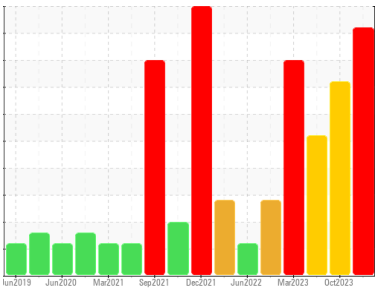
# PROBLEM SUMMARY

Sample Rating Trend

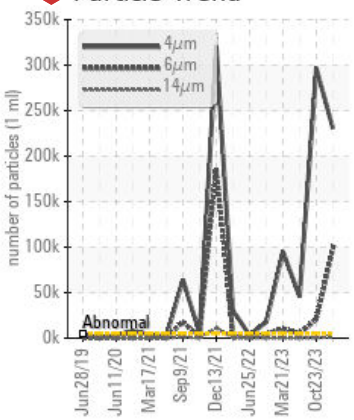


ISO

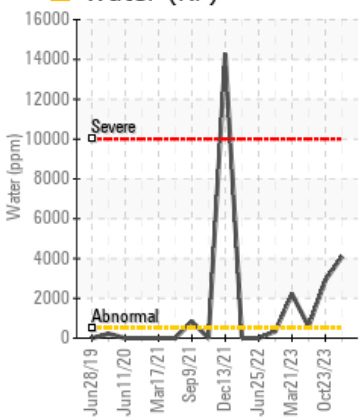
Machine Id
## CAHE-HRS552151 WELLHEAD HPU SUPPLY
Component
**Hydraulic System**
Fluid
**MOBIL GLYGOYLE 22 (--- GAL)**

## COMPONENT CONDITION SUMMARY

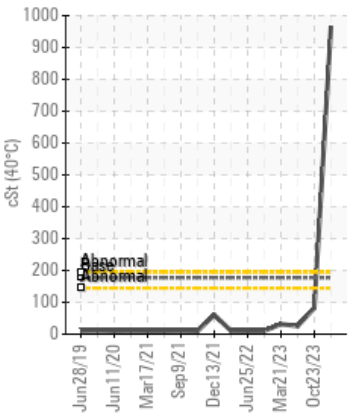
Particle Trend



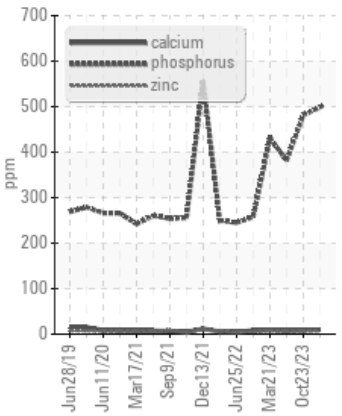

Water (KF)




Viscosity @ 40°C




Additives




## RECOMMENDATION

Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | **SEVERE** | SEVERE | SEVERE |
|---|---|---|---|---|---|---|
| Water | % | ASTM D6304* | >0.05 | ▲ **0.409** | ▲ 0.291 | ▲ 0.058 |
| ppm Water | ppm | ASTM D6304* | >500 | ▲ **4098** | ▲ 2913.3 | ▲ 589.2 |
| Particles >4µm | | ASTM D7647 | >5000 | ⬢ **230478** | ⬢ 296764 | ⬢ 45488 |
| Particles >6µm | | ASTM D7647 | >1300 | ⬢ **98703** | ⬢ 20686 | ▲ 5028 |
| Particles >14µm | | ASTM D7647 | >160 | ⬢ **1332** | ▲ 192 | 154 |
| Particles >21µm | | ASTM D7647 | >40 | ▲ **82** | 40 | 29 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ⬢ **25/24/18** | ⬢ 25/22/15 | ⬢ 23/20/14 |
| Visc @ 40°C | cSt | ASTM D7279(m) | 177 | ▲ **966** | ▲ 82.2 | ▲ 25.5 |


**Customer Id:** EXXSTJ
**Sample No.:** PP13846498
**Lab Number:** 02606238
**Test Package:** MAR 2

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
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Kevin.Marson@wearcheck.com

*To change component or sample information:*
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Change Filter | --- | --- | ? | We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. |
| Resample | --- | --- | ? | Resample in 30-45 days to monitor this situation. |
| Information Required | --- | --- | ? | NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. |
| Check Breathers | --- | --- | ? | The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. |
| Check Dirt Access | --- | --- | ? | We advise that you check all areas where contaminants can enter the system. |
| Check Fluid Source | --- | --- | ? | Confirm the source of the lubricant being utilized for top-up/fill. |
| Check Seals | --- | --- | ? | Check seals and/or filters for points of contaminant entry. |
| Filter Fluid | --- | --- | ? | We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. |

## HISTORICAL DIAGNOSIS

ISO

**23 Oct 2023 Diag: Bill Quesnel**

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. There is a moderate concentration of water present in the oil. Viscosity of sample indicates oil is within ISO 68 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

