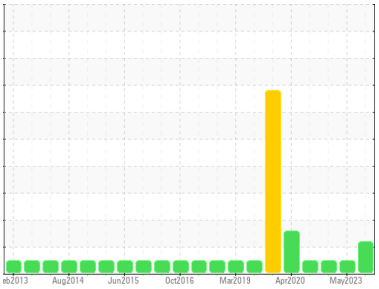
# PROBLEM SUMMARY

Area
**AMR-Cheyenne**
Machine Id
**VOLVO EC460CL 110459**
Component
**Hydraulic System**
Fluid
**CHEVRON HYDRAULIC OIL AW ISO 46 (139 GAL)**

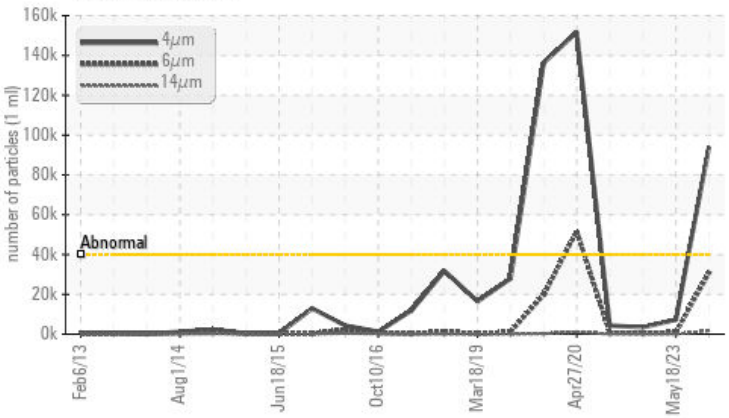
**Sample Rating Trend**




**ISO**

## COMPONENT CONDITION SUMMARY

Particle Trend




## RECOMMENDATION

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | **ABNORMAL** | NORMAL | NORMAL |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >40000 | ▲ **94015** | 7297 | 3431 |
| Particles >6µm | | ASTM D7647 | >10000 | ▲ **30917** | 801 | 670 |
| Oil Cleanliness | | ISO 4406 (c) | >22/20/18 | ▲ **24/22/18** | 20/17/12 | 19/17/12 |

**Customer Id:** ADVKANKS
**Sample No.:** DJJ0012256
**Lab Number:** 05981879
**Test Package:** MOBCE

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

*To change component or sample information:*
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Change Filter | --- | --- | ? | We recommend you service the filters on this component. |
| Resample | --- | --- | ? | We recommend an early resample to monitor this condition. |

## HISTORICAL DIAGNOSIS

**18 May 2023 Diag: Wes Davis**

NORMAL

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.

view report

**01 Dec 2022 Diag: Don Baldridge**

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

**04 Feb 2021 Diag: Don Baldridge**

NORMAL

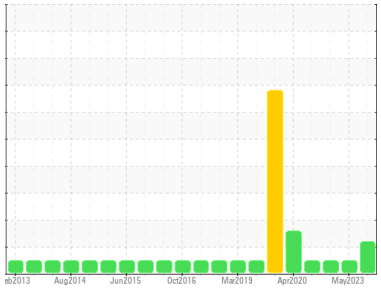
Resample at the next service interval to monitor.All component wear rates are normal. The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

# OIL ANALYSIS REPORT

Area
**AMR-Cheyenne**
Machine Id
**VOLVO EC460CL 110459**
Component
**Hydraulic System**
Fluid
**CHEVRON HYDRAULIC OIL AW ISO 46 (139 GAL)**

Sample Rating Trend




ISO

## DIAGNOSIS

**▲ Recommendation**
We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

**Wear**
All component wear rates are normal.

**▲ Contamination**
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

**Fluid Condition**
The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **DJJ0012256** | DJJ0019219 | DJJ0002741 |
| Sample Date | | Client Info | | **06 Oct 2023** | 18 May 2023 | 01 Dec 2022 |
| Machine Age | hrs | Client Info | | **14810** | 14362 | 13861 |
| Oil Age | hrs | Client Info | | **0** | 0 | 1000 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| Sample Status | | | | **ABNORMAL** | NORMAL | NORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >25 | **2** | 3 | 2 |
| Chromium | ppm | ASTM D5185m | >10 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >10 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **0** | 0 | <1 |
| Lead | ppm | ASTM D5185m | >20 | **<1** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >150 | **2** | 3 | 5 |
| Tin | ppm | ASTM D5185m | >10 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Barium | ppm | ASTM D5185m | | **3** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Manganese | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | | **1** | <1 | 0 |
| Calcium | ppm | ASTM D5185m | | **126** | 87 | 89 |
| Phosphorus | ppm | ASTM D5185m | | **361** | 362 | 352 |
| Zinc | ppm | ASTM D5185m | | **454** | 456 | 434 |
| Sulfur | ppm | ASTM D5185m | | **1013** | 1146 | 1131 |

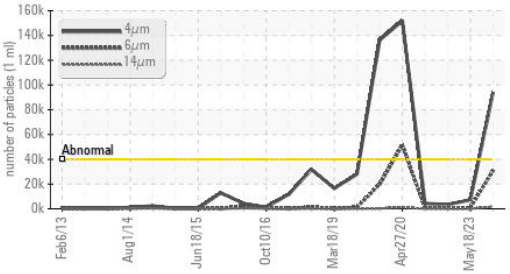
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >50 | **<1** | <1 | 0 |
| Sodium | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Potassium | ppm | ASTM D5185m | >20 | **1** | <1 | 0 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >40000 | ▲ **94015** | 7297 | 3431 |
| Particles >6µm | | ASTM D7647 | >10000 | ▲ **30917** | 801 | 670 |
| Particles >14µm | | ASTM D7647 | >2500 | **1678** | 38 | 35 |
| Particles >21µm | | ASTM D7647 | >640 | **379** | 10 | 6 |
| Particles >38µm | | ASTM D7647 | >160 | **8** | 1 | 0 |
| Particles >71µm | | ASTM D7647 | >40 | **1** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >22/20/18 | ▲ **24/22/18** | 20/17/12 | 19/17/12 |

