



Energy/Environmental/Engineering

SYNFUEL SERVICES

Founded in 1975, Marshall Miller & Associates, Inc. (MM&A) is a multi-service engineering and environmental science firm. With over 200 personnel consisting of a wide range of engineers, environmental specialists, geologists and science technicians, MM&A has become a respected consulting firm throughout the United States and internationally.

SYNFUEL & SECTION 29 CREDITS

Synthetic fuel or "synfuel" is an alternative fuel source which differs significantly in chemical composition from the materials used to produce it. Although liquid and gaseous synfuels were developed decades ago, solid synthetic fuel from coal is a development since 1980. The Internal Revenue Code grants tax incentives to companies that develop synfuel. The incentives were passed as part of the Oil Windfall Profits Tax Act of 1980. The U.S. Congress established Subtitle A, Chapter 1A, Part 1VB, Section 29 (Section 29) as a direct result of the Arab oil embargo to help the U.S. lower its dependence on foreign oil.

Since July 1, 1998, the Section 29 synfuel industry has contributed in excess of \$10 billion to the U.S. economy as measured by the Gross National Product. It is expected that the industry will produce approximately 118 million tons of synfuel during 2004. Approximately 15% of the 2004 synfuel production will come from uneconomic and/or marginal coal, and waste coal resources that would not be recovered



were it not for the synfuel industry resulting from the Section 29 tax credit.

MM&A SYNFUEL SERVICES

MM&A has participated in more than 35 synfuel-related projects since 1998, including 20 different production tests.

MM&A has assessed the contribution of the synfuel industry to American businesses, local communities, and the nation. MM&A has investigated short- and long-term benefits provided by the Section 29 synthetic fuel industry in the following areas:

- ◆ Increased utilization of coal resources
- ◆ Economic benefit to the U.S. coal market
- ◆ Economic impact of synfuel upon national, state, and local economies
- ◆ Electric utility savings
- ◆ Improved fuel characteristics
- ◆ Downstream economic benefits
- ◆ Indirect research & development benefits

MM&A INVOLVEMENT IN SYNFUEL PROJECTS

- ◆ Synfuel plant start-up and relocation certifications
- ◆ On-going synfuel equipment and process verifications
- ◆ Synfuel production assessments
- ◆ Synfuel equipment valuations
- ◆ Synfuel feed material evaluations

SYNFUEL PRODUCTION EVALUATIONS

- ◆ Long-term monitoring periods
- ◆ Production estimates based on calibrated scales
- ◆ Verification of feed size consist and chemical change based on sampling program
- ◆ Monitoring of temperature, pressure, and chemical change agent applied throughout test period

TRANSFER OF SYNFUEL FACILITIES TO NEW LOCATION

The synfuel plant equipment and production process should remain consistent at the new location with that of the previous location (this does not include minor modifications such as materials handling).



MM&A'S PROPOSED PROJECT APPROACH

- ◆ Visit each site to audit data collection methods
- ◆ Review historical data to determine:
 - Conveyor belt calibration frequency
 - Sample collection and analysis frequency
 - Continuous sampling systems bias test results
- ◆ Review product quality specifications and corresponding synfuel quality limits
- ◆ Analyze all information to develop QA/QC plan recommendations

FEEDSTOCK

There are no specifications on the size of material that must be used as feedstock. Some typical feedstocks are:

- ◆ Slurry Pond Fines
- ◆ Surface Mine Pit Cleanings
- ◆ Preparation Plant Fines
- ◆ Stoker Plant Reject Material
- ◆ Abandoned Refuse Piles

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OFFICE LOCATIONS

INDIANA

125 N. Weinbach Avenue #230 • Evansville, IN 47711
(p) 812.491.8777 (f) 812.491.8779
(e) indiana@mma1.com

KANSAS

8371 Melrose Drive • Lenexa, KS 66214
(p) 913.648.4424 (f) 913.648.4763
(e) lenexa@mma1.com

KENTUCKY

5480 Swanton Drive • Lexington, KY 40509
(p) 859.263.2855 (f) 859.263.2839
(e) lexington@mma1.com

LOUISIANA

4101 Viking Drive, Suite L • Bossier City, LA 71111
(p) 318.747.7734 (f) 318.747.7786
(e) bossiercity@mma1.com

NORTH CAROLINA

5825 Triangle Drive • Raleigh, NC 27617
(p) 919.786.1414 (f) 919.786.1418
(e) raleigh@mma1.com

OHIO

6860 Skies Edge Court #42 • Cincinnati, OH 45247
(p) 513.460.2921
(e) cincinnati@mma1.com

8100 Grand Ave., Suite 100-C
Cleveland, OH 44104-3110
(p) 330.350.6915
(e) cleveland@mma1.com

PENNSYLVANIA

3913 Hartzdale Drive, Suite 1306
Camp Hill, PA 17011
(p) 717.730.7810 (f) 717.730.7812
(e) camphill@mma1.com

TENNESSEE

10376 Wallace Alley Street • Kingsport, TN 37663
(p) 423.279.9775 (f) 423.279.9777
(e) kingsport@mma1.com

VIRGINIA

Suite 203, 11277 Airpark Road • Ashland, VA 23005
(p) 804.798.6525 (f) 804.798.5907
(e) ashland@mma1.com

WEST VIRGINIA

1018 Kanawha Boulevard East, Suite 400
Charleston, WV 25301
(p) 304.344.3970 (f) 304.344.3986
(e) charleston@mma1.com

200 George Street, Suite 6
Beckley, WV 25801
(p) 304.255.8937 (f) 304.255.8939
(e) beckley@mma1.com

HEADQUARTERS

Marshall Miller & Associates, Inc.
P.O. Box 848 • 534 Industrial Park Road
Bluefield, VA 24605
(p) 276.322.5467 • (f) 276.322.5460
(e) corp@mma1.com • www.mma1.com



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