



CONSTRUCTION EQUIPMENT

VOLVO L220H 3204 - DIESEL ENGINE



Sample No: VCP449994
Oil Type: VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3
Job No:



SAMPLE INFORMATION

| | | | | |
|---------------|--------------------|-------------|-------------|-----|
| Sample Number | VCP449994 | VCP425274 | VCP406160 | --- |
| Sample Date | 05 Jun 2024 | 26 Jun 2023 | 27 Feb 2022 | --- |
| Machine Hours | 4274 | 3766 | 3281 | --- |
| Oil Hours | 0 | 0 | 0 | --- |
| Oil Changed | Changed | Changed | Changed | --- |
| Sample Status | NORMAL | NORMAL | NORMAL | --- |

FIVE STONES MINE
 MORNING STAR FARM RD
 CANAL POINT, FL
 US 33430
 Contact: Service Manager



OIL CONDITION

| | | | | | |
|------------------|----------|-------------|------|------|-----|
| Visc @ 100°C | cSt | 12.0 | 12.8 | 12.7 | --- |
| Base Number (BN) | mg KOH/g | 8.8 | 9.8 | 8.9 | --- |
| Oxidation (PA) | % | 79 | 82 | 59 | --- |

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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.



CONTAMINATION

| | | | | | |
|----------------|-----|----------------|------|------|-----|
| Water | % | NEG | NEG | NEG | --- |
| Soot % | % | 0.2 | 0.2 | 0.2 | --- |
| Nitration (PA) | % | 61 | 66 | 64 | --- |
| Sulfation (PA) | % | 59 | 63 | 53 | --- |
| Glycol | % | NEG | NEG | NEG | --- |
| Fuel | % | <1.0 | <1.0 | <1.0 | --- |
| Silicon | ppm | 4 | 4 | 6 | --- |
| Sodium | ppm | 3 | 4 | 2 | --- |
| Potassium | ppm | 3 | 3 | 4 | --- |



WEAR METALS

| | | | | | |
|------------|-----|--------------|----|----|-----|
| Iron | ppm | 6 | 7 | 11 | --- |
| Copper | ppm | 4 | 12 | 4 | --- |
| Lead | ppm | <1 | 0 | <1 | --- |
| Tin | ppm | <1 | 0 | <1 | --- |
| Aluminum | ppm | 2 | <1 | 3 | --- |
| Chromium | ppm | 0 | 0 | <1 | --- |
| Molybdenum | ppm | 41 | 46 | 60 | --- |
| Nickel | ppm | <1 | 0 | 0 | --- |
| Titanium | ppm | 0 | 0 | <1 | --- |
| Silver | ppm | 0 | 0 | 0 | --- |
| Manganese | ppm | <1 | <1 | <1 | --- |
| Vanadium | ppm | 0 | 0 | 0 | --- |



ADDITIVES

| | | | | | |
|------------|-----|--------------|------|------|-----|
| Calcium | ppm | 1573 | 1723 | 1150 | --- |
| Magnesium | ppm | 502 | 583 | 894 | --- |
| Zinc | ppm | 1096 | 1172 | 1209 | --- |
| Phosphorus | ppm | 964 | 967 | 1012 | --- |
| Barium | ppm | <1 | 0 | 1 | --- |
| Boron | ppm | 47 | 39 | 0 | --- |

