



## Monolec Ultra<sup>®</sup> Engine Oil (8800) and LEAP<sup>SM</sup> Oil Analysis

### Beaufort Jasper Water & Sewer Authority – South Carolina Stationary Generators at Water Treatment Plant

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#### Customer Profile

Beaufort Jasper Water and Sewer Authority provides the main source of water to coastal communities in its service area, which extends over 1,500 square miles across two counties in South Carolina.

The rapid growth of the coastal area demands that BJWSA continues to invest and maintain its equipment at peak performance. Today the water plants can process more than 39 million gallons per day.

#### Application

BJWSA has seven large diesel standby generators to power its facilities in case of emergency power outages. These stationary generators are powered by Cat engines, which vary in size according to power requirements. The engine models include Cat 3208, 3512, 3508 and 3516. Each generator holds 50 to 80 gallons of oil.

#### Challenge

The generators must be ready at a moment's notice. However, with equipment like this that is idle most of the time, there are usually problems with moisture, acid buildup, fuel dilution and oil oxidation. BJWSA was running its generators monthly to check their readiness, but the Maintenance Department knew that something more needed to be done.

#### LE Solution

The BJWSA Maintenance Department decided a proactive preventive program was needed. With the help of Helmut von Schweinitz, LE consultant, the following procedures were implemented.

- Use Monolec Ultra Engine Oil (8800) – LE's long-life engine oil – to combat acids and oil oxidation and to enable extended drain intervals.



Generator with Cat 3512 engine



Generator with Cat 3508 engine

- Pull oil samples regularly for routine monitoring of engine and oil condition using LEAP oil analysis.

#### Results

By implementing these preventive maintenance steps, BJWSA has reduced the costs associated with frequent oil changes and downtime. BJWSA has moved from its



traditional once-per-year oil changes to condition-based monitoring. Knowing the condition of the oil and the engines has enabled BJWSA to go five years without an oil change, saving time, labor and materials.

"It is easier to use these tools that detect contamination or a defect in equipment than to incur the costs of an equipment failure, especially at a critical time," said Al Legare, maintenance manager.



**COMPANY INFORMATION**  
 BEALFORT JASPER WATER SEWER  
 STEVE LEE  
 843-987-9200  
 PO BOX 1082  
 IRMO, SC 29063

**UNIT ID**  
3508 CAT E  
**SECOND ID**  
CWTP GEN  
**UNIT TYPE**  
DIESEL ENGINE  
**APPLICATION**  
UTILITY

**ACCOUNT NUMBER** 59300002850009  
**DATE SAMPLED** 09/21/10  
**DATE RECEIVED** 09/27/10  
**DATE COMPLETED** 09/28/10

**TRACKING #** 10021A01056  
**MANUFACTURER/MODEL** CATERPILLAR 3508  
**LUBE MFR** LUBRICATION ENGINEERS  
**LUBE TYPE - GRADE** 8800 MONOLEC ULTRA Engine Oil SAE 15W40  
**MICRON RATING** 15  
**FILTER TYPE** FULLFLOW  
**SUMP CAPACITY** 50.00  
**HYD SYSTEM PRESSURE** 0  
**FLUID ADDED**

