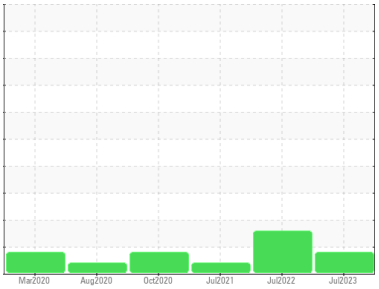
# PROBLEM SUMMARY

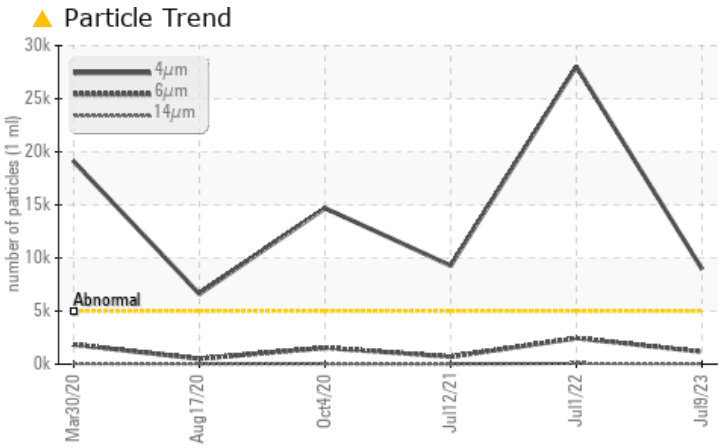
Sample Rating Trend




ISO

Area
**Ohio Valley**
Machine Id
**[Ohio Valley] Hydraulic - Flanking**
Component
**Hydraulic System**
Fluid
**AW HYDRAULIC OIL ISO 46 (--- GAL)**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

We recommend you service the filters on this component. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

## PROBLEMATIC TEST RESULTS

| | | | | ATTENTION | ABNORMAL | ATTENTION |
|---|---|---|---|---|---|---|
| Sample Status | | | | **ATTENTION** | ABNORMAL | ATTENTION |
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **8952** | ▲ 28044 | ▲ 9277 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **20/17/12** | ▲ 22/18/13 | ▲ 20/17/11 |

**Customer Id:** MARCAT
**Sample No.:** WC0683586
**Lab Number:** 05900029
**Test Package:** IND 2

*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. |
| Information Required | --- | --- | ? | Please specify the brand, type, and viscosity of the oil on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. |

## HISTORICAL DIAGNOSIS

**01 Jul 2022 Diag: Doug Bogart**

**WEAR**

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.The iron level is abnormal. There is a moderate amount of silt (particulates < 6 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

**view report**

**12 Jul 2021 Diag: Angela Borella**

**ISO**

The filter change at the time of sampling has been noted. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

**view report**

**04 Oct 2020 Diag: Doug Bogart**

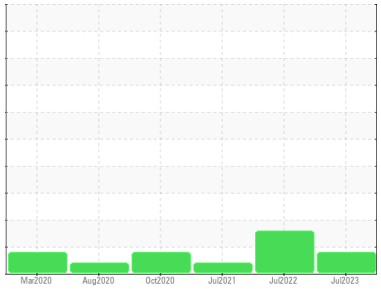
**ISO**

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the fluid. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

**view report**

# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Area
## Ohio Valley
Machine Id
## [Ohio Valley] Hydraulic - Flanking
Component
**Hydraulic System**
Fluid
**AW HYDRAULIC OIL ISO 46 (--- GAL)**

## DIAGNOSIS

**Recommendation**

We recommend you service the filters on this component. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

**Wear**

All component wear rates are normal.

**Contamination**

There is a light amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible.