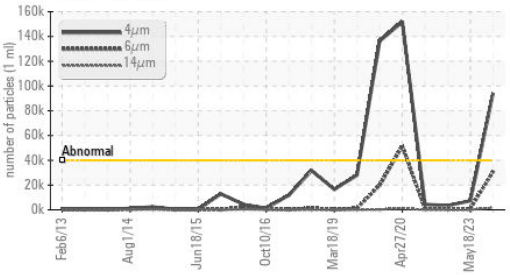
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **0.32** | 0.34 | 0.36 |

# OIL ANALYSIS REPORT

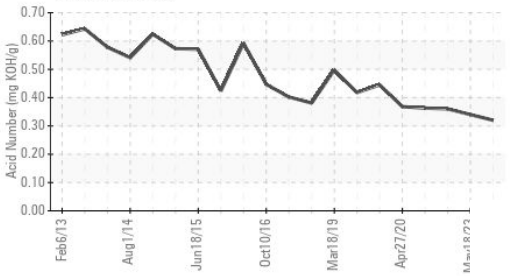
Particle Trend



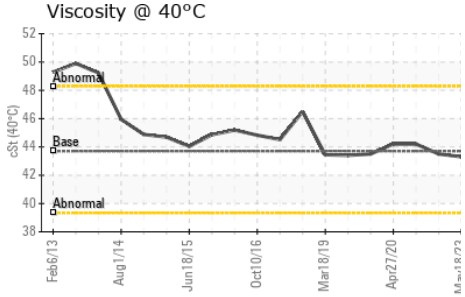

Particle Trend




Acid Number



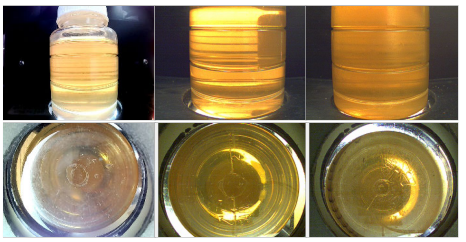

Viscosity @ 40°C




| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **LIGHT** | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Appearance | scalar | *Visual | NORML | **NORML** | NORML | NORML |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

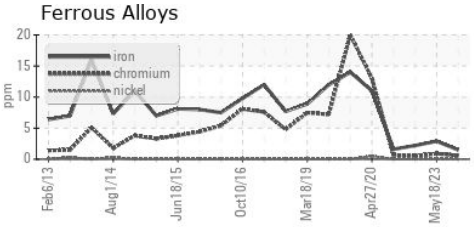
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 43.7 | **42.1** | 43.3 | 43.5 |

| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | | | | |
| Bottom | | | | | |

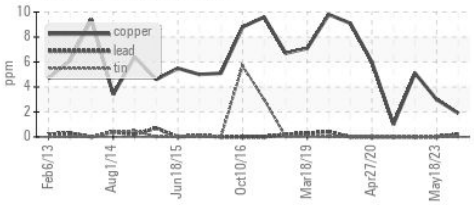


## GRAPHS

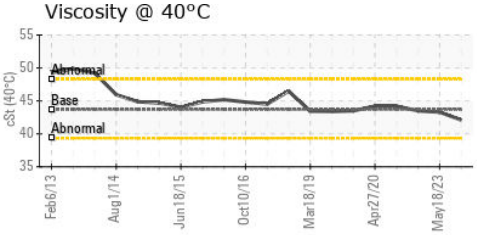
Ferrous Alloys



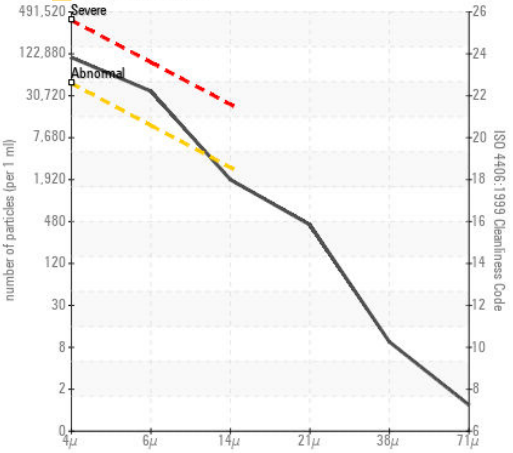

Non-ferrous Metals



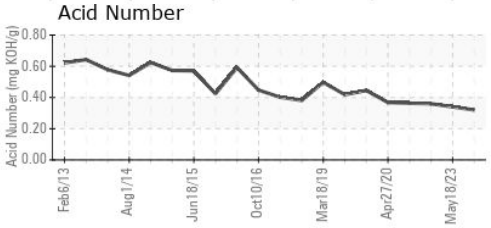

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : DJJ0012256
**Lab Number** : 05981879
**Unique Number** : 10699174
**Test Package** : MOBCE

**Received** : 17 Oct 2023
**Diagnosed** : 18 Oct 2023
**Diagnostician** : Wes Davis

*To discuss this sample report, contact Customer Service at 1-800-237-1369.*
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
*Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)*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