**OVERALL SEVERITY OF REPORT**  
 based on comments, not individual tags



**LAB #** 794050  
**LOCATION** I  
**ANALYST** FLG

**FLUID ANALYSIS REPORT - 800-537-7683**

**COMMENTS** Data indicates no abnormal findings. Resample at normal interval;

| S<br>A<br>M<br>P<br>L<br>E<br># | WEAR METALS<br>PPM |        |          |        |      |     |         | CONTAMINANT<br>METALS - PPM |          |         |        |           | MULTI-SOURCE<br>METALS - PPM |            |          |           | ADDITIVE METALS<br>PPM |       |           |         |        |             |      |
|---------------------------------|--------------------|--------|----------|--------|------|-----|---------|-----------------------------|----------|---------|--------|-----------|------------------------------|------------|----------|-----------|------------------------|-------|-----------|---------|--------|-------------|------|
|                                 | CHROMIUM           | NICKEL | ALUMINUM | COPPER | LEAD | TIN | CADMIUM | SILICON                     | VANADIUM | SILICON | SODIUM | POTASSIUM | TITANIUM                     | MOLYBDENUM | ANTIMONY | MANGANESE | LITHIUM                | BORON | MAGNESIUM | CALCIUM | BARIUM | PHOSPHOROUS | ZINC |
| 2                               | 4                  | 0      | 0        | 0      | 5    | 0   | 0       | 0                           | 0        | 2       | 3      | 0         | 0                            | 34         | 0        | 0         | 0                      | 24    | 1003      | 997     | 0      | 1015        | 1103 |
| 1                               | 4                  | 0      | 0        | 0      | 4    | 0   | 0       | 0                           | 0        | 4       | 4      | 0         | 0                            | 35         | 0        | 0         | 0                      | 22    | 1012      | 1052    | 0      | 1076        | 1227 |

| S<br>A<br>M<br>P<br>L<br>E<br># | DATE<br>RECEIVED | UNIT<br>TIME<br>LUBE<br>TIME | L<br>U<br>B<br>E<br>C<br>H<br>G | F<br>I<br>L<br>T<br>E<br>R<br>C<br>H<br>G | F<br>U<br>E<br>L<br>e<br>s<br>t | S<br>O<br>O<br>T<br>V<br>o<br>l. | W<br>A<br>T<br>E<br>R<br>I<br>n<br>f<br>r<br>a<br>r<br>e<br>d | V<br>I<br>S<br>4<br>0<br>C<br>C<br>S | V<br>I<br>S<br>1<br>0<br>0<br>C<br>C<br>S | T<br>A<br>N<br>T<br>o<br>t<br>a<br>l<br>A<br>c<br>i<br>d | T<br>B<br>N<br>T<br>o<br>t<br>a<br>l<br>B<br>a<br>s<br>e | I-R<br>O<br>X<br>I<br>D<br>A | I-R<br>N<br>I<br>T<br>R<br>A | I<br>S<br>O<br>C<br>O<br>D<br>E | 4                          | 6                          | 10                         | 14                         | 21                         | 38                         | 70                         | 100                        |                            |
|---------------------------------|------------------|------------------------------|---------------------------------|---|---------------------------------|----------------------------------|---|--------------------------------------|---|--|--|------------------------------|------------------------------|---------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|                                 |                  |                              |                                 |   |                                 |                                  |   |                                      |   |  |  |                              |                              |                                 | M<br>I<br>C<br>R<br>O<br>N | M<br>I<br>C<br>R<br>O<br>N | M<br>I<br>C<br>R<br>O<br>N | M<br>I<br>C<br>R<br>O<br>N | M<br>I<br>C<br>R<br>O<br>N | M<br>I<br>C<br>R<br>O<br>N | M<br>I<br>C<br>R<br>O<br>N | M<br>I<br>C<br>R<br>O<br>N | M<br>I<br>C<br>R<br>O<br>N |
| 2                               | 09/21/10         | 615                          | N                               | N   | <1%                             | <.1%                             | <.1   |                                      | 13.9                                      |  | 7.94   |                              |                              |                                 |                            |                            |                            |                            |                            |                            |                            |                            |                            |
| 1                               | 02/15/10         | 580                          | N                               | U   | <1%                             | <.1%                             | <.1   |                                      | 14.3                                      |  | 7.38   |                              |                              |                                 |                            |                            |                            |                            |                            |                            |                            |                            |                            |
|                                 | 02/23/10         | 93                           |                                 |   |                                 |                                  |   |                                      |   |  |  |                              |                              |                                 |                            |                            |                            |                            |                            |                            |                            |                            |                            |

Thank you to Al Legare, maintenance director, all of the maintenance staff, and Helmut von Schweinitz, LE lubrication consultant (pictured), for providing the information used in this report.



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Based on actual user experience. Individual results may vary. Not intended to supersede manufacturer specifications.

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