



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

|                 |        |
|-----------------|--------|
| WEAR            | NORMAL |
| CONTAMINATION   | NORMAL |
| FLUID CONDITION | NORMAL |

Machine Id  
**MELROE 7753**  
 Component  
**Rear Diesel Engine**  
 Fluid  
**TRC MOLY XL PRO-SPEC IV 15W40 (8 QTS)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current     | History1    | History2    |
|----------------|-----|-------------|-----------|-------------|-------------|-------------|
| Sample Number  |     | Client Info |           | TR04139950  | TR03895196  | TR03541706  |
| Sample Date    |     | Client Info |           | 25 Nov 2016 | 05 Nov 2015 | 14 May 2014 |
| Machine Age    | hrs | Client Info |           | 3996        | 3803        | 3541        |
| Oil Age        | hrs | Client Info |           | 193         | 262         | 382         |
| Filter Age     | hrs | Client Info |           | 193         | 262         | 382         |
| Oil Changed    |     | Client Info |           | Changed     | Changed     | Changed     |
| Filter Changed |     | Client Info |           | Changed     | Changed     | Changed     |
| Sample Status  |     |             |           | NORMAL      | NORMAL      | MARGINAL    |

**WEAR**

All component wear rates are normal.

|              |        |             |      |      |      |      |
|--------------|--------|-------------|------|------|------|------|
| Iron         | ppm    | ASTM D5185m | >100 | 22   | 30   | 44   |
| Chromium     | ppm    | ASTM D5185m | >20  | 6    | 7    | 8    |
| Nickel       | ppm    | ASTM D5185m | >2   | <1   | <1   | 0    |
| Titanium     | ppm    | ASTM D5185m | >2   | 0    | <1   | 0    |
| Silver       | ppm    | ASTM D5185m | >2   | 0    | <1   | 0    |
| Aluminum     | ppm    | ASTM D5185m | >20  | 6    | 6    | 8    |
| Lead         | ppm    | ASTM D5185m | >40  | 1    | 2    | 1    |
| Copper       | ppm    | ASTM D5185m | >330 | 9    | 4    | 2    |
| Tin          | ppm    | ASTM D5185m | >15  | 0    | 0    | 2    |
| Vanadium     | ppm    | ASTM D5185m |      | 0    | 0    | 0    |
| White Metal  | scalar | *Visual     | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual     | NONE | NONE | NONE | NONE |

**CONTAMINATION**

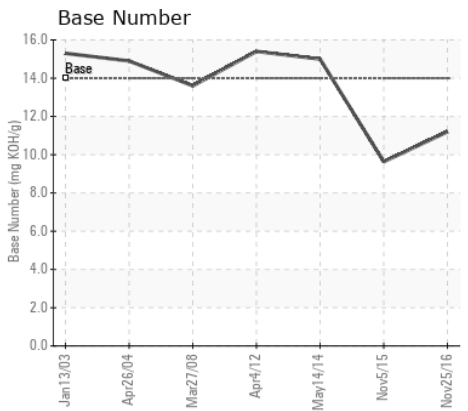
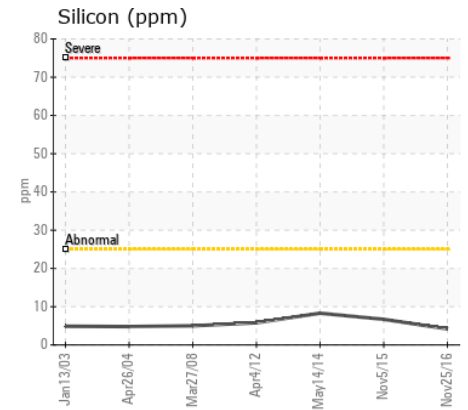
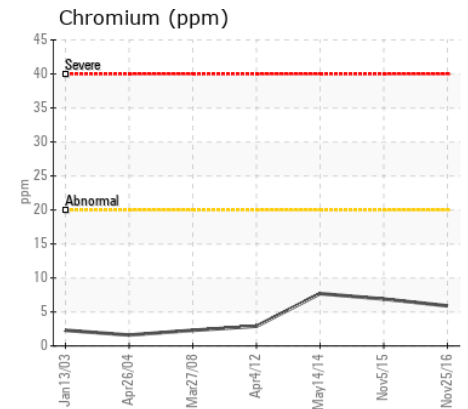
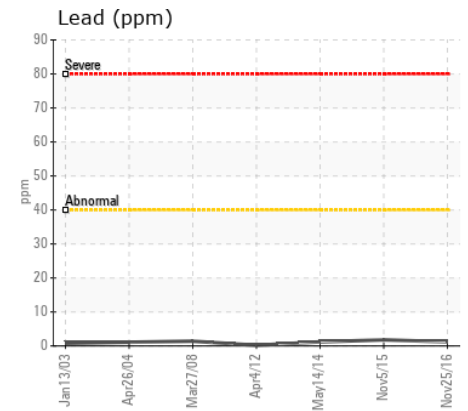
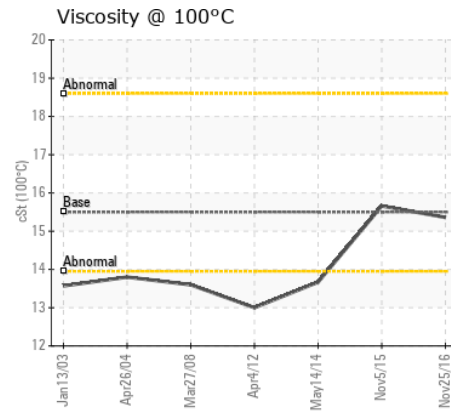
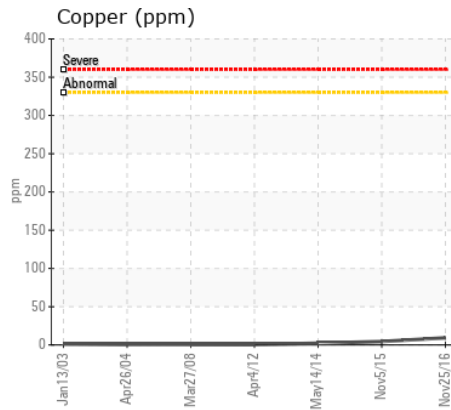
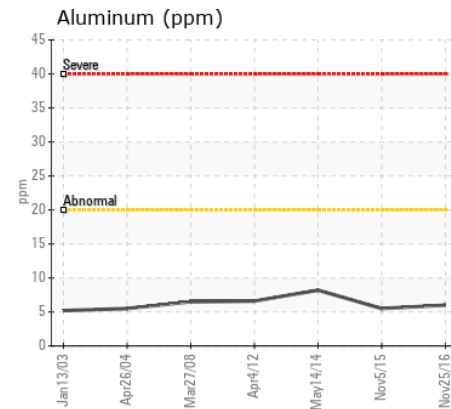
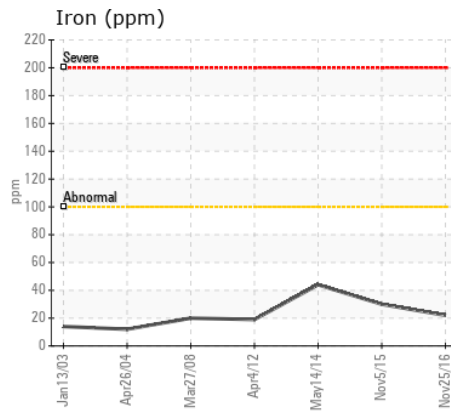
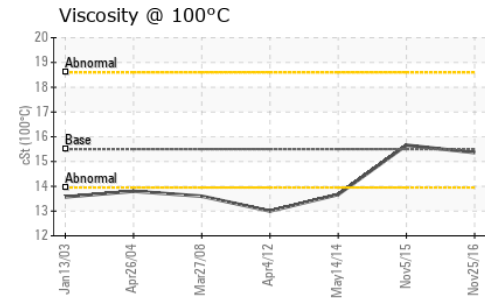
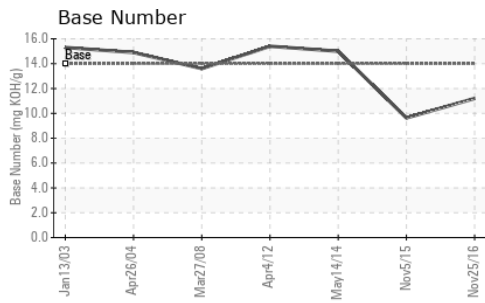
There is no indication of any contamination in the component.

