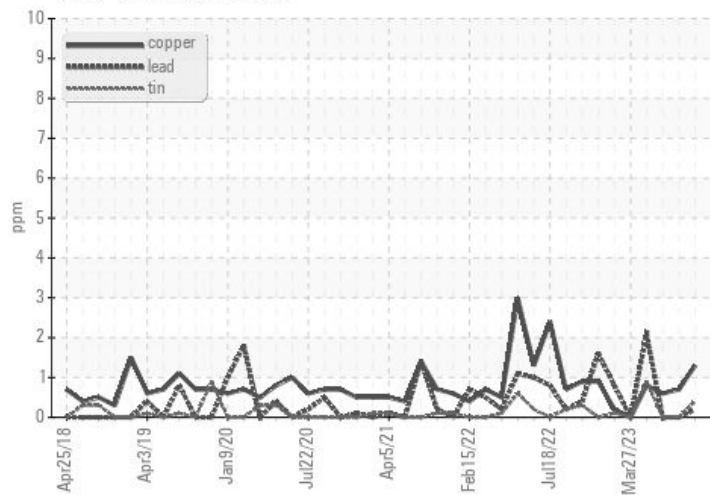


### GRAPHS

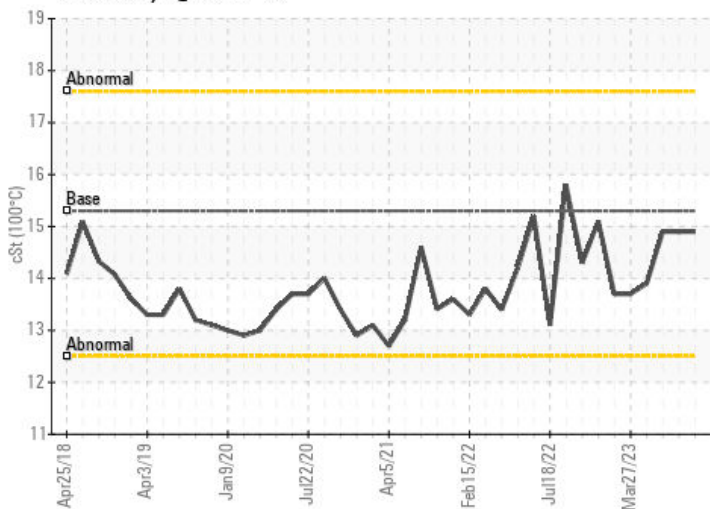
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

