GAF fly ash

# COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 630-953-9300 FAX: 630-953-9306

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ADDRESS ALL CORRESPONDENCE TO:
4665 PARIS STREET
SUITE B-200
DENVER, CO 80239
TEL: (303) 373-4772
FAX: (303) 373-4791
www.comteco.com

May 30, 2002

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

SAMPLE No.: 257746
SAMPLE TYPE: DRY FLY ASH
REMARKS: FLY

Date Received March 5, 2002
Analysis report no. 72-470143

| PROXIMATE ANALYSIS | As Received | Dry Basis |
|---|---|---|
| % Moisture | 0.69 | xxxxxx |
| % Ash | 94.18 | 94.83 |
| % Volatile | < 0.01 | < 0.01 |
| % Fixed Carbon | 5.12 | 5.16 |
| | 100.00 | 100.00 |
| Btu/lb | 1052 | 1059 |
| % Sulfur | 0.29 | 0.29 |
| MAF Btu/lb | 20484 | |

| ULTIMATE ANALYSIS | As Received | Dry Basis |
|---|---|---|
| % Moisture | 0.69 | xxxxxx |
| % Carbon | 4.41 | 4.44 |
| % Hydrogen | 0.10 | 0.10 |
| % Nitrogen | 0.33 | 0.33 |
| % Sulfur | 0.29 | 0.29 |
| % Ash | 94.18 | 94.83 |
| % Oxygen | 0.00 | 0.01 |
| | 100.00 | 100.00 |

| ANALYSIS OF ASH | % Weight Ignited Basis |
|---|---|
| Silica, $SiO_2$ | 51.38 |
| Alumina, $Al_2O_3$ | 21.36 |
| Titania, $TiO_2$ | 1.05 |
| Ferric Oxide, $Fe_2O_3$ | 5.92 |
| Lime, CaO | 12.05 |
| Magnesia, MgO | 2.83 |
| Potassium Oxide, $K_2O$ | 1.10 |
| Sodium Oxide, $Na_2O$ | 2.06 |
| Sulfur Trioxide, $SO_3$ | 0.82 |
| Phosphorous Pentoxide, $P_2O_5$ | 0.75 |
| Strontium Oxide, SrO | 0.17 |
| Barium Oxide, BaO | 0.45 |
| Manganese Oxide, $Mn_3O_4$ | 0.06 |
| Undetermined | 0.00 |
| Alks. as $Na_2O$, Dry Coal Basis | 2.64 |
| Base:Acid Ratio | 0.32 |
| T250 Temperature | 2507 |

| | |
|---|---|
| Silica Value | 71.18 |
| Type of Ash | LIGNITIC |
| Fouling Index | 2.06 |
| Slagging Index | 0.00 |
| % MAF Fixed Carbon | 99.81 |
| % MAF Volatile | 0.19 |
| lb $SO_2$/mm Btu | 5.51 |
| lb Sulfur/mm Btu | 2.76 |

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