



MOBILE OIL ANALYSIS REPORT

CONTAMINATION  
OIL CONDITION  
WEAR

**NORMAL**  
**NORMAL**  
**NORMAL**

Empire CAT - Bulk Tank Hydraulic

Unit Make : {n/a}      Serial No : {n/a}      Date Rec'd : Mar 17, 2006  
 Unit Model : {n/a}      Cust. Ref No. : {n/a}      Sample Date : Mar 13, 2006  
 Comp Make : {n/a}      Stub No. : KL-M085769      Diagnostician : Doug Bogart  
 Comp Model : {n/a}

| RECOMMENDATION                                    | Sample Date   | 02/03/06 | 02/09/06 | 02/20/06 | Current | UOM |
|---------------------------------------------------|---------------|----------|----------|----------|---------|-----|
| Resample at the next service interval to monitor. | Time on Unit  | 0        | 0        | 0        | 0       | hrs |
|                                                   | Time on Oil   | 0        | 0        | 0        | 912     | hrs |
|                                                   | Time on Fltr  | 0        | 144      | 408      | 168     | hrs |
|                                                   | Oil Maint.    | not chg  | not chg  | not chg  | not chg | --- |
|                                                   | Filter Maint. | not chg  | not chg  | not chg  | changed | --- |

| CONTAMINATION                                                                                                                          | Sample Date | 02/03/06 | 02/09/06 | 02/20/06 | Current | Abn   |
|----------------------------------------------------------------------------------------------------------------------------------------|-------------|----------|----------|----------|---------|-------|
| There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable. | Silicon     | 3.9      | 1.0      | 1.6      | 0.9     | ---   |
|                                                                                                                                        | Potassium   | 4.1      | 0.0      | 0.0      | 0.0     | ---   |
|                                                                                                                                        | Water (%)   | <0.1     | <0.1     | <0.1     | <0.1    |       |
|                                                                                                                                        | >2µm        | 18222    | 229      | 364      | 340     | ---   |
|                                                                                                                                        | >5µm        | 7926     | 59       | 84       | 100     | 1300  |
|                                                                                                                                        | >15µm       | 351      | 7        | 13       | 12      | 160   |
|                                                                                                                                        | >25µm       | 5        | 1        | 2        | 3       |       |
|                                                                                                                                        | >50µm       | 0        | 0        | 0        | 0       |       |
|                                                                                                                                        | >100µm      | 0        | 0        | 0        | 0       |       |
|                                                                                                                                        | ISO 4406    | 20/16    | 13/10    | 14/11    | 14/11   | 17/14 |

| OIL CONDITION                                                                         | Sample Date | 02/03/06 | 02/09/06 | 02/20/06 | Current | Base |
|---------------------------------------------------------------------------------------|-------------|----------|----------|----------|---------|------|
| Oil Type: 750 GAL of SAE 10W<br>The condition of oil is suitable for further service. | Boron       | 20       | 17       | 16       | 2.7     |      |
|                                                                                       | Barium      | 0.6      | 0.0      | 0.5      | 3.1     |      |
|                                                                                       | Calcium     | 2374     | 1995     | 2004     | 2138    |      |
|                                                                                       | Magnesium   | 9.0      | 6.2      | 7.2      | 8.0     |      |
|                                                                                       | Molybdenum  | 3.9      | 3.6      | 3.3      | 1.9     |      |
|                                                                                       | Phosphorus  | 944      | 806      | 814      | 920     |      |
|                                                                                       | Sulfur      | 3597     | 3072     | 3083     | 3379    |      |
|                                                                                       | Zinc        | 1007     | 858      | 855      | 949     |      |
|                                                                                       | Visc@40°C   | 50.38    | 50.34    | 50.01    | 48.5    | 35.0 |
|                                                                                       | Visc@100°C  | ---      | ---      | ---      | ---     | 6.5  |
|                                                                                       | TAN         | 1.56     | 1.61     | 1.56     | 1.64    |      |

| WEAR                                 | Sample Date | 02/03/06 | 02/09/06 | 02/20/06 | Current | Abn |
|--------------------------------------|-------------|----------|----------|----------|---------|-----|
| All component wear rates are normal. | Iron        | 1.3      | 1.1      | 1.2      | 1.4     | --- |
|                                      | Nickel      | 0.0      | 0.0      | 0.1      | 0.0     | --- |
|                                      | Chromium    | 0.0      | 0.0      | 0.1      | 0.1     | --- |
|                                      | Titanium    | 0.1      | 0.0      | 0.1      | 0.1     | --- |
|                                      | Copper      | 0.1      | 0.1      | 0.1      | 0.0     | --- |
|                                      | Aluminum    | 1.0      | 1.0      | 0.6      | 0.0     | --- |
|                                      | Tin         | 0.0      | 0.0      | 0.0      | 0.0     | --- |
|                                      | Lead        | 0.0      | 0.0      | 0.0      | 0.0     | --- |
|                                      | Silver      | 0.0      | 0.0      | 0.0      | 0.0     | --- |