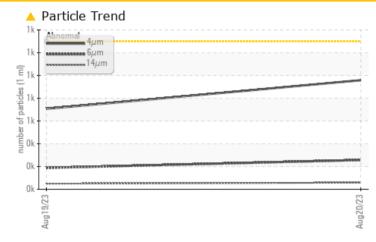
## **PROBLEM SUMMARY**

Sample Rating Trend

#### Machine Id USS INDY Component Hydraulic System Fluid MOBIL HYDRAULIC OIL AW 46 (--- GAL)

#### COMPONENT CONDITION SUMMARY



#### RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

| PROBLEMATIC T   | EST RESULTS  |           |           |             |          |
|-----------------|--------------|-----------|-----------|-------------|----------|
| Sample Status   |              |           | ATTENTION | ATTENTION   |          |
| Particles >14µm | ASTM D7647   | >40       | <u> </u>  | <b>4</b> 9  |          |
| Particles >21µm | ASTM D7647   | >10       | <u> </u>  | <b>a</b> 20 |          |
| Oil Cleanliness | ISO 4406 (c) | >17/15/12 | <u> </u>  | 🔺 17/15/13  |          |
| PrtFilter       |              |           |           |             | no image |

Customer Id: HYDJAC Sample No.: PH0001019 Lab Number: 05934869 Test Package: PLANT



To manage this report scan the QR code

To discuss the diagnosis or test data: Jonathan Hester +1 919-379-4092 x4092 jhester@wearcheckusa.com

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com There are no recommended actions for this sample.

#### HISTORICAL DIAGNOSIS

#### 19 Aug 2023 Diag: Jonathan Hester



No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of particulates present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.





### **OIL ANALYSIS REPORT**

#### Sample Rating Trend

ISO



Component **Hydraulic System** MOBIL HYDRAULIC OIL AW 46 (--- GAL)

#### DIAGNOSIS

#### A Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is a moderate amount of particulates present in the oil.

#### Fluid Condition

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

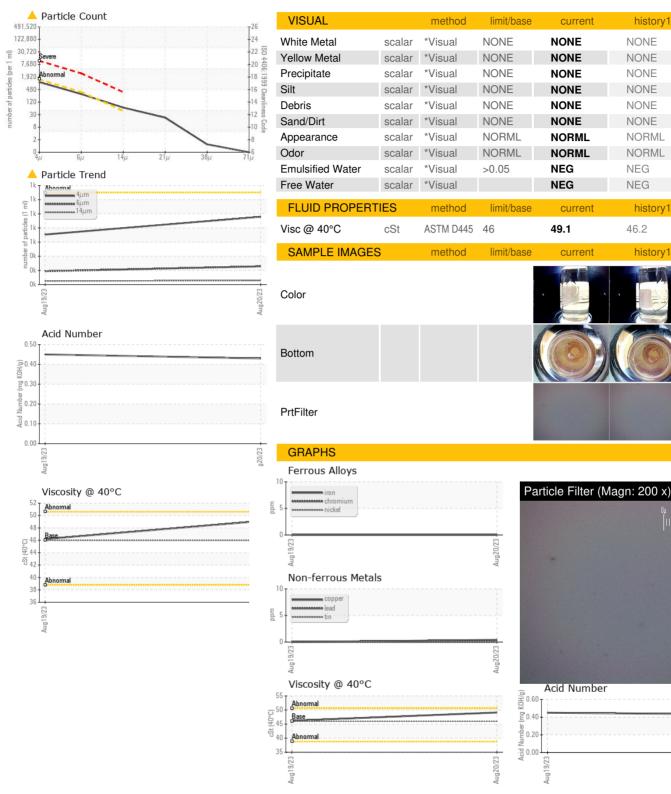
| Particle Filter ( | $Maan \cdot 200 v$            |
|-------------------|-------------------------------|
|                   | $(v_{agn} \ge 00 \ \text{A})$ |



