



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

| | |
|-----------------|-----------|
| WEAR | NORMAL |
| CONTAMINATION | ABNORMAL |
| FLUID CONDITION | ATTENTION |

Machine Id
GROVE C-17
 Component
Hydraulic System
 Fluid
TRC HYDRAULIC OIL ISO 32- SAE10W (--- GAL)

RECOMMENDATION

We advise that you follow the water drain-off procedure for this component. We recommend you service the filters on this component. Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|-------------|----------|----------|
| Sample Number | | Client Info | | TR03453553 | --- | --- |
| Sample Date | | Client Info | | 24 Feb 2014 | --- | --- |
| Machine Age | hrs | Client Info | | 0 | --- | --- |
| Oil Age | hrs | Client Info | | 4579 | --- | --- |
| Filter Age | hrs | Client Info | | 0 | --- | --- |
| Oil Changed | | Client Info | | Not Changd | --- | --- |
| Filter Changed | | Client Info | | Not Changd | --- | --- |
| Sample Status | | | | ABNORMAL | --- | --- |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|------|-----|-----|
| Iron | ppm | ASTM D5185m | >20 | 2 | --- | --- |
| Chromium | ppm | ASTM D5185m | >10 | 1 | --- | --- |
| Nickel | ppm | ASTM D5185m | | 0 | --- | --- |
| Titanium | ppm | ASTM D5185m | | <1 | --- | --- |
| Silver | ppm | ASTM D5185m | | <1 | --- | --- |
| Aluminum | ppm | ASTM D5185m | >10 | <1 | --- | --- |
| Lead | ppm | ASTM D5185m | >10 | 2 | --- | --- |
| Copper | ppm | ASTM D5185m | >75 | 5 | --- | --- |
| Tin | ppm | ASTM D5185m | >10 | 0 | --- | --- |
| Vanadium | ppm | ASTM D5185m | | 0 | --- | --- |
| White Metal | scalar | *Visual | NONE | NONE | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | --- | --- |

