

Caterpillar

Unit:

Equip Make:

Equip Model: 12H

Equip Serial: CBK00601

Fluids Analysis Lab | 3630 Miriam Avenue | Bismarck, ND 58501 O 701.250.1626 | F 701.250.1610 | www.butlermachinery.com

S•O•S FLUIDS ANALYSIS

24097647

UNIT INFORMATION

Cust No. C27546 Eng Make: Caterpillar

Job Site:

Oil Brand: Unspec

PM SERVICE INFORMATION

Oil Blend:

Oil Viscosity: Unspec

PM:

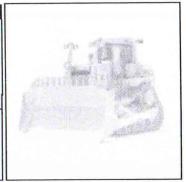
Component: Tandem - Left
Evaluation / Recommendation (for sample taken on 9/18/2014 by Justin)

Test results indicate normal levels for this compartment. No excessive wear is indicated at this time. Continue to monitor by sampling at the recommended interval.

Eng Serial: 4ZF13130

Eng Model: C9

Butler SOS Analyst Trice Butler



| SAMPLE | INFORMA | TION | | 7.E. 1934 | Carry E. A | | | 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - | | | ELE | MENTA | L ANALY | SIS (par | ts per mi | llion) | | | | Y STORY | Vanistry 1 September 1 | KALUH, | | - A | F 7 | | OIL CO | NDITION | ١ | y/V U. |
|----------|---------|--------|--------|-----------|------------|--------|-------|---|--------|------|-----|-------|---------|----------|-----------|--------|-------|--------|---------|---------|---------------------------|--------|---------|------|------|-------------|--------|---------|------|--------|
| Date | Hrs/N | 10.7 | Cu | Fe | Cr | Ni | Ti | ٧ | Ag | Pb | Sn | Al | Si | Na | К | Мо | В | Ba | Ca | Mg | Mn | Р | Sb | 0.00 | | TBN Base | | FTIR A | | S Nitr |
| Taken | On Unit | On Oil | Copper | Iron | Chrome | Nickel | Titan | Vanad | Silver | Lead | Tin | Alum | Silicon | Sodium | Potass | Moly | Boron | Barium | Calcium | Magnes | Mangan | Phosph | Antimon | | AGIO | Base | 5001 | Still | Oxid | Niti |
| 09-18-14 | 4111 | | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 6 | 5 | 2 | 0 | 5 | 0 | 3021 | 11 | 1 | 1006 | 2 | 1265 | | | | | | |
| 03-29-13 | 3570 | | 2 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 1 | 0 | 1 | 0 | 2949 | 11 | 0 | 983 | 0 | 1231 | | | | | | |
| 10-25-05 | 195 | 195 | 0 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 25 | 12 | 2 | 2 | 2 | 4 | 2901 | 8 | 1 | 1002 | 2 | 1189 | | | | | | |

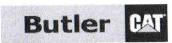
| | in Volvet | OIL CH | ANGE HIST | ORY | 447.3 TH | | | | PAR | TICLE CO | UNT (per 1 | mL) | | STRINGS. | ISO | PVI | PQ | | PHYSICAL | |
|----------|-----------|--------|-----------|---------------|-------------|-------------------|-------|-------|-------|----------------|------------|------|------|----------|-------------|--------------------|-------------------|-----------------|------------------|-------|
| Date | Cha | nged | Oil | Label Visc | Visc SAE | Visc cSt 100 C | >4u | >6u | >10u | >14u | >21u | >25u | >38u | >70u | ISO Code | Particle Volume | Ferrous Debris | Anti- Freeze | Fuel Dilution | Water |
| Taken | Oil | Filter | Added | VISC | SAE | 100 0 | 100 | | | 100 Contractor | 196 | 3-00 | | | | 4.0 | | | — | - 51 |
| 09-18-14 | No | No | | Unspec | 30 | 11.2 | 84525 | 51869 | 16307 | 3237 | 264 | 108 | 6 | | 24/23/19 | 16 | 58 | N | N | IN |
| 03-29-13 | No | Unk | | 30WT | 30 | 11.1 | 83152 | 46831 | 12184 | 2471 | 251 | 101 | 7 | | 24/23/18 | 13 | 52 | N | N | N |
| 10-25-05 | No | No | | | | 11.2 | 83436 | 52478 | 25158 | 8493 | 2829 | 63 | 9 | 3 | 24/22 | 94 | 116 | N | N | N |

FYI - This sample took days to reach the lab.