WATER

**20 Jun 2023 Diag: Kevin Marson**

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. There is a trace of moisture present in the oil. Viscosity of sample indicates oil is within ISO 22 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

ISO

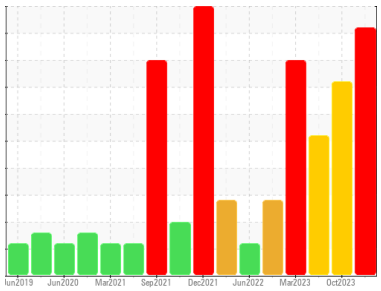
**21 Mar 2023 Diag: Kevin Marson**

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. There is a moderate concentration of water present in the oil. Viscosity of sample indicates oil is within ISO 32 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Machine Id
## CAHE-HRS552151 WELLHEAD HPU SUPPLY
Component
**Hydraulic System**
Fluid
**MOBIL GLYGOYLE 22 (--- GAL)**

## DIAGNOSIS

**Recommendation**

Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

**Wear**

All component wear rates are normal.

**Contamination**

There is a high amount of particulates (2 to 100 microns in size) present in the oil. There is a moderate concentration of water present in the oil.

**Fluid Condition**

Viscosity of sample indicates oil is within ISO 1000 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. 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 | | **PP13846498** | PP13910197 | PP13878001 |
| Sample Date | | Client Info | | **13 Dec 2023** | 23 Oct 2023 | 20 Jun 2023 |
| Machine Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **SEVERE** | SEVERE | SEVERE |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >20 | **7** | 5 | 3 |
| Chromium | ppm | ASTM D5185(m) | >10 | **1** | <1 | 1 |
| Nickel | ppm | ASTM D5185(m) | >10 | **1** | <1 | 0 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | **0** | <1 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >10 | **1** | <1 | 1 |
| Lead | ppm | ASTM D5185(m) | >20 | **0** | <1 | 0 |
| Copper | ppm | ASTM D5185(m) | >20 | **<1** | <1 | 2 |
| Tin | ppm | ASTM D5185(m) | >10 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |

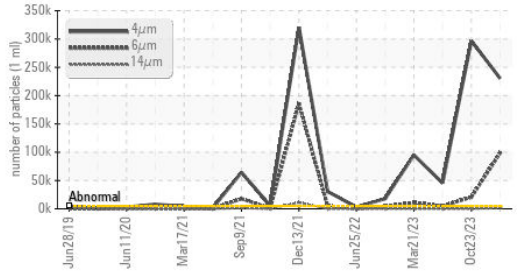
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | | **3** | 2 | 6 |
| Barium | ppm | ASTM D5185(m) | | ▲ **5362** | ▲ 4847 | ▲ 3444 |
| Molybdenum | ppm | ASTM D5185(m) | | **0** | 0 | 9 |
| Manganese | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | | **1** | <1 | 1 |
| Calcium | ppm | ASTM D5185(m) | | **10** | 9 | 8 |
| Phosphorus | ppm | ASTM D5185(m) | | ▲ **499** | ▲ 481 | ▲ 382 |
| Zinc | ppm | ASTM D5185(m) | | **7** | 6 | 5 |
| Sulfur | ppm | ASTM D5185(m) | | ▲ **1784** | ▲ 1490 | ▲ 1119 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >15 | **8** | 6 | 4 |
| Sodium | ppm | ASTM D5185(m) | | **12** | 11 | 47 |
| Potassium | ppm | ASTM D5185(m) | >20 | **2** | 4 | 11 |
| Water | % | ASTM D6304* | >0.05 | ▲ **0.409** | ▲ 0.291 | ▲ 0.058 |
| ppm Water | ppm | ASTM D6304* | >500 | ▲ **4098** | ▲ 2913.3 | ▲ 589.2 |

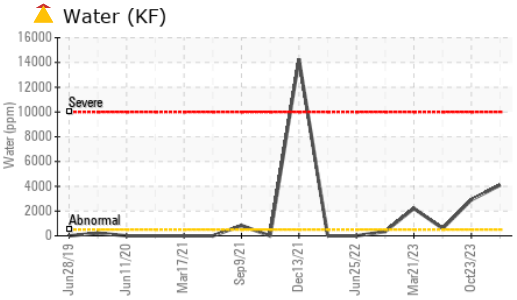
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ● **230478** | ● 296764 | ● 45488 |
| Particles >6µm | | ASTM D7647 | >1300 | ● **98703** | ● 20686 | ▲ 5028 |
| Particles >14µm | | ASTM D7647 | >160 | ● **1332** | ▲ 192 | 154 |
| Particles >21µm | | ASTM D7647 | >40 | ▲ **82** | 40 | 29 |
| Particles >38µm | | ASTM D7647 | >10 | **7** | 1 | 2 |
| Particles >71µm | | ASTM D7647 | >3 | **2** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ● **25/24/18** | ● 25/22/15 | ● 23/20/14 |