CONTAMINATION

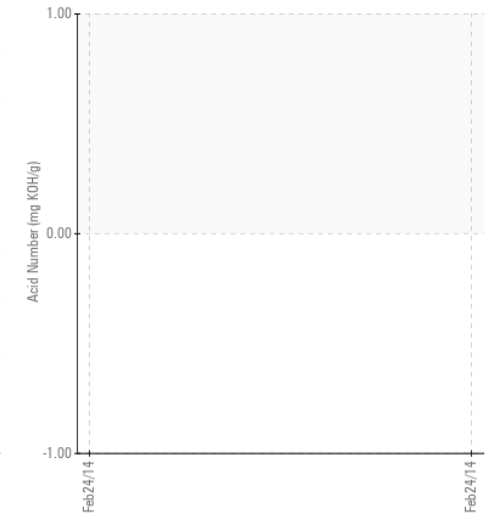
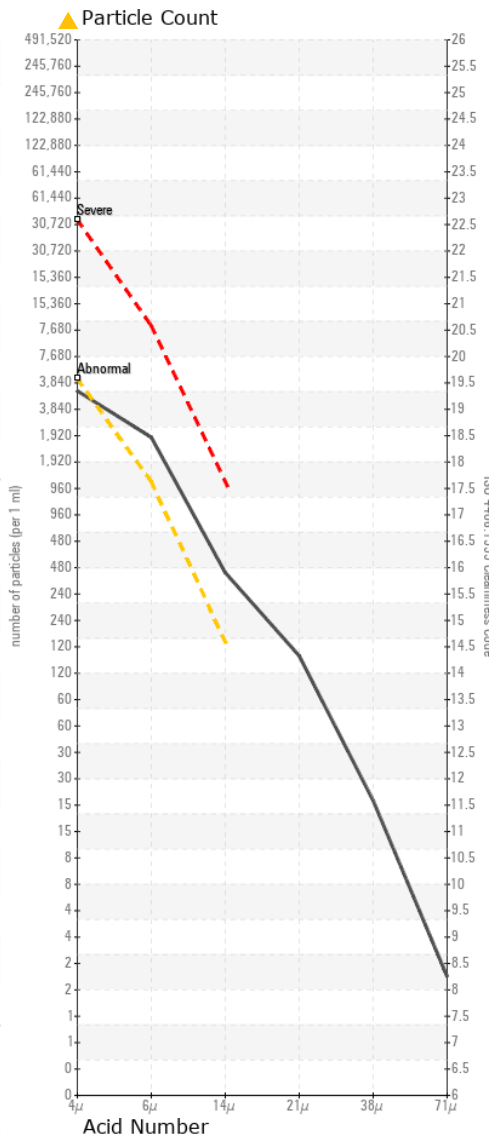
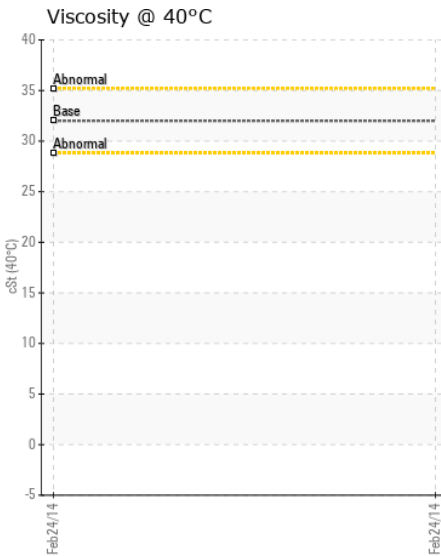
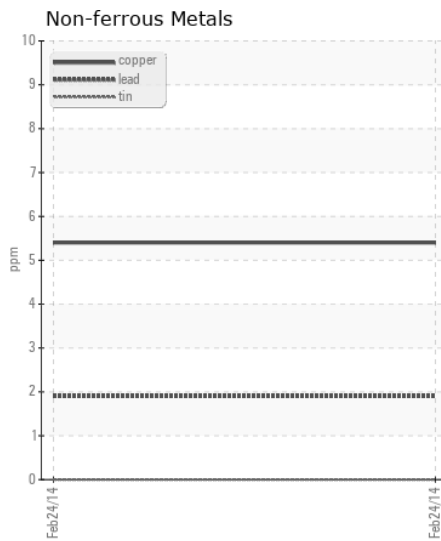
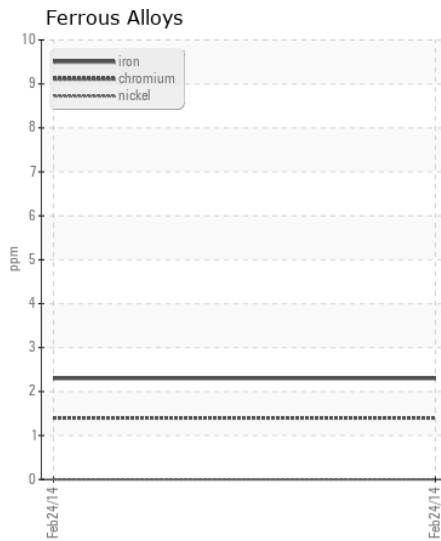
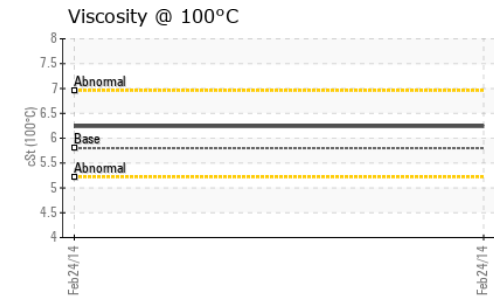
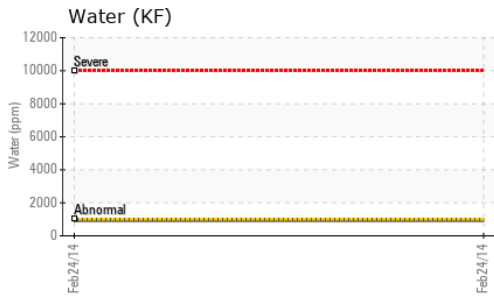
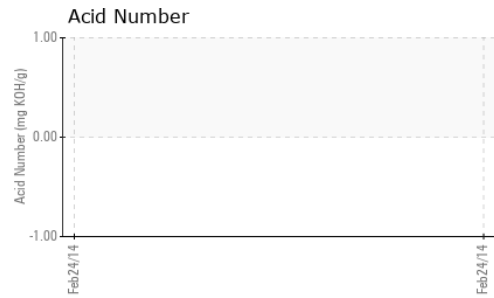
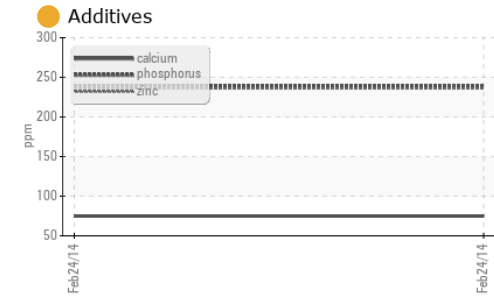
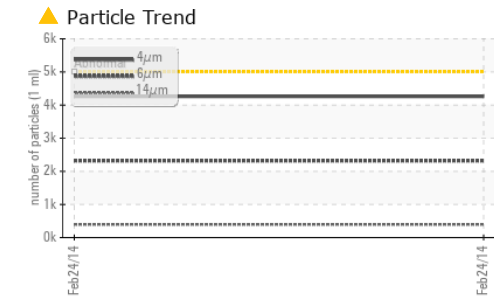
There is a high amount of particulates present in the oil. Free water present.