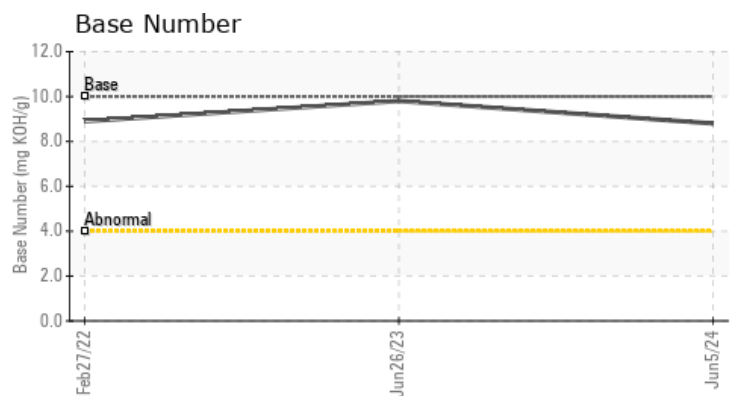
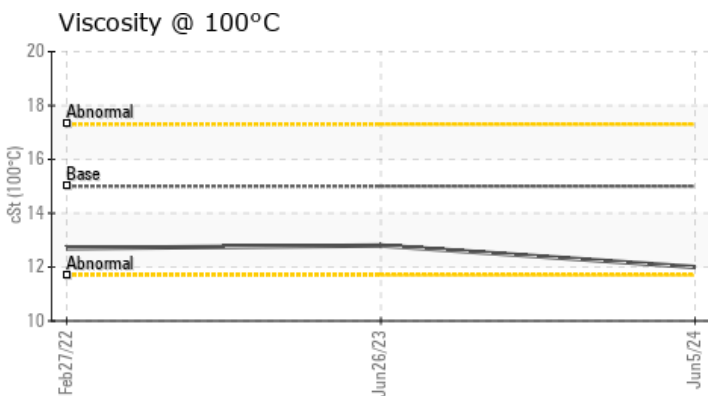
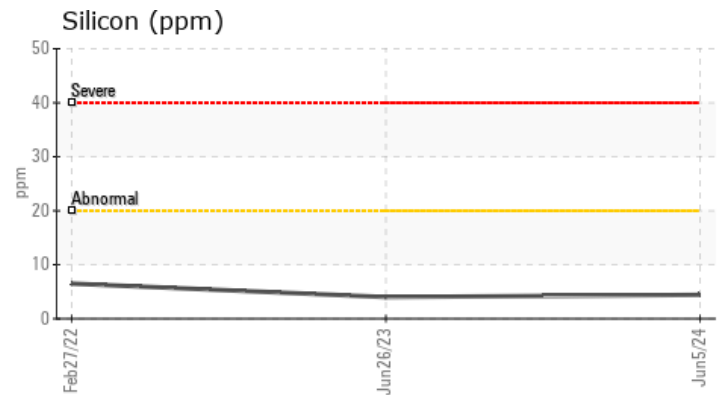
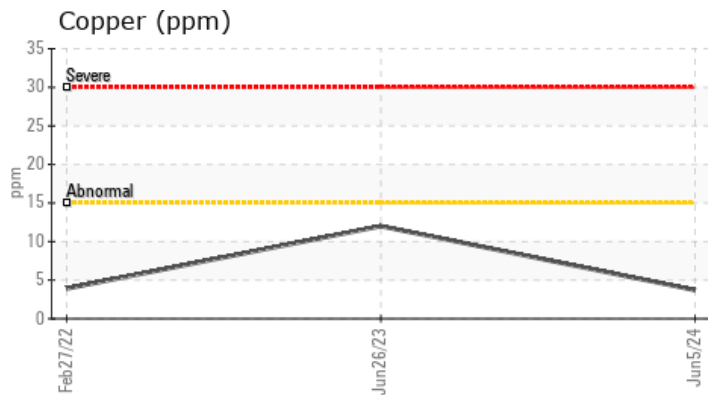
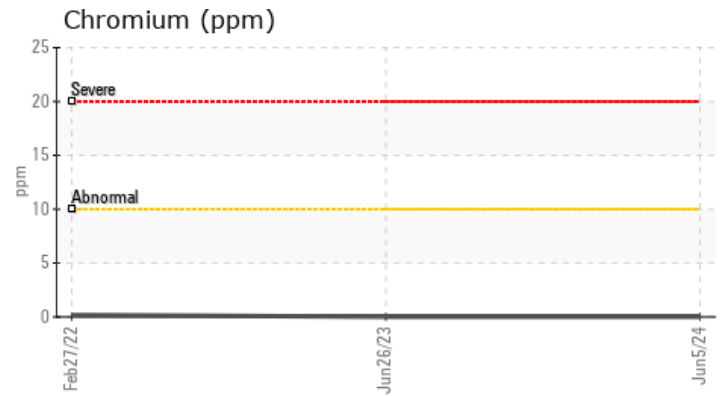
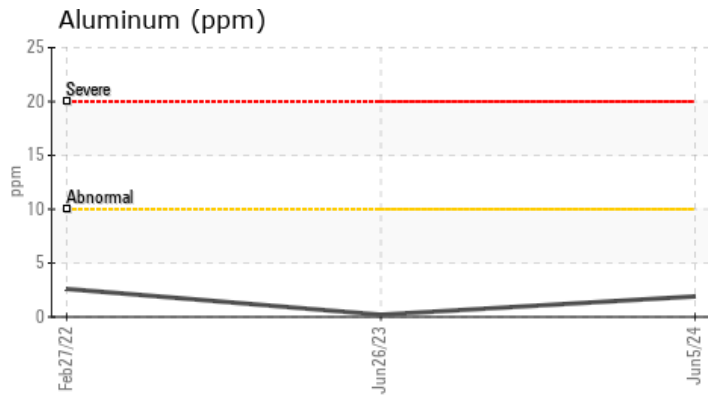
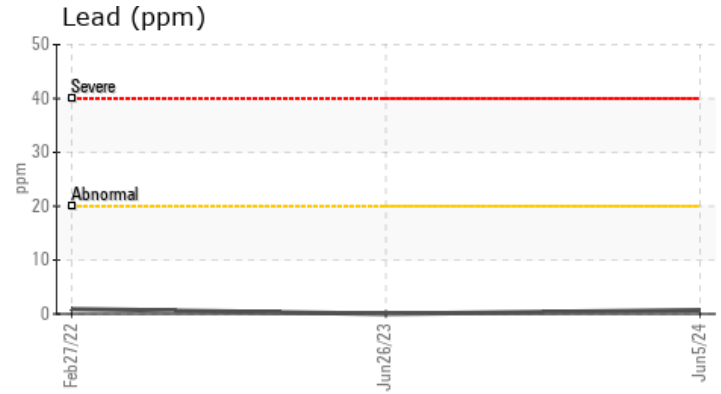
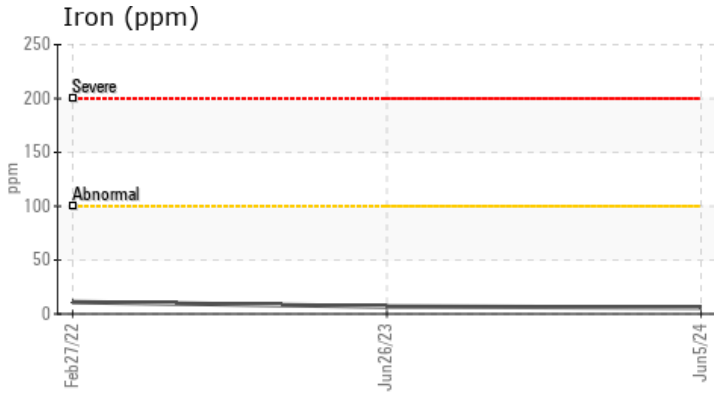
Depot: FIVCAN
Unique No: 11063231
Signed: Wes Davis
Report Date: 07 Jun 2024