|  |  |  | Aug2023   | Aug2023  |  |  |
|--|--|--|---|--|--|--|
| SAMPLE INFORM  | ATION  | method   | limit/base  | current  | history1   | history2   |
| Sample Number  |  | Client Info  |   | PH0001019  | PH0001034  |  |
| Sample Date  |  | Client Info  |   | 20 Aug 2023  | 19 Aug 2023  |  |
| Machine Age  | hrs  | Client Info  |   | 0  | 0  |  |
| Oil Age  | hrs  | Client Info  |   | 0  | 0  |  |
| Oil Changed  |  | Client Info  |   | N/A  | N/A  |  |
| Sample Status  |  |  |   | ATTENTION  | ATTENTION  |  |
| WEAR METALS  |  | method   | limit/base  | current  | history1   | history2   |
| Iron   | ppm  | ASTM D5185m  | >20   | 0  | 0  |  |
| Chromium   | ppm  | ASTM D5185m  | >20   | 0  | 0  |  |
| Nickel   | ppm  | ASTM D5185m  | >20   | 0  | 0  |  |
| Titanium   | ppm  | ASTM D5185m  |   | 0  | 0  |  |
| Silver   | ppm  | ASTM D5185m  |   | 0  | <1   |  |
| Aluminum   | ppm  | ASTM D5185m  | >20   | 0  | 0  |  |
| Lead   | ppm  | ASTM D5185m  | >20   | 0  | 0  |  |
| Copper   | ppm  | ASTM D5185m  | >20   | <1   | 0  |  |
| Tin  | ppm  | ASTM D5185m  | >20   | 0  | 0  |  |
| Vanadium   | ppm  | ASTM D5185m  |   | 0  | 0  |  |
| Cadmium  | ppm  | ASTM D5185m  |   | 0  | 0  |  |
| ADDITIVES  |  | method   | limit/base  | current  | history1   | history2   |
| Boron  | ppm  | ASTM D5185m  |   | 0  | 0  |  |
| Barium   | ppm  | ASTM D5185m  |   | 0  | 0  |  |
|  | ppm  | ASTIVI DUTOUIII  |   | U  | 0  |  |
| Molybdenum   | ppm  | ASTM D5185m  |   | 0  | 0  |  |
| Molybdenum<br>Manganese  |  |  |   | -  |  |  |
| -  | ppm  | ASTM D5185m  |   | 0  | 0  |  |
| Manganese  | ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m   |   | 0  | 0<br>0   |  |
| Manganese<br>Magnesium   | ppm<br>ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  |   | 0<br>0<br><1   | 0<br>0<br><1   |  |
| Manganese<br>Magnesium<br>Calcium  | ppm<br>ppm<br>ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   |   | 0<br>0<br><1<br>55   | 0<br>0<br><1<br>52   |  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus  | ppm<br>ppm<br>ppm<br>ppm<br>ppm                                    | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  |   | 0<br>0<br><1<br>55<br>265  | 0<br>0<br><1<br>52<br>295  |  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | limit/base  | 0<br>0<br><1<br>55<br>265<br>322   | 0<br>0<br><1<br>52<br>295<br>391   | <br><br>   |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | limit/base >15  | 0<br>0<br><1<br>55<br>265<br>322<br>1837   | 0<br>0<br><1<br>52<br>295<br>391<br>2089   | <br><br><br><br>   |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b>   |   | 0<br>0<br><1<br>55<br>265<br>322<br>1837<br>current  | 0<br>0<br><1<br>52<br>295<br>391<br>2089<br>history1   | <br><br><br>   |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m  |   | 0<br>0<br><1<br>55<br>265<br>322<br>1837<br>current<br>1   | 0<br>0<br><1<br>52<br>295<br>391<br>2089<br>history1<br>2  | <br><br><br><br>history2                                     |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m<br>ASTM D5185m  | >15   | 0<br>0<br><1<br>55<br>265<br>322<br>1837<br>current<br>1<br>0  | 0<br>0<br><1<br>52<br>295<br>391<br>2089<br>history1<br>2<br>0   | <br><br><br><br>history2                                     |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | >15<br>>20  | 0<br>0<br><1<br>55<br>265<br>322<br>1837<br>current<br>1<br>0<br><1  | 0<br>0<br><1<br>52<br>295<br>391<br>2089<br>history1<br>2<br>0<br><1   | <br><br><br><br>history2<br><br>                             |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>ASTM D5185m  | >15<br>>20<br>limit/base  | 0<br>0<br><1<br>55<br>265<br>322<br>1837<br>current<br>1<br>0<br><1<br>current   | 0<br>0<br><1<br>52<br>295<br>391<br>2089<br>history1<br>2<br>0<br><1<br>history1   | <br><br><br><br>history2<br><br><br>history2                 |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN<br>Particles >4µm  