ALF fly 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.: 257738
SAMPLE TYPE: FLY ASH
REMARKS: FLY

**Date Received** March 5, 2002
**Analysis report no.** 72-470135

| | PROXIMATE ANALYSIS As Received | PROXIMATE ANALYSIS Dry Basis |
|---|---|---|
| % Moisture | 1.61 | xxxxxx |
| % Ash | 62.54 | 63.56 |
| % Volatile | < 0.01 | < 0.01 |
| % Fixed Carbon | 35.84 | 36.43 |
| | 100.00 | 100.00 |
| Btu/lb | 5084 | 5167 |
| % Sulfur | 0.86 | 0.87 |
| MAF Btu/lb | 14179 | |

| | ULTIMATE ANALYSIS As Received | ULTIMATE ANALYSIS Dry Basis |
|---|---|---|
| % Moisture | 1.61 | xxxxxx |
| % Carbon | 32.39 | 32.92 |
| % Hydrogen | 0.24 | 0.24 |
| % Nitrogen | 0.32 | 0.33 |
| % Sulfur | 0.86 | 0.87 |
| % Ash | 62.54 | 63.56 |
| % Oxygen | 2.04 | 2.08 |
| | 100.00 | 100.00 |

| ANALYSIS OF ASH | % Weight Ignited Basis |
|---|---|
| Silica, $SiO_2$ | 36.31 |
| Alumina, $Al_2O_3$ | 18.38 |
| Titania, $TiO_2$ | 1.37 |
| Ferric Oxide, $Fe_2O_3$ | 7.72 |
| Lime, CaO | 22.29 |
| Magnesia, MgO | 4.65 |
| Potassium Oxide, $K_2O$ | 0.80 |
| Sodium Oxide, $Na_2O$ | 3.68 |
| Sulfur Trioxide, $SO_3$ | 2.76 |
| Phosphorous Pentoxide, $P_2O_5$ | 1.16 |
| Strontium Oxide, SrO | 0.20 |
| Barium Oxide, BaO | 0.61 |
| Manganese Oxide, $Mn_3O_4$ | 0.07 |
| Undetermined | 0.00 |
| Alks. as $Na_2O$, Dry Coal Basis | 2.67 |
| Base:Acid Ratio | 0.70 |
| T250 Temperature | 2107 |

| | |
|---|---|
| Silica Value | 51.16 |
| Type of Ash | LIGNITIC |
| Fouling Index | 3.68 |
| Slagging Index | 0.00 |
| % MAF Fixed Carbon | 99.97 |
| % MAF Volatile | 0.03 |
| lb $SO_2$/mm Btu | 3.38 |
| lb Sulfur/mm Btu | 1.69 |
| % Air Dry Loss | 1.16 |
| As Received Net Sample Wt. | 136.20 g |

NQA ISO9002 REGISTERED COMPANY
Certificate No. 7061/1

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Denver Laboratory

MEMBER ACIL

F-465

Original Watermarked For Your Protection

TERMS AND CONDITIONS ON REVERSE