

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR A934C 061188-1419 - Front Differential

Sample No: LH0253881

Oil Type: HARTLAND 80W90 LS



**NORTHERN METAL RECYCLING**  
 2800 PACIFIC ST N  
 MINNEAPOLIS, MN  
 US 55411  
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#### SAMPLE INFORMATION

|               |             |             |             |             |
|---------------|-------------|-------------|-------------|-------------|
| Sample Number | LH0253881   | LH0220537   | LH0220571   | LH0200247   |
| Sample Date   | 21 Sep 2023 | 23 Nov 2022 | 27 Sep 2022 | 04 Apr 2022 |
| Machine Hours | 27222       | 25468       | 0           | 23959       |
| Oil Hours     | 0           | 1000        | 1000        | 1000        |
| Oil Changed   | Changed     | Changed     | Changed     | Changed     |
| Sample Status | NORMAL      | NORMAL      | NORMAL      | NORMAL      |



#### OIL CONDITION

|             |     |     |     |     |     |
|-------------|-----|-----|-----|-----|-----|
| Visc @ 40°C | cSt | 155 | 153 | 155 | 161 |
|-------------|-----|-----|-----|-----|-----|



#### CONTAMINATION

|           |     |    |    |    |    |
|-----------|-----|----|----|----|----|
| Silicon   | ppm | <1 | <1 | <1 | <1 |
| Sodium    | ppm | 1  | 2  | 0  | 1  |
| Potassium | ppm | 1  | 0  | 0  | 2  |



#### WEAR METALS

|            |     |    |   |    |    |
|------------|-----|----|---|----|----|
| Iron       | ppm | 0  | 2 | 4  | 4  |
| Copper     | ppm | <1 | 1 | 2  | 1  |
| Lead       | ppm | 0  | 0 | 0  | 0  |
| Tin        | ppm | 0  | 0 | <1 | <1 |
| Aluminum   | ppm | 0  | 0 | 0  | <1 |
| Chromium   | ppm | 0  | 0 | 0  | 0  |
| Molybdenum | ppm | 0  | 2 | 2  | 1  |
| Nickel     | ppm | <1 | 0 | 0  | 0  |
| Titanium   | ppm | 0  | 0 | 0  | 0  |
| Silver     | ppm | 0  | 0 | 0  | 0  |
| Manganese  | ppm | 0  | 0 | <1 | <1 |
| Vanadium   | ppm | 0  | 0 | 0  | 0  |



#### ADDITIVES

|            |     |      |      |      |      |
|------------|-----|------|------|------|------|
| Calcium    | ppm | 26   | 18   | 23   | 17   |
| Magnesium  | ppm | 9    | 5    | 5    | 5    |
| Zinc       | ppm | 15   | 3    | 12   | 9    |
| Phosphorus | ppm | 1421 | 1041 | 1224 | 1390 |
| Barium     | ppm | 0    | 0    | 0    | 0    |
| Boron      | ppm | 2    | 4    | 4    | 4    |

#### Diagnosis

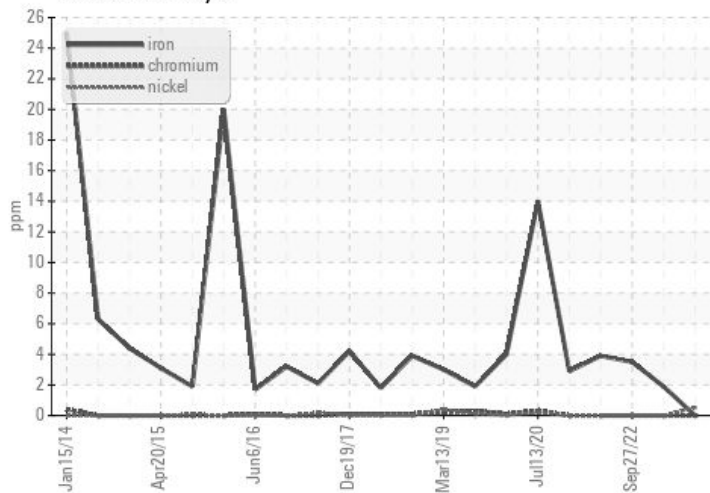
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.

Depot: NORMINLH  
 Unique No: 10736255  
 Signed: Sean Felton  
 Report Date: 10 Nov 2023

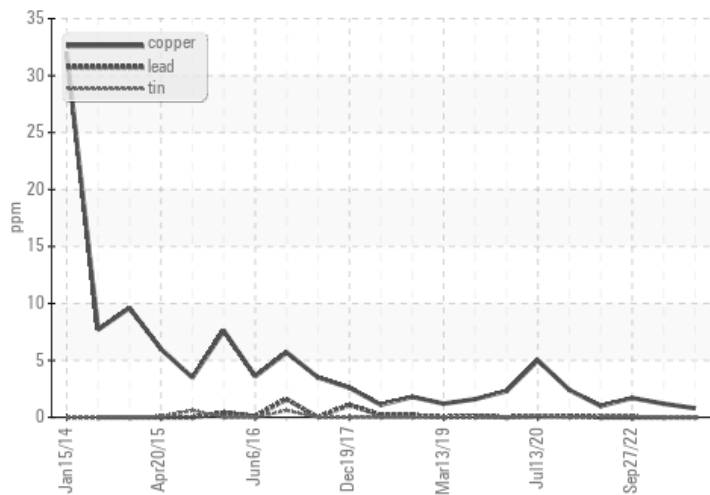


### GRAPHS

#### Ferrous Alloys



#### Non-ferrous Metals



#### Viscosity @ 40°C