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

567794 VOLVO L220H 3204 - TRANSMISSION (AUTO)



Sample No: VCP415612
Oil Type: VOLVO AUTOMATIC TRANSMISSION FLUID AT102
Job No: 567794



SAMPLE INFORMATION

| | | | | |
|---------------|--------------------|-------------|-------------|-----|
| Sample Number | VCP415612 | VCP407360 | VCP279777 | --- |
| Sample Date | 26 Jun 2023 | 27 Feb 2022 | 24 Jul 2020 | --- |
| Machine Hours | 3766 | 3281 | 512 | --- |
| Oil Hours | 0 | 0 | 0 | --- |
| Oil Changed | Not Chngd | Not Chngd | Not Chngd | --- |
| Sample Status | NORMAL | NORMAL | NORMAL | --- |

FIVE STONES MINE
MORNING STAR FARM RD
CANAL POINT, FL
US 33430
Contact: Service Manager



OIL CONDITION

| | | | | | |
|-------------|-----|-------------|------|------|-----|
| Visc @ 40°C | cSt | 26.3 | 26.0 | 28.4 | --- |
|-------------|-----|-------------|------|------|-----|

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CONTAMINATION

| | | | | | |
|-----------|-----|-----------|----|---|-----|
| Silicon | ppm | 11 | 11 | 9 | --- |
| Sodium | ppm | 2 | 5 | 4 | --- |
| Potassium | ppm | 2 | 2 | 0 | --- |

Diagnosis

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



WEAR METALS

| | | | | | |
|------------|-----|--------------|-----|----|-----|
| Iron | ppm | 150 | 151 | 42 | --- |
| Copper | ppm | 9 | 9 | 5 | --- |
| Lead | ppm | 0 | <1 | <1 | --- |
| Tin | ppm | <1 | <1 | 0 | --- |
| Aluminum | ppm | 1 | 3 | <1 | --- |
| Chromium | ppm | 1 | 1 | <1 | --- |
| Molybdenum | ppm | 0 | <1 | <1 | --- |
| Nickel | ppm | <1 | <1 | 1 | --- |
| Titanium | ppm | 0 | 0 | 0 | --- |
| Silver | ppm | 0 | 0 | 0 | --- |
| Manganese | ppm | 8 | 9 | 5 | --- |
| Vanadium | ppm | 0 | 0 | 0 | --- |



ADDITIVES

| | | | | | |
|------------|-----|------------|-----|-----|-----|
| Calcium | ppm | 93 | 107 | 103 | --- |
| Magnesium | ppm | 2 | 4 | 4 | --- |
| Zinc | ppm | 29 | 47 | 20 | --- |
| Phosphorus | ppm | 150 | 205 | 166 | --- |
| Barium | ppm | 3 | 0 | 4 | --- |
| Boron | ppm | 45 | 53 | 60 | --- |

