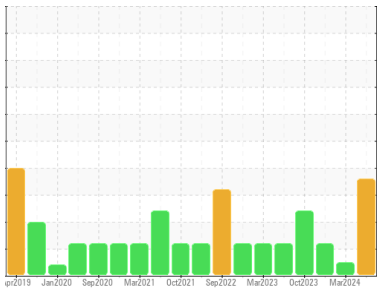
JAMES RIVER EQUIPMENT

# OIL ANALYSIS REPORT

Sample Rating Trend




**GLYCOL**

Area
**[W8895]**
Machine Id
**JOHN DEERE 824K 1DW824KXVJF687635**
Component
**Diesel Engine**
Fluid
**JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (8 GAL)**

## DIAGNOSIS

**Recommendation**
We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. ( Customer Sample Comment: W8895 )

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

**Contamination**
Sodium and/or potassium levels are high. Light fuel dilution occurring.

**Fluid Condition**
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **JR0196797** | JR0197088 | JR0008673 |
| Sample Date | | Client Info | | **14 May 2024** | 27 Mar 2024 | 19 Jan 2024 |
| Machine Age | hrs | Client Info | | **10492** | 10251 | 9881 |
| Oil Age | hrs | Client Info | | **611** | 250 | 471 |
| Oil Changed | | Client Info | | **Changed** | Not Changd | Changed |
| Sample Status | | | | **ABNORMAL** | NORMAL | ATTENTION |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **18** | 7 | 10 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | **0** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **6** | 5 | 7 |
| Lead | ppm | ASTM D5185m | >40 | **3** | 1 | 3 |
| Copper | ppm | ASTM D5185m | >330 | **7** | 4 | 7 |
| Tin | ppm | ASTM D5185m | >15 | **2** | <1 | 1 |
| 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 | | **141** | 207 | 140 |
| Barium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **253** | 235 | 222 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **831** | 786 | 845 |
| Calcium | ppm | ASTM D5185m | | **1386** | 1338 | 1375 |
| Phosphorus | ppm | ASTM D5185m | | **802** | 870 | 676 |
| Zinc | ppm | ASTM D5185m | | **975** | 1029 | 892 |
| Sulfur | ppm | ASTM D5185m | | **3346** | 3287 | 2875 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **10** | 7 | 6 |
| Sodium | ppm | ASTM D5185m | | ▲ **104** | 54 | 38 |
| Potassium | ppm | ASTM D5185m | >20 | ▲ **46** | 20 | 10 |
| Fuel | % | ASTM D3524 | >5 | ▲ **4.4** | 3.1 | ▲ 3.5 |
| Glycol | % | *ASTM D2982 | | **NEG** | NEG | NEG |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.5** | 0.2 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.1** | 8.3 | 8.8 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **23.4** | 20.9 | 22.2 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **19.7** | 15.4 | 16.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 13.6 | **7.3** | 8.9 | 7.9 |

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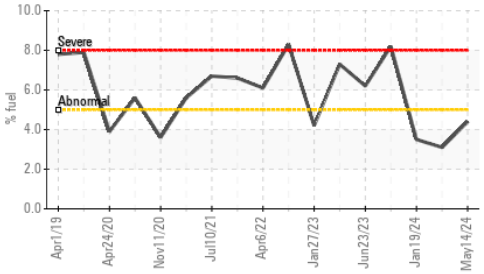
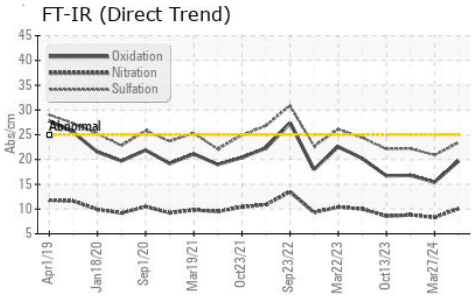
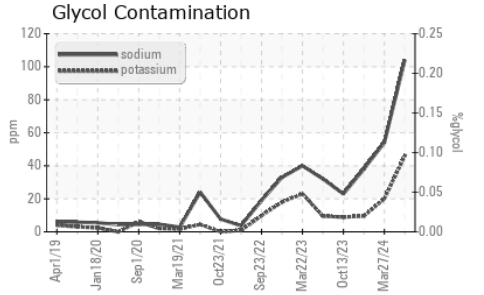
Fuel Dilution



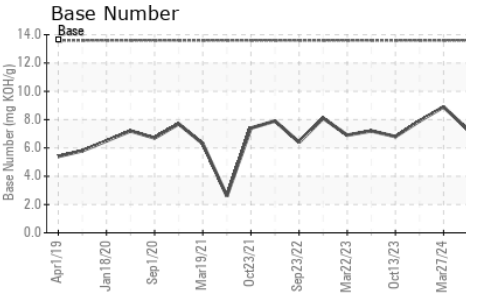

FT-IR (Direct Trend)



