SHF Bottom ash

# COMMERCIAL TESTING & ENGINEERING CO.

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May 30, 2002

TENNESSEE VALLEY AUTHORITY
1101 Market Street PSC 1A
Chattanooga TN 37402
RENEE B. MERRELL

SAMPLE No.: 257761
SAMPLE TYPE: BOTTOM ASH
REMARKS: BOT

Date Received March 5, 2002
Analysis report no. 72-470158

**PROXIMATE ANALYSIS**

| | As Received | Dry Basis |
|---|---|---|
| % Moisture | 3.57 | xxxxxx |
| % Ash | 93.94 | 97.42 |
| % Volatile | 0.01 | 0.01 |
| % Fixed Carbon | 2.48 | 2.57 |
| | 100.00 | 100.00 |
| Btu/lb | 367 | 381 |
| % Sulfur | 0.08 | 0.08 |
| MAF Btu/lb | 14767 | |

**ULTIMATE ANALYSIS**

| | As Received | Dry Basis |
|---|---|---|
| % Moisture | 3.57 | xxxxxx |
| % Carbon | 1.80 | 1.87 |
| % Hydrogen | 0.27 | 0.28 |
| % Nitrogen | 0.33 | 0.34 |
| % Sulfur | 0.08 | 0.08 |
| % Ash | 93.94 | 97.42 |
| % Oxygen | 0.01 | 0.01 |
| | 100.00 | 100.00 |

| ANALYSIS OF ASH | % Weight Ignited Basis |
|---|---|
| Silica, $SiO_2$ | 61.61 |
| Alumina, $Al_2O_3$ | 20.02 |
| Titania, $TiO_2$ | 0.75 |
| Ferric Oxide, $Fe_2O_3$ | 8.20 |
| Lime, CaO | 4.94 |
| Magnesia, MgO | 1.34 |
| Potassium Oxide, $K_2O$ | 1.41 |
| Sodium Oxide, $Na_2O$ | 0.63 |
| Sulfur Trioxide, $SO_3$ | 0.19 |
| Phosphorous Pentoxide, $P_2O_5$ | 0.46 |
| Strontium Oxide, SrO | 0.11 |
| Barium Oxide, BaO | 0.28 |
| Manganese Oxide, $Mn_3O_4$ | 0.06 |
| Undetermined | 0.00 |
| Alks. as $Na_2O$, Dry Coal Basis | 1.52 |
| Base:Acid Ratio | 0.20 |
| T250 Temperature | 2791 |

| | |
|---|---|
| Silica Value | 80.97 |
| Type of Ash | BITUMINOUS |
| Fouling Index | 0.13 |
| Slagging Index | 0.02 |
| % MAF Fixed Carbon | 99.61 |
| % MAF Volatile | 0.39 |
| lb $SO_2$/mm Btu | 4.36 |
| lb Sulfur/mm Btu | 2.18 |
| % Air Dry Loss | 3.40 |
| As Received Net Sample Wt. | 136.70 g |

NQA ISO9002 REGISTERED COMPANY
Certificate No. 7061/1

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Denver Laboratory

MEMBER ACIL

F-465

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