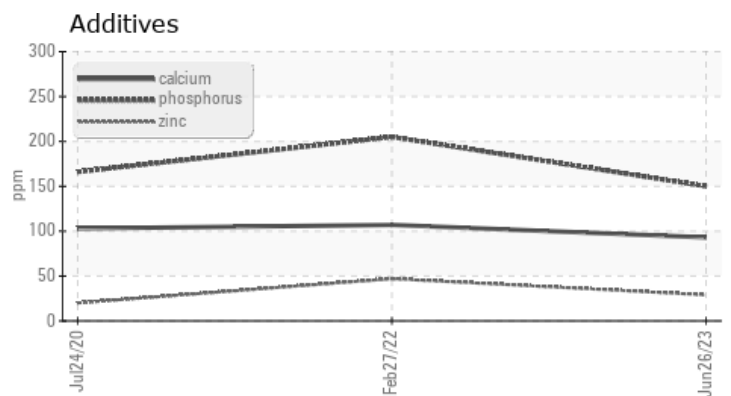
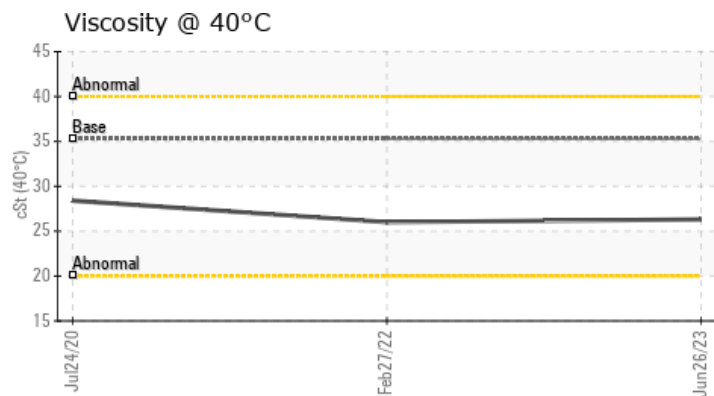
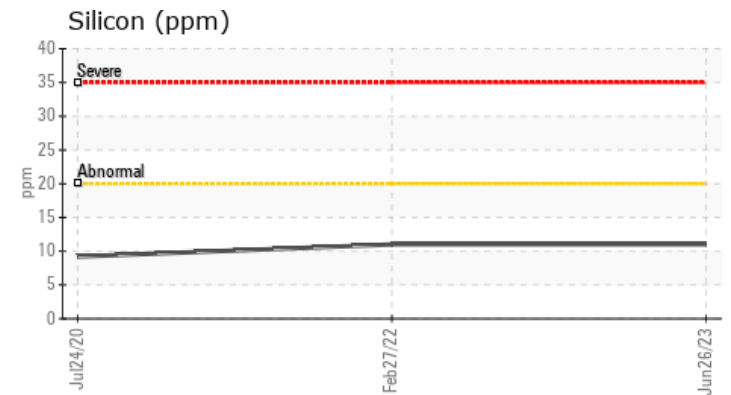
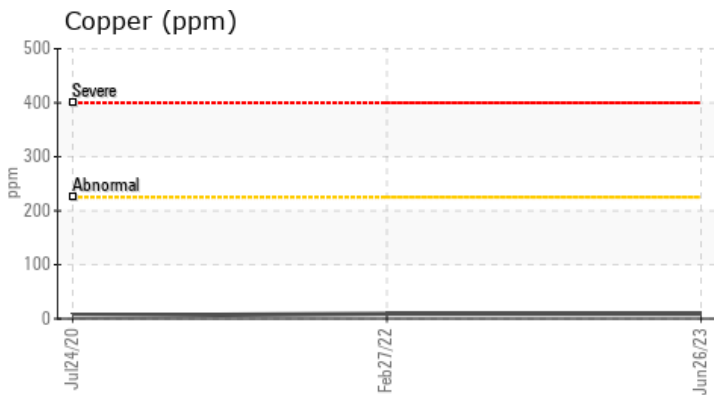
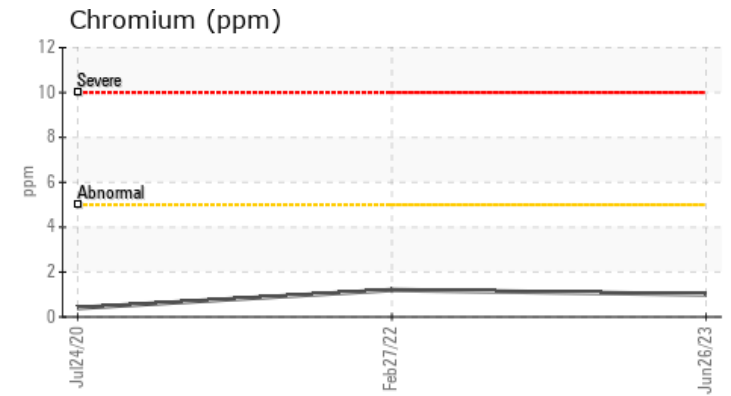
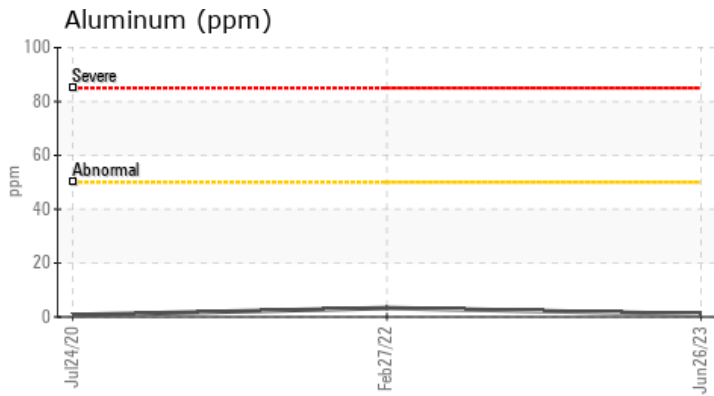
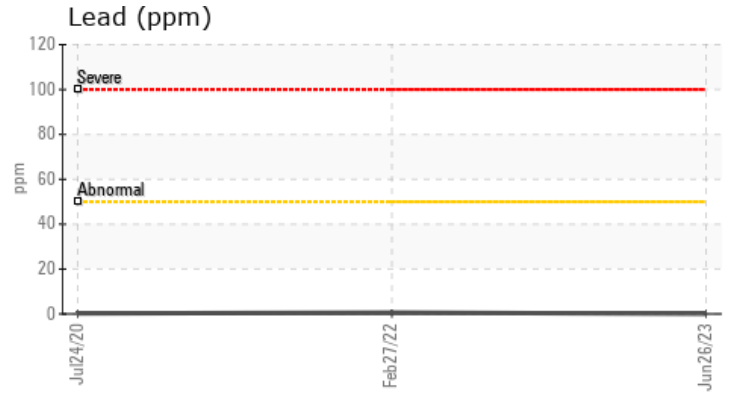
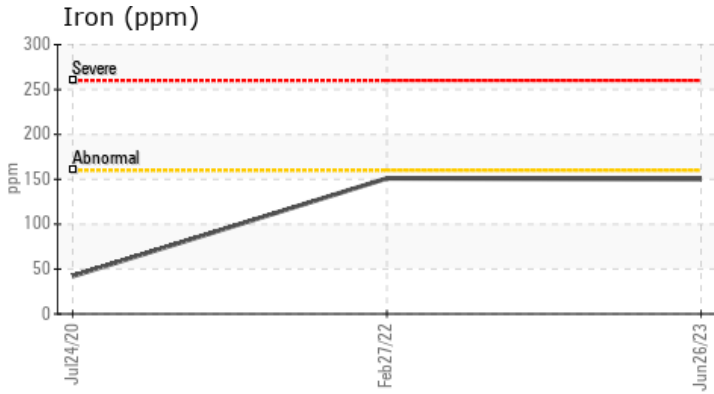
Depot: FIVCAN
Unique No: 10537498
Signed: Wes Davis
Report Date: 02 Jul 2023