**Fluid Condition**

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0683586** | WC0621566 | RP0014101 |
| Sample Date | | Client Info | | **09 Jul 2023** | 01 Jul 2022 | 12 Jul 2021 |
| Machine Age | hrs | Client Info | | **9823** | 0 | 0 |
| Oil Age | hrs | Client Info | | **9823** | 0 | 0 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| Sample Status | | | | **ATTENTION** | ABNORMAL | ATTENTION |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >20 | **9** | ▲ 39 | 9 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | 2 | <1 |
| Nickel | ppm | ASTM D5185m | >20 | **0** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 3 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **<1** | <1 | <1 |
| Lead | ppm | ASTM D5185m | >20 | **<1** | 2 | 3 |
| Copper | ppm | ASTM D5185m | >20 | **9** | 11 | 9 |
| Tin | ppm | ASTM D5185m | >20 | **<1** | 2 | 0 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | **0** | 1 | <1 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 5 | **<1** | 3 | 5 |
| Barium | ppm | ASTM D5185m | 5 | **0** | 1 | 0 |
| Molybdenum | ppm | ASTM D5185m | 5 | **<1** | <1 | <1 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 25 | **3** | 5 | 4 |
| Calcium | ppm | ASTM D5185m | 200 | **85** | 84 | 89 |
| Phosphorus | ppm | ASTM D5185m | 300 | **261** | 259 | 256 |
| Zinc | ppm | ASTM D5185m | 370 | **361** | 354 | 353 |
| Sulfur | ppm | ASTM D5185m | 2500 | **2970** | 2970 | 2680 |

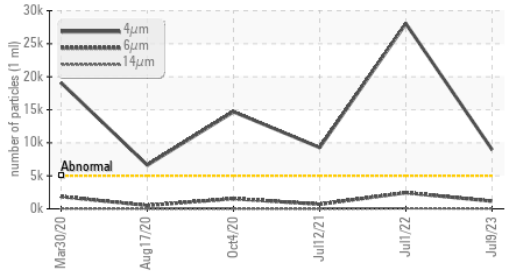
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **<1** | 6 | 2 |
| Sodium | ppm | ASTM D5185m | | **2** | 6 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **0** | <1 | 7 |
| Water | % | ASTM D6304 | >0.05 | **0.008** | 0.010 | 0.011 |
| ppm Water | ppm | ASTM D6304 | >500 | **87.0** | 107.4 | 115.2 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **8952** | ▲ 28044 | ▲ 9277 |
| Particles >6µm | | ASTM D7647 | >1300 | **1154** | 2449 | 692 |
| Particles >14µm | | ASTM D7647 | >160 | **27** | 75 | 14 |
| Particles >21µm | | ASTM D7647 | >40 | **3** | 19 | 2 |
| Particles >38µm | | ASTM D7647 | >10 | **0** | 2 | 0 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **20/17/12** | ▲ 22/18/13 | ▲ 20/17/11 |

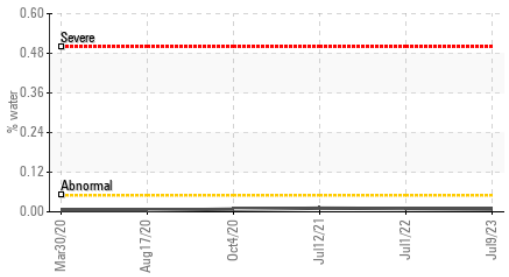
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.57 | **0.40** | 0.39 | 0.390 |