|                  |          |             |       |       |       |       |
|------------------|----------|-------------|-------|-------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >25   | 4     | 7     | 8     |
| Potassium        | ppm      | ASTM D5185m | >20   | 6     | 6     | 2     |
| Fuel             |          | WC Method   | >5    | <1.0  | <1.0  | <1.0  |
| Water            |          | WC Method   | >0.2  | NEG   | NEG   | NEG   |
| Glycol           |          | WC Method   |       | NEG   | NEG   | NEG   |
| Soot %           | %        | *ASTM D7844 | >3    | 0.1   | 0.3   | 0.4   |
| Nitration        | Abs/cm   | *ASTM D7624 |       | 7.    | 6.    | 8.    |
| Sulfation        | Abs/.1mm | *ASTM D7415 |       | 16.   | 12.   | 20.   |
| 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   |

**FLUID CONDITION**

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

|                  |          |             |      |       |       |       |
|------------------|----------|-------------|------|-------|-------|-------|
| Sodium           | ppm      | ASTM D5185m |      | 40    | 18    | 3     |
| Boron            | ppm      | ASTM D5185m |      | 9     | 25    | 201   |
| Barium           | ppm      | ASTM D5185m |      | 0     | 0     | 0     |
| Molybdenum       | ppm      | ASTM D5185m |      | 188   | 208   | 237   |
| Manganese        | ppm      | ASTM D5185m |      | <1    | <1    | 3     |
| Magnesium        | ppm      | ASTM D5185m |      | 891   | 1061  | 552   |
| Calcium          | ppm      | ASTM D5185m | 1300 | 1453  | 1964  | 5133  |
| Phosphorus       | ppm      | ASTM D5185m |      | 1034  | 1109  | 961   |
| Zinc             | ppm      | ASTM D5185m | 1300 | 1303  | 1356  | 1143  |
| Sulfur           | ppm      | ASTM D5185m |      | 3740  | 3713  | 845   |
| Oxidation        | Abs/.1mm | *ASTM D7414 |      | 12.   | 11.   | 13.   |
| Base Number (BN) | mg KOH/g | ASTM D2896  | 14   | 11.2  | 9.63  | 15.0  |
| Visc @ 100°C     | cSt      | ASTM D445   | 15.5 | 15.36 | 15.66 | 13.67 |



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

**Sample No.** : TR04139950

**Lab Number** : 04139950

**Unique Number** : 7663336

**Test Package** : MOB 2

**Received** : 11 Jan 2017

**Tested** : 12 Jan 2017

**Diagnosed** : 12 Jan 2017 - Don Baldrige

**PHIL HARDER**

57803 350TH STREET

MOUNTAIN LAKE, MN

US 56159

Contact: PHILIP HARDER

philbren@frontiernet.net

T: 5(07) 227-6074

F:

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)