CONSTRUCTION EQUIPMENT



GRAPHS



VOLVO L220H 3204 - HYDRAULIC SYSTEM

Sample No: VCP449990

Oil Type: VOLVO SUPER HYDRAULIC OIL 46

SAMPLE INFORMATION

| | | | | |
|---------------|--------------------|-------------|-------------|-----|
| Sample Number | VCP449990 | VCP425455 | VCP406166 | --- |
| Sample Date | 03 Jun 2024 | 26 Jun 2023 | 27 Feb 2022 | --- |
| Machine Hours | 4274 | 3766 | 3281 | --- |
| Oil Hours | 0 | 0 | 0 | --- |
| Oil Changed | Changed | Not Changd | Not Changd | --- |
| Sample Status | ABNORMAL | ABNORMAL | ABNORMAL | --- |

FIVE STONES MINE

MORNING STAR FARM RD
CANAL POINT, FL
US 33430
Contact: Service Manager

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OIL CONDITION

| | | | | | |
|------------------|----------|-------------|------|-------|-----|
| Visc @ 40°C | cSt | 38.7 | 37.0 | 37.21 | --- |
| Acid Number (AN) | mg KOH/g | 0.41 | 0.38 | 0.37 | --- |

CONTAMINATION

| | | | | | |
|-------------------|-----|------------|----------|----------|-----|
| Water | % | NEG | NEG | NEG | --- |
| Particles >4µm | | --- | 7198 | 21878 | --- |
| Particles >6µm | | --- | 1844 | 3704 | --- |
| Particles >14µm | | --- | 144 | 68 | --- |
| ISO 4406:1999 (c) | | --- | 20/18/14 | 22/19/13 | --- |
| Silicon | ppm | 3 | 1 | 2 | --- |
| Sodium | ppm | 2 | 2 | 2 | --- |
| Potassium | ppm | 1 | <1 | 0 | --- |

Diagnosis

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. We were unable to perform a particle count due to a high concentration of particles present in this sample. All component wear rates are normal. Moderate concentration of visible dirt/debris present in the oil. The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

WEAR METALS

| | | | | | |
|------------|-----|--------------|----|----|-----|
| Iron | ppm | 6 | 5 | 5 | --- |
| Copper | ppm | 9 | 10 | 11 | --- |
| Lead | ppm | 2 | <1 | 2 | --- |
| Tin | ppm | <1 | 0 | <1 | --- |
| Aluminum | ppm | 1 | <1 | <1 | --- |
| Chromium | ppm | 3 | 2 | 2 | --- |
| Molybdenum | ppm | 0 | 0 | 0 | --- |
| Nickel | ppm | 0 | 0 | 0 | --- |
| Titanium | ppm | 0 | 0 | 0 | --- |
| Silver | ppm | 0 | 0 | 0 | --- |
| Manganese | ppm | 0 | 0 | 0 | --- |
| Vanadium | ppm | 0 | 0 | 0 | --- |

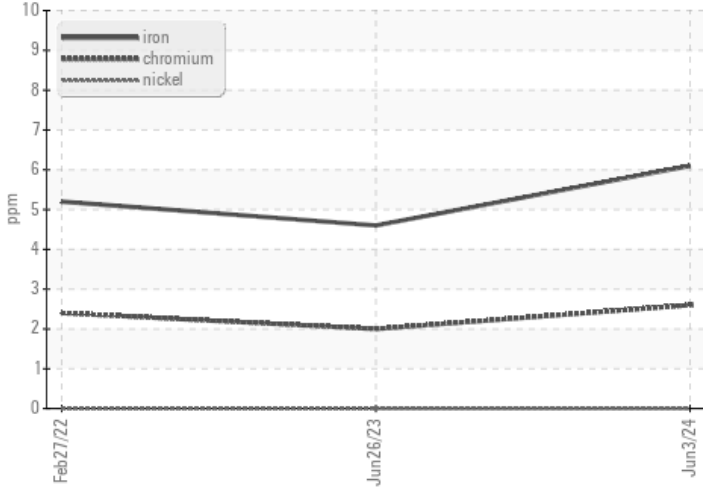
ADDITIVES

| | | | | | |
|------------|-----|------------|-----|-----|-----|
| Calcium | ppm | 159 | 40 | 47 | --- |
| Magnesium | ppm | 1 | 4 | 0 | --- |
| Zinc | ppm | 574 | 409 | 407 | --- |
| Phosphorus | ppm | 441 | 324 | 331 | --- |
| Barium | ppm | 0 | 0 | 0 | --- |
| Boron | ppm | 0 | 0 | 0 | --- |

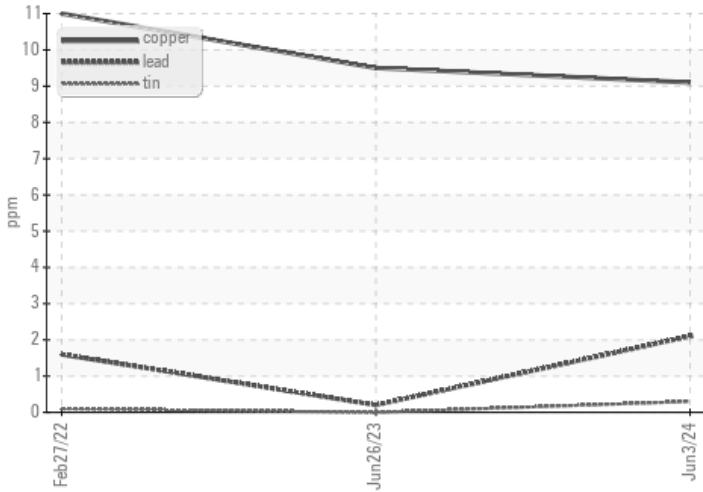
Depot: FIVCAN
Unique No: 11061187
Signed: Don Baldrige
Report Date: 06 Jun 2024