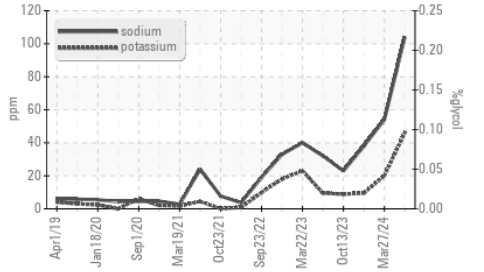

Glycol Contamination




Base Number




Glycol Contamination

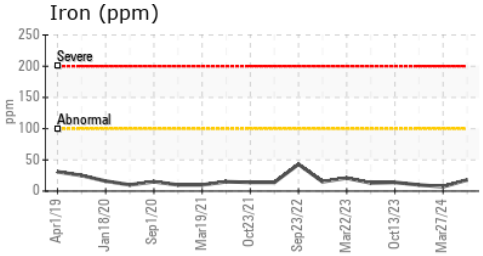



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | 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 | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

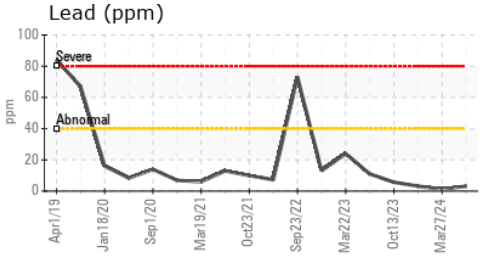
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **11.7** | 12.3 | 11.9 |

## GRAPHS

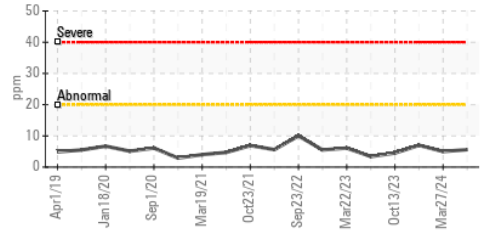
Iron (ppm)



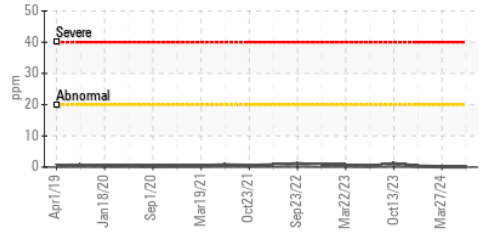

Lead (ppm)



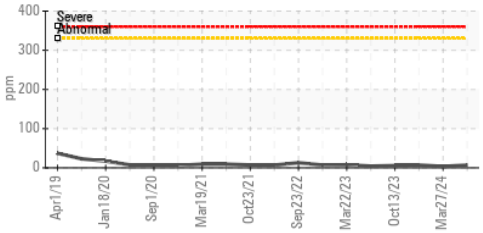

Aluminum (ppm)



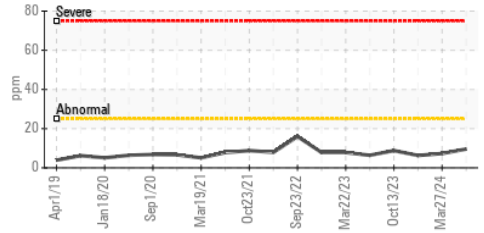

Chromium (ppm)



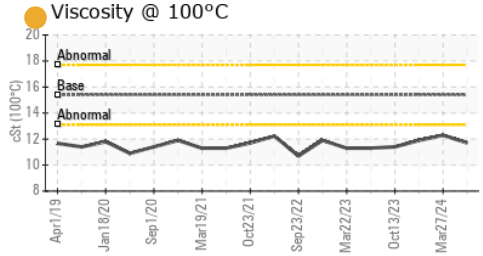

Copper (ppm)



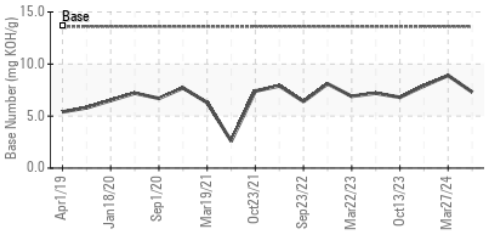

Silicon (ppm)




Viscosity @ 100°C




Base Number




ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : JR0196797
**Lab Number** : 06183630
**Unique Number** : 11034956
**Test Package** : MOBCE ( Additional Tests: FUELDILUTION, Glycol, PercentFuel, TBN)

**Received** : 17 May 2024
**Tested** : 28 May 2024
**Diagnosed** : 28 May 2024 - Jonathan Hester

**JRE - HOPE MILLS/FAYETTEVILLE**
5039 HWY 301 SOUTH
HOPE MILLS, NC
US 28348
Contact: FAYETTEVILLE SHOP
stephen.mullis@jamesriverequipment.com;canastasio@wearcheck.com
T:
F:

*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)*

Report Id: RWMFAY [WUSCAR] 06183630 (Generated: 05/28/2024 11:36:08) Rev: 1

Submitted By: Justin Jackson