# OIL ANALYSIS REPORT

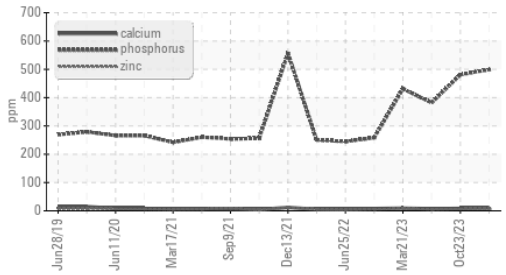
Particle Trend



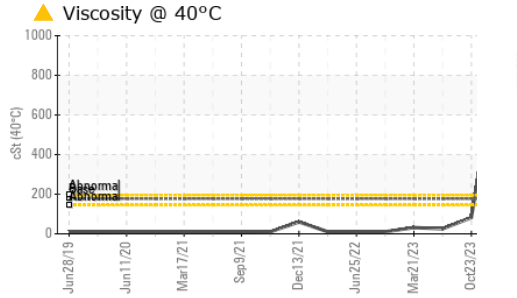

Water (KF)



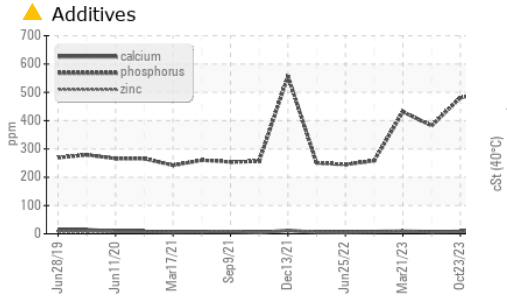

Additives




Viscosity @ 40°C




Additives

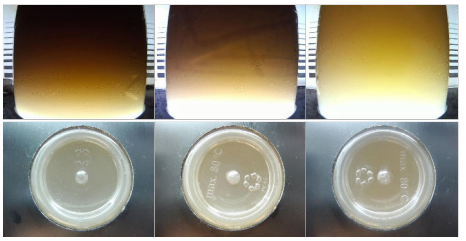



| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974* | | **0.17** | 0.06 | 0.04 |

| 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* | >0.05 | **NEG** | .2% | NEG |
| Free Water | scalar | Visual* | | **NEG** | NEG | NEG |

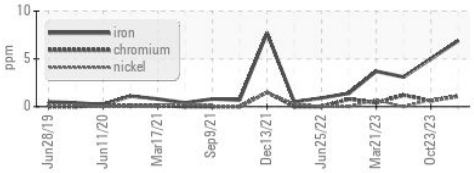
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 177 | ▲ **966** | ▲ 82.2 | ▲ 25.5 |

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

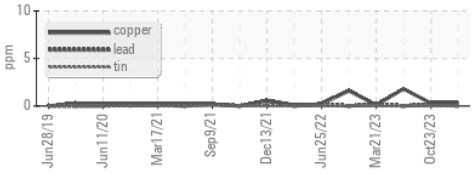


## GRAPHS

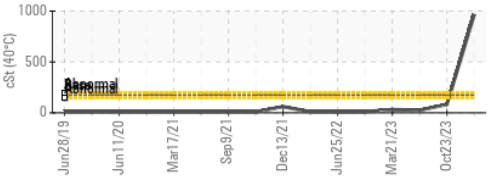
Ferrous Alloys



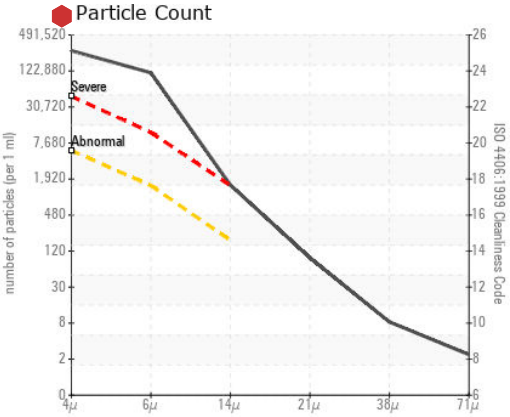

Non-ferrous Metals



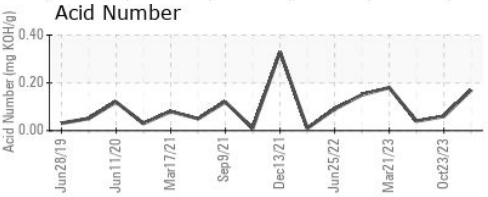

Viscosity @ 40°C




Particle Count




Acid Number




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : PP13846498 **Recieved** : 03 Jan 2024
**Lab Number** : 02606238 **Diagnosed** : 08 Jan 2024
**Unique Number** : 5707324 **Diagnostician** : Kevin Marson
**Test Package** : MAR 2 ( Additional Tests: KF, TAN Man )

*To discuss this sample report, contact Customer Service at 1-800-268-2131.*
*Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.*
*Validity of results and interpretation are based on the sample and information as supplied.*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