GRAPHS

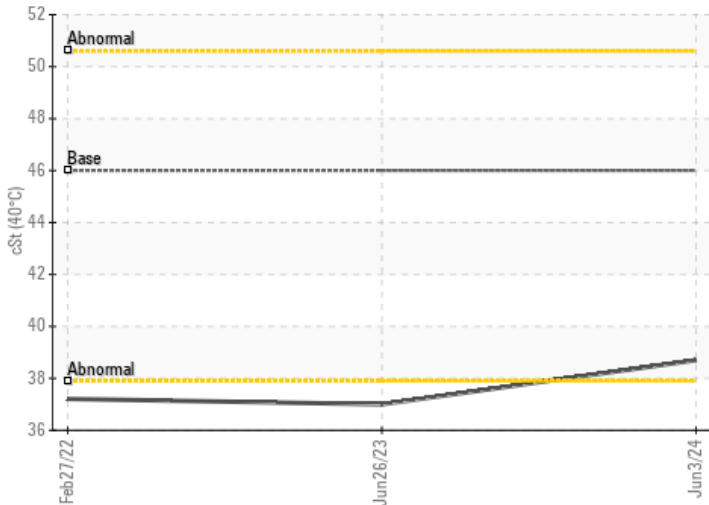
Ferrous Alloys



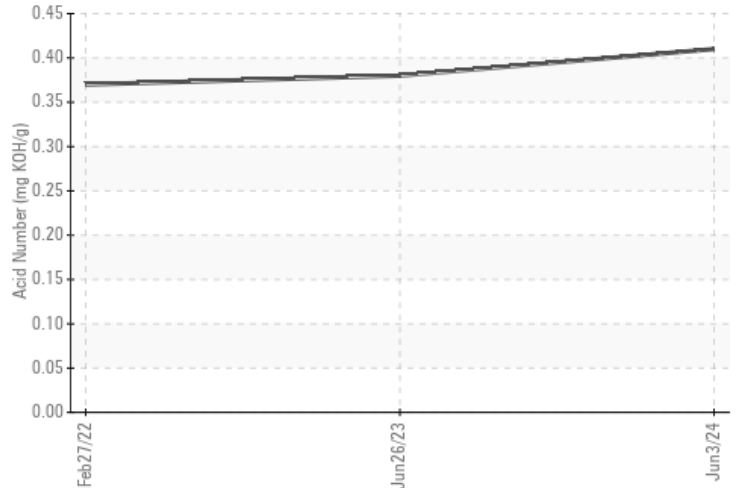
Non-ferrous Metals



Viscosity @ 40°C



Acid Number





CONSTRUCTION EQUIPMENT

567794 VOLVO L220H 3204 - FRONT AXLE



Sample No: VCP393577
Oil Type: VOLVO WB 102
Job No: 567794



SAMPLE INFORMATION

| | | | | |
|---------------|--------------------|-------------|-----|-----|
| Sample Number | VCP393577 | VCP406164 | --- | --- |
| Sample Date | 26 Jun 2023 | 27 Feb 2022 | --- | --- |
| Machine Hours | 3766 | 3281 | --- | --- |
| Oil Hours | 0 | 0 | --- | --- |
| Oil Changed | Not Chngd | Not Chngd | --- | --- |
| Sample Status | NORMAL | NORMAL | --- | --- |

FIVE STONES MINE
MORNING STAR FARM RD
CANAL POINT, FL
US 33430
Contact: Service Manager

OIL CONDITION

| | | | | | |
|-------------|-----|-------------|------|-----|-----|
| Visc @ 40°C | cSt | 42.7 | 42.6 | --- | --- |
|-------------|-----|-------------|------|-----|-----|

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CONTAMINATION

| | | | | | |
|-----------|-----|-----------|----|-----|-----|
| Silicon | ppm | 14 | 13 | --- | --- |
| Sodium | ppm | 3 | 5 | --- | --- |
| Potassium | ppm | 2 | 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 | 127 | 93 | --- | --- |
| Copper | ppm | 39 | 34 | --- | --- |
| Lead | ppm | <1 | 2 | --- | --- |
| Tin | ppm | 0 | <1 | --- | --- |
| Aluminum | ppm | 0 | 1 | --- | --- |
| Chromium | ppm | 3 | 3 | --- | --- |
| Molybdenum | ppm | <1 | 3 | --- | --- |
| Nickel | ppm | 1 | 1 | --- | --- |
| Titanium | ppm | 0 | <1 | --- | --- |
| Silver | ppm | 0 | 0 | --- | --- |
| Manganese | ppm | 4 | 3 | --- | --- |
| Vanadium | ppm | 0 | 0 | --- | --- |

ADDITIVES

| | | | | | |
|------------|-----|-------------|------|-----|-----|
| Calcium | ppm | 3703 | 4038 | --- | --- |
| Magnesium | ppm | 17 | 23 | --- | --- |
| Zinc | ppm | 1532 | 1697 | --- | --- |
| Phosphorus | ppm | 1222 | 1302 | --- | --- |
| Barium | ppm | 0 | 0 | --- | --- |
| Boron | ppm | 129 | 134 | --- | --- |

