

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR LH110 1227-155752 - Hydraulic System

Sample No: LH0267548

Oil Type: TDH



**KINDER MORGAN**

4301 IVERSON

TRINITY, AL

US 35601

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#### Sample Information

|               |             |             |             |             |
|---------------|-------------|-------------|-------------|-------------|
| Sample Number | LH0267548   | LH0280584   | LH0280584   | LH0280573   |
| Sample Date   | 20 May 2024 | 18 Apr 2024 | 19 Mar 2024 | 20 Feb 2024 |
| Machine Hours | 2578        | 1980        | 1544        | 1022        |
| Oil Hours     | 2578        | 0           | 0           | 0           |
| Oil Changed   | Not Changd  | Not Changd  | Not Changd  | Not Changd  |
| Sample Status | NORMAL      | ABNORMAL    | NORMAL      | NORMAL      |



#### Oil Condition

|                  |          |      |      |      |      |
|------------------|----------|------|------|------|------|
| Visc @ 40°C      | cSt      | 40.5 | 46.8 | 43.3 | 44.2 |
| Acid Number (AN) | mg KOH/g | 1.10 | 1.53 | 1.18 | 1.16 |



#### Contamination

|                   |     |          |     |          |          |
|-------------------|-----|----------|-----|----------|----------|
| Water             | %   | NEG      | NEG | NEG      | NEG      |
| Particles >4µm    |     | 17733    | --- | 6586     | 6065     |
| Particles >6µm    |     | 3745     | --- | 1485     | 1136     |
| Particles >14µm   |     | 249      | --- | 50       | 55       |
| ISO 4406:1999 (c) |     | 21/19/15 | --- | 20/18/13 | 20/17/13 |
| Silicon           | ppm | 6        | 7   | 6        | 5        |
| Sodium            | ppm | <1       | <1  | 2        | 2        |
| Potassium         | ppm | <1       | 2   | 0        | 0        |



#### Wear Metals

|            |     |    |    |    |    |
|------------|-----|----|----|----|----|
| Iron       | ppm | 6  | 27 | 9  | 6  |
| Copper     | ppm | 2  | 16 | 3  | 3  |
| Lead       | ppm | 0  | <1 | 0  | 0  |
| Tin        | ppm | 0  | 2  | 0  | 0  |
| Aluminum   | ppm | <1 | 2  | 0  | 0  |
| Chromium   | ppm | <1 | 1  | <1 | <1 |
| Molybdenum | ppm | 2  | 1  | 0  | 0  |
| Nickel     | ppm | 0  | <1 | 0  | 0  |
| Titanium   | ppm | 0  | <1 | 0  | <1 |
| Silver     | ppm | 0  | <1 | 0  | 0  |
| Manganese  | ppm | <1 | <1 | 0  | <1 |
| Vanadium   | ppm | 0  | <1 | 0  | 0  |



#### Additives

|            |     |      |      |      |      |
|------------|-----|------|------|------|------|
| Calcium    | ppm | 1624 | 1343 | 1416 | 1310 |
| Magnesium  | ppm | 23   | 12   | <1   | 2    |
| Zinc       | ppm | 781  | 730  | 683  | 620  |
| Phosphorus | ppm | 682  | 868  | 614  | 598  |
| Barium     | ppm | 0    | 0    | 0    | 0    |
| Boron      | ppm | 5    | <1   | 0    | 0    |

#### Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Depot: KINTRI

Unique No: 11048885

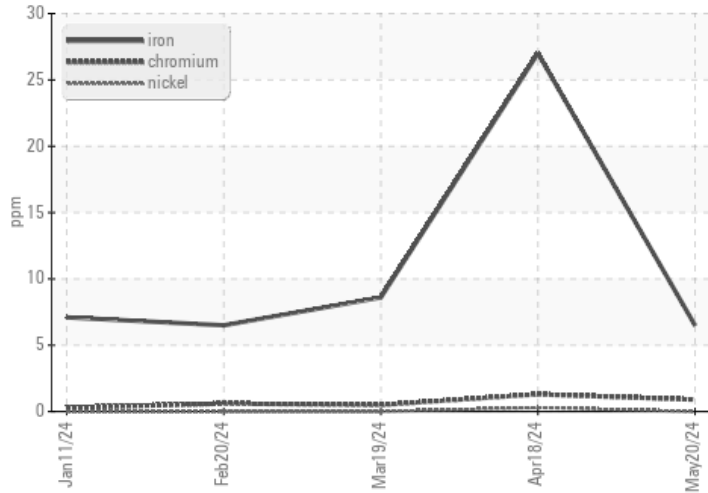
Signed: Wes Davis

Report Date: 29 May 2024

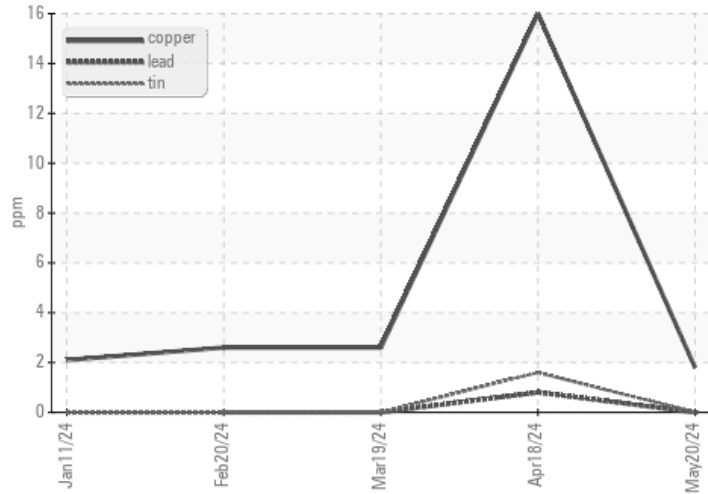


### Graphs

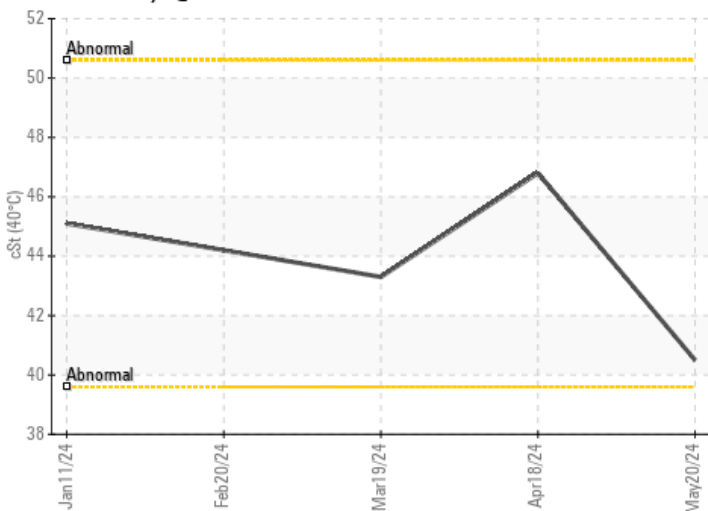
#### Ferrous Alloys



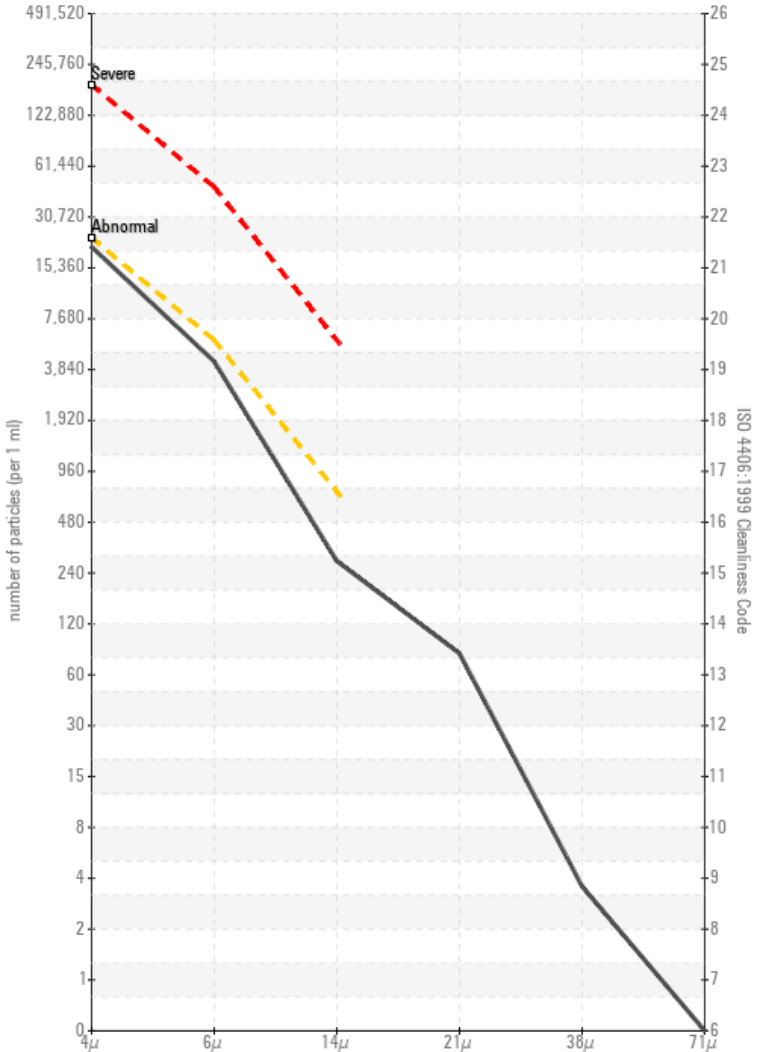
#### Non-ferrous Metals



#### Viscosity @ 40°C



#### Particle Count



#### Acid Number