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>ASTM D5185m   | >15<br>>20<br>limit/base<br>>1300                                   | 0<br>0<br><1<br>55<br>265<br>322<br>1837<br>current<br>1<br>0<br><1<br>current<br>958  | 0<br>0<br><1<br>52<br>295<br>391<br>2089<br>history1<br>2<br>0<br><1<br>history1<br>707  | <br><br><br><br>history2<br><br><br>history2                 |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >6µm  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>ASTM D5185m   | >15<br>>20<br>limit/base<br>>1300<br>>320                           | 0<br>0<br><1<br>55<br>265<br>322<br>1837<br>current<br>1<br>0<br><1<br>0<br><1<br>20<br>58<br>257                            | 0<br>0<br><1<br>52<br>295<br>391<br>2089<br>history1<br>2<br>0<br><1<br>*<br>1<br>*<br>*<br>*<br>*<br>*<br>*<br>*<br>*<br>*        | <br><br><br><br>history2<br><br>history2<br><br>history2     |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >14µm   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647             | >15<br>>20<br>limit/base<br>>1300<br>>320<br>>40                    | 0<br>0<br><1<br>55<br>265<br>322<br>1837<br>current<br>1<br>0<br><1<br>0<br><1<br>current<br>958<br>257<br>€8                | 0<br>0<br><1<br>52<br>295<br>391<br>2089<br>history1<br>2<br>0<br><1<br>2<br>0<br><1<br>5<br>707<br>188<br>49                      | <br><br><br><br><br>history2<br><br><br>history2             |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >14µm<br>Particles >21µm                                      | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647                             | >15<br>>20<br>limit/base<br>>1300<br>>320<br>>40<br>>10             | 0<br>0<br><1<br>55<br>265<br>322<br>1837<br>current<br>1<br>0<br><1<br>current<br>958<br>257<br>▲ 58<br>19                   | 0<br>0<br><1<br>52<br>295<br>391<br>2089<br>history1<br>2<br>0<br><1<br>2<br>0<br><1<br>707<br>188<br>49<br>▲ 49                   | <br><br><br><br>history2<br><br>history2<br><br>history2     |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >6µm<br>Particles >21µm<br>Particles >38µm                    | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185m<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647               | >15<br>>20<br>limit/base<br>>1300<br>>320<br>>40<br>>10<br>>3       | 0<br>0<br><1<br>55<br>265<br>322<br>1837<br>current<br>1<br>0<br><1<br>current<br>958<br>257<br>\$8<br>257<br>\$8<br>19<br>1 | 0<br>0<br>31<br>52<br>295<br>391<br>2089<br>history1<br>2<br>0<br><1<br>2<br>0<br><1<br>1<br>88<br>49<br>▲ 49<br>20<br>1           | <br><br><br><br>history2<br><br><br>history2<br><br>history2 |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >6µm<br>Particles >21µm<br>Particles >38µm<br>Particles >71µm | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ESS | ASTM D5185m<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647 | >15<br>>20<br>limit/base<br>>1300<br>>320<br>>40<br>>10<br>>3<br>>3 | 0<br>0<br><1<br>55<br>265<br>322<br>1837<br>current<br>1<br>0<br><1<br>current<br>958<br>257<br>▲ 58<br>19<br>1<br>1<br>0    | 0<br>0<br><1<br>52<br>295<br>391<br>2089<br>history1<br>2<br>0<br><1<br>2<br>0<br><1<br>707<br>188<br>49<br>▲ 49<br>▲ 20<br>1<br>0 | <br><br><br><br><br>history2<br><br>history2<br><br>history2 |



# **OIL ANALYSIS REPORT**



HYDRODYNE LLC Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : PH0001019 Received : 25 Aug 2023 3919 PHILLIPS HWY Lab Number JACKSONVILLE, FL : 05934869 Diagnosed : 29 Aug 2023 : 10620140 : Jonathan Hester Unique Number Diagnostician US 32207 Test Package : PLANT (Additional Tests: PrtFilter) Contact: Service Manager Certificate L2367 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. T:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Page 4 of 4

history1

NONE

NONE

NONE

NONE

NONE

NONE

NORML

NORML

history<sup>-</sup>

history1

NEG

NEG

46.2

history2

history2

history2

no image

no image

no image