# OIL ANALYSIS REPORT

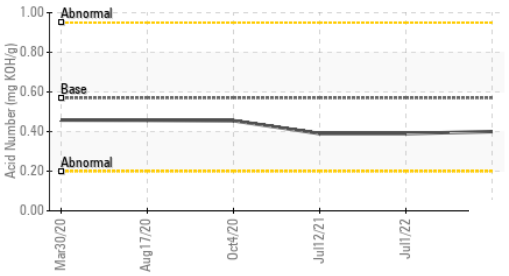
Particle Trend



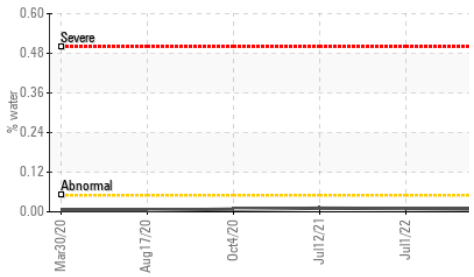

Water



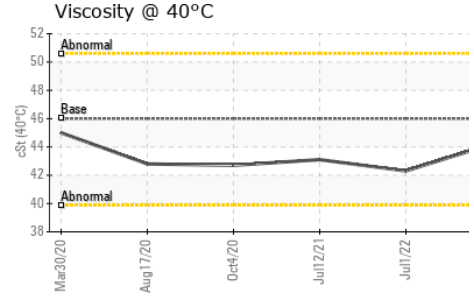

Acid Number




Water

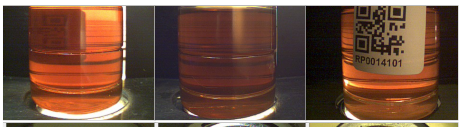



Viscosity @ 40°C



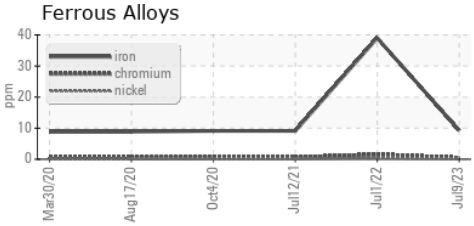

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | LIGHT | 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 | >0.05 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 46 | **44.2** | 42.3 | 43.1 |

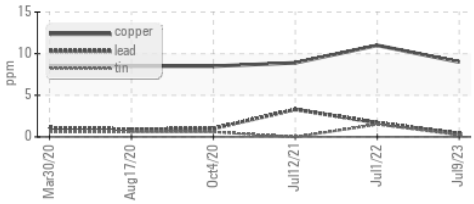
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

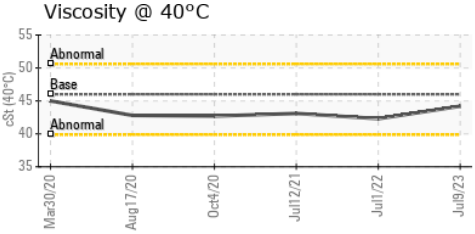
Ferrous Alloys



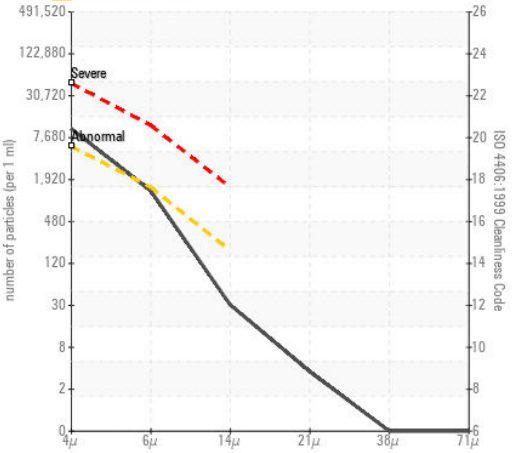

Non-ferrous Metals



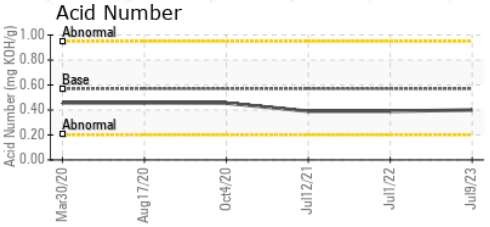

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0683586 **Received** : 17 Jul 2023
**Lab Number** : 05900029 **Diagnosed** : 21 Jul 2023
**Unique Number** : 10561385 **Diagnostician** : Wes Davis
**Test Package** : IND 2 ( Additional Tests: KF )

*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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Report Id: MARCAT [WUSCAR] 05900029 (Generated: 07/21/2023 09:57:47) Rev: 1

Submitted By: M/V OHIO VALLEY