When Oil and Coolant sampling, remember to provide complete and accurate information on the Sample Labels.

Emmet Township 47307 303rd St Beresford, SD 57004

THE COLLECTIVE DATA OF THIS REPORT IS INTENDED TO HELP IDENTIFY OUTSIDE CONTAMINATION AND/OR PREDICT POTENTIAL MECHANICAL WEAR, NO GUARANTEES OR WARRANTIES, EXPRESSED OR IMPLIED, ARE MADE REGARDING THE CONDITION OF OR AGAINST THE FAILURE OF YOUR EQUIPMENT AND/OR ITS COMPONENTS, YOU SHOULD USE THIS INFORMATION ALONG WITH OTHER PROPER MAINTENANCE PROCEDURES. IN NO EVENT SHALL BUTLER MACHINERY BE LIABLE TO YOU OR ANY OTHERS FOR DAMAGES ARISING OUT OF THE USE OR PERFORMANCE OF YOUR EQUIPMENT.



S•O•S FLUIDS ANALYSIS

Coolant Analysis - Level1

| TO THE REPORT OF THE PARTY OF T | . UNIT IN | FORMATION | 4. July 1982 1984 1984 | | QUICK EVALUATION | PM SERVICE INFORMATION |
|--|-------------------|-------------|------------------------|-------------|------------------------------|--|
| Unit Number: | Equipment Make: | Caterpillar | Engine Make: | Caterpillar | Overall Evaluation: Monitor | Lab Processing Date 7-Oct-2014 Service Interval: |
| Job Site: | Equipment Model: | 12H | Engine Model: | C9 | Monitor | Control Number: |
| Compartment: Diesel Engine | Equipment Serial: | CBK00601 | Engine Serial: | 4ZF13130 | Continue Using: | WO Number: |
| Recommended Action | | | | | Choice | Target Nitrate: Target Glycol: 52% Current Nitrate Current Glycol: 48 |
| See Recommendations Belov | | | | | Maintenance Needed Choice | Coolant Type: Unknown |
| | | | | | | College Querte Litere Queens |

| SAN | SAMPLE INFORMATION MAINTENANCE ITEMS | | | | | | | | | PHYSICAL PROPERTIES | | | | | | | |
|---------------------|--------------------------------------|----------|---------|--------|-----------------|---------------|-----|----------------------|-------------------|----------------------|-----------------------|-------|------------|------|--------|--------|------|
| Date Hours/Miles/KM | | 200 | СН | Glycol | Freeze Fo/Co | Boil Fº/Cº | ĎН | Nitrite Inhibitor | Moly Inhibitor | Cond Conductivity | Overall Evaluation | Color | Appearance | Turb | Odor | Foam | Oil |
| Taken | On Unit | On Fluid | Changed | Glycor | I ye | 1-70 | Pit | Himbicon | III NOICO | CONDUCTOR | | 1 | | | | | Α. |
| 9/18/14 | | | No | 48% | -30/-34 | 224/107 | 7.5 | | 900 | 3410 | Monitor | Red | Clear | 5 | Normal | Normal | None |
| 3/29/13 | 3570 | | No | 48% | -31/-35 | 224/107 | 7.5 | | 900 | 3440 | Action Required | Red | Clear | 5 | Normal | Normal | None |

| | Gallons | Quarts | Liters | Ounces |
|--------------------|-----------|----------|--------|--------|
| SCA to Add | | | | |
| Coolant to Drain | | | | |
| Glycol to Add | | | | |
| Water to Add | | | | |
| Caterpillar Coolan | t Additiv | re Neede | d: | |

Qty & Part No. to Order:

Warning! these calculations are based on a system capacity of 0.00 gallons or 0.00 liters.

If your system capacity is different these valu will need to be adjusted. Be sure to test this coolant after making adjustments.

| | | | SOLIDS - PRECIPI | TATE | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
|---------------|--------|--------------------|------------------|------------|---------------------------------------|
| Date Taken | Amount | Solids/Precipitate | Appearance | Properties | Other |
| 9/18/14 | None | | | | |
| 3/29/13 | None | | | | |

EVALUATION / RECOMMENDATION (For sample taken9/18/2014)

No coolant type, i.e. ELC, ELC Nitrite Free, or Conventional (DEAC), was indicated on the sample label. Any potential adjustments needed are dependent on the coolant type and capacity.

Emmet Township 47307 303rd St Beresford, SD 57004

94445