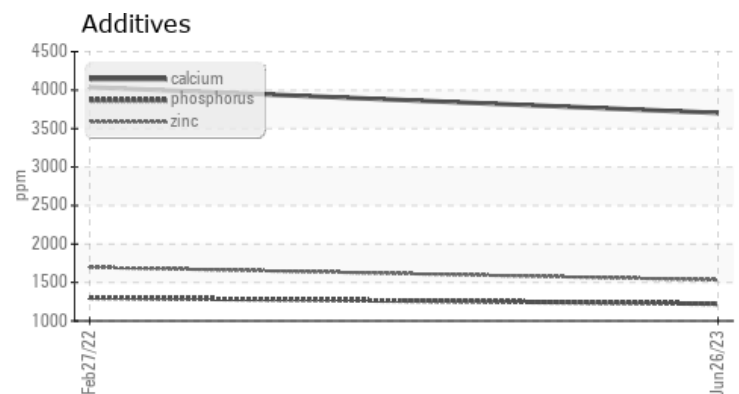
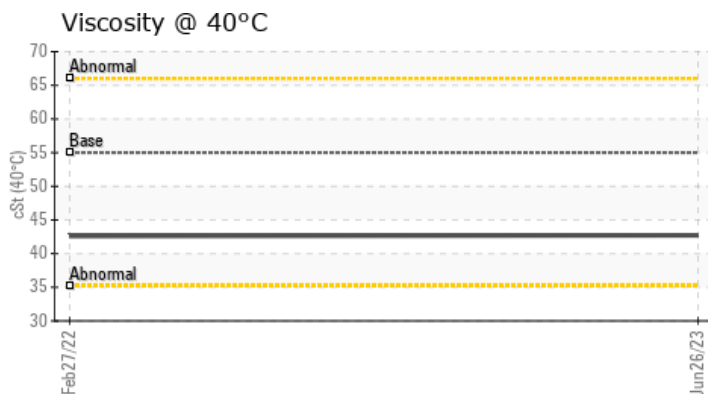
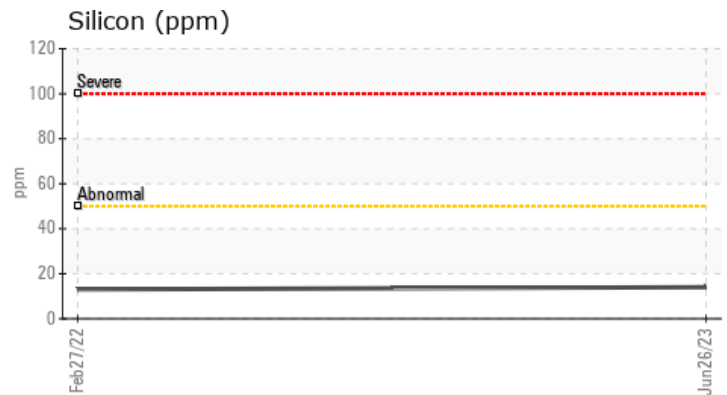
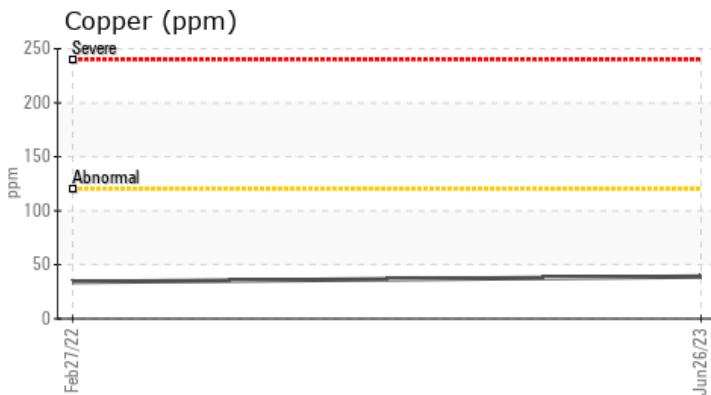
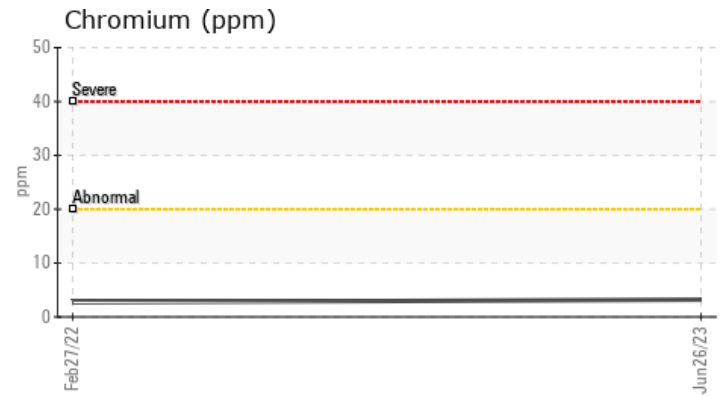
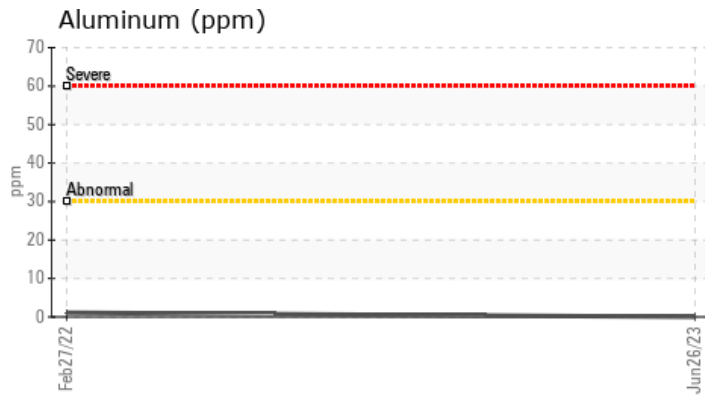
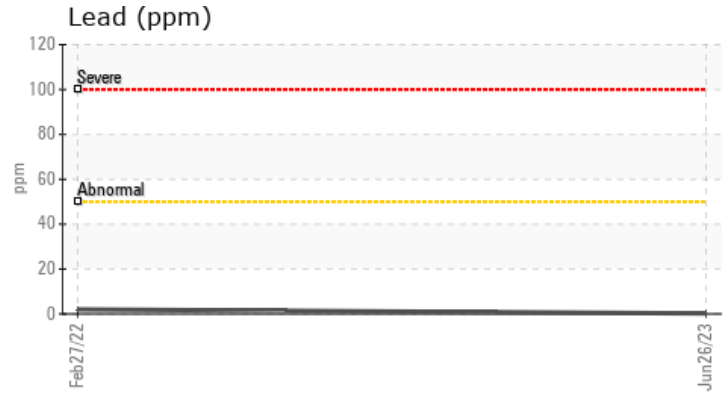
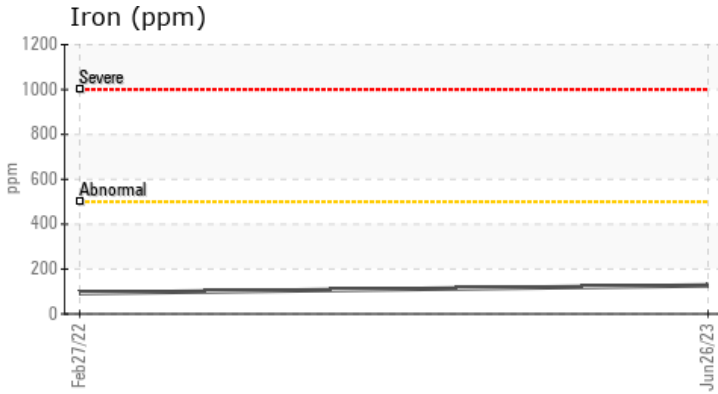
Depot: FIVCAN
Unique No: 10537451
Signed: Wes Davis
Report Date: 02 Jul 2023



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

VOLVO L220H 3204 - REAR AXLE



Sample No: VCP449993
Oil Type: VOLVO WB 102
Job No:



SAMPLE INFORMATION

| | | | | |
|---------------|--------------------|-------------|-------------|-------------|
| Sample Number | VCP449993 | VCP449989 | VCP425453 | VCP406161 |
| Sample Date | 05 Jun 2024 | 03 Jun 2024 | 26 Jun 2023 | 27 Feb 2022 |
| Machine Hours | 4274 | 4274 | 3766 | 3281 |
| Oil Hours | 0 | 0 | 0 | 0 |
| Oil Changed | Changed | Changed | Not Changd | Not Changd |
| Sample Status | NORMAL | NORMAL | NORMAL | NORMAL |

FIVE STONES MINE
MORNING STAR FARM RD
CANAL POINT, FL
US 33430
Contact: Service Manager



OIL CONDITION

| | | | | | |
|-------------|-----|-------------|------|------|------|
| Visc @ 40°C | cSt | 42.3 | 39.7 | 39.8 | 39.7 |
|-------------|-----|-------------|------|------|------|

T:
F:



CONTAMINATION

| Water | % | NEG | NEG | NEG | NEG |
|-----------|-----|-----------|-----|-----|-----|
| Silicon | ppm | 15 | 6 | 13 | 12 |
| Sodium | ppm | 6 | 5 | 1 | 4 |
| Potassium | ppm | 1 | 0 | 3 | 2 |

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 | 122 | 68 | 83 | 65 |
| Copper | ppm | 43 | 57 | 53 | 47 |
| Lead | ppm | 0 | 0 | <1 | 2 |
| Tin | ppm | <1 | 0 | 0 | <1 |
| Aluminum | ppm | <1 | 0 | 0 | <1 |
| Chromium | ppm | 2 | 2 | 3 | 3 |
| Molybdenum | ppm | 2 | 2 | 1 | 3 |
| Nickel | ppm | 0 | 0 | 1 | 1 |
| Titanium | ppm | 0 | 0 | <1 | <1 |
| Silver | ppm | 0 | 0 | 0 | 0 |
| Manganese | ppm | 4 | 3 | 5 | 4 |
| Vanadium | ppm | 0 | 0 | 0 | 0 |



ADDITIVES

| | | | | | |
|------------|-----|-------------|------|------|------|
| Calcium | ppm | 3581 | 3624 | 3781 | 4057 |
| Magnesium | ppm | 18 | 8 | 9 | 14 |
| Zinc | ppm | 1492 | 1500 | 1601 | 1739 |
| Phosphorus | ppm | 1296 | 1330 | 1291 | 1353 |
| Barium | ppm | 0 | 0 | 0 | 0 |
| Boron | ppm | 147 | 136 | 136 | 135 |

Depot: FIVCAN
Unique No: 11069341
Signed: Wes Davis
Report Date: 07 Jun 2024



CONSTRUCTION EQUIPMENT



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