| | | | | | | |
|------------------|--------|--------------|-----------|----------|-----|-----|
| Silicon | ppm | ASTM D5185m | >20 | 6 | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | 1 | --- | --- |
| Water | % | ASTM D6304 | >0.1 | 0.094 | --- | --- |
| ppm Water | ppm | ASTM D6304 | >1000 | 940 | --- | --- |
| Particles >4µm | | ASTM D7647 | >5000 | 4260 | --- | --- |
| Particles >6µm | | ASTM D7647 | >1300 | 2321 | --- | --- |
| Particles >14µm | | ASTM D7647 | >160 | 395 | --- | --- |
| Particles >21µm | | ASTM D7647 | >40 | 133 | --- | --- |
| Particles >38µm | | ASTM D7647 | >10 | 20 | --- | --- |
| Particles >71µm | | ASTM D7647 | >3 | 2 | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | 19/18/16 | --- | --- |
| Silt | scalar | *Visual | NONE | NONE | --- | --- |
| Debris | scalar | *Visual | NONE | LIGHT | --- | --- |
| Sand/Dirt | scalar | *Visual | NONE | NONE | --- | --- |
| Appearance | scalar | *Visual | NORML | LAYRD | --- | --- |
| Odor | scalar | *Visual | NORML | NORML | --- | --- |
| Emulsified Water | scalar | *Visual | >0.1 | 0.1% | --- | --- |

FLUID CONDITION

Additive levels indicate the addition of a different brand, or type of oil. Confirm oil type. The AN level is acceptable for this fluid.

| | | | | | | |
|--------------|-----|-------------|------|------|-----|-----|
| Sodium | ppm | ASTM D5185m | | 1 | --- | --- |
| Boron | ppm | ASTM D5185m | | 2 | --- | --- |
| Barium | ppm | ASTM D5185m | | 0 | --- | --- |
| Molybdenum | ppm | ASTM D5185m | | <1 | --- | --- |
| Manganese | ppm | ASTM D5185m | | <1 | --- | --- |
| Magnesium | ppm | ASTM D5185m | | 7 | --- | --- |
| Calcium | ppm | ASTM D5185m | | 75 | --- | --- |
| Phosphorus | ppm | ASTM D5185m | | 239 | --- | --- |
| Zinc | ppm | ASTM D5185m | 1000 | 236 | --- | --- |
| Sulfur | ppm | ASTM D5185m | | 2205 | --- | --- |
| Visc @ 100°C | cSt | ASTM D445 | 5.8 | 6.24 | --- | --- |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR03453553 **Received** : 24 Feb 2014
Lab Number : 03453553 **Tested** : 27 Feb 2014
Unique Number : 6536361 **Diagnosed** : 27 Feb 2014 - Doug Bogart
Test Package : MOB 2 (Additional Tests: KF, KV100)

CCS CONSTRUCTORS
 138 MUNSON AVE
 MORRISVILLE, VT
 US 05661
 Contact: SCOTT BURRELL

To discuss this sample report, contact Customer Service at 1-800-827-0711.

* - 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)

T:
F: