

**Department of Energy**  
Washington, DC 20585

October 1990

Last year at this time, the U.S. Department of Energy and its Office of Fossil Energy introduced *The Directory of U.S. Coal & Technology Export Resources* to a broad international and domestic audience. We are pleased to report that it has been extremely well received and that this year's edition includes more than 100 new organizations. Further, refinements suggested by industry supporters have added a new technology category, a domestic industry association appendix, and an appendix listing all 38 of the currently active U.S. DOE Clean Coal Technology Demonstration Program projects.

The purpose of *The Directory* remains focused on offering a consolidated resource reference to potential buyers of U.S. coal, coal technology, and expertise. This is consistent with the U.S. policy on coal and coal technology trade, which continues to emphasize export market strategy implementation. Within this context, DOE will continue to support the "teaming" approach to marketing; i.e., vertically integrated large project teams to include multiple industry sectors, such as coal producers, engineering and construction firms, equipment manufacturers, financing and service organizations.

I strongly encourage you to contact the companies and associations included in this year's *Directory* regarding your interest in U.S. coal and clean coal technology.

A handwritten signature in black ink, appearing to read "Robert H. Gentile".

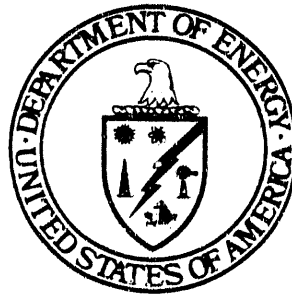
Robert H. Gentile  
Assistant Secretary  
Fossil Energy

**MASTER**

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# **The Directory of U.S. Coal & Technology Export Resources**



**U.S. Department of Energy  
Assistant Secretary for Fossil Energy  
Office of Planning and Environment  
Washington, DC 20585**

**October 1990**

# PREFACE

This, the second edition of *The Directory of U.S. Coal and Technology Export Resources*, is a product of continuing cooperative efforts of U.S. industry and the U.S. Department of Energy (DOE) to list and index readily available current export sources for U.S. coal and coal related technologies. This effort is a direct result of industry suggestions at a series of government/industry public meetings on international coal and technology trade opportunities. The directory is part of an ongoing government effort to cooperate with U.S. coal and fossil energy technology industries and to actively promote international trade opportunities.

The directory is comprised of more than 300 U.S. private sector entities offering coal and coal technology products that are available for export. The U.S. is committed to advancing the utilization of coal and capturing the value of this plentiful and inexpensive energy source. This commitment, however, is coupled with an understanding of the environmental demands of such utilization and the need to apply clean coal technologies to protect the world ecosystem and the quality of life on this planet. Industry participation in this directory has increased by roughly 50% over the first edition, and it is anticipated that the list will be further expanded in subsequent editions.

U.S. DOE will continue to develop its list of organizations in this directory as industry awareness increases within the U.S. and as new products and technologies come to market.

# ACKNOWLEDGEMENT

The U.S. Department of Energy wishes to extend its sincere appreciation to a number of organizations and individuals who have contributed to the form and content of this directory. Specifically, DOE would like to thank the following:

- Clean Coal Technology Coalition - Mr. Eric Hultman
- Coal Exporters Association of the United States - Ms. Betsy Kraft
- Edison Electric Institute - Mr. John Kinsman
- Institute of Gas Technology - Mr. Laurence Feder
- National Coal Association - Ms. Dolores Kern

The numerous suggestions and remarks of these individuals were invaluable in capturing the coal and coal technology industry's perspective.

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# I. INTRODUCTION

The purpose of this directory is to provide a listing of available U.S. coal and coal related resources to potential purchasers of those resources abroad. The directory lists business entities within the United States which offer coal related resources, products and services for sale on the international market. Each listing is intended to describe the particular business niche or range of product and/or services offered by a particular company. The listing provides addresses, telephones, and telex/fax for key staff in each company committed to the facilitation of international trade. The content of each listing has been formulated especially for this directory and reflects data current as of the date of this edition.

The directory listings are divided into four primary classifications:

- Coal Resources
- Technology Resources
- Support Services
- Financing and Resource Packaging

The first three of which are subdivided as follows:

- Coal Resources
  - Coal Derivatives
  - Coal Exporters
  - Coal Mining
- Technology Resources
  - Advanced Utilization
  - Architects & Engineers
  - Boiler Equipment
  - Emissions Control and Waste Disposal Systems
  - Facility Construction
  - Mining Equipment
  - Power Generation Systems
  - Technical Publications
  - Transport Equipment
- Support Services
  - Coal Transport
  - Facility Operations
  - Freight Forwarders
  - Sampling Services and Equipment
  - Technical Consultants

Listings for the directory were solicited on the basis of this industry breakdown. Each category represents a section with listed companies in alphabetical order. A general alphabetical index of companies and an index by product/service classification are provided following the last section of the directory.

Below and at the beginning of each section are expanded definitions for each subclassification:

- **Coal Derivatives** - Firms producing/selling products derived from coal through specific alteration technology or resource recovery.
  - **Coal Exporters** - Firms engaged in the marketing of U.S. coal for export.
  - **Coal Mining** - Firms engaged in coal mining.
- 
- **Advanced Utilization** - Providers of technology and equipment designed for utilization in a system environment which allows for combustion of coal without significant air or water pollution or solid waste stream control problems.
  - **Architects & Engineers** - Firms providing power and/or industrial plant design services.
  - **Boiler Equipment** - Firms providing coal and/or derivative combustion and steam generation equipment and systems.
  - **Emissions Control and Waste Disposal Systems** - Firms providing in-process (LIMB, etc.) and stack (ESP, Baghouses, cyclones, etc.) emissions control systems, and waste stream management, disposal, and recycling technology.
  - **Facility Construction** - Firms providing construction services, often in conjunction with A&E firms.
  - **Mining Equipment** - Firms providing equipment for underground and surface mining, as well as conveying, crushing, sizing, and beneficiation.
  - **Power Generation Systems** - Firms providing electrical generating systems for use in conventional steam plants, as well as gas turbine systems and combined cycle systems.
  - **Technical Publications** - Firms providing manuals, handbooks, and other technical literature relating to coal and coal technology.
  - **Transport Equipment** - Equipment used in rail and shipboard transport of coal.
- 
- **Coal Transport** - Firms providing transportation services between mine-mouth and ultimate consumer.
  - **Facilities Operations** - Firms providing plant operation and management (O&M) services on a contract basis.



- **Freight Forwarders** - Firms providing brokerage services in domestic and international transport services.
- **Sampling Services and Equipment** - Firms dedicated to assuring coal quality through independent laboratory analysis services and/or sampling equipment.
- **Technical Consultants** - Firms providing engineering, scientific and other technical services in any area related to coal and coal technologies.

Central to the marketing perspective of U.S. industry is the "package concept." Package deals will marry one or more segments of the industry to develop synergism in the use of resources and provide a package to a variety of needs of the overseas buyer. Individual directory listees may wish to pursue a package approach, or potential purchasers of U.S. coal and technology resources may elect to structure a package from the categories listed in the directory. Depending on the availability of indigenous resources, such packages might encompass all or part of the example shown below:

### **Example Coal and Coal Technology Package**

A comprehensive example of a Coal and Coal Technology Package might be the case of an overseas buyer contracting for the turn-key construction of a coal fired power generation facility and, at the same time, securing a 20 year coal supply contract to complement it.

The packagers of such a deal might put together these principal elements:

- Technology (plant),
- Coal (beneficiated), and
- Financing.

In the technology area a facility integrator could provide:

- Architecture/Engineering services,
- Advanced boiler equipment, e.g., AFBC,
- In-process emissions control technology (CCT),
- Stack emissions control technology,
- Steam driven generation equipment,
- Facilities construction, and even
- Operations & Maintenance (beyond turn-key).

The coal supplier would provide coal, C.I.F. the plant. This might involve:

- Coal, FOB mine 20 year quantity at spec. (sulfur, BTU, etc.),
- Dedicated or shared beneficiation process,
- Ground transport (U.S.),
- Ocean transport, and
- Ground transport (destination).

The financing package could cover the plant capitalization based on the projected revenue stream over the sample period (20 years). The investment banking aspect of the financing would cover the integrating of public and private financing and take advantage of the import/export incentives that exist in various jurisdictions internationally. Further, developing a viable funding strategy would address contractor performance guarantees, liability issues, and plant performance guarantees.

It is possible that the potentially higher costs of individual elements in a package can be overcome by savings generated over the entire package. Additionally, companies may be willing to pay premiums on bulk resources if combined with technologies which do not impose further burdens on the environment.

## II. COAL RESOURCES

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**Coal Derivatives:** Firms producing/selling products derived from coal through specific alteration technology or resource recovery.

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**Acurex Corporation**  
Environmental Systems Division  
555 Clyde Avenue  
P.O. Box 7044  
Mountain View, CA 94039



Telephone: (415) 961-5700  
Telex: 325961 FAX: (415) 964-5145  
President: Gilbert Decker  
International Sales Manager: David Delasanta

**Domestic Offices:** TRIANGLE PARK, NC: P.O. Box 13109, Research Triangle Park, NC 27709; GOLETA, CA: Santa Barbara Operations, 250 Storke Road, Suite 1, Goleta, California 93117  
**International Offices:** Please contact headquarters for information.

The Environmental Systems Division of Acurex Corporation provides a full range of fuel services to government and industry. These include combustion facility design, operation and maintenance; environmental engineering and pollution control; and emissions sampling and analysis. Through its research for federal and state agencies such as the Environmental Protection Agency, the Gas Research Institute, the Department of Energy, and the California Energy Commission, the division develops technologies for commercial application and is able to provide industry with turnkey, state-of-the-art solutions for all combustion-related environmental engineering needs.

Product/Service	Description
Advanced Utilization	Testing of solvent-refined coal; assessment of clean coal use in stationary and mobile engines; testing of coal-oil mixtures in boilers; fuel staging research; assessment of coal-oil mixtures as light-off fuel; hot gas cleaning technology for coal-fired, pressurized, fluidized bed combustors.
Architecture/Engineering	Prototype design, fabricate and install coal combustion research furnaces. Design, fabricate and install pilot coal gasifiers, and fluidized bed combustors.
Boiler Equipment	Low SO <sub>2</sub> and low NO <sub>x</sub> combustion control technology; boiler modification/engineering; test coal additive to alter flyash characteristics; co-firing of hazardous waste in boilers; perform risk assessment of controlling NO <sub>x</sub> emission from coal utility boilers.
Coal Derivatives	Clean coal use in stationary and mobile engines; demonstrate coal-oil mixture prep plant.
Facility Construction	Construction management; install coal combustion furnace; install pilot coal gasifier; supply anthracite gasifier.
Facility Operation	Operation of coal burning plants/equipment; O&M of fluidized bed combustor.

AFT, Inc.  
200 Public Square  
21-3604-K  
Cleveland, OH 44114-2375



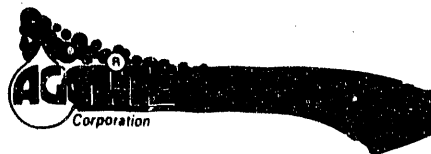
Telephone: (216) 586-5206  
Telex: 6873120 FAX: (216) 586-5448  
Chief Executive Officer: Jerry J. Oliver  
International Sales Manager: William F. Christensen

Domestic Offices: BRIDGEPORT, NJ: 618 Heron Drive, P.O. Box 339, Bridgeport, NJ 08014

AFT, Inc. is involved in the production and marketing of coal fuels that have been beneficiated using AFT's patented SPRAYFLOT™ flotation cells. The company also licenses the technology, sells equipment, and participates in joint ventures worldwide. One of the original developers of coal-water slurries, the company is now able to apply its mineral separation technology to the recovery of fine coal from coal waste streams.

Product/Service	Description
Coal Derivatives Advanced Utilization	The SPRAYFLOT™ cell can be flotation cell used to effectively reduce ash and sulfur levels in high-ash coal waste streams, while recovering fine coal that cannot be recovered by more conventional means. As the integral part of AFT's unique beneficiation system, it ensures improved separation, selectivity, and recovery, when compared to conventional flotation methods.

Agglite Corporation  
P. O. Box 1647  
Charlottesville, VA 22902



Telephone: (804) 977-7040  
FAX: (804) 977-1916  
Chief Executive Officer: Peter W. Schmidt  
International Sales Manager: Gary D. Courts

Domestic Offices: CHESAPEAKE, VA: 2701 Veeco St., Chesapeake, VA 23323 TEL. (804) 487-9631

The Agglite Corporation owns a patented process to manufacture high quality lightweight aggregate from coal fly ash. This lightweight aggregate is used as a primary ingredient in concrete and concrete block manufacturing. Agglite is owned by Allied Concrete Company, a large American concrete-products company with over 40 years of manufacturing experience in redi-mix concrete, concrete block, prestressed concrete and other building materials. Fly ash, along with cement and other ingredients are agglomerated into hardened pellets. These pellets provide the block or ready-mixed concrete producer several advantages over existing materials including decreased manufacturing costs, lower unit weight and improved particle shape.

Product/Service	Description
Coal Derivatives	<p>There is an increasing need for economically attractive and environmentally sound alternatives to disposal of high volumes of combustion by-products. The development of our manufactured lightweight aggregate process through the operation of laboratory and pilot-scale facilities has led to the successful construction and operation of commercial plants with two major utility companies. The Agglite process is not limited to low carbon fly ashes like most conventional uses.</p> <p>The basic Agglite technology involves material agglomeration through the operation of a pan pelletizer. We are currently involved in efforts to process a variety of ashes and other advanced coal combustion by-products to render them environmentally acceptable and to facilitate handling and transportation of materials back to mine sites or other areas.</p>

**ARCTECH, Inc.**  
**5390 Cherokee Avenue**  
**Alexandria, VA 22312**



**Telephone:** (703) 642-4190  
**FAX:** (703) 642-4021  
**Chief Executive Officer:** Dr. Daman S. Walia  
**International Sales Manager:** Terry L. Seymour

ARCTECH, Inc. is a "spinoff" company organized by the Atlantic Research Corporation of Alexandria, Virginia. ARCTECH is focusing on development and marketing of coal bioprocessing technologies and products. The ARCTECH group pioneered biotechnology research to remove organic sulfur from coal, and convert coal into clean fuels like methane and oxygenated alcohol fuels. One of the by-products of ARCTECH's coal technologies is organic base fertilizer, termed as "ACTOSOL." ARCTECH is now actively marketing the ACTOSOL in the United States and seeks to develop an international market for this product. ARCTECH also provides services to develop bioprocess technologies for specific coal resources.

Product/Service	Description
ACTOSOL	ACTOSOL is a coal derived organic base fertilizer designed for retail and commercial use. The humic acids are extracted from the coal with the ARCTECH proprietary technology and formulated into a fertilizer with the required nutrients. The humic acids are known to act as nutrient activators and this new product is a preferred fertilizer over the commercial inorganic fertilizers.
Bioprocess Technology	ARCTECH provides services to develop bioprocessing technology for specific coal resources. To date most of the technology development is for low rank coals such as brown coals, lignite, and sub-bituminous.

**Aristech Chemical Corporation**  
**Coals Chemicals Unit**  
**600 Grant Street**  
**Pittsburgh, PA 15230**



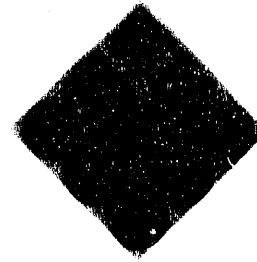
**Telephone:** (412) 433-7834  
**Telex:** 650608865 **FAX:** (412) 433-7749  
**General Manager:** Mr. John J. Windfelder  
**Sales Manager:** Mr. Wayne E. Smith, Jr.

**International Offices:** Represented by: ENGLAND: Tan International, 31 Gunterstone Road, London W14 9BP, England, 603-5341

Aristech Chemical Corporation (formerly the USS Chemicals Division of USX) is an indirect subsidiary of Mitsubishi Corporation. The Coal Chemicals Unit is one of seven major businesses. Our creosote and binder pitch is produced by the distillation of coal tar. Creosote meets North American specifications and binder pitch is produced to meet customer specifications.

Product/Service	Description
Binder Pitch	Aristech produces binder pitch to meet customer specifications for use in producing anodes for smelting aluminum and graphite electrodes for steelmaking. Binder pitch is a solid rod of approximately 3/8 x 3/4 inches which makes it easily shipped by bulk cargo loads internationally. Containerized shipping mode not available at this time.

**Carbon Fuels Corporation**  
**Denver Technological Center**  
**5105 DTC Parkway, Ste. 317**  
**Englewood, CO 80111**



**Telephone:** (303) 770-7667  
**FAX:** (303) 770-7683  
**Chief Executive Officer:**  
**International Sales Manager:**

Mr. Lee G. Meyer  
Mr. Earl A. Bowers

**Domestic Offices:**

ENGLEWOOD, CO: Coal Refining Corporation of America (wholly owned subsidiary), address same as above; LARAMIE, WY: Wyoming Coal Refining Systems, Inc., 2020 Grand Avenue, Suite 250, Laramie, WY 82071

Carbon Fuels Corporation ("CFC"), which has been in operation since November, 1984, has developed and patented a "value-added" coal refining process which uses coal as the sole feedstock to produce a clean, non-polluting, pipeline transportable, fluidic, non-aqueous, slurry-type fuel (Charfuel® fluidic fuel) and a slate of environmentally acceptable, value-added chemical feedstocks and fuels for both stationary and mobile application. The Charfuel® technology removes much of the fuel nitrogen and sulfur from the coal. Thus, combustion of the Charfuel® fluidic fuel in existing power plant boilers is expected to reduce SO<sub>2</sub> and NO<sub>x</sub> emissions without the installation and operation of flue gas scrubbers or fluidized bed boilers. The Charfuel® fluidic fuel and co-products can be transported (a) in laminar flow using existing oil handling facilities at about the same transportation costs as those charged for light crude oil, and (b) by rail, barge, tanker truck, or tanker ship.

Product/Service	Designation	Description
Charfuel® Fluidic Fuel	Coal Derivatives	Charfuel® fluidic fuel is an admixture of char, wet methanol, and hydrocarbon oil produced during the Charfuel® process and has a higher heating value than the parent coal. The Charfuel® fluidic fuel contains from about 50% to about 75% by weight solids (char) and has a heating value in excess of 13,000 Btu/lb. It is expected to be available for commercial export in small quantities by 1993 and in larger quantities by the year 2000.
Oxygenated Fuels (i.e., methanol, MTBE)	Coal Derivatives	These transportation fuel additives, produced during the Charfuel® coal refining process, are expected to be available for export by the year 2000.

**Chatterjee and Associates, Inc.**  
**4883 Windermere Drive**  
**Newark, CA 94560**



**Telephone:** (415) 796-5436  
**FAX:** (415) 792-0693  
**Chief Executive Officer:**  
**International Sales Manager:**

Anil K. Chatterjee  
Anil K. Chatterjee

**Domestic Offices:**

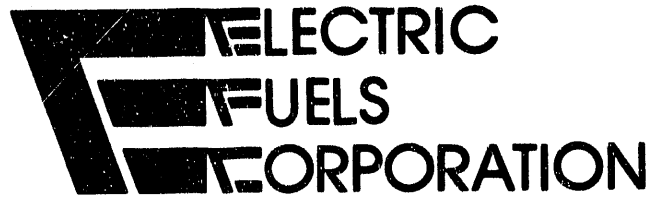
FREMONT, CA: P&D Engineering Consultants, Inc., 4165 Sedge Street, Fremont, CA 94555  
TEL. (415) 475-1168

Chatterjee and Associates, Inc. specializes in technical and economic evaluations of conventional and non-conventional fuel conversion technologies, environmental pollution control system design, process optimization, and system analysis. C&AI has experience in working with developing countries via US-AID and United Nations projects.

(Continued on next page)



**Electric Fuels Corporation**  
235 Third Street South  
P. O. Box 15208  
St. Petersburg, FL 33733



**Telephone:** (813) 892-2700  
**Telex:** 514168 **FAX:** (813) 892-2702  
**Chief Executive Officer:** Richard D. Keller  
**International Sales Manager:** Robert Ramey

Electric Fuels Corporation (EFC) through its many subsidiaries is involved in coal mining, coal transportation, coal transfer facilities, fuel research in the coal area and the development of coal-based alternative fuels. Electric Fuels has developed a coal management system that has proved to be successful and highly competitive in supplying coal from mine site to the customer. This fully-integrated system is composed of five essential groups: coal, operations, marine and terminaling, alternative fuels and international marketing. The integration of these groups under Electric Fuels' management provides the necessary exposure to all phases of the coal industry.

<b>Product/Service</b>	<b>Description</b>
Advance Utilization	With access to experts in virtually every application of coal combustion, Electric Fuels can provide qualified technical know-how in the areas of ash utilization, mineral and metal recovery from ash and in ash disposal. From start to finish, Electric Fuels' customers are assured of experienced assistance with all their coal handling needs. EFC has developed services ranging from field and laboratory functions to advanced computer support.
Coal Derivatives	Electric Fuels' involvement in the development of alternative fuels is through COMCO, a leader in the manufacture of coal-oil mixture (COM), coal-water mixture (CWM) and petroleum coke-oil mixture (PETCOM). Coal-liquid mixtures are produced at COMCO's Port Sutton, Florida facility. REDICOAL, COMCO's new powdered coal product for industrial and utility use, has proved to be an economical replacement for fuel oil and natural gas.
Coal Mining	The coal group is responsible for the mining and preparation of coal from sites containing approximately 215 million tons of reserves located in the states of Virginia, West Virginia and Kentucky. Origin points have capability to load both trucks and unit trains.
Coal Transport	Marine Equipment Management Corporation, a wholly-owned subsidiary, handles coal from all inland river origins in either single barge or unit tow lots. Standby loading is available. Covered barges are available. MEMCO also offers switching and fleetng services at various Mississippi River ports.  Dixie Fuels Limited offers handling, storing, terminaling and transporting bulk cargo by sea-going marine transportation equipment.
Facility Operation	International Marine Terminals is a bulk materials handling facility strategically located near the mouth of the Mississippi River. The recently expanded terminal consists of modern facilities, ground storage/blending and a coal testing laboratory operated by an independent agent.  Hatfield Terminals operates transfer facilities in Cincinnati, Ohio, on the Ohio River and near Charleston, West Virginia, on the Kanawha River.  Kentucky May Coal operate a coal transfer facility on the Big Sandy River.



**Ellison Consultants**  
**4966 Tall Oaks Drive**  
**Monrovia, MD 21770-9316**



**Telephone:** (301) 865-5302  
**FAX:** (301) 831-5443  
**Chief Executive Officer:**  
**International Sales Manager:**

**Mr. William Ellison**  
**Mrs. Gerd A. Ellison**

Formed in 1981, this independent consultancy specializes in assessment and commercial application of SO<sub>2</sub> and NO<sub>x</sub> control technologies and methods for management of collected wastes. The firm has extensive engineering design and technical marketing experience and background in all worldwide countries that utilize state-of-the-art technology for control of air pollution in the firing of solid fuels including municipal solid wastes. Clients include government agencies, electric utility companies, gas cleaning equipment and gypsum manufacturing companies, law firms, and technical development organizations.

Product/Service	Description
SO <sub>2</sub> Control Technology Evaluation	Consulting expertise in evaluation, selection and conceptual design of applicable emission control means
Management of Collected Gas Cleaning Wastes	Expert technical services in planning and establishment of programs for utilization or environmentally acceptable disposal of solid and liquid wastes.

**Energy International Corporation**  
**135 William Pitt Way**  
**Pittsburgh, PA 15238**

**Telephone:** (412) 826-5350  
**Telex:** 5106019265 (U-PARC UQ) **FAX:** (412) 826-5378  
**President:** Dr. Alan H. Singleton  
**VP, Business Development:** Mr. Robert A. Bebout

Energy International Corporation (EI) was formed to develop, license, and market new technologies and services for the advanced utilization of coal, special coal processing services, and the conversion of gas to premium liquid fuels. EI provides these services worldwide, including resource evaluation and selection, environmental impact evaluation, market assessments and project development. These services are available from project inception through operational startup and can involve intermediate and final products.

Product/Service	Description
Advanced Utilization	EI provides special Mineral Processing Services for grinding, washability studies, and testing of coals.
Power Generation Fuel (Underground Coal Gasification)	EI's Underground Coal Gasification technology can supply a range of gas products for industrial fuel use, electrical power generation, or synthesis gas to produce transportation fuels, fertilizers, and plastics from uneconomically minable coal resources.
Coal Derived Products (Coal Water Slurry Fuels)	EI develops and supplies specialized Coal Water Fuel slurries containing from 55% to 65% coal solids which can replace heavy fuel oil for electric power generation and for industrial boilers.
Technical Consultants	EI provides resource assessments, coal evaluations, technology transfer, process design, and project management services.

**Foster Wheeler Corporation**  
**Perryville Corporate Park**  
**Clinton, NJ 08809-4000**



**Telephone:** (201) 730-4000

**FAX:** (201) 730-4360

**Chief Executive Officer:**

Mr. L.E. Azzato

**International Sales Manager:**

Mr. B.P. Stephan; Mr. I.G. Lutes

**Domestic Offices:**

ATLANTA, GA; BOSTON, MA; CHARLOTTE, NC; CHICAGO, IL; DENVER, CO; HOUSTON, TX; KANSAS CITY, MO; LOS ANGELES, CA; NEW ORLEANS, LA; NEW YORK, NY; PHILADELPHIA, PA; PITTSBURGH, PA; WASHINGTON, D.C.; AND WINTER PARK, FL

**International Offices:**

AUSTRALIA: TELEX 152838 REWOP AA; CANADA: TELEX 055-60042; CHINA: TELEX 210396 REWOP CN; COLUMBIA: TELEX 396-43254 REWOP CO; ENGLAND: TELEX 851-263984; FRANCE: TELEX 842-210 782; HONG KONG: TELEX 37512 FWAL HX; ITALY: TELEX 843-310548; JAPAN: TELEX 2323192; NETHERLANDS: TELEX 844-34264; NIGERIA: TELEX 22365 FOSWLD NG; SINGAPORE: TELEX RS 39292 FWINTL; SPAIN: TELEX 83122275; contact the main office for further information.

Foster Wheeler Corporation is an engineering, manufacturing, construction, real estate development and service organization with 23 subsidiaries operating worldwide. Founded in 1927, it is currently one of the world's largest engineering and construction organizations. International activities are conducted by affiliates in England, France, Italy, Spain, and Canada. U.S. based industrial subsidiaries supply diversified engineering technologies and allied equipment.

**Product/Service**

**Description**

Advanced Utilization  
Architecture/Engineering  
Boiler Equipment  
Coal Derivatives  
Facility Construction  
Facility Operation  
Financing

Foster Wheeler Energy Corporation, a major United States subsidiary, designs, fabricates, maintains, manufactures, and constructs steam generating equipment for electric utilities and industry. This Foster Wheeler subsidiary furnishes condensers, feed water heaters, and other major auxiliary equipment for coal, oil, and gas-fired installations in the United States and abroad. Foster Wheeler's application of alternate energy sources have advanced the state of the art. Current projects involve refuse-to-energy plants, the cogeneration of industrial steam and electric power, a proprietary sludge drying process and high technology heat recovery equipment.

**Jim Walter Resources, Inc.**  
**Mining Division**  
**P.O. Box 830079**  
**Birmingham, AL 35283-0079**



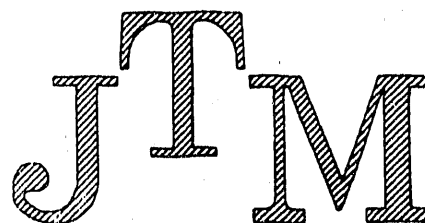
**Telephone:** (205) 254-7481 or 556-6000  
**Telex:** 261391 JWRB UR **FAX:** (205) 556-5857  
**President:** William Carr  
**Vice President:** K.H. Frazer  
**Assistant Vice President:** R.W. Pollard

**Domestic Offices:** BROOKWOOD, AL: Route 1, Box 133 - Highway 216, Brookwood, AL 35444  
**International Offices:** Please contact company headquarters for further information

Jim Walter Resources, Inc., is a 9 million (net) ton per year producer of high quality metallurgical (low and medium volatile) coal from the Blue Creek seam. The coal is produced from 4 underground mines in north central Alabama. These mines are served by both barge and railroad and approximately 6 million tons per year are exported from McDuffie Terminals in Mobile, Alabama. With more than 300 million tons of recoverable reserves, Jim Walter Resources will be producing high quality, single seam metallurgical coal for many years to come. Customers worldwide depend on Blue Creek coals, and Jim Walter Resources has ample reserves to back up long-term commitments.

Product/Service	Description
Low Volatile Metallurgical Coal (No. 3 and No. 7 mines)	Volatile matter 19-22%, ash 8%, sulfur .6-.7% (all dry basis), moisture 8% typical, HGI +90, ARNU 75-120, fluidity 300-700 DDPM, FSI 9, size 50 mm x 0 (other specifications upon request).
Medium Volatile Metallurgical Coal (No. 4 and No. 5 mines)	Volatile matter 24-26%, ash 8.8%, sulfur .7-.8% (all dry basis), moisture 8% typical, HGI +90, ARNU 120-140, fluidity 2000-4000 DDPM, FSI 9, size 50 mm x 0 (other specifications upon request).
Dry, Granular Coal	Medium volatile coal produced at No. 4 mine is thermally dried. Annually, approximately 250,000 (net) tons of "dryer dust" is captured in the dryer's emissions control system. This coal has 7% dry ash, is sized at 2 mm x 0 and has less than 2% moisture. This would be an excellent product for granular coal injection in a blast furnace.
Coal-Water Fuel (CWF)	Also located at No. 4 mine is a pilot scale CWF plant capable of producing 10 tons (50 barrels, 42 gallons each) of CWF per hour. However, with no continuous production commitments, the plant is available to produce batch samples of CWF produced from Blue Creek coal or customized CWF's with customer provided coals. Jim Walter Resources can also custom design and produce CWF to meet any special requirements.

**JTM Industries, Inc.**  
**1000 Cobb Place Boulevard**  
**Building 400**  
**Kennesaw, GA 30144**



**Telephone:** (404) 424-1900

**FAX:** (404) 424-9290

**Chief Executive Officer:**

**Executive Vice President:**

**Mr. Bill G. Fletcher**

**Mr. Dennis L. Kinder**

**Domestic Offices:**

**HOUSTON, TX: 4800 Sugar Grove Boulevard, #410, Stafford, TX 77477 TEL. (713) 240-4082;**

**ALLENTOWN, PA: 420 W. Emmaus Avenue, Allentown, AP 18103 TEL. (215) 797-7674; DAYTON, OH:**

**240 W. Elmwood Drive, Suite 2011, Dayton, OH 45459 TEL. (513) 435-3194; RICHMOND, VA: 1202**

**Bellwood Road, Richmond, VA 23237 TEL. (804) 271-7887**

JTM Industries, Inc., a wholly-owned subsidiary of USPCI and Union Pacific Corporation, is a full-service by-product management company headquartered in Marietta, Georgia. JTM provides by-product management programs to the generators of combustion and mineral processing by-products by: (1) developing and implementing proprietary processes which generate higher market value products from coal combustion residue; and (2) developing proprietary processes to accommodate reuse and/or disposal of more highly regulated non-hazardous ash streams. JTM has three divisions, each concentrating in a specific area of by-product management while drawing upon the expertise available throughout the corporation.

<b>Product/Service</b>	<b>Description</b>
<b>Ash Management Division</b>	AMD markets coal combustion by-products such as fly ash, bottom ash and fly ash lightweight aggregate throughout the U.S. These markets include concrete and concrete products, highway projects, structural fills, soil stabilization, chemical fixation and grouting. AMD maintains a fully-equipped R&D laboratory in Houston, Texas.
<b>Mineral By-Products Division</b>	MBD develops and markets products derived from by-products of cement and lime production. These products include Gypcem <sup>®</sup> , Multical <sup>®</sup> , Peanut Maker <sup>®</sup> and Pozzalime <sup>®</sup> . Pozzalime <sup>®</sup> is used at industrial and commercial waste treatment sites as a drying agent and soil amendment on construction projects. Gypcem <sup>®</sup> is used to control the set in portland cement. FilterEze <sup>™</sup> , a relatively new product, is used as a sludge conditioner.
<b>Operations Division</b>	The Operations Division, created January 1, 1989, manages the disposal of combustion by-products in an environmentally acceptable manner. Realizing that proper disposal techniques constitute a major portion of most by-product management programs and are becoming increasingly complicated and expensive, JTM organized this division to totally concentrate its efforts in this area.
<b>Municipal Services Corporation</b>	MSC is involved in the utilization and disposal of municipal solid waste ash and is currently involved in research and development of products from MSW ash in JTM's pilot plant located in Taylorsville, Georgia, to develop new technology. JTM considers this activity one of its greatest potential growth areas. MSC is developing a MSW ash landfill in Sawyer, North Dakota.
<b>KBK Enterprises, Inc.</b>	KBK is the engineering subsidiary company of JTM. KBK is an engineering group which provides services to utilities, cogenerators, municipalities, real estate developers and manufacturers. KBK provides internal engineering support to JTM and USPCI and offers its unique consulting services on an independent basis in: ash management, landfill design and permitting, environmental site assessment, ash handling equipment design, material processing plant design, construction management and real estate development.
<b>Melitech, Inc.</b>	Melitech, Inc. is a subsidiary of JTM that specializes in marketing pulverized fuel ash (PFA) into nonconventional PFA markets. In addition, it provides specialty chemicals to the carpet industry in the United States and Canada. Present nonconventional PFA markets include SB latex filler, asphalt roofing shingle filler, roofing granules and asphaltic concrete extender. Technical service is provided in the chemical products and non-conventional PFA markets.

**K-Fuel Partnership**  
**1999 Broadway-Suite 2505**  
**Denver, CO 80202**

## **K-FUEL® PARTNERSHIP**

**Telephone:** (303) 293-2992  
**FAX:** (303) 293-8430

**General Partner:**

Ted Venners

**Domestic Offices:**

GILLETTE, WY: K-Fuel Processing Facility and Laboratory, P.O. Box 1777, Gillette, WY 82717  
TEL. (307) 687-1013 FAX (307) 687-1635

K-Fuel Partnership, formed in 1984, markets and licenses the K-Fuel technology worldwide. Partnership-funded research and development has taken the technology from benchtop, pilot plant, and full-scale demonstration facility phases, to commercialization at Fort Union Mine near Gillette, Wyoming. The Gillette facility includes a state-of-the-art laboratory, where feedstock, process, and product analyses allow optimum plant operation and a custom-made end product.

### **Product/Service**

### **Description**

Advanced Utilization  
Coal Technology  
Coal Industry

Low-rank feedstocks (i.e., subbituminous coals, lignite) require derating of capacity or costly equipment modifications in order to meet utility and industrial boiler requirements and environmental restrictions. These feedstocks are difficult to handle and expensive to transport because of high moisture content and combustibility. A proven, patented, advanced coal beneficiation technology that economically upgrades low-rank feedstocks, the high-Btu, low sulfur, low moisture, environmentally acceptable K-Fuel product addresses those problems. This technology is available for licensing worldwide.

Coal Exporters

K-Fuel, produced using a proven, patented, advanced coal beneficiation technology that economically upgrades a variety of low-rank feedstocks, is a viable, high-Btu, low sulfur, low moisture energy source for utility and industrial users. Produced to meet the user's boiler specifications and having stable handling and storage characteristics, K-Fuel is competitively priced in the coal market.

**Monex Resources**  
45 NE Loop 410  
Suite 700  
San Antonio, Texas 78216



**Telephone:** (512) 349-4069

**Fax:** (512) 349-8512

**Chief Executive Officer:**

Gerry J. Gordon

**International Sales Manager:**

W.E. Ellis, Jr.

**Domestic Offices:**

SAN ANTONIO, TX: Corporate Office, 45 NE Loop 410, Suite 700, San Antonio, TX 78216 TEL. (512) 349-4069;  
ATLANTA, GA: Southern Regional Office, 2030 Powers Ferry Road, Suite 206, Atlanta, GA 30339 TEL. (404) 955-0089;  
GREENSBORO, NC: Mid-Atlantic Regional Office, 2708 Church Street, Suite G, Greensboro, NC 27405  
TEL. (919) 375-4066; AUBURNDALE, FL: Southeastern Regional Office, 227 Pearl Street, Auburndale, FL 33823  
TEL. (813)967-6626; SAN ANTONIO, TX: Southwestern Regional Office, 45 NE Loop 410, Suite 700, San Antonio,  
TX 78216 TEL. (512) 341-6182

Monex Resources, Inc. is an American corporation headquartered in San Antonio, Texas with over one million tons of fly ash and bottom ash sold annually. Currently nearing the beginning of its fourth decade of operations, Monex Resources has become a national leader in fly ash marketing and handling by providing a fly ash distribution system including over fifteen power plants in ten states reaching from Virginia through the Carolinas, Georgia, Florida to Texas. The Company also operates admixture manufacturing facilities in Florida, North Carolina and Texas and ash landfills throughout the southern and southeastern states.

**Product/Service**

**Description**

**Fly Ash**

Through selective collection and classification at the power station, Monex is able to produce only the highest quality, consistent fly ash, featuring lower loss on ignition (carbon content) and the highest performance characteristics in concrete. In addition to its utilization in the production of concrete and concrete products, fly ash is also provided for use as a mineral filler in asphaltic concretes and other industrial uses, as an additive for the stabilization of chemical wastes and sludges, as an effective pozzolanic cementing agent in grouts and controlled density fills, and in the production of road base and roller compacted concretes.

**Bottom ash**

Monex bottom ash is a valuable additional by-product of the coal combustion process. In its processed form, Monex pyrite-free bottom ash is an attractive, cost-effective alternative to manufactured lightweight aggregates in the manufacture of concrete products. While the characteristics of the bottom ash vary by source, significant savings in the cost of aggregates are possible, while producing a concrete unit of desirable texture, weight, absorption characteristics, and shrinkage. Bottom ash is also extensively utilized as a correcting material, in the manufacture of portland cement providing a source of the alumina and iron compounds required for cement clinker production.

**Ash Disposal**

Through its Utility Services division, Monex performs ash management services for the electricity generating industries. Utility Services is responsible for the management, transportation, placement, compaction, and reclamation of fly ash, bottom ash, and ponded ash in environmentally acceptable landfills. This division managed some 1.5 million tons of ash disposal in the year ended June, 1988.

**Passamaquoddy Technology**  
178 Middle Street  
P.O. Box 7412 DTS  
Portland, ME 04112



**Passamaquoddy  
Technology**

**Telephone:** (207) 773-8656

**FAX:** (207) 773-8832

**Chief Executive Officer:**

Mr. Garrett L. Morrison, Ph.D.

**International Sales Manager:**

Mr. Donald W. Perkins, Jr.

**Domestic Offices:**

THOMASTON, ME: Office of Research & Development, U.S. Route One, P.O. Box 350, Thomaston, ME 04861.

Passamaquoddy Technology is dedicated to developing cost effective solutions to complex environmental problems that confront heavy industry. Passamaquoddy Technology is currently demonstrating its Recovery Scrubber at commercial scale. Also under development are solutions to carbon dioxide emissions, economically viable use of waste tires, and economically viable use of municipal incinerator ash.

**Product/Service**

**Description**

Recovery Scrubber

The Recovery Scrubber is a flue gas desulfurization technology (90% + SO<sub>2</sub> scrubbing efficiency, significant NO<sub>x</sub> and CO<sub>2</sub> scrubbing) that utilizes a waste product as scrubbing reagent, produces marketable byproducts (fertilizer, distilled water, and cement kiln feed), and is applicable to fossil-fired boilers in the utility, cement, paper and waste-to-energy industries. The Recovery Scrubber is unique in its use of a waste stream as scrubbing reagent, its production of byproducts with proven markets, and its potential to defray operating and capital costs through reagent tipping fees and byproduct sales revenue. The Recovery Scrubber is currently being demonstrated at commercial scale. Inquiries regarding performance characteristics and cost estimates for specific sites are welcome.

**Slurry Systems, Inc.**  
P.O. Box 772  
Athens, OH 45701

Telephone: (614) 593-1500  
Chief Executive Officer:

Dr. Robert L. Savage

Specializing in chemical process development as applied to coal technology. Laboratory, pilot plant and commercial plant experience.

Product/Service	Description
Carbon Black from Coal	Carbon black containing less than one percent ash can be produced from coal without any further processing to remove ash. Synthesis gas (32% carbon monoxide and 50% hydrogen) and a low-volatile, porous char are produced concurrently with the carbon black.
Sulfur Removal from Coal	Ethanol can be used to remove 80 to 95% of both organic and inorganic sulfur from coal. The sulfur is removed as gaseous hydrogen sulfide which can be converted to sulfuric acid or elemental sulfur. Other reaction by-products can be recycled or converted to marketable organic chemicals. There are no waste products to dispose of.
Coal-Oil and Coal-Oil-Water Slurries	Low-sulfur and/or low-sulfur, low-ash coal slurries provide an environmentally acceptable replacement fuel for oil or gas fired boilers.

**Slurrytech, Inc.**  
7027 S.W. 148th Terrace  
Miami, FL 33158

**SLURRYTECH, INC.**  
A SUBSIDIARY OF FUELS MANAGEMENT INC.

Telephone: (305) 253-4560  
FAX: (202) 333-0474  
Chief Executive Officer:  
International Sales Manager:

Donald D. Dunlop  
Donald D. Dunlop

Domestic Offices: WASHINGTON, DC: 1425 44th Street, N.W., Washington, DC 20007

Slurrytech, Inc. is the licensing entity for Co-AL, the patent protected coal water fuel technology originally developed at Alfred University. Since 1980, the technology has led the coal water fuel development field in process, scale-up, and combustion advancement. Slurrytech has worked with development partners around the world to complete the commercial development of Co-AL.

Product/Service	Description
Coal Water Fuel	Coal Water Fuel, marketed under the name Co-AL, developed originally at Alfred University and patent protected worldwide. Co-AL is unique in the use of particle size distribution to realize a high solids loading (up to 75%) with a low viscosity (1000 cps). Because of this particle size distinction, Co-AL is a stable fuel and does not require costly stabilizing chemicals. Slurrytech has this technology available for license and, alternatively, will supply slurry product through its parent corporation, Fuels Management, Inc.



**Sun Coal Company**  
 4711 Old Kingston Pike  
 P.O. Box 10388  
 Knoxville, TN 37939-0388



Telephone: (615) 558-0300  
 Telex: 55-7045 FAX: (615) 558-3280  
 Chief Executive Officer: Richard W. Ince  
 International Sales Manager: David H. Everest, Jr.

Domestic Offices: CHARLOTTE, NC: 5835 Executive Center Drive, Suite 105, Charlotte, NC 28212 TEL. (704) 568-2970;  
 LITTLETON, CO: 26 West Dry Creek Circle, Suite 106, Littleton, CO 80120 TEL. (303) 730-1900; PITTSBURGH, PA: 720 Two Gateway Center, Pittsburgh, PA 15222 TEL. (412) 281-4728

Sun Coal Company is one of the largest coal companies in the U. S. with mining operations in Kentucky, Utah, Virginia, West Virginia and Wyoming. The seven different mining operations produce low sulfur coals for the steam and metallurgical markets and are strategically located to supply high quality products to virtually every North American port. Sun also owns and operates a "non-recovery" coke plant of unique design in Virginia and sells high quality furnace coke to the steel industry. Sun Coal Company is a wholly-owned subsidiary of Sun Company, Inc., a major U. S. oil company.

Product/Service	Description
Coal Mining	Sun Coal is a major coal mining company supplying high quality steam coals for the electric utility industry and mid and high volatile coking coals to the steel and ferro-alloy industries. Sun Coal also makes high quality furnace coke with its patented "non-recovery" coke oven technology utilizing its mid volatile coking coal exclusively.
Coal Exporters	
Coal Derivatives	

**Ultrasystems Engineers & Constructors, Inc.**  
 16845 Von Karman Avenue  
 Irvine, CA 92714



Telephone: (714) 863-7000  
 Telex: 69-2356 FAX: (714) 852-9697  
 Chief Executive Officer: John P. Coyle

Ultrasystems offers the complete range of services necessary to perform major engineering, procurement and construction contracts. These services include economic and feasibility studies, conceptual designs, technical development support, design reviews, project planning and management, process engineering, detail engineering design, procurement of equipment and material, plant construction, startup, performance testing and operator training activities.

Product/Service	Description
Coking and Formcoke	Licensing rights to the Peabody continuous coking process and formcoke process. Devolatilization of coal produces low Btu gas for above-grate combustion or heat recovery. Commercial units operating in U.S. and South Africa.
Coal Gas Clean-Up	Exclusive licensee of Hiperion sulfur removal process. Catalytic conversion of hydrogen sulfide, carbonyl sulfide and mercaptan from coke oven gas or coal gasification. One-step conversion of sulfurous compound to elemental sulfur. Commercial units operational in U.S. and Japan.

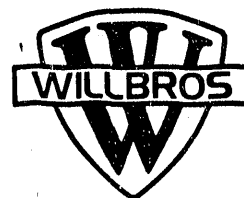
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**Ultrasystems Engineers & Constructors, Inc. (Continued)**

Coal-Fired Power Plants	Feasibility studies to turnkey installation. Commercial units operating in the U.S.
Wastewater Clean-Up	Fixed-firm anaerobic digestion of high COD wastewater. Simultaneous biogas recovery will provide energy needs to host plant.
Coal Gasification	Mansfield two-stage low Btu system. First gasification accomplished through traveling grate, followed by second-stage, fixed-bed gasification.

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**Willbros USA, Inc.**  
Suite 700, 2431 East 61st Street  
Tulsa, OK 74136



Telephone: (918) 748-7000  
Telex: 79-6660 FAX: (918) 748-7087  
Chief Executive Officer: L.J. Bump

**International Offices:** REPUBLIC OF PANAMA: Edificio Torre Banco Germanico, 8th Floor, Panama 1 TEL. (507) 63-9282 TELEX 3380; NIGERIA: 256 Kofo Abayomi St., P.O. Box 1057, Victoria Island, Lagos, 614877 TELEX 21115; OMAN: P.O. Box 142, Muscat, Sultanate of Oman TEL. 590355 TELEX 5387; UNITED KINGDOM: Provincial House, 62-68 Eden Street, Kingston-upon-Thames, Surrey KT11EJ TEL. (01) 549-4471 TELEX 928172

Willbros USA, Inc. is a subsidiary of Willbros Group, Inc. which provides worldwide construction of pipelines and related facilities, onshore contract rotary drilling, maintenance of pipeline systems, dredging, transportation and pipe coating to the energy industry. Engineering and project management services are also provided to the energy industry, the U.S. Armed Forces and the telecommunications industry.

Product/Service	Description
Energy Transportation	Pipeline and facilities construction. Engineering and project management.

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**Williams Technologies, Inc.**  
320 South Boston, Suite 831  
Tulsa, OK 74103

Telephone: (918) 582-5811  
FAX: (918) 584-0474  
Chief Executive Officer: David R. Williams, Jr.  
International Sales Manager: H.J. Brolick

**International Offices:** Please contact the company headquarters for further information.

Principal business is project assessment, development, and management from initiation of concept through commercial implementation, including financial sourcing. Manages R&D partnership for oil and mineral technologies, R&D program for coal liquefaction technology and operation of Black Mesa coal slurry pipeline. Provides consulting with regard to economic feasibility or technical evaluation of energy or resource projects. Manages operating facilities and technology development for others. Special expertise in development of coal slurry pipeline projects through past worldwide experience and ongoing operations management of Black Mesa Pipeline.

(Continued on next page)

**Williams Technologies, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Coal Transport	Provides development, management, financial packaging and operation management of coal slurry pipeline systems.
Architectural/Engineering	Provides consulting services in planning and feasibility study, as well as management of design, construction, and operations for coal slurry pipeline and oil and gas pipeline systems. Provides similar services for cogeneration plants and alternative energy projects.
Coal Derivatives	Management services for coal liquefaction and deep cleaning R&D.

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**Coal Exporters:**

Firms engaged in the marketing of U.S. coal for export.

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**AMAX Coal Industries, Inc.**  
251 N. Illinois Street, P.O. Box 6106  
Indianapolis, IN 46206-6106

**AMAX COAL INDUSTRIES, INC.**



Telephone: (317) 266-1500

FAX: (317) 266-1527

Chief Executive Officer:

Douglas H. Ashby

International Sales Manager:

J. Mark Cook

AMAX Coal Industries, Inc. (a subsidiary of AMAX Inc.) is headquartered in Indianapolis, Indiana. AMAX is the United States' third largest coal producer and is known throughout the industry for its innovative mining techniques and technological advances. In 1989, the company produced 38.4 million tons of coal. AMAX Coal Industries operates mines in Indiana, Illinois, Kentucky, Tennessee, West Virginia, and Wyoming. The company's two mines in Wyoming are among the nation's largest coal mines. AMAX Coal Sales Company is the company's marketing area, and provides complete coal marketing services; including transportation assistance, technical support, contract administration, and market development. Electric utility and industrial customers who purchase coal through AMAX can rely on an experienced and qualified staff for technical expertise in all areas of coal marketing.

**Product/Service**

**Description**

Coal Drying Facility

AMAX has constructed the first large-scale coal drying facility in the nation at its Belle Ayr Mine in Wyoming. The 1.5 million tons per year plant reduces the moisture content of the coal from 30 percent to 10 percent and increases its heating value from approximately 8,500 Btu per pound to nearly 10,750 per pound.

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**ANDALEX Resources, Inc.**  
1201 Hurstbourne Place  
9300 Shelbyville Road  
Louisville, KY 40222



Telephone: (502) 426-7322

Telex: 204 245 ANDALEX LVL FAX: (502)429-0007

Chief Executive Officer:

Gary Livingstone

Vice President of Sales:

Malcolm Thomas

Director of Marketing:

Larry Washington

Manager of Western Sales:

Ronald Powers

Manager of Eastern Sales:

Darrell Mahone

Domestic Offices:

DENVER, CO: 1515 Arapahoe St., Denver, CO

ANDALEX Resources, Inc. is a private company formed by a family which has been mining coal continuously for over 150 years. ANDALEX Resources Comprises four active mines and current production capacity is in excess of four million tons per year. The company has earned recognition as a reliable large-volume long-term supplier to industry and public utilities in the United States and overseas. A primary company goal is the flexibility necessary to respond to customers quickly and cost effectively.

(Continued on next page)

**ANDALEX Resources, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Cimarron Division	An Area surface mine operation with long-term and spot sales in excess of 2 million tons. Cimarron can load on CSX or P&L rail lines with rail-to-barge transfer at several river ports for gulf shipments.
Tower Division	Operates underground drift access, room and pillar mines in the Book Cliffs Coal Fields of Utah. Sales include long-term and spot contracts to utility and industrial customers. Is a major coal supplier to the far east primarily through the port of Los Angeles.
Little Creek Division	Surface and underground mining operations located in eastern Kentucky with production capacity of 1.5 million tons. Has proven to be a competitive supplier to industrial and utility customers from Michigan to Florida. 4 hour unit train loadout capability on CSX rail. Export shipments through New Orleans, L.A., Mobile, Alabama, Charleston, S.C.
Phillips Division	Located in Western Maryland is an area surface mine producing low volatile coal. Currently supplying domestic customers, Phillips has been a successful supplier in the European Market. Coal is shipped through ports in Baltimore and Philadelphia.

**Anker Energy Corporation**  
**Rt. 12, Box 245**  
**Morgantown, WV 26505**



**Telephone:** (304) 296-1616

**FAX:** (304) 291-3692

**Chief Executive Officer:** Mr. John J. Faltis

**International Sales Manager:** Mr. Neil Cregg

**Domestic Offices:** FLORHAM PARK, NJ: 26 Columbia Turnpike, Suite 100, Florham Park, NJ 07932 TEL. (201) 822-0813; KENOVA, WV: 1230 Chestnut Street, Kenova, WV 25530 TEL. (304) 453-3555

Anker Energy is a producer, broker and trader of U.S. origin coals affiliated with Anker Kolen, a coal trading company in the Netherlands. We are equipped to source coal domestically in the U.S. and internationally through our affiliate. We produce in excess of 2 million annual tons with annual sales of 4 to 6 million tons. In addition, we are equipped to buy, sell, mine and arrange for sales of coal f.o.b. mine, f.o.b.t., CIF or CF, as the case may be.

<b>Product/Service</b>	<b>Description</b>
Coal Exporters	Coal exports through U.S. East Coast and New Orleans. All grades of coal.
Coal Mining	Domestic U.S. producer of 2 million plus annual tons in West Virginia, Pennsylvania and Maryland.

**Arch Mineral Corporation**  
CityPlace One  
City Place Drive  
St. Louis, MO 63141



**Telephone:** (314) 994-2700  
**Telex:** 5106011393 **FAX:** (314) 994-2719  
**Chief Executive Officer:** Mr. R.E. Samples  
**International Sales Manager:** Mr. E.C. Holdaway (Western U.S.)  
Mr. P.J. Panzarino (Eastern U.S.)

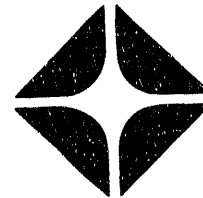
Arch Mineral Corporation is a major full-service coal mining and sales company. It was formed in 1969 and has over 2,700 employees. The company currently sells in excess of 20 million tons annually of high quality steam and metallurgical coal from mines in Illinois, Kentucky, West Virginia and Wyoming. In addition, Arch owns dock facilities on various rivers. Arch Mineral has the capability of exporting coal from port facilities in: Newport News and Norfolk, VA; New Orleans, LA; Charleston, SC; Mobile, AL; and Los Angeles/Long Beach, CA

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<b>Product/Service</b>	<b>Description</b>
Coal Mining Coal Exporters	High quality steam and metallurgical coal from mines in Illinois, Kentucky, West Virginia, and Wyoming available for export.

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**ARCO Coal Sales Company**  
555 Seventeenth Street  
Denver, CO 80202



**Telephone:** (303) 293-7704  
**Telex:** 454545 **FAX:** (303) 293-4820  
**President:** C. B. Smith  
**International Sales Manager:** Harold B. Tyber, Vice President

ARCO Coal Sales Company is a subsidiary of Atlantic Richfield Company and an operating agent of ARCO Coal Company. In 1989, ARCO Coal Company's world wide production was approximately 40 million tons, 20% of which was sold overseas. ARCO Coal Company is the fourth largest coal producer in the U.S.

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<b>Product/Service</b>	<b>Description</b>
Coal Mining Coal Export	ARCO Coal Company, a division of Atlantic Richfield company, is an international coal company with significant operations in several of the world's premium coal basins. In the United States, through its operating subsidiaries, ARCO Coal is a major producer of high quality, low sulfur steam coals. ARCO's Thunder Basin Coal Company operates the Black Thunder and Coal Creek Mines located in Campbell County, Wyoming. Mountain Coal Operations, a unit of ARCO Coal Company, operates the Trail Mountain No. 9 mine located in Energy County, Utah, and the Mt. Gunnison mine located in Gunnison County, Colorado. Specifications available on request.

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**Arctic Slope Regional Corporation**  
**P.O. Box 129**  
**Barrow, AK 99723**



**Telephone:** (907) 852-8633  
**FAX:** (907) 852-5733  
**Chief Executive Officer:** Mr. Jacob Adams  
**Coal Development Manager:** Mr. Kent Grinage

Arctic Slope Regional Corporation (ASRC) was established pursuant to the Alaskan Native Claims Settlement Act of 1971 (ANCSA 1971) to represent the interest of Natives of Northernmost Alaska. ASRC has become a major force in Alaska. It has design, construction, and operation capability with projects located throughout the state and resources to support a broad range of projects. ASRC is now diversified to where it is comprised of 12 wholly-owned subsidiaries with some 1600 employees and with annual revenues exceeding \$135 million.

Product/Service	Description
Coal Exports	Lands selected by ASRC are within the Northern Alaska Coal Province which may contain up to four trillion tons of high quality coal. The coal is designated as high volatile A-B Bituminous with a heating value in excess of 12,000 BTU per pound and contains only 0.1 to 0.3 percent sulfur and 5 percent moisture.
Coal Mining	A demonstration mining program and thorough complement of studies have shown development to be technically, environmentally, and financially sound. ASRC is presently developing markets and establishing financing to support commercialization of this vast resource. The relatively close proximity of the Pacific Rim nations make a natural choice for market penetration.

**Ashland Coal, Inc.**  
**Post Office Box 6300**  
**Huntington, WV 25771**



**Ashland Coal, Inc.**

**Telephone:** (304) 526-3333  
**Telex:** 710-931-1907 **FAX:**(304) 526-3678  
**Chief Executive Officer:** William C. Payne  
**International Sales Manager:** Sam Lewis

**International Offices:** FRANCE: Robert A. Dienhart, 20, Bd. De La Republique 92210-St. Cloud, France; TEL 33-14-771-36-730, FAX 33-14-771-3793

Ashland Coal is a marketing-oriented eastern U.S. coal company engaged in the mining and processing of high quality, low-sulfur bituminous coal. It employs highly efficient means to mine, process and transport its coal, marketed principally to electric utilities in the eastern U.S. and in Europe. It also markets high quality metallurgical coal. Transportation flexibility includes access to the CSX and Norfolk Southern rail systems and the inland waterway system. Ashland Coal is a partner in Dominion Terminal at Newport News, VA.

Product/Service	Designation	Description
Coal Exporters	Coal	High quality, low-sulfur bituminous coal for electric utilities. High quality metallurgical coal.
Coal Mining	Coal	High quality, low-sulfur bituminous coal for electric utilities. High quality metallurgical coal.

**A.T. Massey Coal Company, Inc.**  
4 North Fourth Street  
Richmond, VA 23219



**Telephone:** (804) 788-1800  
**Telex:** 240503 **FAX:** (804) 788-1870  
**Chief Executive Officer:** E. Morgan Massey  
**International Sales Manager:** J. Morton Eggleston

A. T. Massey Coal Company, Inc. and its related companies ship more coal from Central Appalachia than any other supplier. In 1988, 25.6 million tons of coal were delivered to more than 180 Massey Coal customers worldwide. Beginning as a coal trading company in 1916, A. T. Massey Coal Company, Inc. is now the coal mining subsidiary of Fluor Corporation, one of the world's largest engineering, construction and maintenance firms. Our affiliate, Fluor Daniel is currently rated #1 among the top 400 U.S. construction companies by Engineering News Record. It provides global capability from more than 50 offices located around the world. Massey Coal is uniquely positioned to supply a diversity of products. With fifteen mining complexes located throughout the Appalachian coal fields, Massey Coal operations are on all major rail systems, have access to river and truck delivery, and lead the industry in preparation plant efficiency and quality control. Massey Coal also represents a wide-ranging network of independently produced coals. A 710 million ton reserve base assures Massey Coal customers of a continuing supply of high quality metallurgical and steam coal.

Product/Service	Description
Coal Export Coal Mining	<p>Massey Coal Export Company serves customers in more than 30 countries throughout the world. Shipping from all major East Coast and Gulf Coast terminals, we move roughly 10 percent of all seaborne U.S. metallurgical coal and are rapidly approaching the same market share for steam coal.</p> <p>Since 1984, Massey Coal Export's sales have increased 70 percent, reaching 7.5 million tons in 1988. This growth in both metallurgical and steam coal sales demonstrates our ability to compete successfully in the highly competitive world market, where quality and price make a difference.</p>
Technical Services	<p>Steel industry customers throughout the world have come to rely on Massey's quality assurance program, a program second to none in the coal industry. Every Massey Coal metallurgical mining operation has implemented Statistical Process Control to insure the quality product our customers require.</p> <p>We combine marketing capability with technical expertise to locate the most economical coals for customers' operations. Our experts look at more than delivered product cost; they look at resultant coke quality, blast furnace performance, and an improved bottom line for the customer. This innovative approach is paying off so well for our metallurgical coal customers that we are expanding its application to steam coal sales.</p>

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**Black Gem Coal Company**  
P.O. Box 931  
Cincinnati, OH 45239-0931

**BLACKGEM**

**Telephone:** (513) 931-1426  
**Chief Executive Officer:** H.M. Vonderheide  
**International Sales Director:** H.M. Vonderheide

Black Gem Coal Company has been in existence since 1976. Product line consists of steam, stoker, and metallurgical coals available from U.S.A. coal areas of southern West Virginia, southwest Virginia, southeastern Kentucky, and eastern Tennessee.

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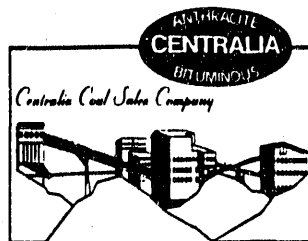


## Black Gem Coal Company (Continued)

### Product/Service

Coal Mining, transportation by truck, rail, U.S.A. river system to ports for export. Coal brokers/finders/sales. Mining equipment both deep and surface (as commonly utilized in U.S.A. coal mines).

**Centralia Coal Sales Company**  
P.O. Box 478  
Wilkes-Barre, PA 18703



Telephone: (717) 822-4135  
Telex: 510-658-2615 FAX: (717) 824-1884  
Chief Executive Officer: Joseph A. Frank  
International Sales Manager: Joseph A. Frank, Jr.

Founded in 1947, Centralia Coal Sales Company is headquartered in Wilkes-Barre, in the heart of the Pennsylvania Anthracite Fields and well within reach of all the eastern coal reserves. Centralia Coal Sales Company is the exclusive sales agent for several large producers and represents a total of more than 30 producing companies in the Pennsylvania, West Virginia, and Kentucky. It is undoubtedly, the largest independent coal marketing company in the Anthracite industry. Multiple supply sources assure customers of a reliable, continuous source of high-grade coal that fully meets their specifications. Years of experience and the growing promise of coal insure that Centralia will be here to serve its customers for many years to come.

### Product/Service

### Description

Anthracite Coal

Anthracite coal has unique physical and chemical properties which make it valuable in the broad range of processes and applications including: A clean, slow burning, low sulfur fuel for heating and generating electric power, a low cost substitute for foundry and blast furnace coke, a reducing agent in the refining of metal ores, a raw material in the manufacture of cathode block, and carbon electrodes, source material for briquetting, an effective, long lasting filter media, a source for advanced synthetic fuels through gasification and liquefaction and for light oil and chemicals.

**Coal Rep International**  
4360 Brownsboro Road, Suite 200  
Louisville, KY 40207

Telephone: (502) 897-9595  
FAX: (502) 897-2454  
Chairman of the Board, President: H. Jack Rutledge  
Vice President: Anna K. Kyser  
Bookkeeper: Pam Nevin  
Marketing Assistant: Lisa Smith  
Accounting Manager: Lew Reyman  
Transportation Coordinator: Pam Hall

Coal Rep International, a division of ENER-MARK, Incorporated, is a broad-based coal marketer, with exclusive sale and management control of coal supplies in East and West Kentucky. With this diversity of operations, we have coals ranging from 13,000+ BTU to 11,500+ BTU; 0.75% sulfur to 3.5% sulfur, etc. Our East Kentucky coal moves by Unit Train or Barge, and our West Kentucky product move primarily by Barge.

During our 15 years in the coal industry, the emphasis on customer service and quality control has paved the way for our notable growth, so that today we count our sales in the tens of millions. We always stand ready to assist our customers, both old and new, in all their coal and transportation coordination needs.

**Coal Support Services, Inc.**  
111 S. Parker Street, Suite 201  
Tampa, FL 33606



**Telephone:** (813) 254-6183  
**FAX:** (813) 254-3976  
**Chief Executive Officer:** Frederick E. Wayand  
**International Sales Manager:** Frederick E. Wayand

The company was established to provide the industry with professional, unbiased, and confidential technical liaison services regarding domestic and export coal shipments. These services have been utilized by coal producers, utilities, and coal exporters/importers. We focus on the inland waterway system with coal movements from rail to barge, truck to barge, stockpile to barge, and subsequent transloading of this cargo.

Product/Service	Description
Auditing	Periodic inspection of the entire purchase process from mine to power plant stockpile including laboratory accountability, transfer facility inspection, and review of sampling regimes.
Export Supervision	Surveillance of cargo loadings to verify procedures in sampling, analysis, and weight determination.
Quality Assurance	Troubleshoot to ascertain causes for discrepancies in either quality or quantity of a shipment.
Training	In-house seminars regarding history of coal, loading, receiving, sampling, preparation, and analysis.

**Coastal Coal Sales, Inc.**  
P.O. Box 1871  
Roanoke, VA 24008



**Telephone:** (703) 983-0222, USA (except VA): (800) 336-5722  
**Telex:** 888415 **FAX:** (703) 983-0267  
**Chief Executive Officer:** Robert J. Hummel  
**International Sales Manager:** Robert J. Hummel

Coastal Coal Sales, Inc. is responsible for the marketing of over 15 million tons of coal and petroleum coke produced by other units of The Coastal Corporation as well as independent high quality producers. Its principle affiliates are ANR Coal Company, Brooks Run Coal Company, Enterprise Coal Company, Virginia Iron, Coal and Coke Co., Coastal States Energy Co., Southern Utah Fuel Co. and Utah Fuel Co. Coastal Coal Sales also represents Preston Energy Co., an independent producer. Coastal Coal Sales, Inc. is a financially stable company that is an integral part of the Coastal Corporation, an \$8 billion, diversified energy company.

Product/Service	Description
Coal Exporters	Exporters of thermal and metallurgical grade coals through the Ports of Hampton Roads, VA, Los Angeles, CA, San Francisco, CA, New Orleans, LA, Mobile, AL, Baltimore, MD and Philadelphia, PA.
Coal Mining	A solid reserve base with major blocks in Kentucky, Utah, Virginia and West Virginia. Flexibility with modern mining facilities and state-of-the-art preparation plants.

**Consolidated Rail Corporation**  
6 Penn Center Plaza  
Philadelphia, PA 19103-2959



**Telephone:** (215) 596-2000  
**FAX:** (215) 851-7448  
**Chief Executive Officer:**  
**Assistant Vice President:**  
**Mgr - Coal Mktg/Sales Export:**

Mr. J. A. Hagen, Chairman, President, and CEO  
Mr. R. W. Lynch, Coal Coke and Iron Ore  
Mr. R. B. Schurr

**Domestic Sales Offices:**

PHILADELPHIA, PA: 1126 One Liberty Place, Philadelphia, PA; 1650 Market Street, 19103-7399  
TEL. (215) 851-7480

**International Offices:**

Served from Philadelphia.

With rail lines in 14 Eastern and Midwestern states in the United States, Conrail offers direct rail transportation links between coal producing regions, shippers, and international coal buyers. The diverse characteristics of coal accessible by Conrail are well-suited to the energy needs of the world economy, providing premium energy required to generate electrical power and yielding excellent coking coals for metallurgical applications. Reserves of approximately 21 billion tons of bituminous and anthracite coal for steam and metallurgical use are located within Conrail's operating areas and are readily available for the export market. Ninety-five percent of U.S. low-sulfur anthracite coal is produced in one area of operation, Pennsylvania. Conrail is committed to the enhancement of transportation partnerships with coal producers, traders, and international coal buyers.

**Product/Service**

**Description**

Coal Transport Freight  
Forwarders Coal Exporters

Serving East Coast ports, Conrail offers a full range of routing and shipping options combined with state-of-the-art transfer, blending, and storage capabilities; along with the capability of loading up to 7,000 tons of coal per hour and up to 15 million tons per year. Conrail owns a sophisticated rail-to-water transshipment facility, Pier 124 at the Port of Philadelphia (one of the many piers served by Conrail) and has direct access to Consolidation Coal Sales Company's Terminal at the Port of Baltimore. Conrail, through its modern, high-capacity transfer operations located on Lake Erie at Ashtabula Coal Pier in Ashtabula, Ohio, is strategically positioned for export coal movement through the Great Lakes/St. Lawrence Seaway coal corridor. Also, through interchange with other railroads, Conrail can deliver to any port in the U.S.A.

**Consolidation Coal Company**  
Consol Plaza  
1800 Washington Road  
Pittsburgh, PA 15241



**Telephone:** (412) 831-4382  
**Telex:** 247-634 **FAX:** (412) 831-4571  
**Chief Executive Officer:** B. R. Brown  
**International Sales Manager:** Walter E. Schrage

**Domestic Offices:**

NORFOLK, VA: 201 Granby Mall, Suite 216, Norfolk, VA 23510 TEL. (804) 627-6261, FAX (804) 625-5088, TELEX 240403 CONSOL NORF; BALTIMORE, MD: Consolidation Coal Sales Company Terminal, 3800 Newgate Avenue., Baltimore, MD 21224 TEL. (301) 631-7000, FAX (301) 631-7022

**International Offices:**

BELGIUM: Godefroid Coal Trading and Shipping S.A., 37-41 Rue du Congress, Brussels 1000 Belgium TEL. 011-32-2-218-7220, FAX 32-2-218-6192, TELEX 846-21434

Consolidation Coal Company (Consol) operates 25 underground and surface mines in nine states and Alberta, Canada. The company is the second-largest coal producer in the United States and hold 6.1 billion tons of steam and metallurgical-grade coal reserves. More than 80 percent of Consol's

(Continued on next page)

### Consolidation Coal Company (Continued)

annual production of more than 55 million tons of steam coal for electricity generation. Nearly 11 million tons of high-grade metallurgical coal is produced annually. Consol mines are linked to major rail routes or the inland waterway for shipment to domestic customers and to exporting points on both coasts and the Gulf of Mexico.

Product/Service	Description
Steam Coal	Consol has exported steam coal since the early 1900s. Today consol exports steam coal to eight countries from mines in northern West Virginia, southwestern Pennsylvania and eastern Kentucky. Exporting points are Consolidation Coal Sales Company's (CCSC) terminal in the Port of Baltimore or terminals in Hampton Roads, Virginia and New Orleans, Louisiana.

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Costain Coal Inc.  
West Kentucky Division  
P.O. Box 267  
Sturgis, KY 42459



Telephone: (502) 333-4391  
FAX: (502) 333-4391, Ext. 214  
President:  
Sales Manager:

Mr. P. Ron Siler  
Mr. Dan Shelledy

Domestic Offices: KENTUCKY: PYRO MINING COMPANY, P.O. Box 267, Sturgis, KY 42459 TEL. (502) 333-4391; J. SMITH COAL, INC., P.O. Box 38, Providence, KY 42450 TEL. (502) 667-7025; SOUTHARD COAL, INC., P.O. Box 38, Providence KY 42450 TEL. (502) 667-7025

Costain Coal Inc. - West Kentucky Division produces over 9,000,000 saleable tons of bituminous steam coal annually from non-union underground and surface mines. Through company owned rail, river, and truck facilities, its production can be economically transported to all major markets. Its parent company, Costain Group PLC, is a U.K. based worldwide construction, mining, and engineering firm.

Product/Service	Description
Bituminous Coal	West Kentucky #6, 7, 9, 11 and 13 seams primarily used as steam coal for major utility and commercial plants.

**Cyprus Coal Company**  
**9100 E. Mineral Circle**  
**Englewood, CO 80112**



**Telephone:** (303) 643-5100

**Telex:** 216190 CMCO UR **FAX:** (303) 643-5757

**Chief Executive Officer:** Mr. Donald P. Brown

**International Sales Manager:** V. J. Wicks, III

**Domestic Offices:** MILLFORD, OH: 400 TechneCenter Drive, Center 320, Millford, OH 45150 TEL. (513) 831-1366  
 FAX (513) 831-1801

**International Offices:** Please contact company headquarters for further information.

Cyprus Coal Company is a subsidiary of Cyprus Minerals Company, a major producer of copper, molybdenum, gold, talc and specialty metals. Originally formed as Amoco Minerals Company in 1969, Cyprus Minerals was spun-off from Amoco in 1985. Since the spin-off, Cyprus Minerals Company has become the second largest U. S. copper producer; fifteenth largest coal producer; the world's largest lithium producer; and, one of the top three molybdenum producers. Cyprus Coal Company has eight mining operations (underground and surface) in six states, with a total annual production of 17MM tons of low and medium sulfur coal and a reserve base of over 1.5 billion tons of steam and metallurgical coal. Cyprus' customers include major industrials, utilities and steel companies domestically and internationally.

Product/Service	Description
Coal Mining	Waynesburg, PA: Steam & met coal: 13,200 Btu/lb, 6% ash, 1.8%-2.0% S, 35% Vol, 8 FSI, 28,000 DDPM Fluidity
	Craig, CO: Steam coal: 10,500 Btu/lb, 8% ash, 0.3%-0.4% S
	Mt. Carbon, WV: Steam coal: 12,800-13,300 Btu/lb, 9%-10% ash, 0.7%-3.0% S
	Bulan, KY: Steam coal: 12,000-13,000 Btu/lb, 8.5%-12% ash, 0.9%-1.5% S
	Paonia, CO: Steam coal: 11,500 Btu/lb, 7% ash, 0.4% S
	Price, UT: Steam coal: 11,500-12,200 Btu/lb, 6.5%-11% ash, 0.5%-0.75% S
	Hanna, WY: Steam coal: 11,300 Btu/lb, 5% ash, 0.5% S
	Oak Creek, CO: Steam coal: 11,200 Btu/lb, 10% ash, 0.5% S

**EAMarketing, Inc.**  
5010 Mayfield Road  
Cleveland, OH 44124

**EAMarketing Inc.**

**Telephone:** (216) 291-2840  
**FAX:** (216) 291-3422  
**Chief Executive Officer:**  
**International Sales Manager:**

Mr. Edmund F. Avolio  
Mr. Michael J. Williams

RAPID FOAM™ is a product developed and designed by EAMarketing for use as a slag foaming agent in High Voltage Electric Furnaces. This product is available for bulk shipment via Gulf or East coast U.S.A.

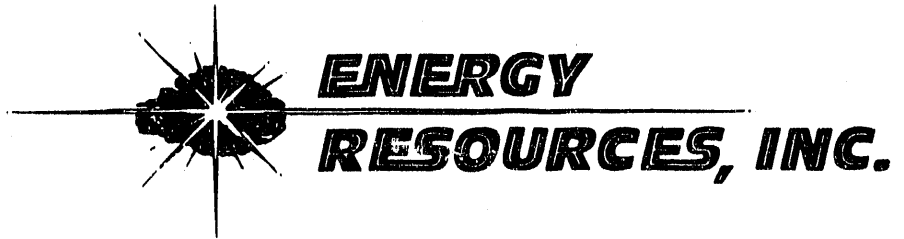
EAMarketing has been a processor and trader of coal and coke since 1975.

The GRAY STAR™ Division of EAMarketing operates a metallurgical coke drying and screening plant in Birmingham, Alabama.

Product/Service	Designation	Description
Slag Foamer	RAPID FOAM™	This product was especially designed and developed to quickly raise a thick foamed slag for high voltage electric furnaces.
Dried metallurgical coke		Sizes 2" and smaller
Metallurgical coke/coal		All types and sizes

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**Energy Resources, Inc.**  
29525 Chagrin Boulevard, Suite 111  
Pepper Pike, OH 44122



**Telephone:** (216) 765-1240  
**FAX:** (216) 765-2654  
**President:**

David J. Salisbury (Brockway, PA office)

**Domestic Offices:**

BROCKWAY, PA: P.O. Box 259, Brockway, PA 15824 TEL. (814) 265-8021, FAX (814) 265-8295

Energy Resources is a central Pennsylvania producer of mid-sulfur coals from the Freeport and Kittanning Seams. It can supply spot or contract orders of up to 50,000 TPM. Current production is by surface mining, but large deep reserves are also under present control. Total recoverable reserves of over 39 million tons. The mine has ground storage and unit train loading facilities on the Conrail System near DuBois, PA. It can also load on the P&S Railroad or ship by truck.

Product/Service	Description
Coal Exporters Coal Mining	Typical coal specifications as received:  % Ash - 10-13 BTU/lb. - 12,000-12,500 % Sulfur - 1.5-2.5

**Energy Trading Corp.**  
**767 Fifth Avenue**  
**New York, NY 10153**

**Telephone:** (212) 421-1930  
**Telex:** 968693 **FAX:** (212) 421-1937  
**President:** Emmanuel Merle

**International Offices:** FRANCE: Thion Et Cie, 44/46 allées Leon Gambetta, 92112 Clichy, France TEL. (1) 47 56 22 22

Energy Trading is involved in the increasingly crucial balance between the supply of affordable energy and the maintenance of a clean, safe environment. Coal use and technology is central in our efforts. We believe that American coal provides a ready and dependable primary energy source, an essential bridge to the future.

Product/Service	Designation	Description
American Elkhorn	Hi Vol Steam & Metallurgical Coal	Available for shipment through Gulf and East Coast.

**Exxon Coal and Minerals Company**  
**P.O. Box 1314**  
**Houston, TX 77251-1314**

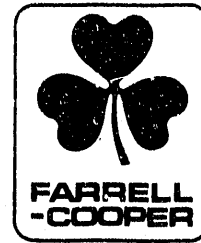


**Telephone:** (713) 973-5333  
**Telex:** 762171 EXXON ECM HOU **FAX:** (713) 978-5618  
**President:** R. P. Larkins  
**Vice President Marketing:** R. J. Doyle  
**Marketing Manager Domestic Coal:** T. B. Brister  
**Marketing Manager International Coal:** E. W. Markowski

Exxon Coal and Minerals Company, a division of Exxon Corporation, markets coal produced from mining operations located in New South Wales Australia, Columbia South America, and Illinois and Wyoming U.S.A. During 1989, these operations produced over 46 million short tons of coal, of which over 18 million short tons were sold outside the United States. Exxon Coal USA, Inc., an affiliate of Exxon Coal and Minerals Company, was the sixth largest United States coal producer.

Product/Service	Description
Coal Mining/Coal Marketing	Exxon Coal USA, Inc. has two operating divisions within the United States. The domestic operations are The Carter Mining Company and Monterey Coal Company. The Carter Mining Company is an Eastern Powder River Basin coal producer which operates two surface mines in the Gillette, Wyoming, area that produced over 23.5 million short tons in 1989. The Monterey Coal Company is an Illinois Basin coal producer which operates two underground mines in Illinois and produced over 4.7 million short tons in 1989. Coal quality specifications are available upon request.
Technical Support	Mining operations and marketing are supported by a coal research laboratory, and related facilities, with full time research personnel at Exxon Research and Engineering Company in Baytown, Texas. Combustion furnace and state of the art technical facilities are available along with research personnel to analyze optimum, cost saving coal use for our customers. Technical service personnel visit on site with power plant staff for problem analysis.

**Farrell-Cooper Mining Company**  
P.O. Box 1947  
6001 South Zero  
Fort Smith, Arkansas 72902



**Telephone:** (501) 646-4366  
**FAX:** (501) 646-3220  
**Chief Executive Officer:** William J. Cooper  
**International Sales Manager:** William J. Cooper

**International Offices:** Please contact company headquarters for further information.

Farrell-Cooper Mining Company is in the business of mining, transporting and exporting bituminous coal and cannel coal for industrial fuel and domestic home heating fuel. We operate coal loading facilities on the Arkansas River (1,500 ton barges), but mainly at the Port of Corpus Christi, Texas. At Corpus Christi, we handle product for export as well as product being imported.

Product/Service	Description
Coal Exporters	Export facility is located adjacent to Port of Corpus Christi. The port's depth is 45 feet and is the deepest port on the Gulf of Mexico.
Coal Mining	Operate two surface mines in the State of Oklahoma on Low Volatile and High Volatile Bituminous Coal. Operate two surface mines in the State of Texas on a High Volatile, Low Ash Cannel Coal under the name of Farco Mining of Texas, Inc. All coal mines are equipped with coal washing facilities.
Coal Transport	All of our mines are equipped with railroad tipples in addition to major highway access.

**Foreston Coal Corporation**  
5 Dakota Drive  
Lake Success, NY 11042



A MEMBER OF THE  
FORESTON GROUP  
OF COMPANIES

**Telephone:** (516) 437-6000  
**Telex:** 6852607, 224024 **FAX:** (516) 437-6012  
**Chief Executive Officer:** Herbert Kobin  
**International Sales Manager:** Stephen C. Miller

**Domestic Offices:** BLUEFIELD, WV: P.O. Box 1551, Bluefield, WV 24701 TEL. (304) 589-6691; GRAFTON, WV: Route 4, Box 131, Grafton, WV 26354 TEL. (304) 265-5005; CEREDO, WV: 854 1/2 C Street, Ceredo, WV 25507 TEL. (304) 453-4106; HAZELTON, PA: 980 East Broad Street, Hazelton, PA 18201 TEL. (717) 454-7666; PHILIPSBURG, PA: 610 Pauline Street, Philipsburg, PA 16866 TEL. (814) 342-1616

Founded in 1919, Foreston is a leading exporter of bituminous and anthracite coals, serving the steel, electrical utility, cement, industrial and space heating markets.

Product/Service	Description
Coal Exports	Foreston exports from the East Coast and Gulf Coast ports, and has a barge loading facility on the Kanawha River in West Virginia. This facility is known as River Point Terminals, Inc. Foreston's field representatives observe all facets of loading from mine to vessel, ensuring the customer's exact coal requirements. Foreston field offices serve as a base for its procurement and quality control operations.

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**Foreston Coal Corporation (Continued)**

**Coal Transportation** River Point Terminals, Inc., located in Marmet, West Virginia (304/949-6242), Mile Post 69K on the Kanawha River. Coal barge and railroad loading facility with 2,000,000 tons per year capacity, serving the Gulf port of New Orleans or East Coast ports.

**Imperial-Pacific Investments, Incorporated**  
**405 Capitol Street, Suite 607**  
**Charleston, WV 25301**



**Telephone:** (304) 343-6550  
**FAX:** (304) 343-9849  
**Chief Executive Officer:** Robert C. Gibson  
**International Sales Manager:** William F. Davison

Imperial-Pacific Investments, Inc. is a privately held company incorporated in the state of West Virginia. Wholly owned subsidiaries of IPI are Winchester Coals, Inc., Princess Susan Coal Co., and Hawks Nest Mining Co. IPI is a full service coal mining and shipping company delivering steam and metallurgical coal to domestic and international customers. IPI is able to originate shipments via rail or water.

Product/Service	Description
Coal Exporters	IPI originates steam and metallurgical coals directly to end users or as components in other shipper's cargoes.
Coal Mining	IPI subsidiaries operate underground and surface mines in three West Virginia counties. Total production capacity is in excess of 2 million tons annually. IPI controls over 100 million tons of recoverable coal reserves.
Coal Transport	IPI can originate shipments via water and/or rail. IPI's Winchester subsidiary is located on the CSX rail system and anticipates unit train capability by early 1992. IPI's Princess Susan and Hawks Nest Mining Co. subsidiaries originate shipments by rail on the Conrail system or by water on the Kanawha river.

**Ingram Coal Company**  
**4400 Harding Road**  
**Nashville, TN 37205**



**Telephone:** (615) 298-8300  
**Telex:** 555130 **FAX:** (615) 298-8350  
**Chief Executive Officer:** Frank M. Michitti  
**V.P., Export Sales:** Andy Yanik

**Domestic Offices:** PIKEVILLE, KY: Johns Creek Coal Company, Meta, KY 41501 TEL. (606) 631-1000  
**International Offices:** SCOTLAND: Delta Sales & Marketing Inc., 1 Blythwood Square, Glasgow G2-4AD Scotland, FAX 698-740883

Ingram Coal Company sales personnel have extensive knowledge of domestic and overseas markets and are active in them daily. Steam, stoker and other specialty coals are produced, prepared and shipped through its Johns Creek Division.

(Continued on next page)

**Ingram Coal Company (Continued)**

Product/Service	Description
Coal Mining	Through its Johns Creek Division the Company owns and operates a 600,000 ton per year facility near Pikeville, Kentucky.
Coal Exporter	The Company regularly trades in steam and metallurgical coals to Europe and Asia.

**Island Creek Corporation**  
**P.O. Box 11430**  
**250 West Main Street**  
**Lexington, KY 40575-1430**



**Telephone:** (606) 288-3000  
**Telex:** 21-8414 ICCS LEX **FAX:** (606) 288-3780  
**Chief Executive Officer:** S. O. Ogden  
**International Sales Manager:** D. C. Fogg

Island Creek Corporation is a wholly-owned subsidiary of Occidental Petroleum Corporation, which has operations in exploration of oil and natural gas, natural gas transmission, chemical, agribusiness and coal. Occidental, a Fortune 100 company, has revenues in excess of \$20 billion annually. Island Creek is a producer of high quality metallurgical and steam coal for both the export and domestic market. Total sales tons in 1989 were 21.9 million while 1990 is expected to reach 22.6 million. Island Creek is among the 5 largest coal exporters of U.S. coal. Island Creek has mining operations located in Kentucky, West Virginia and Virginia. Total coal resources are approximately 2.7 billion tons of which 1.2 billion contain a sulfur content of one percent or less. In addition to coal production, Island Creek has interests in coal handling and transportation through its affiliates: Kentucky Ohio Transportation Company, Curtis Bay Company and International Marine Terminal.

Product/Service	Designation	Description
Metallurgical Coal	High Volatile	Ash 6.0%, Sulfur .85%, Volatile 34%
	Medium Volatile	Ash 4.5%, Sulfur .50%, Volatile 27%
	Low Volatile	Ash 5.5%, Sulfur .90%, Volatile 18.5%
Steam Coal	Compliance Sulfur	Moisture 6.5%, Ash 8-12%, Sulfur .72%, BTU/lb 12,000-13,000
	1% Sulfur	Moisture 6.5%, Ash 8-12%, Sulfur 1%, BTU/lb 11,500-13,000
	1.5% Sulfur	Moisture 7.0%, Ash 6-12%, Sulfur 1.5%, BTU/lb 13,000
	+2.5% Sulfur	Moisture 10%, Ash 7%, Sulfur 2.5%, BTU/lb 11,900
Terminal Services	Kentucky Ohio Transportation Co.	Transfer terminal from rail to barge located on the Ohio River in Wheelersburg, OH, and South Shore, KY.
	Curtis Bay Company	Located in Baltimore, MD, this terminal transfers coal from rail to ground storage for loading to vessel or barge for domestic or export movement.
	International Marine Terminal	This terminal transfers coal from barge to ground storage or from ground storage to vessel or from barge to vessel in Myrtle Grove, Louisiana.

**K-Fuel Partnership**  
**1999 Broadway-Suite 2505**  
**Denver, CO 80202**

## K-FUEL® PARTNERSHIP

**Telephone:** (303) 293-2992

**FAX:** (303) 293-8430

**General Partner:** Ted Venners

**Domestic Offices:** GILLETTE, WY: K-Fuel Processing Facility and Laboratory, P.O. Box 1777, Gillette, WY 82717  
 TEL. (307) 687-1013 FAX (307) 687-1635

K-Fuel Partnership, formed in 1984, markets and licenses the K-Fuel technology worldwide. Partnership-funded research and development has taken the technology from benchtop, pilot plant, and full-scale demonstration facility phases, to commercialization at Fort Union Mine near Gillette, Wyoming. The Gillette facility includes a state-of-the-art laboratory, where feedstock, process, and product analyses allow optimum plant operation and a custom-made end product.

Product/Service	Description
Advanced Utilization Coal Technology Coal Industry	Low-rank feedstocks (i.e., subbituminous coals, lignite) require derating of capacity or costly equipment modifications in order to meet utility and industrial boiler requirements and environmental restrictions. These feedstocks are difficult to handle and expensive to transport because of high moisture content and combustibility. A proven, patented, advanced coal beneficiation technology that economically upgrades low-rank feedstocks, the high-Btu, low sulfur, low moisture, environmentally acceptable K-Fuel product addresses those problems. This technology is available for licensing worldwide.
Coal Exporters	K-Fuel, produced using a proven, patented, advanced coal beneficiation technology that economically upgrades a variety of low-rank feedstocks, is a viable, high-Btu, low sulfur, low moisture energy source for utility and industrial users. Produced to meet the user's boiler specifications and having stable handling and storage characteristics, K-Fuel is competitively priced in the coal market.

**MAPCO Coal Inc.**  
**1717 South Boulder**  
**Tulsa, OK 74119**



**Telephone:** (918) 592-7238  
**Telex:** 6866129 MCCOAL UM **FAX:** (918) 582-8421  
**President:** Mr. Joseph W. Craft  
**Vice President:** Mr. Robert G. Sachse  
**International Sales Manager:** Mr. Gary J. Rathburn (918/592-7240)

MAPCO Coal Inc. is a subsidiary of MAPCO Inc. MAPCO Coal Inc. produces and markets bituminous coal for domestic and foreign markets from eight mining complexes in Kentucky, Maryland, Illinois, and Virginia. MAPCO also operates a coal terminal on the Ohio River near Mt. Vernon, Indiana, used for storage and transloading of coal.

Product/Service	Description
Coal Exporters	MAPCO Coal steam coal is sold primarily to electric utilities, and industrial and cogeneration customers located in the Eastern United States and, to a lesser extent, in Europe. MAPCO's metallurgical coal is sold to steel and coke producers located primarily in Japan, Europe, and North Africa.
Coal Mining	

**Maran Coal Corporation**  
**1114 Avenue of the Americas**  
**26th Floor**  
**New York, NY 10036**

**Telephone:** (212) 704-9944  
**Telex:** 239530 (MARAN UR) **FAX:** (212) 398-9031  
**President/Chief Executive Officer:** Mark R. Joseph  
**Export Manager:** Douglas W. Shook, Jr.

Traders of metallurgical and steam coals, coke and coke breeze from all major producing areas and ports of the United States.

<b>Product/Service</b>	<b>Description</b>
Coal Exporters	Traders of metallurgical and steam coals, coke and coke breeze.

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**Miller Trading Company**  
**Miller Building**  
**No. 2 Hale Street**  
**Charleston, WV 25301**



**MILLER ENTERPRISES**

**Telephone:** (304) 343-9524  
**FAX:** (304) 343-9530  
**Chairman:** Mr James W. Miller  
**President:** Mr. David S. Miller  
**Vice President:** Mr. Gary J. Miller

Miller Trading was incorporated in the early 1960's and merged with Maryland Coal & Coke Company in 1970. Following the sale of Maryland Coal & Coke interests, Miller Trading Company renewed its services to the industry.

<b>Product/Service</b>	<b>Description</b>
Coal Mining Coal Exporters	Miller Trading Company actively markets Coal and Coke both domestically and internationally. In addition, Miller Trading Company offers exclusive representation to foreign companies interested in the acquisition of American coals. Close personal representation is offered by area and by country.

**Mobil Coal Producing Inc.**  
Box 17772  
Denver, CO 80217



**Telephone:** (303) 298-2960

**Telex:** 910-9312633 **FAX:** (303) 298-2974

**President:** R. G. (George) McGinn

**International Sales Manager:** J. R. (Bob) Anderson

**International Offices:** INDONESIA: M. R. (Mike) Wolfhard, Mobil Oil Indonesia Inc., Post Bag 400, Jakarta 10002; Ratu Plaza 27th Floor  
TEL. 61-21-711211, TELEEX 47431 MOI/JKT, FAX 61-21-7202068

Mobil Coal Producing Inc., an established coal producer and marketer, commenced production at its Caballo Rojo Mine in Wyoming's Powder River Basin in 1982. The Mine has a current capacity of over eight million tons per year with the potential to increase its permitted target of 20 million tpy. Coal from Caballo Rojo was successfully shipped to Taiwan Power Company in 1988 through the Roberts Bank terminal in British Columbia. Mobil Coal Producing Inc. is also developing a resource in Indonesia with Nissho Iwai as joint venture partner in its P. T. Berau project. Production is planned from the Berau Mine in early 1991 to supply both the Indonesian and Pacific Rim marketplaces.

Product/Service	Description
Coal Exporters	U. S. production from the Caballo Rojo Mine is low ash, low sulfur with a heating value of 8500 BTU/lb. Deliveries can be made on either the BN or the C&NW/UP railroads. Transshipment via the Roberts Bank Terminal is proven.
Coal Mining	Low ash, low sulfur, good quality coal from Kalimantan, Indonesia is planned for early 1991 shipment.
Coal Transport	Mobil can assist end users with their transportation requirements.
Technical Services	Mobil utilized state-of-the-art computer modeling and retains highly qualified combustion experts to provide domestic and international customers technical coal utilization assistance.

**National Mines Corporation**  
P.O. Box 12022  
333 W. Vine Street, Suite 1000  
Lexington, KY 40579



**Telephone:** (606) 233-4141

**Telex:** 213475 **FAX:** (606) 281-8757

**President/Chief Executive Officer:** Vaughn R. Knapp

**V.P. - Marketing & Sales:** Herman L. Mays

A subsidiary of National Steel Corporation, the company began coal production in the early 50's as an integrated source for cokemaking. Today, 80% of shipments are to commercial domestic and export receivers, offering various high-quality grades of metallurgical, sized (industrial), and thermal coals. Mines and preparation facilities are located in Washington Co., PA, Wyoming Co., WV, and Knott Co., KY, with site capacities of from 500,000 to 1.6 million tons per year. Unit-train loading capability at PA and KY locations. Coals are deep-mined and tend to be low-to-mid sulfur content. UMWA-affiliated and professionally staffed.

(Continued on next page)

**National Mines Corporation (Continued)**

<b>Product/Service</b>	<b>Description</b>
Coal Exporters	Knowledge of international marketplace - mainland Europe, Scandinavia, Pacific Rim, Canada, South America - port facilities, transportation, storage, handling.
Coal Mining	Full range of experience, including exploration, development, all aspects of mine and plant operation, reclamation, safety.
Facility Operation	Capable of previously enumerated aspects of management and engineering.

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**NERCO Coal Corp.**  
2043 Woodland Parkway  
St. Louis, MO 63146



Telephone: (314) 993-2625  
Telex: 403180 NERCO STL    FAX: (314) 993-8391  
President: Charles C. Adams  
International Sales Manager: Marvin C. Davis

NERCO Coal Corp. is one of the ten largest coal companies in the United States with annual sales in excess of 30 million tons. The company has extensive high quality reserves and production capacity in western (Powder River Basin), midwestern and eastern (Central Appalachia) coal producing regions. NERCO Coal Corp. is active in both export and domestic trade.

**Product/Service**

Western, midwestern, and eastern coals for domestic use and export.

**The Ohio Valley Coal Company**  
**29525 Chagrin Boulevard, Suite 111**  
**Pepper Pike, OH 44122**



**Telephone:** (216) 765-1240  
**FAX:** (216) 765-2654  
**President/Chief Executive Officer:** Mr. Robert E. Murray  
**Manager of Marketing & Sales:** Mr. Richard S. Rice (Alledonia, OH office)

**Domestic Offices:** ALLEDONIA, OH: 56854 Pleasant Ridge Road, Alledonia, OH 43902 TEL. (614) 926-1351  
 FAX (614) 926-1615

Ohio Valley Coal is a reliable, long-term supplier of high quality, washed Pittsburgh No. 8 seam coal, produced by a state-of-the-art longwall and modern continuous miners. Demonstrated recoverable coal reserves of over 81 million tons under present control. Complete preparation plant includes jigs, cyclones, centrifugal dryers, and thermal dryer. The mine can floodload unit trains on Conrail at 2,500 TPH, or ship by barge from M.P. 110.8 on the Ohio River.

Ohio Valley Coal can supply up to 2 million tons per year under spot order or long-term contract.

Product/Service	Description												
Pittsburgh No. 8 Seam Coal	Typical Coal Specifications, as Received:												
	<table border="0"> <tr> <td>% Moisture</td> <td>6.0</td> <td>% Sulfur</td> <td>4.0</td> </tr> <tr> <td>% Ash</td> <td>10.0</td> <td>BTU/Lb.</td> <td>12,400</td> </tr> <tr> <td>% Volatile Matter</td> <td>39</td> <td>HGI</td> <td>52-55</td> </tr> </table>	% Moisture	6.0	% Sulfur	4.0	% Ash	10.0	BTU/Lb.	12,400	% Volatile Matter	39	HGI	52-55
% Moisture	6.0	% Sulfur	4.0										
% Ash	10.0	BTU/Lb.	12,400										
% Volatile Matter	39	HGI	52-55										

**Peabody Development Company**  
**800 Laidley Tower**  
**P.O. Box 991**  
**Charleston, WV 25324**



**Telephone:** (304) 344-0300  
**Telex:** 710-938-0001; Peabody CHW UD **FAX:** (304) 340-1749  
**Chief Executive Officer:** Robert H. Quenon  
**International Sales Manager:** David D. Turnbull

**Domestic Offices:** ST. LOUIS, MO: Peabody Development Company, Inc., Saint Louis Place, 12th Floor, 200 North Broadway, St. Louis, MO 63102 TEL. (314) 342-3400 TELEX 910-761-0477 FAX (314) 342-3422

Peabody Development Company and its subsidiary, Castner, Curran & Bullitt, Inc. market more coal than any other U.S. organization. Domestic and export sales in 1989 were 86.7 million short tons of steam and metallurgical coal from operations in 10 states. The company is the principal sales agent for Peabody Coal Company, Powder River Coal Company and Eastern Associated Coal Corp. The majority of the company's export shipments originate from West Virginia and are transloaded through Dominion Terminal at Newport News, VA. Peabody Holding Company, Inc., Peabody Development's parent, owns or controls a 21.5 percent interest in Dominion Terminal.

(Continued on next page)

**Peabody Development Company (Continued)**

<b>Product/Service</b>	<b>Description</b>
Customer Services	The Development Company sells coal to buyers in 14 countries.  Development Company personnel identify coal sourcing options meeting customer specifications; analyze and identify transportation routes to maximize efficiency and economy; arrange product test burns; prepare coal blends; and provide technical assistance.

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**Pecten Coal International**  
7200 Glen Forest Drive  
Suite 200  
Richmond, VA 23226

**PECTEN COAL INTERNATIONAL, INC.**

Telephone: (804) 673-9001  
FAX: (804) 673-9010

Chief Executive Officer: Mr. Ken G. Cloninger, President  
International Sales Manager: Mr. Robert H. Scott, Vice President  
Domestic Offices: HOUSTON, TX: 200 N. Dairy Ashford, Houston, TX 77079

Pecten Coal International, Inc. is a subsidiary of Shell Mining Company responsible for international sales and marketing of steam and metallurgical coals from Shell's mining operations throughout the U.S. Shell Mining began coal production in 1977 and has grown rapidly to become one of the ten largest coal producers in the U.S. with sales and production exceeding 25 million net tons in 1988. Shell entered the export market in 1987 and is now a major supplier to customers in Europe and the Far East.

<b>Product/Service</b>	<b>Description</b>
Coal Exporters	Through representation of Shell Mining Company on an international basis, Pecten Coal International provides sales and marketing services for a wide variety of high quality coals from its operations in Appalachia, the Midwest and the Powder River Basin, shipping through Shell's Pier IX Terminal in Newport News, Lamberts Point, and the U.S. Gulf.



**Pen Coal Corporation**  
5110 Maryland Way, 3rd Floor  
P.O. Box 2128  
Brentwood, TN 37024-2128

# PENCOAL

**Telephone:** (615) 371-7330  
**Telex:** 555187 PEN (P&K) NAS   **FAX:** (615) 371-1179  
**Chief Executive Officer:** Eddie Pen  
**International Sales Manager:** Marshall Shumate & Joseph Davis, V.P. Sales

**International Offices:** Contact company headquarters for further information

Pen Coal Corporation is a producer, processor, terminal operator and marketing company engaged in the shipment of coal to U.S. and international coal users. Pen Coal's Kiah Creek Reserve in western West Virginia covers 23,000 acres and holds over 100 million tons of recoverable low sulfur coal. Pen Coal also owns two Big Sandy River Coal Terminals and a large interest in the International Marine Terminal near New Orleans, Louisiana. Pen Coal has the capability to export through both East Coast and Gulf ports and ships by rail and river for domestic distribution.

Product/Service	Description
Coal Mining, Processing Marketing and Exporting	Pen Coal Corporation is primarily engaged as a supplier of low sulfur steam coal which generally meets a range of specifications as follows: 0.65-1.50% sulfur, 11000-12500 Btu, 7-15% ash, 5-8.0% moistures, 25-34% volatile matter.

**Pittston Coal Export Corp.**  
One Pickwick Plaza  
P. O.Box 8900  
Greenwich, CT 06836-8900

## |||||PITTSTON Coal

**Telephone:** (203) 622-0900  
**Telex:** I.T.T. TELEX CT 421129  
W.U.I. TELEX CT 6819126  
**Cable Address:** 'Pittston GRC'   **FAX:** (203) 622-0590  
**Chief Executive Officer:** Thomas F. Tabacchi  
**International Sales Manager:** Sean J. Casey, Joseph P. McEnaney

**International Offices:** Please contact company Headquarters for further information.

Pittston Coal Export Corporation is a subsidiary of 'The Pittston Company' engaged in the sale of bituminous coal in the Canadian and overseas market. Today, Pittston owns more than 1.3 billion tons of high quality metallurgical and steam coal reserves in the Appalachian region. During the past 30 years the corporation has exported over 200 million tons and has been Americas premier shipper of the highest quality coking coal in the overseas market.

Product/Service	Description
Coal Exporter	Pittston Coal Export Corp. offers premium grade bituminous metallurgical and steam coals, backed by a worldwide reputation for dependable service and reliability in its consistently high quality products; the characteristics that have made "Pittston" products the acknowledged leader in its field.

**Primary Coal, Inc.**  
**666 Fifth Avenue**  
**New York, NY 10103**

**Telephone:** (212) 581-9200  
**Telex:** 232208 **FAX:** (212) 541-5330  
**Chief Executive Officer:** Lawrence Perlestein  
**International Sales Manager:** Uwe Kuepper

**International Offices:** Please contact Headquarters for further information.

Primary Coal sells coal and coke to the international metallurgical industry and to utilities and industrial users. Primary has equity positions and contractual relations with coal mines, loading facilities and companies providing inland transportation. Using these resources, Primary Coal can ship coal and coke in the most cost-effective manner from all the major worldwide suppliers. An experienced staff located in New York, with branch offices in the coal-producing regions, is available for advice at all times. Its expert consultation is an invaluable aid in the purchase of coal and coke for shipment through U.S. ports.

Product/Service	Description
Coal Exporter	Primary Coal, Inc., a world leader in sales of solid fuels, supports its products with high quality and dependable service.

**Shell Mining Company**  
**200 North Dairy Ashford**  
**Houston, TX 77079**

**Shell Mining Company**



**Telephone:** (713) 870-3120  
**FAX:** (713) 870-3273  
**President:** Jack L. Mahaffey  
**President, Shell Coal Marketing Company:** Kenneth G. Cloninger  
**VP, Shell Coal Marketing Company:** Robert H. Scott

**Domestic Offices:** RICHMOND, VA: 7200 Glen Forest Drive, Suite 200, Richmond, VA 23226 TEL. (804) 673-9001  
FAX (804) 673-9010

Shell Mining Company's commitment to coal began almost two decades ago with exploration and reserve acquisition activities by its parent Shell Oil Company. Shell markets all of its coal through Shell Coal Marketing Company, a division of Shell Mining Company, headquartered in Houston with its export and Eastern U.S. marketing office located in Richmond, Virginia. Shell currently produces coal through six wholly-owned subsidiary mining complexes, placing it among the top 10 producers in the United States. With reserves of more than two billion tons located throughout the U.S., Shell can meet the needs of expanding domestic and export markets will into the 21st Century.

Product/Service	Description
Coal Mining	Shell currently produces coal through six wholly-owned subsidiary mining complexes, with reserves totalling over two billion tons. Shell owns significant coal and lignite reserves in Appalachia, the Illinois Basin, and the Powder River Basin.
Coal Exporters	Export marketing is handled by Shell Coal Marketing's Richmond office. Shell exports coal through the East Coast and the Gulf to numerous customers in Europe, South America and the Far East.

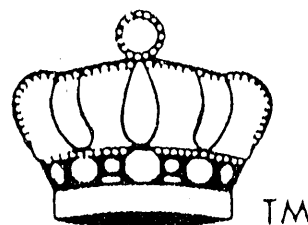
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**Shell Mining Company (Continued)**

**Coal Transportation**

Shell operates two modern coal terminals at deepwater ports: Pier IX Terminal Company in Newport News, Virginia, which is served by the CSX, and Shipyard River Coal Terminal in Charleston, South Carolina, which is served by both the CSX and Norfolk Southern Railroads.

**Sovereign Coal Sales, Inc.**  
**Suite 475**  
**9111 Cross Park Drive**  
**Knoxville, TN 37923**



**Telephone:** (615) 531-5620

**Telex:** 55-7317 **FAX:** (615) 531-5606

**Chief Operating Officer:** George Narcavage

**Director of Export Sales:** Brad Wyatt

**International Offices:** Please contact company headquarters for further information

Sovereign Coal Sales is the exclusive sales representative for Inspiration Coal. Inspiration produces approximately 3 million tons per year of high volatile coking coals as well as utility/industrial coals. Operations are located in the Central Appalachian coal fields and have access to the East Coast ports of Norfolk and Newport News, Virginia, as well as loading facilities located in the Gulf of Mexico.

Product/Service	Description
Harman Mining	Located on the Norfolk-Southern railway system, Harman is a premium high vol. "A" volatile coking coal. Quality specifications are as follows (dry basis): 9% moisture, 6% ash, 29 vol., .90% sulfur, 8-9 FSI, 75 HGI, 28,000+ DDPM, and 200+ ARNU. Production is 1.2 million tons per year.
Sovereign Coal	Also located on the Norfolk-Southern railway system, Sovereign is a producer of both high volatile coking coal and high quality steam and stoker coals. Coking coal quality is as follows (dry basis): 7% moisture, 6% ash, 35 vol., .75% sulfur, 7-9 FSI, 45 HGI, 20,000+ DDPM, 130+ ARNU. Steam and stoker coals fall within the following quality parameters: 5-7% moisture, 5.5-10% ash, 33 vol., .75% sulfur, 13,000-13,500 BTU, 45 HGI, and 2,800+ AFT. Production capacity is 800,000 tons per year.
Wheelwright	Located on the CSX railway system, Wheelwright, which has unit train capability, produces both high quality steam and stoker coals. Quality for both the steam and stoker coals fall within the following quality parameters: 4-7% moisture, 5.5-11% ash, 36 vol., 1% sulfur, 12,000-13,500 BTU, 43 HGI, and 2,600+ AFT. Production capacity is 800,000 tons per year.

**SSM Coal Export**  
**Division of SSM Coal North America, Inc.**  
**Paine Webber Building, Suite 800**  
**10440 Little Patuxent Parkway**  
**Columbia, MD 21044**



**Telephone:** (301) 997-9103  
**Telex:** RCA 233244 SSM UR      **FAX:** (301) 740-2107  
WU 898028 SSM Balt

**President:** James E. Check  
**Vice President:** John D. Nolan

**International Offices:** Antwerp, Basel, Bogota, Copenhagen, Hong Kong, London, Madrid, Mannheim, Nice, Paris, Rotterdam, Sao Paolo, Singapore, Seoul, Sydney, Taipei

SSM Coal Export is a coal trader with steam and metallurgical coals available from the ports of Baltimore, Maryland, Lamberts Point and Newport News in Hampton Roads, Virginia, New Orleans, Louisiana, and Mobil, Alabama.

SSM Coal North America, Inc., is part of SSM Coal BV, based in the Netherlands, one of the leading international coal trading companies with a network of SSM offices in the U.S.A., Europe, South America, Asia, and Australia, with guaranteed quality and service to our customers. SSM is a name with tradition known for its reliability. The company was established in 1896 and has been a leader in the trading and transportation of coal. SSM is a subsidiary of SHV, one of the top ranking companies in the Netherlands.

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**Stinnes Coal Company, Inc.**  
**750 Third Avenue**  
**New York, NY 10017**



**Telephone:** (212) 986-1515  
**Telex:** 236767A STCC UR      **FAX:** (212) 949-7436  
**Chief Executive Officer:** Michael T. Madden  
**International Sales Manager:** George A. McClennan  
Robert P. Yowell

**Domestic Offices:** KENTUCKY: Stinnes Coal Company, Inc., 131-27 U. S. Rt. 23, Caudleburg, KY 41129 TEL. (606) 739-8441, FAX (606) 739-8443.

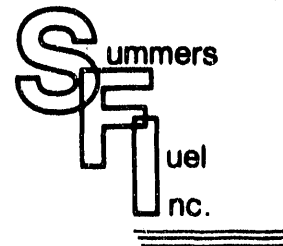
**International Offices:** WEST GERMANY: Stinnes Intercoal GmbH TEL. 2087-4940, TELEX 856095 STC D, FAX 208-494-698; WEST GERMANY: HCM Intercoal GmbH; Stinnes Intercoal GmbH TEL. 40-301-0030, TELEX 21-63-121 STI D, FAX 30-10-0340; ENGLAND: G. Harbottle & Co., Ltd. TEL. 91-281-7735, TELEX 53406 GEHAR, FAX 91-281-1884; NETHERLANDS: Stinnes Intercarbon B.V. TEL. 10-405-3111, TELEX 25155 STI, FAX 10-405-5026; SPAIN: Intercarbon Espana TEL. 1-522-7069 TELEX, 22082 STINN, FAX 1-43-19780; ITALY: Agenzia Caarbone S.R.L., TEL. 10-566773, 10-55-91606, TELEX 271392 INTRA, FAX 10-53-2871; BRAZIL: Stinnes Intercarbon do Brazil TEL. 21-223-2118 TELEX, 21-253-4342, FAX 21-253-4679; SINGAPORE: Stinnes Intercoala Pte, Ltd. TEL. 25-18755, TELEX 28921 STINCO, FAX 253-4030; AUSTRALIA: Stinnes Intercoal Australia, PTY, Ltd. TEL. 2-653-1533, FAX 2-653-2159

Stinnes Coal Company is part of a complex network, namely Stinnes Intercarbon, AG, which is subsidiary of VEBA, AG, a privately held, wholly owned German-based company which is one of the major independent coal traders in the markets of the world. Our coal trading activities are worldwide. We export coal from the Federal Republic of Germany, the German Democratic Republic, the U.S.A., Canada, Columbia, Venezuela, South Africa, Australia, Poland, the CSSR, the USSR and the People's Republic of China. We import into the Federal Republic of Germany, other European countries, North Africa, Japan, South America, Canada, the Middle and Far East. We supply coal to power stations, steel mills, foundries and other major end users. But we also furnish the industrial heating and the domestic fuel markets with whatever type of coal is required.

**Stinnes Coal Company, Inc. (Continued)**

Product/Service	Description
Coal Exporters Coal Transport Financing Shipping	The product range we trade in includes the following categories: Steam coal, industrial coal, coking coal, anthracite, foundry coke, furnace coke, coke beans for ferro alloy producers, coke freeze, briquettes as well as household coal. Our long standing relations with our suppliers, our own trading companies at home and abroad and an efficient transportation system guarantees reliable and continuous supplies. We offer producers and suppliers a distribution network with representations in all of the world's major coal using regions. In conjunction with our affiliated companies, we can offer our own storage and transportation as well as screening and blending facilities.

**Summers Fuel Inc.  
Suite 1201  
28 Allegheny Avenue  
Towson, MD 21204**



**Telephone:** (301) 825-8555  
**FAX:** (301) 828-8657  
**Chief Executive Officer:**  
**Executive Vice President:**

William N. Clements, II  
William N. Clements, III

Summers Fuel, Inc., is a coal trader with steam and metallurgical coal available from mines in Pennsylvania, West Virginia, Virginia and Maryland. Summers Fuel exports coal from the ports of Baltimore, Maryland; Philadelphia, Pennsylvania; Larnberts Point and Newport News, both in Hampton Roads, Virginia.

Summers Fuel has been marketing coal since 1962. Summers Fuel has equity and financial interests in low, medium and high volatile mines and is a member of the National Coal Association and the Coal Exporters Association of the United States.

Product/Service	Description
Coal Exporters	See Above

**Total American Mining, Inc.**  
Three Allen Center  
333 Clay Street, Suite 4800  
Houston, TX 77002



**Telephone:** (713) 655-7900  
**FAX:** (713) 650-8184  
**Chief Executive Officer:**

Mr. James J. Graham

**International Offices:**

FRANCE: Francois Fiate, Total Mines Nucleaires, Direction Charbon, Tour Total, 24 Cours Michelet, La Defense 10, 92800 PUTEAUX, France TEL. 331.42.91.35.18 FAX 331.42.91.37.61; HONG KONG: Claude Bouilly, Total Energy Services (Hong Kong) Ltd., Room 2110, Hutchison House, 10 Harcourt Road, Hong Kong TEL. 852-522019 FAX 852-5-8452093

Total American Mining, Inc. is a corporate affiliate of Total Compagnie Francaise des Petroles, the major French energy group. Total's diversification into mining began in 1975 and now includes coal, uranium, and precious metals activity worldwide. Coal is produced in South Africa. General Management of coal marketing, trading, and shipping is provided by Total Mines Nucleaires. Total Energy Services (Hong Kong) Ltd. was established in 1986 to facilitate business development in the Far East. Total Group is the major shareholder and holds the chairmanship of the Cipa Terminal in La Havre, France.

Product/Service	Designation	Description
Coal Trading	Coal Exporters Coal Industry Coal Transport	Total American Mining, Inc. handles the coordination of coal exporting and trading activities from the United States for the company's worldwide business.

**United Coal Company**  
Glenway Avenue  
P.O. Box 1280  
Bristol, VA 24203



**Telephone:** (703) 466-3322  
**Telex:** 510-580-2108 **FAX:** (703) 466-5641  
**Chief Executive Officer:**  
**International Sales Manager:**

Mr. Charles T. Carter  
Mr. Ralph D. Haring

**International Offices:**

Please contact company headquarters for further information.

United Coal Company began operations in 1970 with production of 415,000 tons of coal, by 1989 annual production and sales exceeded 12 million tons. United produces a variety of high quality steam and metallurgical coals from it's over 1 billion tons of controlled reserves. United exports both steam and metallurgical coal through the major East Coast and Gulf ports. United Coal Company operates both surface and underground mines in Kentucky, Virginia, and West Virginia.

Product/Service	Description
Coal Exports	Steam and metallurgical coal is exported through East Coast ports via the CSX and Norfolk Southern railways. United maintains good commercial relationships with ground storage terminal operations in Newport News, Virginia and the lower Mississippi.

(Continued on next page)

**United Coal Company (Continued)**

**Coal Mining**                      United's five coal producing divisions operate independently with their own engineering, preparation and loading facilities, quality control laboratories and repair shops.

**Usibelli Coal Mine, Inc.**  
**P.O. Box 1000**  
**Healy, AK 99743**

**Telephone:** (907) 683-2226  
**FAX:** (907) 683-2253  
**President:**  
**Vice-President Marketing:**

Joseph Usibelli, Jr.  
 John Sims

**Domestic Offices:**                      FAIRBANKS, AK: 122 First Avenue, #302, Fairbanks, AK 99701, TEL. (907) 452-2625, FAX (907) 451-6543

Usibelli Coal Mine (UCM) was founded in 1943 and produces ultra-low sulfur sub-bituminous coal. In 1989, UCM produced 705,000 short tons for the power and heating requirements of six Interior Alaska utilities and military bases including a 25 megawatt mine-mouth power plant. An additional 747,000 short tons were exported through the Port of Seward to the Honam Power Plant in Korea. The Usibelli mine, located north of the Alaska Range near the town of Healy, transports its coal north to interior power plants and south to the Seward coal terminal via the Alaska railroad. UCM has a work-force of 105 employees and operates year-round.

UCM is a participant in the Healy Clean Coal Project that was selected for funding under the third round of the Department of Energy's Clean Coal Technology program. The Healy project will construct a 50 megawatt mine-mouth power plant using entrained coal combustion technology developed by TRW and the dry sulfur absorption system developed by Joy Technologies and NIRO Atomizer. The project will test Alaska and other coals during the demonstration phase, and for the balance of the plant life will utilize low sulfur UCM coal, including high ash coal which is presently treated as waste.

Usibelli is also investigating coal drying and mild gasification processes to upgrade UCM's ultra low-sulfur run-of-mine coal into a product or products that will find new domestic and export markets.

Product/Service	Description
Ultra Low Sulfur Steam Coal	Raw steam coal crushed to 2"0". As received analyses (3 year average): 7800 Btu/lb; 26.45% moisture; 8.08% ash; 34.87% volatile matter; 30.6% fixed carbon; and 0.17% sulfur. UCM coal also has a low nitrogen content, a high calcium content and high reactivity.

**Westmoreland Coal Company**  
700 The Bellevue  
200 South Broad Street  
Philadelphia, PA 19102



**Telephone:** (215) 545-2500  
**Telex:** (215) 670-4210 **FAX:** (215) 735-7175  
**Chief Executive Officer:** Pemberton Hutchinson  
**International Sales Manager:** John V. Bickford

**Domestic Offices:** CHARLOTTE, NC: 5700 Executive Center Drive, Suite 109, Charlotte, NC 28212; NEWPORT NEWS, VA: Export Shipping Office, 96-24th Street, P.O. Box 536, Newport News, VA 23607

Westmoreland Coal Company, America's oldest independent coal company, is a producer and marketer of low sulfur coal mined primarily from the Central Appalachian region with reserves totalling nearly one billion tons. Westmoreland Coal Sales Company, a wholly-owned marketing and sales subsidiary, excels in export and domestic sales of high quality metallurgical and steam coals from Company mines and other producers. Westmoreland provides its customers with expert transportation management, transshipping internationally through the Gulf of Mexico and Dominion Terminal, in Newport News, VA, another company subsidiary. In addition, the Company also exports coal through non-affiliated piers. Quality assurance is also provided by the Company's own coal research laboratory, Gallagher Coal Research Center.

Product/Service	Description
Hampton/Ferrell Coal	High Grade Metallurgical and Steam: Premium high volatile coals with excellent coking characteristics for efficient metallurgical coke production. High quality steam coal used domestically and internationally.
Winding Gulf/Bonny	Premium Metallurgical: Premium low volatile, low ash coal with excellent coking characteristics for efficient metallurgical coke production.
Douglas	A low-ash premium medium volatile coking coal. Extremely low sulfur and good contraction properties.
Wentz	High Grade, Metallurgical and Steam: A versatile, premium quality, low sulfur coal used in coke-making for its low ash and fluidity, or for steam purposes due to high heat and sulfur properties or it can be sized for stoker applications.
Transloader	Premium Steam: High quality, low sulfur steam coal sold to utilities. The Transloader is capable of storing 84 thousand tons of clean or ROM coal from Company mines with nuclear analyzing, blending and unit train loading ability.
Kentucky Criterion	A high grade low sulfur steam coal exported primarily through the U.S. Gulf and consumed by U.S. electric utilities.
Dominion Terminal Associates	Export shiploading facility: This terminal provides ground storage and product blending, inbound and outbound weighing and sampling capabilities and rapid vessel loading equipment.
Cleancoal Terminal	Rail to river barge transloading facility: River terminal and ground storage facility used to blend and load coal for inland movement to export terminals located in the Gulf of Mexico.
Gallagher Coal Research Center	Coal quality and testing services: Lab provides variety of analytical tests for both met and steam coal customers including petrography, fluidity, and Btu, volatile matter, ash and sulfur determinations.



**Zeigler Coal Holding Company**  
**50 Jerome Place**  
**Fairview Heights, IL 62208**

**Zeigler** Coal Company

Telephone: (618) 394-2400

FAX: (618) 394-2515

Chief Executive Officer: M. K. Reilly

Vice President Marketing & Sales: E. J. O'Neil

Vice President Sales: J. R. Freeman

International Sales Manager: B. E. Runyon

Zeigler Coal Company, which has recently purchased Old Ben Coal Company, mines and markets over 15 million tons per year. With well over 100 years of coal mining experience, Zeigler operates nine large mines with modern preparation plants and attractive transportation options. Steam and metallurgical coals and coal blends are marketed in the U.S. and throughout the world. Zeigler also markets coals produced by others under the company names Zeigler Coal Sales Company and Franklin Coal Sales Company.

Product/Service	Description
Old Ben Mine 30	Located in Mingo County, West Virginia. Current annual capacity is 1.3 million clean tons of high volatile and high fluidity metallurgical coal. Transportation for export is via Norfolk, Virginia or rail/barge through Gulf ports.
Illinois Division	Located in Central and Southern Illinois. Six underground mines produce over 11 million clean tons of steam coal per year. Unit trains can be shipped from the mines via Illinois Central, Burlington Northern, CSX, or Union Pacific Systems and shipped direct or barged to Gulf ports for export.
Indiana Division	Located in Pike and Gibson counties, Indiana. Two large area surface mines produce over 4 million clean tons of steam coal per year. Unit trains can be shipped via the AWW Railway which connects with the Norfolk Southern, CSX, and Conrail systems for rail/barge shipments to Gulf ports.

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**Coal Mining:** Firms engaged in coal mining.

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**A.T. Massey Coal Company, Inc.**  
4 North Fourth Street  
Richmond, VA 23219



**Telephone:** (804) 788-1800  
**Telex:** 240503 **FAX:** (804) 788-1870  
**Chief Executive Officer:** E. Morgan Massey  
**International Sales Manager:** J. Morton Eggleston

A. T. Massey Coal Company, Inc. and its related companies ship more coal from Central Appalachia than any other supplier. In 1988, 25.6 million tons of coal were delivered to more than 180 Massey Coal customers worldwide. Beginning as a coal trading company in 1916, A. T. Massey Coal Company, Inc. is now the coal mining subsidiary of Fluor Corporation, one of the world's largest engineering, construction and maintenance firms. Our affiliate, Fluor Daniel is currently rated #1 among the top 400 U.S. construction companies by Engineering News Record. It provides global capability from more than 50 offices located around the world. Massey Coal is uniquely positioned to supply a diversity of products. With fifteen mining complexes located throughout the Appalachian coal fields, Massey Coal operations are on all major rail systems, have access to river and truck delivery, and lead the industry in preparation plant efficiency and quality control. Massey Coal also represents a wide-ranging network of independently produced coals. A 710 million ton reserve base assures Massey Coal customers of a continuing supply of high quality metallurgical and steam coal.

<b>Product/Service</b>	<b>Description</b>
Coal Export Coal Mining	<p>Massey Coal Export Company serves customers in more than 30 countries throughout the world. Shipping from all major East Coast and Gulf Coast terminals, we move roughly 10 percent of all seaborne U.S. metallurgical coal and are rapidly approaching the same market share for steam coal.</p> <p>Since 1984, Massey Coal Export's sales have increased 70 percent, reaching 7.5 million tons in 1988. This growth in both metallurgical and steam coal sales demonstrates our ability to compete successfully in the highly competitive world market, where quality and price make a difference.</p>
Technical Services	<p>Steel industry customers throughout the world have come to rely on Massey's quality assurance program, a program second to none in the coal industry. Every Massey Coal metallurgical mining operation has implemented Statistical Process Control to insure the quality product our customers require.</p> <p>We combine marketing capability with technical expertise to locate the most economical coals for customers' operations. Our experts look at more than delivered product cost; they look at resultant coke quality, blast furnace performance, and an improved bottom line for the customer. This innovative approach is paying off so well for our metallurgical coal customers that we are expanding its application to steam coal sales.</p>

**AMAX Coal Industries, Inc.**  
251 N. Illinois Street, P.O. Box 6106  
Indianapolis, IN 46206-6106



**Telephone:** (317) 266-1500  
**FAX:** (317) 266-1527  
**Chief Executive Officer:** Douglas H. Ashby  
**International Sales Manager:** J. Mark Cook

AMAX Coal Industries, Inc. (a subsidiary of AMAX Inc.) is headquartered in Indianapolis, Indiana. AMAX is the United States' third largest coal producer and is known throughout the industry for its innovative mining techniques and technological advances. In 1989, the company produced 38.4 million tons of coal. AMAX Coal Industries operates mines in Indiana, Illinois, Kentucky, Tennessee, West Virginia, and Wyoming. The company's two mines in Wyoming are among the nation's largest coal mines. AMAX Coal Sales Company is the company's marketing area, and provides complete coal marketing services; including transportation assistance, technical support, contract administration, and market development. Electric utility and industrial customers who purchase coal through AMAX can rely on an experienced and qualified staff for technical expertise in all areas of coal marketing.

Product/Service	Description
Coal Drying Facility	AMAX has constructed the first large-scale coal drying facility in the nation at its Belle Ayr Mine in Wyoming. The 1.5 million tons per year plant reduces the moisture content of the coal from 30 percent to 10 percent and increases its heating value from approximately 8,500 Btu per pound to nearly 10,750 per pound.

**ANDALEX Resources, Inc.**  
1201 Hurstbourne Place  
9300 Shelbyville Road  
Louisville, KY 40222



**Telephone:** (502) 426-7322  
**Telex:** 204 245 ANDALEX LVL **FAX:** (502)429-0007  
**Chief Executive Officer:** Gary Livingstone  
**Vice President of Sales:** Malcolm Thomas  
**Director of Marketing:** Larry Washington  
**Manager of Western Sales:** Ronald Powers  
**Manager of Eastern Sales:** Darrell Mahone

**Domestic Offices:** DENVER, CO: 1515 Arapahoe St., Denver, CO

ANDALEX Resources, Inc. is a private company formed by a family which has been mining coal continuously for over 150 years. ANDALEX Resources comprises four active mines and current production capacity is in excess of four million tons per year. The company has earned recognition as a reliable large-volume long-term supplier to industry and public utilities in the United States and overseas. A primary company goal is the flexibility necessary to respond to customers quickly and cost effectively.

(Continued on next page)

**ANDALEX Resources, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Cimarron Division	An Area surface mine operation with long-term and spot sales in excess of 2 million tons. Cimarron can load on CSX or P&L rail lines with rail-to-barge transfer at several river ports for gulf shipments.
Tower Division	Operates underground drift access, room and pillar mines in the Book Cliffs Coal Fields of Utah. Sales include long-term and spot contracts to utility and industrial customers. Is a major coal supplier to the far east primarily through the port of Los Angeles.
Little Creek Division	Surface and underground mining operations located in eastern Kentucky with production capacity of 1.5 million tons. Has proven to be a competitive supplier to industrial and utility customers from Michigan to Florida. 4 hour unit train loadout capability on CSX rail. Export shipments through New Orleans, L.A., Mobile, Alabama, Charleston, S.C.
Phillips Division	Located in Western Maryland is an area surface mine producing low volatile coal. Currently supplying domestic customers, Phillips has been a successful supplier in the European Market. Coal is shipped through ports in Baltimore and Philadelphia.

**Anker Energy Corporation**  
Rt. 12, Box 245  
Morgantown, WV 26505



Telephone: (304) 296-1616  
FAX: (304) 291-3692

Chief Executive Officer: Mr. John J. Faltis  
International Sales Manager: Mr. Neil Cregg

Domestic Offices: FLORHAM PARK, NJ: 26 Columbia Turnpike, Suite 100, Florham Park, NJ 07932 TEL. (201) 822-0818; KENOVA, WV: 1230 Chestnut Street, Kenova, WV 25530 TEL. (304) 453-3555

Anker Energy is a producer, broker and trader of U.S. origin coals affiliated with Anker Kolen, a coal trading company in the Netherlands. We are equipped to source coal domestically in the U.S. and internationally through our affiliate. We produce in excess of 2 million annual tons with annual sales of 4 to 6 million tons. In addition, we are equipped to buy, sell, mine and arrange for sales of coal f.o.b. mine, f.o.b.t., CIF or CF, as the case may be.

<b>Product/Service</b>	<b>Description</b>
Coal Exporters	Coal exports through U.S. East Coast and New Orleans. All grades of coal.
Coal Mining	Domestic U.S. producer of 2 million plus annual tons in West Virginia, Pennsylvania and Maryland.

**Arch Mineral Corporation**  
**CityPlace One**  
**City Place Drive**  
**St. Louis, MO 63141**

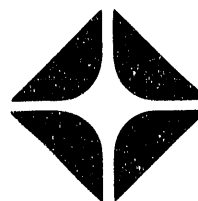


**Telephone:** (314) 994-2700  
**Telex:** 5106011393 **FAX:** (314) 994-2719  
**Chief Executive Officer:** Mr. R.E. Samples  
**International Sales Manager:** Mr. E.C. Holdaway (Western U.S.)  
 Mr. P.J. Panzarino (Eastern U.S.)

Arch Mineral Corporation is a major full-service coal mining and sales company. It was formed in 1969 and has over 2,700 employees. The company currently sells in excess of 20 million tons annually of high quality steam and metallurgical coal from mines in Illinois, Kentucky, West Virginia and Wyoming. In addition, Arch owns dock facilities on various rivers. Arch Mineral has the capability of exporting coal from port facilities in: Newport News and Norfolk, VA; New Orleans, LA; Charleston, SC; Mobile, AL; and Los Angeles/Long Beach, CA

Product/Service	Description
Coal Mining Coal Exporters	High quality steam and metallurgical coal from mines in Illinois, Kentucky, West Virginia, and Wyoming available for export.

**ARCO Coal Sales Company**  
**555 Seventeenth Street**  
**Denver, CO 80202**



**Telephone:** (303) 293-7704  
**Telex:** 454545 **FAX:** (303) 293-4820  
**President:** C. B. Smith  
**International Sales Manager:** Harold B. Tyber, Vice President

ARCO Coal Sales Company is a subsidiary of Atlantic Richfield Company and an operating agent of ARCO Coal Company. In 1989, ARCO Coal Company's world wide production was approximately 40 million tons, 20% of which was sold overseas. ARCO Coal Company is the fourth largest coal producer in the U.S.

Product/Service	Description
Coal Mining Coal Export	ARCO Coal Company, a division of Atlantic Richfield company, is an international coal company with significant operations in several of the world's premium coal basins. In the United States, through its operating subsidiaries, ARCO Coal is a major producer of high quality, low sulfur steam coals. ARCO's Thunder Basin Coal Company operates the Black Thunder and Coal Creek Mines located in Campbell County, Wyoming. Mountain Coal Operations, a unit of ARCO Coal Company, operates the Trail Mountain No. 9 mine located in Energy County, Utah, and the Mt. Gunnison mine located in Gunnison County, Colorado. Specifications available on request.

**Arctic Slope Regional Corporation**  
P.O. Box 129  
Barrow, AK 99723



Telephone: (907) 852-8633  
FAX: (907) 852-5733  
Chief Executive Officer: Mr. Jacob Adams  
Coal Development Manager: Mr. Kent Grinage

Arctic Slope Regional Corporation (ASRC) was established pursuant to the Alaskan Native Claims Settlement Act of 1971 (ANCSA 1971) to represent the interest of Natives of Northernmost Alaska. ASRC has become a major force in Alaska. It has design, construction, and operation capability with projects located throughout the state and resources to support a broad range of projects. ASRC is now diversified to where it is comprised of 12 wholly-owned subsidiaries with some 1600 employees and with annual revenues exceeding \$135 million.

Product/Service	Description
Coal Exports	Lands selected by ASRC are within the Northern Alaska Coal Province which may contain up to four trillion tons of high quality coal. The coal is designated as high volatile A-B Bituminous with a heating value in excess of 12,000 BTU per pound and contains only 0.1 to 0.3 percent sulfur and 5 percent moisture.
Coal Mining	A demonstration mining program and thorough complement of studies have shown development to be technically, environmentally, and financially sound. ASRC is presently developing markets and establishing financing to support commercialization of this vast resource. The relatively close proximity of the Pacific Rim nations make a natural choice for market penetration.

**Ashland<sup>®</sup> Coal, Inc.**  
Post Office Box 6300  
Huntington, WV 25771



**Ashland Coal, Inc.**

Telephone: (304) 526-3333  
Telex: 710-931-1907 FAX:(304) 526-3678  
Chief Executive Officer: William C. Payne  
International Sales Manager: Sam Lewis

International Offices: FRANCE: Robert A. Dienhart, 20, Bd. De La Republique 92210-St. Cloud, France; TEL 33-14-771-36-730, FAX 33-14-771-3793

Ashland Coal is a marketing-oriented eastern U.S. coal company engaged in the mining and processing of high quality, low-sulfur bituminous coal. It employs highly efficient means to mine, process and transport its coal, marketed principally to electric utilities in the eastern U.S. and in Europe. It also markets high quality metallurgical coal. Transportation flexibility includes access to the CSX and Norfolk Southern rail systems and the inland waterway system. Ashland Coal is a partner in Dominion Terminal at Newport News, VA.

Product/Service	Designation	Description
Coal Exporters	Coal	High quality, low-sulfur bituminous coal for electric utilities. High quality metallurgical coal.
Coal Mining	Coal	High quality, low-sulfur bituminous coal for electric utilities. High quality metallurgical coal.

**Belville Mining Company, Inc.**  
Route 2, Box 218  
South Webster, OH 45682

Telephone: (614) 643-2331  
FAX: (614) 643-0116

President: Thomas J. Belville  
Vice President: Robert E. Belville

Coal mining and sales for over thirty years. Limestone and clay products are also available.

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**Berwind Coal Sales Co.**  
3000 Centre Square West  
1500 Market Street  
Philadelphia, PA 19102

Telephone: (215) 563-2800  
FAX: (215) 563-8347

Chief Executive Officer: Harry M. Easton, President  
International Sales Manager: John C. Culp, Vice President



Berwind has been in the coal business for over 100 years. We are privately owned and currently mine over 1,000,000 tons of coal per year in Somerset County, Pennsylvania, and Pike County, Kentucky, where we own very extensive reserves.

Product/Service	Description
Coal Mining	Various grades of Pennsylvania low volatile (15-17%) coals loaded on Conrail and the B&O Railroads. Low sulfur, high volatile (30%+) eastern Kentucky coals loaded on the C&O and N&W Railroads.

**Black Gem Coal Company**  
P.O. Box 931  
Cincinnati, OH 45239-0931

# BLACKGEM

**Telephone:** (513) 931-1426  
**Chief Executive Officer:** H.M. Vonderheide  
**International Sales Director:** H.M. Vonderheide

Black Gem Coal Company has been in existence since 1976. Product line consists of steam, stoker, and metallurgical coals available from U.S.A. coal areas of southern West Virginia, southwest Virginia, southeastern Kentucky, and eastern Tennessee.

#### Product/Service

Coal Mining, transportation by truck, rail, U.S.A. river system to ports for export. Coal brokers/finders/sales. Mining equipment both deep and surface (as commonly utilized in U.S.A. coal mines).

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**Buckeye-Industrial Mining Co.**  
P. O. Box 389  
4719 Industrial Road  
Lisbon, OH 44432



**Telephone:** (216) 337-9511 or (216) 424-7281  
**FAX:** (216) 337-3730  
**Chief Executive Officer:** John C. Grisham  
**International Sales Manager:** Jack M. Grinwis

**International Offices:** Please contact Corporate Headquarters for further information

Industrial Mining Co. was founded in 1948 and merged with Buckeye Coal Mining Co. (1938) in 1971 to form Buckeye-Industrial Mining Co. Surface and underground mining is conducted in five Northern Ohio counties. A preparation facility and Conrail unit train siding is located in Kensington, Ohio. Additional Norfolk and Southern Rail loading facilities are located at Canton, Ohio. Multi-seam mining techniques are employed with production in the Ohio No's. 5, 6, 6A, 7, and 7A seams. With multi-seam mining and unique blending capabilities, Buckeye-Industrial Mining Co. produces an inclusive range of utility and industrial coal qualities with a complete range of sizing.

#### Product/Service

#### Description

Coal Mining

Coal qualities currently produced range from 1.5% sulphur at 13,000 BTUs to 3% sulphur at 12,000 BTUs with both high and low fusion characteristics. Within the reserve portfolio, the company controls a significant amount of less than 1% sulphur 13,000 BTU coal.



**Buffalo Coal Company**  
**P.O. Box 282**  
**Bayard, WV 26707**

**Telephone:** (304) 693-7642  
**FAX:** (304) 693-7374  
**Chief Executive Officer:** R. Donald Cussins  
**International Sales Manager:** R. Donald Cussins

Established in 1957, Buffalo Coal Company is a private non-union surface mining operation producing low volatile coals in both Maryland and West Virginia. The company operates two washing plants with 7,000 ton unit train facilities to produce some 1,000,000 U.S. tons annually. General Shipments are approximately 90% domestic utility; 10% export steam quality. Company reserves are in excess of 40,000,000 tons.

Product/Service	Description
Coal Industry General Steam	1 1/4" X 0 PDT; 5-7% Moist; 10-12%
Ash Coal Mining General Steam	17.5-19.5% Volatile; 1.5-2.0% Sulphur 12,000-13,000 BTU; As shipped: 7,000 ton volume units: 2500 F AFT; 90 HGI; C.S.X. Origin

**Cannelton Sales Company**  
**315- 70th Street**  
**Charleston, WV 25304-2909**



**Telephone:** (304) 925-1222  
**Telex:** 9102404995 **FAX:** (304) 925-0784  
**President:** A.S. Pack  
**International Sales Manager:** Richard W. Clonch, Vice President, Sales  
 Robert L. Potter, Manager, Sales

Cannelton Sales Company is a producer and supplier of low sulfur coal from West Virginia. Through our four mining divisions, Cannelton Industries, Inc. produced over five million tons in 1988. Production in 1989 is projected to reach nearly six million tons. Our production includes low and high quality steam coals and low and high volatile metallurgical coals. Cannelton has the ability of loading unit trains on the C&O and N&W Railroads. In addition, we have a barge loading facility on the Kanawha River that can load up to 1500 tons per hour. Cannelton presently has a total of 350 million tons of recoverable reserves in Kanawha, McDowell, Boone, Fayette, and Raleigh counties. Cannelton has the ability to make volume shipments to either New Orleans, Louisiana, or Newport News, Virginia for vessel loading.

Product/Service	Description
Steam Coal	Kanawha Division: The operation has production capacity of three million tons per year. Btu/lb ranges from 11500 to 12500, percent sulfur ranges from .70 to 1.5, percent ash ranges from 9 to 16. Our barge loading facility is located at Mile Post 84.3 on the Kanawha River in West Virginia and can load over 10,000 tons per day.
High Volatile Metallurgical Coal and Steam Coal	Indian Creek Division: This operation has production capacity of one million tons per year. Our high volatile quality is 7.0% moisture, 6% dry ash, .95% to 1.20% dry sulfur, and a dry volatile of 38%. Our steam coal quality is 12000 to 12500 Btu/lb, less than 1% sulfur and 10% to 12% ash. This operation has the ability to load 100-car unit trains on the CSX Railroad or barges on the Kanawha River.

(Continued on next page)

**Cannelton Sales Company (Continued)**

Low Volatile  
Metallurgical  
Coal

Pocahontas Division: This operation has the production capacity of one million tons per year. Our low volatile quality is 7% to 8% moisture, 5% to 95 dry ash, 0.85% to 1% dry sulfur and 18% to 20% dry volatile. This operation is located in McDowell County, West Virginia and is served by the N & S Railroad (Pocahontas District).

Low Volatile  
Metallurgical  
Coal

Maple Meadow Mining: This operation has the production capacity of one million tons per year. Our typical quality is 6% to 7% moisture, 6% dry ash, .74% dry sulfur, and 19% dry volatile. This operation is capable of loading 100-car unit trains on the CSX Railroad.

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**CLI Corporation**  
430 Park West One  
Pittsburgh, PA 15275



**CLI CORPORATION**  
*Engineers and Contractors*

Telephone: (412) 788-6688  
FAX: (412) 788-6690  
Chief Executive Officer:  
International Sales Manager:

David G. Chedgy  
David G. Chedgy

**International Offices:**

Please contact company headquarters for further information.

CLI Corporation is a major design and construction company in the coal and mineral industry. The Corporation specializes in feasibility studies, definite estimates, engineering, and turnkey construction for coal preparation and other mineral processing plants and the associated material handling systems. The Company also produces specialty equipment related to the processing industry. A subsidiary company is also involved in contract operations of mining facilities. The Company has internationally recognized coal and mineral processing specialists and a full complement of professional engineers and construction specialists.

Product/Service	Designation	Description
Architecture/ Engineering	CLI-1	Conceptual, preliminary, and actual design of coal and mineral process plants and material handling systems, including conveying, blending, and storage.
Coal Mining	CLI-2	Contract operations of mines and processing plants, including owner/operator contracts. Major coal processing of contracts of 1200 TPH presently under contract.
Facility Construction	CLI-3	Construction of turnkey or negotiated process plants and material handling facilities.
Advanced Utilization	CLI-4	Producer of ultra-low ash and sulfur coal and coal water slurries (CWS).

**Coal Extraction and Utilization Research Center  
Southern Illinois University at Carbondale  
Carbondale, IL 62901**



**Telephone:** (618) 536-5521

**FAX:** (618) 453-7346

**Chief Executive Officer:** John S. Mead

**International Sales Manager:** David G. Arey

**Domestic Offices:** CARBONDALE, IL: 315 W. Grand St., Carbondale, IL 62901

The Coal Research Center at Southern Illinois University-Carbondale was established in 1974 to coordinate the coal related research activities of more than 100 faculty and 200 graduate students. Coal research at SIUC has been broad in scope, covering nearly all aspects of coal extraction, preparation, transportation, combustion, pollution control, and reclamation. The Center works closely with the Illinois Department of Energy and Natural Resources' Office of Coal Development and Marketing and its Center for Research on Sulfur in Coal. SIUC operates a unique link-trainer dragline simulator which provides hands-on experience for operators and management personnel. A file of 700 corporations with coal related interests is maintained by the Center.

Product/Service	Description
Dragline Training Program	The Dragline Training Program is a comprehensive and progressive training program designed to increase dragline productivity and reduce operating costs. It provides participants with an efficient and cost effective method of increasing their knowledge about dragline operations and operator skills. Two courses are offered. The supervisor training course is tailored to supervisors, engineers, mine management, experienced dragline crews, and support personnel. The operator training course is primarily for dragline foremen and dragline crew members. Each course simulates the client's specific application of the dragline.
Industrial File	A PC compatible file is maintained by the Center. It lists 700 corporations in the U.S. and overseas which have direct or indirect interest in coal extraction and utilization. A single page profile of coal mining and using industries listing relevant executives and interest areas is available. More detailed information can be provided for specific corporations upon request.
Mining & Reclamation Technical Assistance	The Illinois Mining and Minerals Resources Research Institute and the National Mine Land Reclamation Center -Midwest Regional Center are located at SIUC. Technical reports concerning mining and reclamation are published. SIUC's Cooperative Wildlife Research Laboratory is world leader in technical aspects of mine land reclamation by way of wetland habitat creation.
Laboratory/Testing Services	A G/C Mass Spectrometer Laboratory having a Kratos MS-80 high mass, medium resolution mass spectrometer with fast magnet. There are three ionization sources: electron impact, chemical ionization, and fast atom bombardment. A Coal Testing Laboratory having the capability of performing elemental analysis, total sulfur, proximate analysis, ash fusion temperature, and Btu content. A coal grinding facility consisting of various grinders and crushers and a micronizer capable of grinding to micron size. The micronizer has on-line sampling capability which feed into a Leeds Northrop Microtrak particle size analyzer which can measure particle size down to 0.75 um. A thermogravimetric analysis capability centered around Perkin-Elmer TGA-7. A combustion capability centered around two instrumented fluidized bed combustors: one capability of 1,000,000 Btu/hr which can operate in either the bubbling or circulating mode and the other with a capability of about 100,000 Btu/hour.

**Coal Rep International**  
**4360 Brownsboro Road, Suite 200**  
**Louisville, KY 40207**

**Telephone:** (502) 897-9595  
**FAX:** (502) 897-2454  
**Chairman of the Board, President:** H. Jack Rutledge  
**Vice President:** Anna K. Kyser  
**Bookkeeper:** Pam Nevin  
**Marketing Assistant:** Lisa Smith  
**Accounting Manager:** Lew Reyman  
**Transportation Coordinator:** Pam Hall

Coal Rep International, a division of ENER-MARK, Incorporated, is a broad-based coal marketer, with exclusive sale and management control of coal supplies in East and West Kentucky. With this diversity of operations, we have coals ranging from 13,000+ BTU to 11,500+ BTU; 0.75% sulfur to 3.5% sulfur, etc. Our East Kentucky coal moves by Unit Train or Barge, and our West Kentucky product move primarily by Barge.

During our 15 years in the coal industry, the emphasis on customer service and quality control has paved the way for our notable growth, so that today we count our sales in the tens of millions. We always stand ready to assist our customers, both old and new, in all their coal and transportation coordination needs.

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**Coastal Coal Sales, Inc.**  
**P.O. Box 1871**  
**Roanoke, VA 24008**



**Telephone:** (703) 983-0222, USA (except VA): (800) 336-5722  
**Telex:** 888415 **FAX:** (703) 983-0267  
**Chief Executive Officer:** Robert J. Hummel  
**International Sales Manager:** Robert J. Hummel

Coastal Coal Sales, Inc. is responsible for the marketing of over 15 million tons of coal and petroleum coke produced by other units of The Coastal Corporation as well as independent high quality producers. Its principle affiliates are ANR Coal Company, Brooks Run Coal Company, Enterprise Coal Company, Virginia Iron, Coal and Coke Co., Coastal States Energy Co., Southern Utah Fuel Co. and Utah Fuel Co. Coastal Coal Sales also represents Preston Energy Co., an independent producer. Coastal Coal Sales, Inc. is a financially stable company that is an integral part of the Coastal Corporation, an \$8 billion, diversified energy company.

<b>Product/Service</b>	<b>Description</b>
Coal Exporters	Exporters of thermal and metallurgical grade coals through the Ports of Hampton Roads, VA, Los Angeles, CA, San Francisco, CA, New Orleans, LA, Mobile, AL, Baltimore, MD and Philadelphia, PA.
Coal Mining	A solid reserve base with major blocks in Kentucky, Utah, Virginia and West Virginia. Flexibility with modern mining facilities and state-of-the-art preparation plants.

**Colowyo Coal Company**  
**5731 State Highway 13**  
**Meeker, CO 81641**

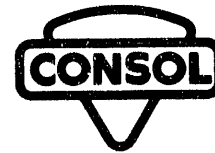


**Telephone:** (303) 824-4451  
**FAX:** (303) 824-4459  
**Chief Executive Officer:** E. K. Olson

Colowyo Coal Company is a 50/50 partnership of subsidiaries of Grace Energy Corporation and M.A. Hanna Company. Colowyo's surface coal mine, located in northwest Colorado, is the largest in the state, and produces in excess of 4 million tons annually of high-quality, low-sulfur steam coal.

Product/Service	Designation	Description
Steam Coal	2x0	Subbituminous-A coal having 10,700 Btu/lb. (24,867 joules/g) with .37% sulfur and 4.5% ash (as received).
Stoker Coal	Stoker	Custom-sized coal can be produced, ranging in size from 1.5" to .25" (38mm to 6mm). Stoker coal can be oiled in request. Colowyo stoker coal produces 11,000 Btu/lb. (25,564 joules/g) with .45% sulfur and 3.5% ash (as received).

**Consolidation Coal Company**  
**Consol Plaza**  
**1800 Washington Road**  
**Pittsburgh, PA 15241**



**Telephone:** (412) 831-4382  
**Telex:** 247-634 **FAX:** (412) 831-4571  
**Chief Executive Officer:** B. R. Brown  
**International Sales Manager:** Walter E. Schrage

**Domestic Offices:** NORFOLK, VA: 201 Granby Mall, Suite 216, Norfolk, VA 23510 TEL. (804) 627-6261, FAX (804) 625-5088, TELEX 240403 CONSOL NORF; BALTIMORE, MD: Consolidation Coal Sales Company Terminal, 3800 Newgate Avenue., Baltimore, MD 21224 TEL. (301) 631-7000, FAX (301) 631-7022  
**International Offices:** BELGIUM: Godefroid Coal Trading and Shipping S.A., 37-41 Rue du Congress, Brussels 1000 Belgium TEL. 011-32-2-218-7220, FAX 32-2-218-6192, TELEX 846-21434

Consolidation Coal Company (Consol) operates 25 underground and surface mines in nine states and Alberta, Canada. The company is the second-largest coal producer in the United States and hold 6.1 billion tons in steam and metallurgical-grade coal reserves. More than 80 percent of Consol's annual production of more than 55 million tons of steam coal for electricity generation. Nearly 11 million tons of high-grade metallurgical coal is produced annually. Consol mines are linked to major rail routes or the inland waterway for shipment to domestic customers and to exporting points on both coasts and the Gulf of Mexico.

Product/Service	Description
Steam Coal	Consol has exported steam coal since the early 1900s. Today consol exports steam coal to eight countries from mines in northern West Virginia, southwestern Pennsylvania and eastern Kentucky. Exporting points are Consolidation Coal Sales Company's (CCSC) terminal in the Port of Baltimore or terminals in Hampton Roads, Virginia and New Orleans, Louisiana.

**Cordero Mining Co.**  
**P.O. Box 1449**  
**Gillette, WY 82717-1449**



**Telephone:** (307) 682-8005

**FAX:** (307) 686-5507

**Chief Executive Officer:** Lowell B. Page, President & General Mine Mgr.

**International Sales Manager:** William L. Schaal, Vice President - Sales, Littleton, CO

**Domestic Offices:** LITTLETON, CO: Sun Coal Co., 26 West Dry Creek Circle, Suite 375, Littleton, CO 80120 TEL. (303) 730-1900

Cordero Mining Co. mines and markets sub-bituminous Powder River Basin coal in unit train quantities. The mine is an open pit mining operation currently producing 13,000,000 tons per year.

Product/Service	Description
Sub-Bituminous Coal	Bulk coal at 2 x 0 inch size range loaded in rail cars. Specifications on request.

**Costain Coal Inc.**  
**West Kentucky Division**  
**P.O. Box 267**  
**Sturgis, KY 42459**



**Telephone:** (502) 333-4391

**FAX:** (502) 333-4391, Ext. 214

**President:** Mr. P. Ron Siler

**Sales Manager:** Mr. Dan Shelledy

**Domestic Offices:** KENTUCKY: PYRO MINING COMPANY, P.O. Box 267, Sturgis, KY 42459 TEL. (502) 333-4391; J. SMITH COAL, INC., P.O. Box 38, Providence, KY 42450 TEL. (502) 667-7025; SOUTHARD COAL, INC., P.O. Box 38, Providence KY 42450 TEL. (502) 667-7025

Costain Coal Inc. - West Kentucky Division produces over 9,000,000 saleable tons of bituminous steam coal annually from non-union underground and surface mines. Through company owned rail, river, and truck facilities, its production can be economically transported to all major markets. Its parent company, Costain Group PLC, is a U.K. based worldwide construction, mining, and engineering firm.

Product/Service	Description
Bituminous Coal	West Kentucky #6, 7, 9, 11 and 13 seams primarily used as steam coal for major utility and commercial plants.

**Cyprus Coal Company**  
 9100 E. Mineral Circle  
 Englewood, CO 80112



**Telephone:** (303) 643-5100

**Telex:** 216190 CMCO UR **FAX:** (303) 643-5757

**Chief Executive Officer:** Mr. Donald P. Brown

**International Sales Manager:** V. J. Wicks, III

**Domestic Offices:** MILLFORD, OH: 400 TechneCenter Drive, Center 320, Milford, OH 45150 TEL. (513) 831-1366

FAX (513) 831-1801

**International Offices:** Please contact company headquarters for further information.

Cyprus Coal Company is a subsidiary of Cyprus Minerals Company, a major producer of copper, molybdenum, gold, talc and specialty metals. Originally formed as Amoco Minerals Company in 1969, Cyprus Minerals was spun-off from Amoco in 1985. Since the spin-off, Cyprus Minerals Company has become the second largest U. S. copper producer; fifteenth largest coal producer; the world's largest lithium producer; and, one of the top three molybdenum producers. Cyprus Coal Company has eight mining operations (underground and surface) in six states, with a total annual production of 17MM tons of low and medium sulfur coal and a reserve base of over 1.5 billion tons of steam and metallurgical coal. Cyprus' customers include major industrials, utilities and steel companies domestically and internationally.

Product/Service	Description
Coal Mining	Waynesburg, PA: Steam & met coal: 13,200 Btu/lb, 6% ash, 1.8%-2.0% S, 35% Vol, 8 FSI, 28,000 DDPM Fluidity
	Craig, CO: Steam coal: 10,500 Btu/lb, 8% ash, 0.3%-0.4% S
	Mt. Carbon, WV: Steam coal: 12,800-13,300 Btu/lb, 9%-10% ash, 0.7%-3.0% S
	Bulan, KY: Steam coal: 12,000-13,000 Btu/lb, 8.5%-12% ash, 0.9%-1.5% S
	Paonia, CO: Steam coal: 11,500 Btu/lb, 7% ash, 0.4% S
	Price, UT: Steam coal: 11,500-12,200 Btu/lb, 6.5%-11% ash, 0.5%-0.75% S
	Hanna, WY: Steam coal: 11,300 Btu/lb, 5% ash, 0.5% S
	Oak Creek, CO: Steam coal: 11,200 Btu/lb, 10% ash, 0.5% S

**EAMarketing, Inc.**  
 5010 Mayfield Road  
 Cleveland, OH 44124

**EAMarketing Inc.**

**Telephone:** (216) 291-2840

**FAX:** (216) 291-3422

**Chief Executive Officer:** Mr. Edmund F. Avolio

**International Sales Manager:** Mr. Michael J. Williams

RAPID FOAM™ is a product developed and designed by EAMarketing for use as a slag foaming agent in High Voltage Electric Furnaces. This product is available for bulk shipment via Gulf or East coast U.S.A.

(Continued on next page)

## EAMarketing, Inc. (Continued)

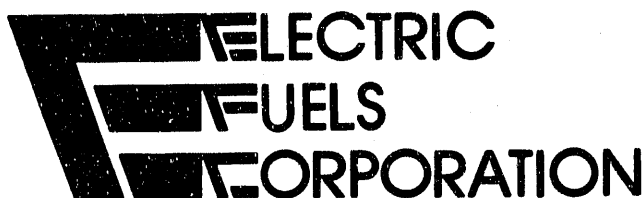
EAMarketing has been a processor and trader of coal and coke since 1975.

The GRAY STAR™ Division of EAMarketing operates a metallurgical coke drying and screening plant in Birmingham, Alabama.

Product/Service	Designation	Description
Slag Foamer	RAPID FOAM™	This product was especially designed and developed to quickly raise a thick foamed slag for high voltage electric furnaces.
Dried metallurgical coke		Sizes 2" and smaller
Metallurgical coke/coal		All types and sizes

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**Electric Fuels Corporation**  
235 Third Street South  
P. O. Box 15208  
St. Petersburg, FL 33733



Telephone: (813) 892-2700  
Telex: 514168 FAX: (813) 892-2702  
Chief Executive Officer: Richard D. Keller  
International Sales Manager: Robert Ramey

Electric Fuels Corporation (EFC) through its many subsidiaries is involved in coal mining, coal transportation, coal transfer facilities, fuel research in the coal area and the development of coal-based alternative fuels. Electric Fuels has developed a coal management system that has proved to be successful and highly competitive in supplying coal from mine site to the customer. This fully-integrated system is composed of five essential groups: coal, operations, marine and terminaling, alternative fuels and international marketing. The integration of these groups under Electric Fuels' management provides the necessary exposure to all phases of the coal industry.

Product/Service	Description
Advance Utilization	With access to experts in virtually every application of coal combustion, Electric Fuels can provide qualified technical know-how in the areas of ash utilization, mineral and metal recovery from ash and in ash disposal. From start to finish, Electric Fuels' customers are assured of experienced assistance with all their coal handling needs. EFC has developed services ranging from field and laboratory functions to advanced computer support.
Coal Derivatives	Electric Fuels' involvement in the development of alternative fuels is through COMCO, a leader in the manufacture of coal-oil mixture (COM), coal-water mixture (CWM) and petroleum coke-oil mixture (PETCOM). Coal-liquid mixtures are produced at COMCO's Port Sutton, Florida facility. REDICOAL, COMCO's new powdered coal product for industrial and utility use, has proved to be an economical replacement for fuel oil and natural gas.
Coal Mining	The coal group is responsible for the mining and preparation of coal from sites containing approximately 215 million tons of reserves located in the states of Virginia, West Virginia and Kentucky. Origin points have capability to load both trucks and unit trains.
Coal Transport	Marine Equipment Management Corporation, a wholly-owned subsidiary, handles coal from all inland river origins in either single barge or unit tow lots. Standby loading is available. Covered barges are available. MEMCO also offers switching and fleet services at various Mississippi River ports.  Dixie Fuels Limited offers handling, storing, terminaling and transporting bulk cargo by sea-going marine transportation equipment.

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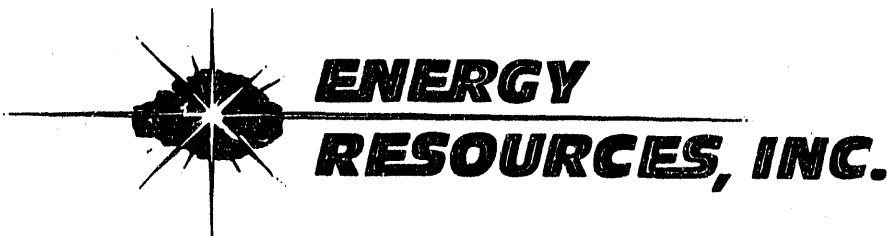
**Electric Fuels Corporation (Continued)**

**Facility Operation** International Marine Terminals is a bulk materials handling facility strategically located near the mouth of the Mississippi River. The recently expanded terminal consists of modern facilities, ground storage/blending and a coal testing laboratory operated by an independent agent.

Hatfield Terminals operates transfer facilities in Cincinnati, Ohio, on the Ohio River and near Charleston, West Virginia, on the Kanawha River.

Kentucky May Coal operate a coal transfer facility on the Big Sandy River.

**Energy Resources, Inc.**  
 29525 Chagrin Boulevard, Suite 111  
 Pepper Pike, OH 44122



**Telephone:** (216) 765-1240  
**FAX:** (216) 765-2654  
**President:**

David J. Salisbury (Brockway, PA office)

**Domestic Offices:**

BROCKWAY, PA: P.O. Box 259, Brockway, PA 15824 TEL. (814) 265-8021, FAX (814) 265-8295

Energy Resources is a central Pennsylvania producer of mid-sulfur coals from the Freeport and Kittanning Seams. It can supply spot or contract orders of up to 50,000 TPM. Current production is by surface mining, but large deep reserves are also under present control. Total recoverable reserves of over 39 million tons. The mine has ground storage and unit train loading facilities on the Conrail System near DuBois, PA. It can also load on the P&S Railroad or ship by truck.

Product/Service	Description
Coal Exporters	Typical coal specifications as received:
Coal Mining	
	% Ash - 10-13 BTU/lb. - 12,000-12,500
	% Sulfur - 1.5-2.5

**Exxon Coal and Minerals Company**  
 P.O. Box 1314  
 Houston, TX 77251-1314



**Telephone:** (713) 973-5333  
**Telex:** 762171 EXXON ECM HOU **FAX:** (713) 978-5618  
**President:** R. P. Larkins  
**Vice President Marketing:** R. J. Doyle  
**Marketing Manager Domestic Coal:** T. B. Brister  
**Marketing Manager International Coal:** E. W. Markowski

Exxon Coal and Minerals Company, a division of Exxon Corporation, markets coal produced from mining operations located in New South Wales Australia, Columbia South America, and Illinois and Wyoming U.S.A. During 1989, these operations produced over 46 million short tons of coal, of which over 18 million short tons were sold outside the United States. Exxon Coal USA, Inc., an affiliate of Exxon Coal and Minerals Company, was the sixth largest United States coal producer.

(Continued on next page)

**Exxon Coal and Minerals Company (Continued)**

<b>Product/Service</b>	<b>Description</b>
Coal Mining/Coal Marketing	Exxon Coal USA, Inc. has two operating divisions within the United States. The domestic operations are The Carter Mining Company and Monterey Coal Company. The Carter Mining Company is an Eastern Powder River Basin coal producer which operates two surface mines in the Gillette, Wyoming, area that produced over 23.5 million short tons in 1989. The Monterey Coal Company is an Illinois Basin coal producer which operates two underground mines in Illinois and produced over 4.7 million short tons in 1989. Coal quality specifications are available upon request.
Technical Support	Mining operations and marketing are supported by a coal research laboratory, and related facilities, with full time research personnel at Exxon Research and Engineering Company in Baytown, Texas. Combustion furnace and state of the art technical facilities are available along with research personnel to analyze optimum, cost saving coal use for our customers. Technical service personnel visit on site with power plant staff for problem analysis.

**Farrell-Cooper Mining Company**  
**P.O. Box 1947**  
**6001 South Zero**  
**Fort Smith, Arkansas 72902**



Telephone: (501) 646-4366  
 FAX: (501) 646-3220  
 Chief Executive Officer: William J. Cooper  
 International Sales Manager: William J. Cooper

**International Offices:** Please contact company headquarters for further information.

Farrell-Cooper Mining Company is in the business of mining, transporting and exporting bituminous coal and cannel coal for industrial fuel and domestic home heating fuel. We operate coal loading facilities on the Arkansas River (1,500 ton barges), but mainly at the Port of Corpus Christi, Texas. At Corpus Christi, we handle product for export as well as product being imported.

<b>Product/Service</b>	<b>Description</b>
Coal Exporters	Export facility is located adjacent to Port of Corpus Christi. The port's depth is 45 feet and is the deepest port on the Gulf of Mexico.
Coal Mining	Operate two surface mines in the State of Oklahoma on Low Volatile and High Volatile Bituminous Coal. Operate two surface mines in the State of Texas on a High Volatile, Low Ash Cannel Coal under the name of Farco Mining of Texas, Inc. All coal mines are equipped with coal washing facilities.
Coal Transport	All of our mines are equipped with railroad tipples in addition to major highway access.

**Gatwick Coal Company, Inc.**  
**4202 Ashley Park Drive**  
**Nashville, TN 37205**



**Telephone:** (615) 298-1241  
**FAX:** (615) 298-1085

**Chief Executive Officer:** Kenneth E. Melvin  
**International Sales Manager:** Kenneth E. Melvin

**International Offices:** CAYMAN ISLANDS: Gatwick International, Genesis Building, 5th Floor, P.O. Box 448, Grand Cayman, Cayman Islands, British West Indies, TEL. (809-94) 94800

Gatwick Coal Company, Inc. was founded in 1987 for the purpose of exploring and developing domestic and offshore coal properties as well as purchasing coal for export to Northern European markets. The personnel of Gatwick Coal are adept at coal exploration, leasing and permitting, developing raw property into productive mines, marketing coal worldwide, and transporting from the mine to its ultimate destination. With expertise in virtually every phase of the coal business and a vast network of contacts in the international marketplace, Gatwick maintains and updates daily a state-of-the-art computer database that enables the company to match buyers and sellers with maximum efficiency.

Product/Service	Designation	Description
Coal Exporters	Steam Coal	U.S. Bituminous Steam Coal

**H.B. Zachary Company**  
**P.O. Box 21130**  
**San Antonio, TX 78221-0130**



**Telephone:** (512) 922-1213  
**Telex:** 76-7426 **FAX:** (512) 927-8060  
**Chief Executive Officer:** H. B. Zachary  
**International Sales Manager:** Robert E. Hood

**International Offices:** Please contact company Headquarters for further information.

H. B. Zachary Company is a world leader in the construction industry with over sixty-five years of building a wide variety of construction projects. Including power, process, transportation, mining/minerals (lignite, fluorspar and "frac sand"), hydraulics/water works, general industrial/manufacturing, commercial, maintenance, and pipeline. Projects have been constructed in Alaska, Bangladesh, Canada, Chile, Greece, Kwajalien, Oman, Peru, Puerto Rico, Saudia Arabia, Sinai Desert, South Africa, Spain, and Thailand. By accommodating the owner's preference of design firms the Company has good relations with many engineering firms. The company also functions as consortium manager to provide complete design, construction, financing, and maintenance responsibilities.

Product/Service	Description
Contract Mining	Topsoil requirements, hydrologic balance, disposal of excess spoil, coal or mineral recovery, mineral processing waste banks, environmental protection, pipelines, backfilling & grading, revegetation, Class I-III roads, special conditions.
Facility Construction	Loading facilities, storage and stockpile facilities, sheds, shops and other buildings, water treatment and water storage facilities, settling basins and impoundments, coal processing and other waste disposal areas, roads, railroads and other transport facilities.
Facility Operations & Maintenance	Operations plan, air pollution control plan, fish & wildlife plan, reclamation plan, diversions, protection of public parks & historic places, use of public roads.

Hepburnia Coal Company  
P.O. Box 1  
Grampian, PA 16838



Telephone: (814) 236-0473  
FAX: (814) 236-0839  
Chief Executive Officer:  
President:

Robert G. Spencer  
Darrell G. Spencer

Hepburnia Coal Company was founded by three brothers: Darrell, Ray, and Bob Spencer. The company has been in operation in central Pennsylvania for the last 30 years and maintains operations in three counties. The company has the facilities to ship via rail or truck to almost any destination.

Product/Service	Description
Coal Mining	High and Medium VOL coal, BTU, Medium Steam. Currently operating 18 different Strip Mine Operations. Owns a land company to lease and own coal lands for further coal production development. Total coal reserves (tons) 30,000,000. Currently employing 115 people.
Tipples	Belfast Tipple, Grampian, PA; Spencer No. 1, Bells Landing, PA; Brockway Tipple, Brockway, PA

Imperial-Pacific Investments, Incorporated  
405 Capitol Street, Suite 607  
Charleston, WV 25301



Telephone: (304)343-6550  
FAX: (304)343-9849  
Chief Executive Officer:  
International Sales Manager:

Robert C. Gibson  
William F. Davison

Imperial-Pacific Investments, Inc. is a privately held company incorporated in the state of West Virginia. Wholly owned subsidiaries of IPI are Winchester Coals, Inc., Princess Susan Coal Co., and Hawks Nest Mining Co. IPI is a full service coal mining and shipping company delivering steam and metallurgical coal to domestic and international customers. IPI is able to originate shipments via rail or water.

Product/Service	Description
Coal Exporters	IPI originates steam and metallurgical coals directly to end users or as components in other shipper's cargoes.
Coal Mining	IPI subsidiaries operate underground and surface mines in three West Virginia counties. Total production capacity is in excess of 2 million tons annually. IPI controls over 100 million tons of recoverable coal reserves.
Coal Transport	IPI can originate shipments via water and/or rail. IPI's Winchester subsidiary is located on the CSX rail system and anticipates unit train capability by early 1992. IPI's Princess Susan and Hawks Nest Mining Co. subsidiaries originate shipments by rail on the Conrail system or by water on the Kanawha river.

**Ingram Coal Company**  
**4400 Harding Road**  
**Nashville, TN 37205**



**Telephone:** (615) 298-8300  
**Telex:** 555130 **FAX:** (615) 298-8350  
**Chief Executive Officer:** Frank M. Michitti  
**V.P., Export Sales :** Andy Yanik

**Domestic Offices:** PIKEVILLE, KY: Johns Creek Coal Company, Meta, KY 41501 TEL. (606) 631-1000  
**International Offices:** SCOTLAND: Delta Sales & Marketing Inc., 1 Blythswood Square, Glasgow G2-4AD Scotland, FAX 698-740883

Ingram Coal Company sales personnel have extensive knowledge of domestic and overseas markets and are active in them daily. Steam, stoker and other specialty coals are produced, prepared and shipped through its Johns Creek Division.

Product/Service	Description
Coal Mining	Through its Johns Creek Division the Company owns and operates a 600,000 ton per year facility near Pikeville, Kentucky.
Coal Exporter	The Company regularly trades in steam and metallurgical coals to Europe and Asia.

**Island Creek Corporation**  
**P.O. Box 11430**  
**250 West Main Street**  
**Lexington, KY 40575-1430**



**Telephone:** (606) 288-3000  
**Telex:** 21-8414 ICCS LEX **FAX:** (606) 288-3780  
**Chief Executive Officer:** S. O. Ogden  
**International Sales Manager:** D. C. Fogg

Island Creek Corporation is a wholly-owned subsidiary of Occidental Petroleum Corporation, which has operations in exploration of oil and natural gas, natural gas transmission, chemical, agribusiness and coal. Occidental, a Fortune 100 company, has revenues in excess of \$20 billion annually. Island Creek is a producer of high quality metallurgical and steam coal for both the export and domestic market. Total sales tons in 1989 were 21.9 million while 1990 is expected to reach 22.6 million. Island Creek is among the 5 largest coal exporters of U.S. coal. Island Creek has mining operations located in Kentucky, West Virginia and Virginia. Total coal resources are approximately 2.7 billion tons of which 1.2 billion contain a sulfur content of one percent or less. In addition to coal production, Island Creek has interests in coal handling and transportation through its affiliates: Kentucky Ohio Transportation Company, Curtis Bay Company and International Marine Terminal.

Product/Service	Designation	Description
Metallurgical Coal	High Volatile	Ash 6.0%, Sulfur .85%, Volatile 34%
	Medium Volatile	Ash 4.5%, Sulfur .50%, Volatile 27%
	Low Volatile	Ash 5.5%, Sulfur .90%, Volatile 18.5%
Steam Coal	Compliance Sulfur	Moisture 6.5%, Ash 8-12%, Sulfur .72%, BTU/lb 12,000-13,000
	1% Sulfur	Moisture 6.5%, Ash 8-12%, Sulfur 1%, BTU/lb 11,500-13,000
	1.5% Sulfur	Moisture 7.0%, Ash 6-12%, Sulfur 1.5%, BTU/lb 13,000
	+2.5% Sulfur	Moisture 10%, Ash 7%, Sulfur 2.5%, BTU/lb 11,900

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**Island Creek Corporation (Continued)**

Terminal Services	Kentucky Ohio Transportation Co.	Transfer terminal from rail to barge located on the Ohio River in Wheelersburg, OH, and South Shore, KY.
	Curtis Bay Company	Located in Baltimore, MD, this terminal transfers coal from rail to ground storage for loading to vessel or barge for domestic or export movement.
	International Marine Terminal	This terminal transfers coal from barge to ground storage or from ground storage to vessel or from barge to vessel in Myrtle Grove, Louisiana.

**Jim Walter Resources, Inc.**  
**Mining Division**  
**P.O. Box 830079**  
**Birmingham, AL 35283-0079**



**Telephone:** (205) 254-7481 or 556-6000  
**Telex:** 261391 JWRB UR **FAX:** (205) 556-5857  
**President:** William Carr  
**Vice President:** K.H. Frazer  
**Assistant Vice President:** R.W. Pollard

**Domestic Offices:** BROOKWOOD, AL: Route 1, Box 133 - Highway 216, Brookwood, AL 35444  
**International Offices:** Please contact company headquarters for further information

Jim Walter Resources, Inc., is a 9 million (net) ton per year producer of high quality metallurgical (low and medium volatile) coal from the Blue Creek seam. The coal is produced from 4 underground mines in north central Alabama. These mines are served by both barge and railroad and approximately 6 million tons per year are exported from McDuffie Terminals in Mobile, Alabama. With more than 300 million tons of recoverable reserves, Jim Walter Resources will be producing high quality, single seam metallurgical coal for many years to come. Customers worldwide depend on Blue Creek coals, and Jim Walter Resources has ample reserves to back up long-term commitments.

Product/Service	Description
Low Volatile Metallurgical Coal (No. 3 and No. 7 mines)	Volatile matter 19-22%, ash 8%, sulfur .6-.7% (all dry basis), moisture 8% typical, HGI +90, ARNU 75-120, fluidity 300-700 DDPM, FSI 9, size 50 mm x 0 (other specifications upon request).
Medium Volatile Metallurgical Coal (No. 4 and No. 5 mines)	Volatile matter 24-26%, ash 8.8%, sulfur .7-.8% (all dry basis), moisture 8% typical, HGI +90, ARNU 120-140, fluidity 2000-4000 DDPM, FSI 9, size 50 mm x 0 (other specifications upon request).
Dry, Granular Coal	Medium volatile coal produced at No. 4 mine is thermally dried. Annually, approximately 250,000 (net) tons of "dryer dust" is captured in the dryer's emissions control system. This coal has 7% dry ash, is sized at 2 mm x 0 and has less than 2% moisture. This would be an excellent product for granular coal injection in a blast furnace.
Coal-Water Fuel (CWF)	Also located at No. 4 mine is a pilot scale CWF plant capable of producing 10 tons (50 barrels, 42 gallons each) of CWF per hour. However, with no continuous production commitments, the plant is available to produce batch samples of CWF produced from Blue Creek coal or customized CWF's with customer provided coals. Jim Walter Resources can also custom design and produce CWF to meet any special requirements.

**Kerr-McGee Coal Corporation**  
**P.O. Box 25861**  
**Oklahoma City, OK 73125**



**Telephone:** (405) 270-2551  
**Telex:** 747-128 **FAX:** (405) 270-3010  
**President:** Mr. Peter B. Lilly  
**International Sales Manager:** Mr. Max M. Muller, V.P.

Kerr-McGee Coal Corporation maintains a strong position in the ownership of minable coal reserves and in the mining and marketing of bituminous and subbituminous coal. The company currently owns or leases approximately 1.005 billion tons of bituminous and subbituminous coal in Illinois and Wyoming. The operating mines have unit train loading facilities and are served by railroad systems giving access to international coal shipping terminals on the Gulf of Mexico and the Pacific Coast. The company presently ships approximately 18 million tons to domestic utility and industrial customers and has the reserves and facilities to undertake long-term international commitments.

Product/Service	Description
Subbituminous Coal	Compliance sulfur subbituminous coal is mined from the Jacobs Ranch Mine in the Powder River Basin of North Wyoming. The mine is served by the Burlington Northern and the Union Pacific railroads. Unit Train load-out facilities at the mine are capable of transferring 5000 tons per hour into 120 car unit trains.
Bituminous Coal	Mid-range, low sulfur, Illinois Basin bituminous coal, suitable as steam coal and for PCI use is mined from the Galatia Mine. Unit train loading facilities for rail-direct shipping, via Illinois Central railroad, to the Port of Mobile, Alabama; or river barge shipment on the Mississippi/Ohio River system to the Port of New Orleans are available at the mine.

**MAPCO Coal Inc.**  
**1717 South Boulder**  
**Tulsa, OK 74119**



**Telephone:** (918) 592-7238  
**Telex:** 6866129 MCCOAL UM **FAX:** (918) 582-8421  
**President:** Mr. Joseph W. Craft  
**Vice President:** Mr. Robert G. Sachse  
**International Sales Manager:** Mr. Gary J. Rathburn (918/592-7240)

MAPCO Coal Inc. is a subsidiary of MAPCO Inc. MAPCO Coal Inc. produces and markets bituminous coal for domestic and foreign markets from eight mining complexes in Kentucky, Maryland, Illinois, and Virginia. MAPCO also operates a coal terminal on the Ohio River near Mt. Vernon, Indiana, used for storage and transloading of coal.

Product/Service	Description
Coal Exporters	MAPCO Coal steam coal is sold primarily to electric utilities, and industrial and cogeneration customers located in the Eastern United States and, to a lesser extent, in Europe. MAPCO's metallurgical coal is sold to steel and coke producers located primarily in Japan, Europe, and North Africa.
Coal Mining	

**Mobil Coal Producing Inc.**  
Box 17772  
Denver, CO 80217



**Telephone:** (303) 298-2960  
**Telex:** 910-9312633 **FAX:** (303) 298-2974  
**President:** R. G. (George) McGinn  
**International Sales Manager:** J. R. (Bob) Anderson

**International Offices:** INDONESIA: M. R. (Mike) Wolfhard, Mobil Oil Indonesia Inc., Post Bag 400, Jakarta 10002; Ratu Plaza 27th Floor  
TEL. 61-21-711211, TELEX 47431 MOI/JKT, FAX 61-21-7202068

Mobil Coal Producing Inc., an established coal producer and marketer, commenced production at its Caballo Rojo Mine in Wyoming's Powder River Basin in 1982. The Mine has a current capacity of over eight million tons per year with the potential to increase its permitted target of 20 million tpy. Coal from Caballo Rojo was successfully shipped to Taiwan Power Company in 1988 through the Roberts Bank terminal in British Columbia. Mobil Coal Producing Inc. is also developing a resource in Indonesia with Nissho Iwai as joint venture partner in its P. T. Berau project. Production is planned from the Berau Mine in early 1991 to supply both the Indonesian and Pacific Rim marketplaces.

Product/Service	Description
Coal Exporters	U. S. production from the Caballo Rojo Mine is low ash, low sulfur with a heating value of 8500 BTU/lb. Deliveries can be made on either the BN or the C&NW/UP railroads. Transshipment via the Roberts Bank Terminal is proven.
Coal Mining	Low ash, low sulfur, good quality coal from Kalimantan, Indonesia is planned for early 1991 shipment.
Coal Transport	Mobil can assist end users with their transportation requirements.
Technical Services	Mobil utilized state-of-the-art computer modeling and retains highly qualified combustion experts to provide domestic and international customers technical coal utilization assistance.

**National Mines Corporation**  
P.O. Box 12022  
333 W. Vine Street, Suite 1000  
Lexington, KY 40579



**Telephone:** (606) 233-4141  
**Telex:** 213475 **FAX:** (606) 281-8757  
**President/Chief Executive Officer:** Vaughn R. Knapp  
**V.P. - Marketing & Sales:** Herman L. Mays

A subsidiary of National Steel Corporation, the company began coal production in the early 50's as an integrated source for cokemaking. Today, 80% of shipments are to commercial domestic and export receivers, offering various high-quality grades of metallurgical, sized (industrial), and thermal coals. Mines and preparation facilities are located in Washington Co., PA, Wyoming Co., WV, and Knott Co., KY, with site capacities of from 500,000 to 1.6 million tons per year. Unit-train loading capability at PA and KY locations. Coals are deep-mined and tend to be low-to-mid sulfur content. UMWA-affiliated and professionally staffed.

(Continued on next page)



## National Mines Corporation (Continued)

Product/Service	Description
Coal Exporters	Knowledge of international marketplace - mainland Europe, Scandinavia, Pacific Rim, Canada, South America - port facilities, transportation, storage, handling.
Coal Mining	Full range of experience, including exploration, development, all aspects of mine and plant operation, reclamation, safety.
Facility Operation	Capable of previously enumerated aspects of management and engineering.

**NERCO Coal Corp.**  
2043 Woodland Parkway  
St. Louis, MO 63146



Telephone: (314) 993-2625  
Telex: 403180 NERCO STL    FAX: (314) 993-8391  
President: Charles C. Adams  
International Sales Manager: Marvin C. Davis

NERCO Coal Corp. is one of the ten largest coal companies in the United States with annual sales in excess of 30 million tons. The company has extensive high quality reserves and production capacity in western (Powder River Basin), midwestern and eastern (Central Appalachia) coal producing regions. NERCO Coal Corp. is active in both export and domestic trade.

### Product/Service

Western, midwestern, and eastern coals for domestic use and export.

**Oglebay Norton Company**  
1100 Superior Ave.  
Cleveland, Ohio 44114



Telephone: (216) 861-3300, (216) 861-8707  
Telex: 62836077 ONCO-CLEVE    FAX: 216-861-2863  
Chief Executive Officer: Renold D. Thompson  
International Sales Manager: J. Douglas Loughhead

Minerals, lake transportation and manufacturing are the major areas in which Oglebay Norton serves steelmakers, utilities, chemical and glass producers, manufacturers and other basic industries. Produces Ohio No.8 Seam Coal (Steam) with daily production capabilities of 4000NT Deep Mine located on NS Railroad at St. Clairesville, Ohio. Twelve thousand contiguous acres of coal reserves located in Boone County, WV. Five seams with average quality being 12,500 BTU's and 1% sulfur. Production is scheduled for fourth quarter 1989.

(Continued on next page)

**Oglebay Norton Company (Continued)**

Product/Service	Designation	Description
Coal Mining		
Coal Transport	Ceredo Dock	Barge loading facility located near Huntington, WV on the Ohio River. Jointly served by CSX and NS railways (unit train capable) with annual capacity of 8,000,000 tons.
Facilities Construction	Licking River Terminal Co.	Barge loading facility located near Cincinnati, Ohio. Unit train capable and served by the CSX railway. Annual capacity of 8,000,000 tons.
Facilities Operation	Columbia Transportation Division	Offers a full range of 13 lake carriers to handle bulk materials on the Great Lakes.

**The Ohio Valley Coal Company**  
 29525 Chagrin Boulevard, Suite 111  
 Pepper Pike, OH 44122



Telephone: (216) 765-1240  
 FAX: (216) 765-2654

President/Chief Executive Officer: Mr. Robert E. Murray  
 Manager of Marketing & Sales: Mr. Richard S. Rice (Alledonia, OH office)

Domestic Offices: ALLEDONIA, OH: 56854 Pleasant Ridge Road, Alledonia, OH 43902 TEL. (614) 926-1351  
 FAX (614) 926-1615

Ohio Valley Coal is a reliable, long-term supplier of high quality, washed Pittsburgh No. 8 seam coal, produced by a state-of-the-art longwall and modern continuous miners. Demonstrated recoverable coal reserves of over 81 million tons under present control. Complete preparation plant includes jigs, cyclones, centrifugal dryers, and thermal dryer. The mine can floodload unit trains on Conrail at 2,500 TPH, or ship by barge from M.P. 110.8 on the Ohio River.

Ohio Valley Coal can supply up to 2 million tons per year under spot order or long-term contract.

Product/Service	Description												
Pittsburgh No. 8 Seam Coal	Typical Coal Specifications, as Received:												
	<table border="0"> <tr> <td>% Moisture</td> <td>6.0</td> <td>% Sulfur</td> <td>4.0</td> </tr> <tr> <td>% Ash</td> <td>10.0</td> <td>BTU/Lb.</td> <td>12,400</td> </tr> <tr> <td>% Volatile Matter</td> <td>39</td> <td>HGI</td> <td>52-55</td> </tr> </table>	% Moisture	6.0	% Sulfur	4.0	% Ash	10.0	BTU/Lb.	12,400	% Volatile Matter	39	HGI	52-55
% Moisture	6.0	% Sulfur	4.0										
% Ash	10.0	BTU/Lb.	12,400										
% Volatile Matter	39	HGI	52-55										

**Pacific Coast Coal Co., Inc.**  
**30700 Black Diamond-Ravensdale Rd.**  
**P.O. Box 450**  
**Black Diamond, WA 98010**



**Telephone:** (206) 886-1060  
**FAX:** (206) 432-8755  
**Chief Executive Officer:** David J. Morris  
**International Sales Manager:** David J. Morris

**International Offices:** Please contact company headquarters for further information.

Pacific Coast is one of two coal operators located in Washington state and the only one producing export quality bituminous coal. The open pit John Henry mine began producing in 1987 and is located just 310 km south of Roberts Bank terminal on the Burlington Northern RR. This favorable location results in an extremely competitive transportation cost for steam coal delivered into the Pacific Rim countries. Coal reserves are large enough to allow for mine expansion as markets grow.

Product/Service	Description
Steam Coal	Washed or raw steam coal ranging from 6,200-7,000 kcal/kg (air dried); 10-22 percent ash; 6-10 percent moisture (2 percent inherent); 27-25 percent V.M.; less than 1 percent sulfur; high ash fusion. Available in 10-30,000 tonne lots subject to prior commitments.

**P&N Coal Company**  
**240 West Mahoning Street**  
**Punxsutawney, PA 15767**



**Telephone:** (814) 938-7660  
**FAX:** (814) 938-5633  
**Chief Executive Officer:** George D. Prushnok  
**International Sales Manager:** Donald Hudson

P&N Coal Company is a substantial supplier of steam coal to the industrial, utility, and export markets. Because of our strong position in the West-Central Pennsylvania Coal Fields, we are in a position to supply coals covering a full range of quality specifications. We are an independent Pennsylvania producer with a long and enviable reputation as a reliable source of quality steam coal.

Product/Service	Description
Coal Mining	Bituminous coal production in Indiana, Jefferson, Clearfield, and Elk Counties of Pennsylvania.

**Peabody Holding Company, Inc.**  
301 North Memorial Drive  
St. Louis, MO 63102



**Telephone:** (314) 342-3400  
**Telex:** 910-761-0477 **FAX:** (314) 342-3424  
**Chief Executive Officer:** Robert H. Quenou  
**International Sales Manager:** David D. Turnbull (304/344-0300)

**Domestic Offices:** HENDESON, KY: Peabody Coal Company, Hendeson, KY TEL. (502) 827-0800 FAX (502) 827-6166;  
CHARLESTON, WV: Eastern Associated Coal Corp., Charleston, WV TEL. (304) 344-0300  
FAX (304) 340-1838; GILLETTE, WY: Powder River Coal Company, Gillette, WY TEL. (307) 464-0054

Peabody Holding's mining subsidiaries and affiliates make it the largest coal producer in the U.S. Sales from the Peabody companies were 86.7 million short tons in 1989 from 43 mines in 10 states. Reserves owned or controlled include 8.3 billion short tons of steam and metallurgical reserves. Shipments to international destinations accounted for 7 percent of sales and included both steam and met users in 14 countries.

Product/Service	Description
Steam and Met Coal	Peabody's international shipments originate principally from the company's West Virginia mines. These operations produce low sulfur steam and high vol met coal. Statistical process control techniques are used to ensure product quality and consistency. In 1989, Peabody shipped a total of 19 million short tons of Appalachian coal fields.
Transportation	Peabody can ship from several East Coast terminals and through New Orleans. To date, most shipments have transloaded from Dominion Terminal at Newport News, Virginia. Dominion Terminal is owned in part by Peabody.
Customer Services	Coal sourcing, analysis, blending, transportation, testing, and technical assistance. All sales are handled by Peabody Development Company and its subsidiary, Castner, Curran, and Bullitt, Inc.

**Pen Coal Corporation**  
5110 Maryland Way, 3rd Floor  
P.O. Box 2128  
Brentwood, TN 37024-2128

**Telephone:** (615) 371-7330  
**Telex:** 555187 PEN (P&K) NAS **FAX:** (615) 371-1179  
**Chief Executive Officer:** Eddie Pen  
**International Sales Manager:** Marshall Shumate & Joseph Davis, V.P. Sales

**International Offices:** Contact company headquarters for further information

Pen Coal Corporation is a producer, processor, terminal operator and marketing company engaged in the shipment of coal to U.S. and international coal users. Pen Coal's Kiah Creek Reserve in western West Virginia covers 23,000 acres and holds over 100 million tons of recoverable low sulfur coal. Pen Coal also owns two Big Sandy River Coal Terminals and a large interest in the International Marine Terminal near New Orleans, Louisiana. Pen Coal has the capability to export through both East Coast and Gulf ports and ships by rail and river for domestic distribution.

(Continued on next page)

**Pen Coal Corporation (Continued)**

Product/Service	Description
Coal Mining, Processing Marketing and Exporting	Pen Coal Corporation is primarily engaged as a supplier of low sulfur steam coal which generally meets a range of specifications as follows: 0.65-1.50% sulfur, 11000-12500 Btu, 7-15% ash, 5-8.0% moistures, 25-34% volatile matter.

**The Pittsburg & Midway Coal Mining Co.**  
**A Chevron Company**  
**P.O. Box 6518**  
**Englewood, CO 80155-6518**



**Telephone:** (303) 930-3600  
**Telex:** 45-649 **FAX:** (303) 930-4204  
**Chief Executive Officer:** Barry G. McGrath, President  
**International Sales Manager:** M. W. Dix, Jr., Vice President, Marketing

P&M was founded in southeastern Kansas in 1885, making it one of the oldest continuously operating mining companies in America. As a unit of Chevron, P&M combines the resources of one of the largest U.S. corporations with the hand-on operating expertise of a closely run enterprise. P&M and Chevron share a commitment to coal as an essential energy resource for today and for the future.

P&M produced over 15 million tons of coal in 1989 at ten mines located throughout the U.S. The company owns substantial undeveloped reserves located primarily in the southeastern and western U.S.

Product/Service	Description
Metallurgical coal	Production available from the York Canyon Mine at Raton, New Mexico for export from the West Coast or the Gulf.
Steam Coal	Production available from the York Canyon and McKinley mines in New Mexico and from the Kemmerer Mine in Southwestern Wyoming for export from the West Coast or the Gulf.
Undeveloped Reserves	Substantial reserves located in Alabama and Western Kentucky would be suitable for export through the Gulf.

**Shell Mining Company**  
200 North Dairy Ashford  
Houston, TX 77079

**Shell Mining Company**



**Telephone:** (713) 870-3120  
**FAX:** (713) 870-3273

**President:** Jack L. Mahaffey  
**President, Shell Coal Marketing Company:** Kenneth G. Cloninger  
**VP, Shell Coal Marketing Company:** Robert H. Scott

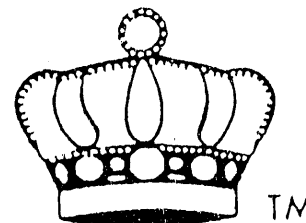
**Domestic Offices:** RICHMOND, VA: 7200 Glen Forest Drive, Suite 200, Richmond, VA 23226 TEL. (804) 673-9001  
FAX (804) 673-9010

Shell Mining Company's commitment to coal began almost two decades ago with exploration and reserve acquisition activities by its parent Shell Oil Company. Shell markets all of its coal through Shell Coal Marketing Company, a division of Shell Mining Company, headquartered in Houston with its export and Eastern U.S. marketing office located in Richmond, Virginia. Shell currently produces coal through six wholly-owned subsidiary mining complexes, placing it among the top 10 producers in the United States. With reserves of more than two billion tons located throughout the U.S., Shell can meet the needs of expanding domestic and export markets will into the 21st Century.

Product/Service	Description
Coal Mining	Shell currently produces coal through six wholly-owned subsidiary mining complexes, with reserves totalling over two billion tons. Shell owns significant coal and lignite reserves in Appalachia, the Illinois Basin, and the Powder River Basin.
Coal Exporters	Export marketing is handled by Shell Coal Marketing's Richmond office. Shell exports coal through the East Coast and the Gulf to numerous customers in Europe, South America and the Far East.
Coal Transportation	Shell operates two modern coal terminals at deepwater ports: Pier IX Terminal Company in Newport News, Virginia, which is served by the CSX, and Shipyard River Coal Terminal in Charleston, South Carolina, which is served by both the CSX and Norfolk Southern Railroads.

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**Sovereign Coal Sales, Inc.**  
Suite 475  
9111 Cross Park Drive  
Knoxville, TN 37923



**Telephone:** (615) 531-5620  
**Telex:** 55-7317 **FAX:** (615) 531-5606  
**Chief Operating Officer:** George Narcavage  
**Director of Export Sales:** Brad Wyatt

**International Offices:** Please contact company headquarters for further information

Sovereign Coal Sales is the exclusive sales representative for Inspiration Coal. Inspiration produces approximately 3 million tons per year of high volatile coking coals as well as utility/industrial coals. Operations are located in the Central Appalachian coal fields and have access to the East Coast ports of Norfolk and Newport News, Virginia, as well as loading facilities located in the Gulf of Mexico.

(Continued on next page)

**Sovereign Coal Sales, Inc. (Continued)**

Product/Service	Description
Harman Mining	Located on the Norfolk-Southern railway system, Harman is a premium high vol. "A" volatile coking coal. Quality specifications are as follows (dry basis): 9% moisture, 6% ash, 29 vol., .90% sulfur, 8-9 FSI, 75 HGI, 28,000+ DDPM, and 200+ ARNU. Production is 1.2 million tons per year.
Sovereign Coal	Also located on the Norfolk-Southern railway system, Sovereign is a producer of both high volatile coking coal and high quality steam and stoker coals. Coking coal quality is as follows (dry basis): 7% moisture, 6% ash, 35 vol., .75% sulfur, 7-9 FSI, 45 HGI, 20,000+ DDPM, 130+ ARNU. Steam and stoker coals fall within the following quality parameters: 5-7% moisture, 5.5-10% ash, 33 vol., .75% sulfur, 13,000-13,500 BTU, 45 HGI, and 2,800+ AFT. Production capacity is 800,000 tons per year.
Wheelwright	Located on the CSX railway system, Wheelwright, which has unit train capability, produces both high quality steam and stoker coals. Quality for both the steam and stoker coals fall within the following quality parameters: 4-7% moisture, 5.5-11% ash, 36 vol., 1% sulfur, 12,000-13,500 BTU, 43 HGI, and 2,600+ AFT. Production capacity is 800,000 tons per year.

**Stone & Webster Engineering Corporation**  
 245 Summer Street  
 Boston, MA 02210



**Telephone:** (617) 589-5111  
**Telex:** W.U. 94-0001 **FAX:** (617) 589-2156, (617) 589-8071  
**Chief Executive Officer:** Frank W. Ries, Chairman  
**International Sales Manager:** Raymond F. Rugg

**Domestic Offices:** CHERRY HILL, NJ; CHICAGO, IL; DENVER, CO; FORT LAUDERDALE, FL; HOUSTON, TX; NEW YORK, NY; SAN FRANCISCO, CA  
**International Offices:** UNITED KINGDOM: Milton Keynes; CANADA: Toronto; Stone & Webster also maintains offices in the following cities: Abu Dhabi, Dammam, Kuala Lumpur and Seoul. Please contact headquarters in Boston for further information.

Stone & Webster Engineering Corporation, which celebrated its Centennial in 1989, is one of the world's largest engineering and construction firms. Since its founding, as a two-man consultancy in Boston, the firm has planned, engineered and provided construction and construction-management services for utilities and industrial power concerns worldwide. Have designed and/or built plants with a total capacity exceeding 50 million kilowatts, the company is considered one of the world's largest and most experienced engineer-constructors of coal power facilities. Over the years, Stone & Webster has helped many domestic and international clients develop technologies that can lead to cleaner and more efficient use of coal. For instance, in the United States the company has conceptually designed integrated gasification/combine-cycle systems for new generating stations and evaluated the use of coal liquids for existing oil-fired station. Stone & Webster also worked on the first utility coal-gasification project in Brazil. Today, we continue to work with government agencies and private firms on new ways to clean and burn fossil fuels. Our development projects include fluid bed combustors, a retrofit combustor system that eliminates a variety of pollutants and a furnace injection system that removes sulfur dioxide. Listed below, are some of the areas in which Stone & Webster applies its consulting, engineering and construction expertise.

Product/Service	Description
Advanced Utilization	Coal processing systems: direct and indirect liquefaction; coal gasification combined cycle power systems; advanced power generation systems; pressurized fluidized bed technology; externally fired high temperature gas turbine combined cycle systems and direct fired dual working fluid power cycles.
Coal Industry	Coal drying technologies: surface and underground coal mining; coal handling; fuel analysis.

(Continued on next page)

**Stone & Webster Engineering Corporation (Continued)**

Coal Mining	Correlation and preliminary evaluation of data; mine planning and engineering design (surface and underground): pit planning and design; underground planning and design, production engineering, land reclamation. Drilling; blasting engineering and optimization; equipment selection and justification; budget review; reserve analysis; haulroad design; coal evacuation and loading design; auxiliary utility design: compressor systems, water piping systems; ventilation design; slope stability engineering; economic analysis; fatal flaw analysis; geological aspects: exploration methods and requirements, preliminary evaluations.
Coal Transport	Railroad construction, design and engineering; truck-shovel optimization; coal slurry technology.
Facility Construction	Silo design and engineering; conveyor systems; coal loadout facilities; crushing operations and design.

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**Sun Coal Company**  
4711 Old Kingston Pike  
P.O. Box 10388  
Knoxville, TN 37939-0388



Telephone: (615) 558-0300  
Telex: 55-7045 FAX: (615) 558-3280  
Chief Executive Officer: Richard W. Ince  
International Sales Manager: David H. Everest, Jr.

Domestic Offices: CHARLOTTE, NC: 5835 Executive Center Drive, Suite 105, Charlotte, NC 28212 TEL. (704) 568-2970;  
LITTLETON, CO: 26 West Dry Creek Circle, Suite 106, Littleton, CO 80120 TEL. (303) 730-1900; PITTSBURGH, PA: 720 Two Gateway Center, Pittsburgh, PA 15222 TEL. (412) 281-4728

Sun Coal Company is one of the largest coal companies in the U. S. with mining operations in Kentucky, Utah, Virginia, West Virginia and Wyoming. The seven different mining operations produce low sulfur coals for the steam and metallurgical markets and are strategically located to supply high quality products to virtually every North American port. Sun also owns and operates a "non-recovery" coke plant of unique design in Virginia and sells high quality furnace coke to the steel industry. Sun Coal Company is a wholly-owned subsidiary of Sun Company, Inc., a major U. S. oil company.

Product/Service	Description
Coal Mining	Sun Coal is a major coal mining company supplying high quality steam coals for the electric utility industry and mid and high volatile coking coals to the steel and ferro-alloy industries. Sun Coal also makes high quality furnace coke with its patented "non-recovery" coke oven technology utilizing its mid volatile coking coal exclusively.
Coal Exporters	
Coal Derivatives	



**Total American Mining, Inc.**  
**Three Allen Center**  
**333 Clay Street, Suite 4800**  
**Houston, TX 77002**



**Telephone:** (713) 655-7900  
**FAX:** (713) 650-8184  
**Chief Executive Officer:**

**Mr. James J. Graham**

**International Offices:**

**FRANCE:** Francois Fiette, Total Mines Nucleaires, Direction Charbon, Tour Total, 24 Cours Michelet, La Defense 10, 92800 PUTEAUX, France TEL. 331.42.91.35.18 FAX 331.42.91.37.61; **HONG KONG:** Claude Bouilly, Total Energy Services (Hong Kong) Ltd., Room 2110, Hutchison House, 10 Harcourt Road, Hong Kong TEL. 852-522019 FAX 852-5-8452093

Total American Mining, Inc. is a corporate affiliate of Total Compagnie Francaise des Petroles, the major French energy group. Total's diversification into mining began in 1975 and now includes coal, uranium, and precious metals activity worldwide. Coal is produced in South Africa. General Management of coal marketing, trading, and shipping is provided by Total Mines Nucleaires. Total Energy Services (Hong Kong) Ltd. was established in 1986 to facilitate business development in the Far East. Total Group is the major shareholder and holds the chairmanship of the Cifra Terminal in La Havre, France.

Product/Service	Designation	Description
Coal Trading	Coal Exporters Coal Industry Coal Transport	Total American Mining, Inc. handles the coordination of coal exporting and trading activities from the United States for the company's worldwide business.

**United Coal Company**  
**Glenway Avenue**  
**P.O. Box 1280**  
**Bristol, VA 24203**



**Telephone:** (703) 466-3322  
**Telex:** 510-580-2108 **FAX:** (703) 466-5641  
**Chief Executive Officer:**  
**International Sales Manager:**

**Mr. Charles T. Carter**  
**Mr. Ralph D. Haring**

**International Offices:**

Please contact company headquarters for further information.

United Coal Company began operations in 1970 with production of 415,000 tons of coal, by 1989 annual production and sales exceeded 12 million tons. United produces a variety of high quality steam and metallurgical coals from its over 1 billion tons of controlled reserves. United exports both steam and metallurgical coal through the major East Coast and Gulf ports. United Coal Company operates both surface and underground mines in Kentucky, Virginia, and West Virginia.

Product/Service	Description
Coal Exports	Steam and metallurgical coal is exported through East Coast ports via the CSX and Norfolk Southern railways. United maintains good commercial relationships with ground storage terminal operations in Newport News, Virginia and the lower Mississippi.

(Continued on next page)

**United Coal Company (Continued)**

Coal Mining                      United's five coal producing divisions operate independently with their own engineering, preparation and loading facilities, quality control laboratories and repair shops.

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**Usibelli Coal Mine, Inc.**  
**P.O. Box 1000**  
**Healy, AK 99743**

**Telephone:** (907) 683-2226  
**FAX:** (907) 683-2253  
**President:**  
**Vice-President Marketing:**

Joseph Usibelli, Jr.  
John Sims

**Domestic Offices:**                      FAIRBANKS, AK: 122 First Avenue, #302, Fairbanks, AK 99701, TEL. (907) 452-2625, FAX (907) 451-6543

Usibelli Coal Mine (UCM) was founded in 1943 and produces ultra-low sulfur sub-bituminous coal. In 1989, UCM produced 705,000 short tons for the power and heating requirements of six Interior Alaska utilities and military bases including a 25 megawatt mine-mouth power plant. An additional 747,000 short tons were exported through the Port of Seward to the Honam Power Plant in Korea. The Usibelli mine, located north of the Alaska Range near the town of Healy, transports its coal north to interior power plants and south to the Seward coal terminal via the Alaska railroad. UCM has a work-force of 105 employees and operates year-round.

UCM is a participant in the Healy Clean Coal Project that was selected for funding under the third round of the Department of Energy's Clean Coal Technology program. The Healy project will construct a 50 megawatt mine-mouth power plant using entrained coal combustion technology developed by TRW and the dry sulfur absorption system developed by Joy Technologies and NIRO Atomizer. The project will test Alaska and other coals during the demonstration phase, and for the balance of the plant life will utilize low sulfur UCM coal, including high ash coal which is presently treated as waste.

Usibelli is also investigating coal drying and mild gasification processes to upgrade UCM's ultra low-sulfur run-of-mine coal into a product or products that will find new domestic and export markets.

Product/Service	Description
Ultra Low Sulfur Steam Coal	Raw steam coal crushed to 2"0". As received analyses (3 year average): 7800 Btu/lb; 26.45% moisture; 8.08% ash; 34.87% volatile matter; 30.6% fixed carbon; and 0.17% sulfur. UCM coal also has a low nitrogen content, a high calcium content and high reactivity.

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**Waterloo Coal Company, Inc.**  
**P.O. Box 626**  
**Jackson, OH 45640**

**Telephone:** (614) 889-1538/(614) 682-7787  
**FAX:** (614) 682-3967  
**President:** T.L. Darlington Jr.

A miner of high quality Ohio coals for over 56 years. We offer sizes from 2 x 0 to speciality screening.

**Westmoreland Coal Company**  
**700 The Bellevue**  
**200 South Broad Street**  
**Philadelphia, PA 19102**



**Telephone:** (215) 545-2500  
**Telex:** (215) 670-4210 **FAX:** (215) 735-7175  
**Chief Executive Officer:** Pemberton Hutchinson  
**International Sales Manager:** John V. Bickford

**Domestic Offices:** CHARLOTTE, NC: 5700 Executive Center Drive, Suite 109, Charlotte, NC 28212; NEWPORT NEWS, VA: Export Shipping Office, 96-24th Street, P.O. Box 536, Newport News, VA 23607

Westmoreland Coal Company, America's oldest independent coal company, is a producer and marketer of low sulfur coal mined primarily from the Central Appalachian region with reserves totalling nearly one billion tons. Westmoreland Coal Sales Company, a wholly-owned marketing and sales subsidiary, excels in export and domestic sales of high quality metallurgical and steam coals from Company mines and other producers. Westmoreland provides its customers with expert transportation management, transshipping internationally through the Gulf of Mexico and Dominion Terminal, in Newport News, VA, another company subsidiary. In addition, the Company also exports coal through non-affiliated piers. Quality assurance is also provided by the Company's own coal research laboratory, Gallagher Coal Research Center.

Product/Service	Description
Hampton/Ferrell Coal	High Grade Metallurgical and Steam: Premium high volatile coals with excellent coking characteristics for efficient metallurgical coke production. High quality steam coal used domestically and internationally.
Winding Gulf/Bonny	Premium Metallurgical: Premium low volatile, low ash coal with excellent coking characteristics for efficient metallurgical coke production.
Douglas	A low-ash premium medium volatile coking coal. Extremely low sulfur and good contraction properties.
Wentz	High Grade, Metallurgical and Steam: A versatile, premium quality, low sulfur coal used in coke-making for its low ash and fluidity, or for steam purposes due to high heat and sulfur properties or it can be sized for stoker applications.
Transloader	Premium Steam: High quality, low sulfur steam coal sold to utilities. The Transloader is capable of storing 84 thousand tons of clean or ROM coal from Company mines with nuclear analyzing, blending and unit train loading ability.
Kentucky Criterion	A high grade low sulfur steam coal exported primarily through the U.S. Gulf and consumed by U.S. electric utilities.
Dominion Terminal Associates	Export shiploading facility: This terminal provides ground storage and product blending, inbound and outbound weighing and sampling capabilities and rapid vessel loading equipment.
Cleancoal Terminal	Rail to river barge transloading facility: River terminal and ground storage facility used to blend and load coal for inland movement to export terminals located in the Gulf of Mexico.
Gallagher Coal Research Center	Coal quality and testing services: Lab provides variety of analytical tests for both met and steam coal customers including petrography, fluidity, and Btu, volatile matter, ash and sulfur determinations.

**Zeigler Coal Holding Company**  
50 Jerome Place  
Fairview Heights, IL 62208

**Zeigler** Coal Company

Telephone: (618) 394-2400

FAX: (618) 394-2515

Chief Executive Officer: M. K. Reilly  
Vice President Marketing & Sales: E. J. O'Neil  
Vice President Sales: J. R. Freeman  
International Sales Manager: B. E. Runyon

Zeigler Coal Company, which has recently purchased Old Ben Coal Company, mines and markets over 15 million tons per year. With well over 100 years of coal mining experience, Zeigler operates nine large mines with modern preparation plants and attractive transportation options. Steam and metallurgical coals and coal blends are marketed in the U.S. and throughout the world. Zeigler also markets coals produced by others under the company names Zeigler Coal Sales Company and Franklin Coal Sales Company.

Product/Service	Description
Old Ben Mine 30	Located in Mingo County, West Virginia. Current annual capacity is 1.3 million clean tons of high volatile and high fluidity metallurgical coal. Transportation for export is via Norfolk, Virginia or rail/barge through Gulf ports.
Illinois Division	Located in Central and Southern Illinois. Six underground mines produce over 11 million clean tons of steam coal per year. Unit trains can be shipped from the mines via Illinois Central, Burlington Northern, CSX, or Union Pacific Systems and shipped direct or barged to Gulf ports for export.
Indiana Division	Located in Pike and Gibson counties, Indiana. Two large area surface mines produce over 4 million clean tons of steam coal per year. Unit trains can be shipped via the AWW Railway which connects with the Norfolk Southern, CSX, and Conrail systems for rail/barge shipments to Gulf ports.

### III. TECHNOLOGY RESOURCES

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**Advanced Utilization:** Providers of technology and equipment designed for utilization in a system environment which allows for combustion of coal without significant air or water pollution or solid waste stream control problems.

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**Acurex Corporation**  
Environmental Systems Division  
555 Clyde Avenue  
P.O. Box 7044  
Mountain View, CA 94039



**Telephone:** (415) 961-5700  
**Telex:** 325961 **FAX:** (415) 964-5145  
**President:** Gilbert Decker  
**International Sales Manager:** David Delasanta

**Domestic Offices:** TRIANGLE PARK, NC: P.O. Box 13109, Research Triangle Park, NC 27709; GOLETA, CA: Santa Barbara Operations, 250 Storke Road, Suite 1, Goleta, California 93117  
**International Offices:** Please contact headquarters for information.

The Environmental Systems Division of Acurex Corporation provides a full range of fuel services to government and industry. These include combustion facility design, operation and maintenance; environmental engineering and pollution control; and emissions sampling and analysis. Through its research for federal and state agencies such as the Environmental Protection Agency, the Gas Research Institute, the Department of Energy, and the California Energy Commission, the division develops technologies for commercial application and is able to provide industry with turnkey, state-of-the-art solutions for all combustion-related environmental engineering needs.

Product/Service	Description
Advanced Utilization	Testing of solvent-refined coal; assessment of clean coal use in stationary and mobile engines; testing of coal-oil mixtures in boilers; fuel staging research; assessment of coal-oil mixtures as light-off fuel; hot gas cleaning technology for coal-fired, pressurized, fluidized bed combustors.
Architecture/Engineering	Prototype design, fabricate and install coal combustion research furnaces. Design, fabricate and install pilot coal gasifiers, and fluidized bed combustors.
Boiler Equipment	Low SO <sub>2</sub> and low NO <sub>x</sub> combustion control technology; boiler modification/engineering; test coal additive to alter flyash characteristics; co-firing of hazardous waste in boilers; perform risk assessment of controlling NO <sub>x</sub> emission from coal utility boilers.
Coal Derivatives	Clean coal use in stationary and mobile engines; demonstrate coal-oil mixture prep plant.
Facility Construction	Construction management; install coal combustion furnace; install pilot coal gasifier; supply anthracite gasifier.
Facility Operation	Operation of coal burning plants/equipment; O&M of fluidized bed combustor.



**AEP Energy Services, Inc.**  
1 Riverside Plaza  
Columbus, Ohio 43215

Telephone: (614) 223-1000  
Telex: 810 482 1627 FAX: (614) 223-1822/1823  
Chief Executive Officer/Chairman: W. S. White, Jr.  
International Sales Manager: Donald A. Dick, Vice President & Managing Director

AEP Energy Services, Inc. (AEPES) is a wholly owned subsidiary of American Electric Power Company, Inc. (AEP), one of the largest electric utility holding companies in the U.S. For more than eighty years, AEP has planned, engineered, designed and constructed the most highly integrated and interconnected system in the world. Today the AEP System consists of over 23,000 MW of generating capacity, over 2,000 miles of 765 kV transmission line and over 100,000 miles of distribution line to provide reliable power to over 2.6 million customers. AEP is one of the largest users of coal in the U.S. and we mine over 11 million tons of coal annually from our four subsidiary mining divisions. Our expertise in utility operations and mining extends from longwall mining and the largest capacity coal washing plant in the U.S. to advanced research in coal utilization. AEPES was established to offer the experience and expertise of AEP and its subsidiaries to foreign and domestic organizations, public and private companies, and government agencies.

Product/Service	Description
Architect/Engineering Services	Power plant, T&D, substation, environmental and mining engineering/consulting; advanced coal utilization technology; testing and training.

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**AFT, Inc.**  
200 Public Square  
21-3604-K  
Cleveland, OH 44114-2375



Telephone: (216) 586-5206  
Telex: 6873120 FAX: (216) 586-5448  
Chief Executive Officer: Jerry J. Oliver  
International Sales Manager: William F. Christensen

**Domestic Offices:** BRIDGEPORT, NJ: 618 Heron Drive, P.O. Box 339, Bridgeport, NJ 08014

AFT, Inc. is involved in the production and marketing of coal fuels that have been beneficiated using AFT's patented SPRAYFLOT™ flotation cells. The company also licenses the technology, sells equipment, and participates in joint ventures worldwide. One of the original developers of coal-water slurries, the company is now able to apply its mineral separation technology to the recovery of fine coal from coal waste stream ..

Product/Service	Description
Coal Derivatives Advanced Utilization	The SPRAYFLOT™ cell can be flotation cell used to effectively reduce ash and sulfur levels in high-ash coal waste streams, while recovering fine coal that cannot be recovered by more conventional means. As the integral part of AFT's unique beneficiation system, it ensures improved separation, selectivity, and recovery, when compared to conventional flotation methods.

**Ahlstrom Pyropower**  
**5120 Shoreham Place**  
**San Diego, CA 92122**



**Telephone:** (619) 458-3000

**Telex:** 506-170

**President:**

Mr. Eric Oakes

**Director, International Marketing:**

Mr. Harry Lampenius

**Domestic Offices:**

SAN DIEGO, CA: Pyropower Corporation, Mr. William Compas, President, 5120 Shoreham Place, San Diego, CA 92122 TEL. (619) 458-3000; Pyropower Development Corporation, Mr. Ed Landry, President, 5120 Shoreham Place, San Diego, CA 92122 TEL. (619) 458-3000

**International Offices:**

FINLAND: Ahlstrom Boilers, Mr. Teuvo Pullkinen, General Manager, P.O. Box 184, SF-78201 Varkaus, Finland TEL. (358) 72 211; ENGLAND: Ahlstrom Pyropower Development Ltd., Mr. Robert Ciavarella, Managing Director, Ahlstrom House, 3, The Quintet, Churchfield Road, Walton on Thames, Surrey KT12 2TW TEL. (0932) 243477; JAPAN: Shinko Pyropower, Mr. Keisuke Shimizu, Managing Director, Tatsunuma Building, 3-19 Yaesu, 1-Chome, Chuo-Ku, Tokyo, Japan TEL. 3-218-6601

Ahlstrom Pyropower Inc., headquartered in San Diego, California, was formed September 1, 1989, to consolidate the power boiler activities of the A. Ahlstrom Corporation, a Finnish based international industrial group.

Ahlstrom Pyropower, Inc. is a global energy company that develops power plants burning coal and other solid opportunity fuels in AHLSTROM PYROFLOW® Circulating Fluidized Bed (CFB) Systems. In addition to coordinating the deliveries of industrial and utility boilers worldwide, Ahlstrom Pyropower oversees the operations of Ahlstrom Boilers, Pyropower and Pyropower Development Corporation, the Hans Ahlstrom Laboratory and Ahlstrom Pyropower's Research and Development Center.

Product/Service	Designation	Description
Special Coal System	CFB	The first commercial CFB boiler built was an Ahlstrom Pyroflow Boiler, and it was started up in 1979. Pyroflow is the trade name for CFB boilers developed by Ahlstrom. There are over 90 Ahlstrom Pyroflow units in operation or under construction worldwide, with over 200 unit years of operating experience.
Alternate Coal System	CFB	Pyroflow CFB boilers are suitable for burning coal, peat, bark, wood waste, and other indigenous fuels.

**ARCTECH, Inc.**  
**5390 Cherokee Avenue**  
**Alexandria, VA 22312**



**Telephone:** (703) 642-4190

**FAX:** (703) 642-4021

**Chief Executive Officer:**

Dr. Daman S. Walla

**International Sales Manager:**

Terry L. Seymour

ARCTECH, Inc. is a "spinoff" company organized by the Atlantic Research Corporation of Alexandria, Virginia. ARCTECH is focusing on development and marketing of coal bioprocessing technologies and products. The ARCTECH group pioneered biotechnology research to remove organic sulfur from coal, and convert coal into clean fuels like methane and oxygenated alcohol fuels. One of the by-products of ARCTECH's coal technologies is organic base fertilizer, termed as "ACTOSOL." ARCTECH is now actively marketing the ACTOSOL in the United States and seeks to develop an international market for this product. ARCTECH also provides services to develop bioprocess technologies for specific coal resources.

(Continued on next page)

**ARCTECH, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
ACTOSOL	ACTOSOL is a coal derived organic base fertilizer designed for retail and commercial use. The humic acids are extracted from the coal with the ARCTECH proprietary technology and formulated into a fertilizer with the required nutrients. The humic acids are known to act as nutrient activators and this new product is a preferred fertilizer over the commercial inorganic fertilizers.
Bioprocess Technology	ARCTECH provides services to develop bioprocessing technology for specific coal resources. To date most of the technology development is for low rank coals such as brown coals, lignite, and sub-bituminous.

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**Arthur D. Little, Inc.**  
**Acorn Park**  
**Cambridge, Massachusetts 02140**

**Arthur D Little**

**Telephone:** (617) 864-5770  
**Telex:** 921436/921435 **FAX:** (617) 661-5830, 661-5831, 661-1622  
**Chief Executive Officer:** C.R. LaMantia  
**International Sales Manager:** H.A. Riker

**Domestic Offices:** CAMBRIDGE, MA; NEW YORK, NY; SAN FRANCISCO, CA; LOS ANGELES, CA; HOUSTON, TX; WASHINGTON, DC  
**International Offices:** Offices worldwide; please contact company headquarters for further information.

Arthur D. Little, Inc., is an international management and technology consulting firm. Since 1886, Arthur D. Little has helped clients benefit from change by applying science, technology and advanced management concepts, and translating plans into action. Today, with a total staff in excess of 2500, about half of Arthur D. Little's work is in management consulting and half is in applied research in the physical and life sciences and engineering. Since the resurgence of interest in coal in the late 1960s, Arthur D. Little has been active in many aspects of the coal business -- management, mine engineering, acquisitions, coal procurement/contracting, utilization, gasification and advanced combustion research. Arthur D. Little's experience includes both metallurgical and steam coal.

<b>Product/Service</b>	<b>Description</b>
Advanced Utilization	Arthur D. Little is active in evaluating the feasibility of, and making technical recommendations on, emerging clean-coal technologies. Assignments for clients include: atmospheric, circulating, and pressurized fluidized bed combustion; integrated gasification/combined cycle, clean fuels and alternative fuels; emission control equipment.
Coal Industry	For a wide range of clients, Arthur D. Little is active in all phases of coal industry activity. Assignments include property evaluations, productivity improvement, coal preparation, transportation, contract negotiation, market assessment, pricing policy/forecasts, and strategic planning.



**ASEA Babcock**  
One Park Centre, Ste 301  
Wadsworth, OH 44281



**Telephone:** (216) 334-2504  
**FAX:** (216) 336-8662

**Chief Executive Officer:** Dr. Charles J. Baroch

**International Offices:** SWEDEN: Krishna Pillai, ABB Carbon AB, S-612 20 Finspong TEL. 46-122-81694, FAX 48-122-18708

ASEA Babcock is a partnership between ABB Carbon and Babcock & Wilcox and provides project engineering, marketing and servicing of Pressurized Fluidized Bed Combustion (PFBC) power plants in the United States. The plants are designed to meet the needs of the utility, cogeneration and industrial markets for clean, economic fossil-fired power plants in the capacity range from 80 to 1000 MWe. Units are sold for both new capacity and repowering of existing plants. Through the partnership with Babcock & Wilcox (B&W), a subsidiary of McDermott, Inc., ASEA Babcock offers a leading worldwide supplier of fossil-fueled steam generating equipment and a principal producer of fuel and equipment, specialty tubing and process controls. ABB Carbon is one of the world's leading electrical and electronics supplier. Its business is based primarily in the power, industrial equipment and transportation sectors. In the power sector, ABB is a leading supplier of equipment and installations, power transmission and distribution for hydro, nuclear as well as fossil power stations.

Product/Service	Description
Advanced Utilization	PFBC Combined Cycle plants provide low cost power generation in an environmentally acceptable manner while burning a wide range of coals. A PFBC plant can achieve thermal efficiencies exceeding 40% with a levelized bus-bar cost below any competing coal technology. In addition to the economic benefits, the built-in feature of environmental control (both SO <sub>x</sub> and NO <sub>x</sub> ) in the combustion process eliminates the need for any gas clean-up such as scrubbers. Potential benefits of this technology include: High Power Density - less combustor weight and volume for the same power output; smaller size permits increased modular construction; modular construction allows for greater shop fabrication, reduced construction time, higher quality control and standardization. Deep Fluidized beds - Higher combustion efficiency approaching 100%; lower sorbent requirements for the same sulfur capture. Excellent NO <sub>x</sub> control. Higher heat transfer rates to inbed tube surface resulting in less surface for a given power output. Fuel flexibility. High thermal efficiency-Heat rates 10 to 15 percent lower than an AFBC or CBFC simple cycle plants. The lower fuel requirements for the same power output and the lower sorbent requirements for PFBC also mean significantly less total ash and therefore less solid waste.

**Babcock & Wilcox**  
Power Generation Group  
20 S. Van Buren Avenue  
Barberton, OH 44203-0351



**Babcock & Wilcox**  
a McDermott company

**Telephone:** (216) 753-4511  
**Telex:** 986406 **FAX:** (216) 860-1886

**Chief Executive Officer:** Robert E. Howson (McDermott International, New Orleans, LA office)  
**International Sales Manager:** Ian K. Anderson (Cambridge, Ontario office)

**Domestic Offices:** NEW ORLEANS, LA: McDermott International, 1010 Common Street, New Orleans, LA 70160  
**International Offices:** CAMBRIDGE, ONTARIO: Babcock & Wilcox International, 581 Coronation Boulevard, Cambridge, Ontario N1R 5V3

The Babcock & Wilcox company has been a leader in coal-fired steam boilers ever since George Babcock & Stephen Wilcox were granted a patent on the safety tube boiler in 1867. Today, B&W builds coal-fired boilers with steaming capacities from 100,000 pounds per hour up to 9,300,000 pounds per hour. Reliable operation has always been a key goal. American Electric Power operated its Mountaineer power plant -- including a B&W 1300 MWe boiler -- continuously for 607 days in 1986 and 1987. Let us provide you with the same quality.

(Continued on next page)

**Babcock & Wilcox (Continued)**

Product/Service	Description
Boilers	Conventional boilers fired by stoker or pulverized coal. Fluid bed boilers of bubbling, circulating, and pressurized design.
Burners	Conventional and low NO <sub>x</sub>
Pulverizer Mills	Our rugged MPS model mill has been proven in over 600 units on a wide variety of coals.
Env. Control Systems	In cooperation with the Clean Coal Program of the U.S. Department of Energy, B&W has demonstrated sulfur removal in the lower furnace (fluid bed), the upper furnace (LIMB), the boiler back end (LIDS), and in the precipitator (ESO <sub>x</sub> ). Consider B&W if you need a customized retrofit application to minimize sulfur.
Flue Gas Desulfurization (scrubbers)	B&W scrubbers are in operation and construction from 25 MW, to 1300 MW, using lime, limestone, thio-sorbic lime, and sodium.

**Baker/TSA, Inc.**  
**Airport Office Park, Building 3**  
**420 Rouser Road**  
**Coraopolis, PA 15108**



*"50 Years of  
 Shaping the World  
 in Which We Live"*

**Baker/TSA, Inc.**

**Telephone:** (412) 269-6000

**Telex:** 866287 **FAX:** (412) 269-6097

**Chief Executive Officer:**

C. Joseph Touhill, Ph.D., P.E.

**International Sales Manager:**

John D. Whiteford

**Domestic Offices:**

MERRILLVILLE, IN: 701 East 83rd Avenue, Merrillville, IN 46410 TEL. (219) 736-0263; JACKSON, MS: 3957 Northview Drive, Jackson, MS 39206 TEL. (601) 362-5481; WESTBORO, MA: Lyons Street, Westboro, MA 01581 TEL. (508) 366-9191; HALLOWELL, ME: 103 Water Street, Hallowell, ME 04347 TEL. (207) 622-3724.

**International Offices:**

Locations pending, please contact company headquarters for further information.

Baker/TSA, Inc. is the environmental management unit of the Michael Baker Corporation, a full service architectural, engineering and planning firm established in 1940. The firm has a long history of providing professional services to the coal industry and major consumers of coal, including the electric utility and steelmaking industries. Specific coal related services include by-product disposal and utilization investigations, landfill design and permitting, economic evaluations and regulatory impact analyses. Clients include the Electric Power Research Institute, National Coal Association/American Mining Congress, Consolidation Coal Company, USX Corporation, Bethlehem Steel Corporation, and Armco Steel Corporation.

Product/Service	Description
Emissions Control and Waste Disposal Systems	A full range of emission control by-products utilization and disposal services are offered. Baker/TSA, Inc. is capable of evaluating a full range of combustion and emission control technologies.
Advanced Utilization	A full range of emission control by-products utilization and disposal services are offered. Baker/TSA, Inc. is capable of evaluating a full range of combustion and emission control technologies.
Utilities	A full range of emission control by-products utilization and disposal services are offered. Baker/TSA, Inc. is capable of evaluating a full range of combustion and emission control technologies.
Architecture/Engineering	Various units of the Corporation provide a full spectrum of A/E services including environmental engineering, geophysical testing, geotechnical engineering, mining engineering, industrial hygiene, asbestos abatement design, architecture, civil engineering, structural engineering, electrical engineering, mechanical engineering, and fire protection design.

**Battelle**  
**505 King Avenue**  
**Columbus, OH 43201**



**Telephone:** (614) 424-6424

**Telex:** 24-5454 **FAX:** (614) 424-5263

**Chief Executive Officer:** Dr. Douglas E. Olesen

**International Sales Manager:** Mr. John S. Christie

**Domestic Offices:** RICHLAND, WA: Battelle Boulevard, Richland, WA 99352 TEL. (509) 375-2121

**International Offices:** GERMANY: Am Romerhof 35, Frankfurt Germany TEL. 49-69-79080; SWITZERLAND: 7, route de Drize, Carouge-Geneva TEL. 41-22-270270

Battelle assists industry and government in developing, commercializing, and managing technology. With a wide range of scientific and technical capabilities, Battelle solves problems, develops and improves products and processes, provides on-site technical assistance, and manages large, complex technology programs. Its 7,500 staff serve clients in more than 30 countries with other offices in many of the largest cities in the world. Battelle was founded by Ohio industrialist Gordon Battelle, who recognized that a constantly changing world can be improved through advances in technology and education.

Product/Service	Description
Coal Utilization Technologies	A multiclient effort to identify and assess new coal utilization technology is now in its ninth year of operation. There are no significant penalties for late participants.
Fluidized-Bed Technology	Extensive experiences with multisolid fluidized-bed technology is available for use in various applications including combustion, gasification, desulfurization, etc. Some uses are now available only through licenses.
New Materials	As in most applications, the performance of materials eventually becomes the primary factor limiting usage. Battelle has numerous ongoing programs to assist in problem definition and materials selection with regard to various coal utilization technologies.
Coal Beneficiation	Processes for advanced treatment of coal is an area of much current activity with substantial patent protection now being developed. Use of combined fields and application of genetic manipulation of biological agents are under study.
Emissions Control	The research area still receiving much attention is the development of improved technology for the control of emissions, including hydrothermal treatment, means to optimize cleaning plants, high temperature combustion systems, fiber filters, use of additives, improved wet-scrubbing processes, and waste utilization and disposal.
Process Optimization	One of the key aspects of any new technology is proper modeling of the system before construction and installation of the full scale system. Battelle has provided pioneering of this service in this area over the years.

**Bechtel Enterprises, Inc.**  
Fifty Beale Street  
San Francisco, Ca 94105-1895



Telephone: (415) 768-6745  
Telex: 184907 BECHTEL SFA FAX: (415) 768-1416 or 2154  
President: Mr. John W. Weiser  
International Development: Mr. Philip J. Luks

**Domestic Offices:** GAITHERSBURG, MD: Ronald L. Lillejord, 15740 Shady Grove Road, Gaithersburg, MD 20877-1454  
TEL. (301) 258-3766 FAX (301) 258-7616

**International Offices:** ENGLAND: Charles W.G. Allen, 245 Hammersmith Road, London, W6, 8DP; TEL. (44-81) 846-5951,  
FAX (44-81) 846-6940; HONG KONG: Steven C. Williams, 94 Granville Road, Tsimshatsui East, Kowloon;  
TEL. (852-3) 672047 FAX (852-3) 7243429; SAUDI ARABIA: P. Lewis Davies, P.O. Box 10488, Riyadh  
11433 TEL. (966-1) 482-9051 FAX (966-1) 482-9563

As a developer and merchant banker subsidiary of Bechtel Group, Inc., one of the world's leading engineer-constructors, Bechtel Enterprises provides a full spectrum of project services to assist clients develop projects. Services include economic, financial, and technical feasibility studies; preliminary engineering; site selection and acquisition; formation of development partnerships; structuring of commercial arrangements, such as sales contracts, supply arrangements, operating arrangement, and construction contracts; arranging debt and equity financing; permitting and approvals; and startup and operations. Bechtel Enterprises has funded development efforts and taken equity positions on projects throughout the world.

Product/Service	Description
Development	Bechtel Enterprises works with developers from concept through startup and operations and can utilize Bechtel's considerable technical and engineering resources. Experience includes coal-fired power and cogeneration facilities, coal gasification, mining, marine terminals, coal slurry pipelines, and other projects.
Financing	Bechtel Enterprises has arranged over \$7 billion in project financing over the last decade from international sources, such as commercial banks, export credit agencies, international financial institutions, bilateral agencies, and other sources.
Operation	Bechtel Enterprises is experienced in starting up and managing the operations of power and other facilities.

**Bechtel Power Corporation**  
9801 Washingtonian Boulevard  
Gaithersburg, MD 20878-5356



Telephone: (301) 417-3000  
Telex: (301) 374-6647 FAX: (301) 926-6003  
Chief Executive Officer: A. Zaccaria  
Vice President and Manager: R.W. Haviland

Bechtel Power Corporation, a member of the Bechtel group of companies, is well-known throughout the world as a premier engineering/construction/management firm specializing in a wide range of services to the power industry. Bechtel's experience includes operating plant services, and the engineering and construction of over 250 fossil-fired units. Services provided to the power industry include planning, engineering studies, environmental licensing, emission control, detailed engineering, procurement, construction, construction management, project management, start-up, plant operation, availability improvement, and plant life-cycle management services.

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**Bechtel Power Corporation (Continued)**

<b>Product/Service</b>	<b>Description</b>
Advanced Coal Utilization	Solid Fuels Management - Services to assess the physical and chemical qualities of coal. Services to develop and build coal transport, handling, and beneficiation systems to provide a fuel which best matches the boiler and emission control requirements. Conceptual design, detailed system design, and equipment selection for fuel systems from the mine to the boiler; Coal Technology - Services to provide feasibility studies, economic evaluations, conceptual design, cost estimates, detailed engineering, procurement, and construction utilizing advanced, coal technology such as direct and indirect liquefaction/gasification combined cycle plants; atmospheric and pressurized fluidized bed combustors; pulverized coal-fired plants with wet or dry flue gas desulfurization systems. Services to provide conceptual designs and cost estimates for the commercialization of advanced cleaning, drying, and wet carbonization technologies and processes under development. Design, construction, and operation of pilot plants and proof-of-concept test facilities; New Fuel Forms - Services to design and build process, transport, and distribution facilities for new fuels form coal such as coal-water slurries, agglomerated fine coal, and dewatered lignite;
Architect/Engineer	Architect/engineer and construction services to domestic utilities, independent power producers, and cogenerators including operation of fossil-fired plants. Full service turnkey programs including lump sum contracting, economic and technical feasibility studies, environmental licensing, project management, and start-up services. Operating plant services including refurbishment, availability improvement, and life cycle management.

**Carnot**  
 15991 Red Hill Avenue  
 Suite 110  
 Tustin, CA 92680



Telephone: (714) 259-9520  
 FAX: (714) 259-0372  
 Chief Executive Officer:  
 International Sales Manager:  
 Manager, Utilities Systems:  
 Director of Testing Services:

Barry L. McDonald  
 Mark D. McDannel  
 David O. Czerniak  
 Robert A. Finken

Carnot is a consulting and engineering organization specializing in fuels, fuels utilization, combustion and combustion-generated air pollution emissions, emissions control, emissions testing, and regulatory affairs. The organization possesses technical expertise for a variety of stationary combustion device types including utility and industrial boilers; municipal solid waste and other refuse-fueled boilers; as well as medical and hazardous waste incinerators, fluidized-bed boilers; and simple-cycle, combined-cycle, and cogeneration gas turbines and a variety of specialized process equipment.

<b>Product/Service</b>	<b>Description</b>
Emissions Control, Process Improvement	Carnot offers unbiased expertise in the selection of appropriate control technologies (many of which its people helped pioneer). Carnot's philosophy is that combustion-generated air pollutant emissions should and can be controlled using the most-effective available technique with the least impact upon unit operating flexibility and thermal performance. Carnot has experience with devices burning conventional fuels (i.e., coal, natural gas, fuel oil, etc.), as well as less-common fuels such as petroleum coke, refinery gas, wood and agricultural wastes, coal-water slurries and coal-oil mixtures, oil-water emulsions, municipal solid waste, landfill gas, and methanol. Carnot's emissions expertise covers a wide variety of species including NO <sub>x</sub> , SO <sub>x</sub> , CO, particulates of all types, metals, organics, and other toxics.
Research, Development, and Design	Carnot uses its combustion and process expertise to design investigative programs to solve many different real-world process and emissions problems. The company has conducted many successful technology demonstrations and aided in their development. Our expertise includes advanced burner and combustor design, post combustor controls, reagent injection for emissions reduction, and emissions control planning. When appropriate, Carnot designs small scale experimental simulators and laboratory investigations for novel problems.

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### Carnot (Continued)

**Emissions Testing** Carnot provides a full range of in-house testing and process equipment including mobile laboratories, continuous emission monitors, and sampling methodologies for virtually any industrial pollutant of concern in liquid, solid, and gaseous streams.

**Regulatory Engineering** Carnot's regulatory staff keeps abreast of domestic and international affairs and offers assistance in permitting and siting projects, especially those of a unique nature. Carnot has helped its clients meet some of the most demanding emissions regulations in the world.

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**CLI Corporation**  
430 Park West One  
Pittsburgh, PA 15275



**CLI CORPORATION**  
*Engineers and Contractors*

**Telephone:** (412) 788-6688  
**FAX:** (412) 788-6690  
**Chief Executive Officer:**  
**International Sales Manager:**

David G. Chedgy  
David G. Chedgy

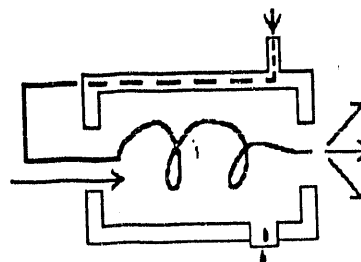
**International Offices:** Please contact company headquarters for further information.

CLI Corporation is a major design and construction company in the coal and mineral industry. The Corporation specializes in feasibility studies, definite estimates, engineering, and turnkey construction for coal preparation and other mineral processing plants and the associated material handling systems. The Company also produces specialty equipment related to the processing industry. A subsidiary company is also involved in contract operations of mining facilities. The Company has internationally recognized coal and mineral processing specialists and a full complement of professional engineers and construction specialists.

Product/Service	Designation	Description
Architecture/ Engineering	CLI-1	Conceptual, preliminary, and actual design of coal and mineral process plants and material handling systems, including conveying, blending, and storage.
Coal Mining	CLI-2	Contract operations of mines and processing plants, including owner/operator contracts. Major coal processing of contracts of 1200 TPH presently under contract.
Facility Construction	CLI-3	Construction of turnkey or negotiated process plants and material handling facilities.
Advanced Utilization	CLI-4	Producer of ultra-low ash and sulfur coal and coal water slurries (CWS).

**Coal Tech Corp.**  
**P.O. Box 154**  
**Merion Station, PA 19066**

**COAL TECH CORP**  
 Merion, PA



**Telephone:** (215) 667-0442  
**FAX:** (215) 667-6632  
**Chief Executive Officer:**  
**International Sales Manager:**

**Dr. Bert Zauderer**  
**Dr. Bert Zauderer**

**Domestic Offices:**

**MERION STATION, PA: 275 N. Highland Avenue, Merion Station, PA, 19066 TEL. (215) 667-0442**

For the past decade, Coal Tech has developed an advanced air cooled combustor which has to-date demonstrated 80+% ash retention in the form of inert slag, 2/3 reduction of NO<sub>x</sub>, and over 80% reduction of SO<sub>2</sub> emissions. The combustor has been tested on a 20 MMBtu/hr [5040 kcal/hr] boiler since early 1987. It can economically retrofit oil/gas designed industrial and utility boilers to coal or solid waste fuels, and convert ashes with leachable heavy metals to inert slag. Coal Tech plans to market and/or license the combustor for these applications, and to continue combustor development in the areas of solid waste disposal.

**Product/Service**

**Description**

**Advanced Utilization (CCT)**

Coal Tech is seeking to form a joint venture with an international energy concern to demonstrate the combustor at the 100+ MMBtu/hr scale for large industrial/utility boilers with coal/solid waste fuels.

**Facilities Construction/ Technical Consultants**

Coal Tech will design, and fabricate test facilities using the Coal Tech combustor at the 2 to 50 MMBtu/hr scale. It can provide technical services in the slagging combustion field, as well as test a client's fuels at its 20 MMBtu/hr combustor facility.

**Emission Controls & Waste Disposal System**

The Coal Tech combustor is available for licensing for use in organic chemical wastes incineration for conversion of leachable ashes/solids to inert slag.

**Combustion Power Company**  
**1020 Marsh Road, Suite 100**  
**Menlo Park, CA 94025**



**Combustion<sup>®</sup>  
 Power  
 Company**

**POWER IS OUR MIDDLE NAME™**

**Telephone:** (415) 324-4744  
**FAX:** (415) 324-0788  
**Chief Executive Officer:**  
**International Sales Manager:**

**Frank Walton**  
**Don L. McKenzie**

**Domestic Offices:**

**RIDGEWOOD, NEW JERSEY: 1200 E. Ridgewood Avenue, Ridgewood, NJ 07450 TEL. (201) 652-9298,  
 FAX (201) 652-2896**

Since 1968, Combustion Power Company has been a U.S. industry leader in the development and sales of high performance, low-emission fluidized bed combustion technology. In addition to its patented FI CIRC™ circulating fluidized bed boiler, which has been setting new industry standards for low emissions, Combustion Power offers fluid bed combustion for sludge incineration, gasifiers and air heaters, and is pioneering in high pressure, high temperature granular bed filter systems for cleaning of hot flue gases in high temperature/pressure applications.

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### Combustion Power Company (Continued)

Product/Service	Description
FI CIRC™. Circulating Fluid Bed Combustor Boiler.	A unique, patented circulating fluidized bed boiler system capable of achieving extremely low emissions: >99% combustion efficiency, sulfur suppression above 98% and NO <sub>x</sub> suppression efficiency >90%.
Fluid Bed Combustors	Custom engineered fluidized bed combustion systems for low capital cost sludge incineration gasifiers and air heaters.

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**Consolidation Coal Company**  
**Consol Plaza**  
**1800 Washington Road**  
**Pittsburgh, PA 15241**



**Telephone:** (412) 831-4382  
**Telex:** 247-634 **FAX:** (412) 831-4571  
**Chief Executive Officer:** B. R. Brown  
**International Sales Manager:** Walter E. Schrage

**Domestic Offices:** NORFOLK, VA: 201 Granby Mall, Suite 216, Norfolk, VA 23510 TEL. (804) 627-6261, FAX (804) 625-5088, TELEX 240403 CONSOL NORF; BALTIMORE, MD: Consolidation Coal Sales Company Terminal, 3800 Newgate Avenue., Baltimore, MD 21224 TEL. (301) 631-7000, FAX (301) 631-7022  
**International Offices:** BELGIUM: Godefroid Coal Trading and Shipping S.A., 37-41 Rue du Congress, Brussels 1000 Belgium TEL. 011-32-2-218-7220, FAX 32-2-218-6192, TELEX 846-21434

Consolidation Coal Company (Consol) operates 25 underground and surface mines in nine states and Alberta, Canada. The company is the second-largest coal producer in the United States and hold 6.1 billion tons in steam and metallurgical-grade coal reserves. More than 80 percent of Consol's annual production of more than 55 million tons of steam coal for electricity generation. Nearly 11 million tons of high-grade metallurgical coal is produced annually. Consol mines are linked to major rail routes or the inland waterway for shipment to domestic customers and to exporting points on both coasts and the Gulf of Mexico.

Product/Service	Description
Steam Coal	Consol has exported steam coal since the early 1900s. Today Consol exports steam coal to eight countries from mines in northern West Virginia, southwestern Pennsylvania and eastern Kentucky. Exporting points are Consolidation Coal Sales Company's (CCSC) terminal in the Port of Baltimore or terminals in Hampton Roads, Virginia and New Orleans, Louisiana.



**CQ Inc.**  
**One Quality Center**  
**P.O. Box 280**  
**Homer City, PA 15748**



**Telephone:** (412) 479-3503  
**FAX:** (412) 479-4181  
**Chief Executive Officer:**  
**International Sales Manager:**

**Mr. Clark D. Harrison**  
**Mr. James W. Parkinson**

**International Offices:** Please contact company headquarters for further information.

CQ Inc. -- a wholly owned subsidiary of the Electric Power Research Institute -- specializes in coal cleaning, both conventional and advanced, to reduce power plant emissions, improve power plant performance, and improve the economics of generating electricity. CQ Inc. project managers have an average of 15 years of coal quality and project management experience. They have comprehensively characterized coals of all ranks, established a coal quality database, published a series of guidelines for analyzing coal, demonstrated and tested various coal cleaning equipment, developed a computer program to test sampler bias, and implemented successful technology transfer programs through videotapes and printed materials. Customers include coal-burning utilities, coal companies, equipment manufacturers, and government and private agencies.

<b>Product/Service</b>	<b>Description</b>
Technology Demonstrations	Demonstrates new coal cleaning processes and equipment at small commercial scale to speed commercialization of promising coal processing equipment.
Coal Weighing, Sampling, and Analysis Systems	Implements accurate coal weighing, sampling, and analysis systems to monitor the quality and quantity of coal inventories and fuel consumed.
Customized Coal Production	Produces customized coal, including coal-water slurries, to exacting specifications.
Coal Quality Control	Determines the extent that individual coals can be altered to reduce their sulfur content, lower impurities, and improve handling behavior.
Technology Transfer	Trains cleaning plant operators and utility staff how best to clean, sample, analyze, and weigh coal. Also produces technology transfer materials such as brochures, videotapes, and educational materials.

**Dorgan Associates, Inc.**  
**5610 Medical Circle, Suite 31**  
**Madison, WI 53719-1227**



**Dorgan Associates, Inc.**  
**Consulting Engineers and Scientists**

**Telephone:** (608) 273-0044  
**FAX:** (608) 273-0614  
**Chief Executive Officer:**  
**International Sales Manager:**

**Dr. Charles E. Dorgan, P.E., Ph.D.**  
**Mr. Eric T. Truelove, P.E.**

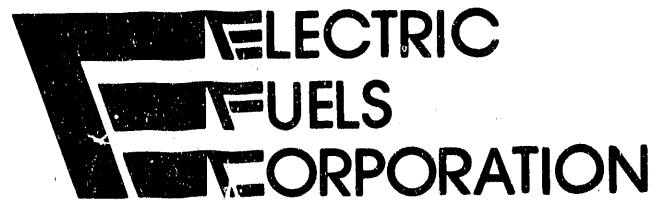
Dorgan Associates is a consulting engineering firm specializing in energy use, storage, and production technologies. Past and present customers include the Electric Power Research Institute (EPRI), major utilities throughout the United States, government agencies, engineering firms, and manufacturers. Dorgan Associates has produced the Cold Air Distribution Design Guide (EPRI EM-5730) and the Field Evaluation of Cold Air Distribution Systems guide (EPRI EM-5447). In addition, Dorgan Associates has developed and conducted courses in energy engineering, energy management, thermal storage, and HVAC. These courses have been conducted throughout the United States, Canada, Asia, and Africa.

(Continued on next page)

**Dorgan Associates, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Advanced Utilization	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.
Architecture-Engineering (A&E)	Provide engineering consultation for energy use, storage, and production technologies.
Facility Construction	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.
Facility Operation	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.

**Electric Fuels Corporation**  
235 Third Street South  
P. O. Box 15208  
St. Petersburg, FL 33733



Telephone: (813) 892-2700  
Telex: 514168 FAX: (813) 892-2702  
Chief Executive Officer: Richard D. Keller  
International Sales Manager: Robert Ramey

Electric Fuels Corporation (EFC) through its many subsidiaries is involved in coal mining, coal transportation, coal transfer facilities, fuel research in the coal area and the development of coal-based alternative fuels. Electric Fuels has developed a coal management system that has proved to be successful and highly competitive in supplying coal from mine site to the customer. This fully-integrated system is composed of five essential groups: coal, operations, marine and terminaling, alternative fuels and international marketing. The integration of these groups under Electric Fuels' management provides the necessary exposure to all phases of the coal industry.

<b>Product/Service</b>	<b>Description</b>
Advance Utilization	With access to experts in virtually every application of coal combustion, Electric Fuels can provide qualified technical know-how in the areas of ash utilization, mineral and metal recovery from ash and in ash disposal. From start to finish, Electric Fuels' customers are assured of experienced assistance with all their coal handling needs. EFC has developed services ranging from field and laboratory functions to advanced computer support.
Coal Derivatives	Electric Fuels' involvement in the development of alternative fuels is through COMCO, a leader in the manufacture of coal-oil mixture (COM), coal-water mixture (CWM) and petroleum coke-oil mixture (PETCOM). Coal-liquid mixtures are produced at COMCO's Port Sutton, Florida facility. REDICOAL, COMCO's new powdered coal product for industrial and utility use, has proved to be an economical replacement for fuel oil and natural gas.
Coal Mining	The coal group is responsible for the mining and preparation of coal from sites containing approximately 215 million tons of reserves located in the states of Virginia, West Virginia and Kentucky. Origin points have capability to load both trucks and unit trains.
Coal Transport	Marine Equipment Management Corporation, a wholly-owned subsidiary, handles coal from all inland river origins in either single barge or unit tow lots. Standby loading is available. Covered barges are available. MEMCO also offers switching and fleetling services at various Mississippi River ports.  Dixie Fuels Limited offers handling, storing, terminaling and transporting bulk cargo by sea-going marine transportation equipment.

(Continued on next page)

## Electric Fuels Corporation (Continued)

### Facility Operation

International Marine Terminals is a bulk materials handling facility strategically located near the mouth of the Mississippi River. The recently expanded terminal consists of modern facilities, ground storage/blending and a coal testing laboratory operated by an independent agent.

Hatfield Terminals operates transfer facilities in Cincinnati, Ohio, on the Ohio River and near Charleston, West Virginia, on the Kanawha River.

Kentucky May Coal operate a coal transfer facility on the Big Sandy River.

## Electric Power Research Institute

3412 Hillview Avenue

P.O. Box 10412

Palo Alto, CA 94303

# EPRI

Telephone: (415) 855-2000

Telex: 910-373-1163 EPRI PLA FAX: (415) 855-2954

Chief Executive Officer:

Richard E. Balzhiser

International Sales Manager:

Jay Kopelman

### International Offices:

Please contact EPRI headquarters for further information.

The Electric Power Research Institute (EPRI) manages a program of collaborative research and development on behalf of the U.S. electric utility industry and its customers. Funded through voluntary contributions by some 660 member utilities, EPRI's work covers a broad range of technologies related to the generation, delivery, and use of electricity.

### Product/Service

### Description

Development of new efficient applications of electricity

Selected key products, among dozens, include a warm air heat storage furnace, an optimal controller for cool storage, an advanced variable speed heat pump, an arc furnace dust treatment process, an electric van, probabilistic and scenario forecasting guidebooks, residential customer preference models, a demand-side planning workstation, a commercial unitary dual-fuel heat pump, and a storage heat pump water heater.

Development of cost-effective and safe technologies that address environmental issues

Selected key products include probabilistic seismic hazard methodology, a concrete silo spent fuel storage demonstration, an erosion/corrosion prediction and analysis computer code, a method for reducing the rate of radiation buildup on piping, a health risk assessment of SO<sub>x</sub> and disposal or possible reuse of large volumes of coal ash.

Development of cost-effective ways to use existing power plants while preparing for future electricity needs

Selected key products include guidelines for converting baseload fossil plants to cycling, on-line monitoring for critical plant equipment, an analytical model for predicting coolant activity, fossil plant nondestructive evaluation guidelines, the Coal Quality Impact Model, atmospheric fluidized-bed combustion demonstrations, and combustion and integrated gasification combined cycle demonstrations.

Development and demonstration of efficient, reliable and safe electricity delivery systems

Selected key products include a transmission line workstation, improved tree trimming equipment, Flexible AC Transmission Systems (FACTS), substation automation, and advanced power transformers.

**Ellison Consultants**  
4966 Tall Oaks Drive  
Monrovia, MD 21770-9316



Telephone: (301) 865-5302  
FAX: (301) 831-5443  
Chief Executive Officer: Mr. William Ellison  
International Sales Manager: Mrs. Gerd A. Ellison

Formed in 1981, this independent consultancy specializes in assessment and commercial application of SO<sub>2</sub> and NO<sub>x</sub> control technologies and methods for management of collected wastes. The firm has extensive engineering design and technical marketing experience and background in all worldwide countries that utilize state-of-the-art technology for control of air pollution in the firing of solid fuels including municipal solid wastes. Clients include government agencies, electric utility companies, gas cleaning equipment and gypsum manufacturing companies, law firms, and technical development organizations.

Product/Service	Description
SO <sub>2</sub> Control Technology Evaluation	Consulting expertise in evaluation, selection and conceptual design of applicable emission control means
Management of Collected Gas Cleaning Wastes	Expert technical services in planning and establishment of programs for utilization or environmentally acceptable disposal of solid and liquid wastes.

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**EnCoal**  
105 East 4th Street  
Cincinnati, OH 45202



Telephone: (513) 621-3733  
FAX: (513) 621-3734  
Chief Executive Officer: L. Robert Folan  
International Sales Manager: Alan Tweedale

Domestic Offices: HOT SPRINGS, VA: P.O. Box 826, Hot Springs, VA 24445 TEL. (703) 839-5111  
International Offices: ENGLAND: 213 Upper Richmond Road West, London, SW14 8QT England TEL. 011-44-81-878-8355

EnCoal was founded in 1985 as the U.S. partnership between L. Robert Folan and Alan Tweedale. Tweedale has led the British Coal Board's research into clean coal burning technology since World War II. In the 1980's, he took this technology private with Energy Supplies, Ltd., which is very active today throughout the United Kingdom. EnCoal brings this technology into the United States market featuring small fluidized beds. EnCoal's first project will be to rebuild the power plant of The Homestead Hotel in Hot Springs, Virginia with a clean burning, coal fired cogeneration plant.

Product/Service	Description
EnCoal designs, builds, finances, and operates small steam driven power plants.	EnCoal contracts with customers to reduce their energy costs by utilizing clean combustion technology to produce steam that in turn produces electricity, process steam, heating, and air conditioning. EnCoal's technology complies with the proposed Clean Air Act of 1990, and is predicated on bottom line savings to the customer through a long term contract with EnCoal.

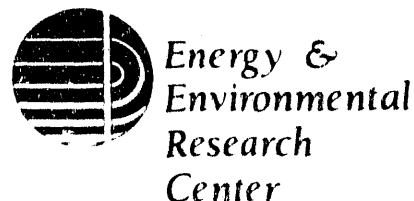
**Energotechnology Corporation**  
497 Massachusetts Avenue  
Cambridge, MA 02139

Telephone: (617) 492-3700  
FAX: (617) 492-3705  
Chief Executive Officer: E. Stephen Miliaras  
International Sales Manager: Damon W. Lawrence

Energotechnology Corporation was founded in 1975 to provide consulting services in energy and power generation for industry, utilities, business and governmental agencies and to conduct research and development in energy, power generation, pollution abatement, regulatory affairs, and related areas of technology. Energotechnology's engineering staff includes senior men in the mechanical, electrical, civil/structural and chemical/environmental fields who are experienced in power plant design and in related work. Our proximity and contacts with the well-known nearby universities offer us and our clients the opportunity to utilize as consultants various experts in their respective fields should the need arise.

Product/Service	Description
Advanced Utilization	Energotechnology has developed an innovative and low cost clean coal combustion technology for power generation which combines simple coal cleaning and power cycle modifications and is retrofitable to existing older coal-fired power plants and can result in uprating while reducing emissions. The proprietary technology can also reduce the cost of new power plants.
Technical Consulting	Energotechnology has also developed innovative and low cost power generation concepts from the combustion of refuse, the conversion of oil/gas designed boilers to firing coal, and a coal-fired power plant with low cost, built-in peaking capability from coal.

**Energy and Environmental Research Center**  
Box 8213, University Station  
Grand Forks, ND 58202



Telephone: (701) 777-5000  
Telex: 332537 FAX: (701) 777-5181  
Chief Executive Officer: Gerald H. Groenewold  
International Sales Manager: Gerald H. Groenewold

Domestic Offices: GRAND FORKS, ND: 15 North 23rd Street, Grand Forks, ND 58203

The Energy and Environmental Research Center (EERC) at the University of North Dakota features an integrated systems approach to energy and environmental research and technology development. Originally a federal coal research facility, EERC became part of the University of North Dakota in 1983. Since that time, EERC has expanded its coal research programs to become the leading low-rank coal research facility in the world. In addition, EERC has the leading groundwater research program in this region and has major and expanding research programs in waste management, air emissions control, fluidized-bed combustion, coal-water fuels, mild gasification, liquefaction, and H<sub>2</sub> production.

(Continued on next page)

**Energy and Environmental Research Center (Continued)**

Product/Service	Description
Fuels and Process Chemistry Research Institute	A major thrust of the Fuels and Process Chemistry Research Institute (FPCRI) of the Energy and Environmental Research Center is the development of new processes for more efficient production and/or utilization of fuels and chemicals. Expertise and capabilities include scientists and engineers from most technical disciplines with many years of experience in severe condition processing; flexible and reliable equipment to develop process concepts; pilot-scale equipment configurable to a variety of processing schemes needed to provide process validation for new technologies; and complete analytical support, including fully equipped laboratories and proven capabilities in development of new analytical methods.
Mining and Mineral Resources Research Institute	The mission of the Mining and Mineral Resources Research Institute (MMRRI) is to conduct and promote basic and applied research related to mining, minerals, groundwater, waste management, and energy resources; participate in the educational programs of the University of North Dakota and other universities; and provide a wide range of services to the mining, mineral, and energy resources industry, as well as to the state and nation. Current MMRRI programs include applied chemistry, environmental microbiology, energy policy, fundamental geology, groundwater and waste management, mine land reclamation, resource evaluation, and underground coal gasification.
Combustion and Environmental Systems Research Institute	The Combustion and Environmental Systems Research Institute (CESRI) of the Energy and Environmental Research Center performs basic research into the fundamental chemical and physical mechanisms that occur during the combustion of coal and other fuels, as well as their effects on environmental systems. The effects of fuel quality on system operation; the problems related to deposition, corrosion, and erosion; the performance of gaseous and particulate removal devices; and the efficient conversion of fuel to energy are all studied.

**Energy and Environmental Research Corporation**  
**18 Mason**  
**Irvine, CA 92718**

Energy and  
 Environmental  
 Research Corporation

**Telephone:** (714) 859-8851  
**Telex:** 181787 **FAX:** (714) 859-3194  
**Chief Executive Officer:** Thomas J. Tyson  
**International Sales Manager:** Glenn England

**Domestic Offices:** ORRVILLE, OH: 1645 N. Main, Orrville, OH 44667 TEL. (216) 682-4007, FAX (216) 684-2110; DURHAM, NC: 3622 Lyckan Parkway, Durham, NC 27707 TEL. (919) 489-1726, FAX (919) 493-5670; WHITEHOUSE, NJ: P.O. Box 189, Whitehouse, NJ 0888 TEL. (201) 589-1726, FAX (201) 534-9018  
**International Offices:** Please contact company headquarters for further information.

EER specializes in combustion and air pollution control for coal. This includes the development and application of advanced combustion systems and emission control equipment. EER also specializes in the turning and optimization of combustion equipment. This includes burner balancing, sootblower optimization and other techniques to produce optimum thermal performance and minimum emissions. EER has experience with all fossil fuels including coal, oil and gas. EER also has experience in the incineration of waste materials including hazardous waste, municipal solid waste and medical waste. Annual sales are approximately \$9,000,000. Employees number about 100, mostly engineers with advanced degrees.

Product/Service	Description
Coal Quality Evaluation	Comparative evaluations of alternate coals including analysis and test burns.
Emissions Compliance	Evaluations of alternate strategies for meeting NO <sub>x</sub> , SO <sub>2</sub> and particulate emission regulations at minimum total cost.
Performance Optimization	Tuning coal combustion systems for maximum efficiency, minimum emissions and minimum total cost.

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### Energy and Environmental Research Corporation (Continued)

SO <sub>2</sub> Control Systems	Several SO <sub>2</sub> control processes including in furnace and duct sorbent injection systems.
NO <sub>x</sub> Control Systems	Several NO <sub>x</sub> control processes including reburning, ammonia injection, flue gas recirculation, low NO <sub>x</sub> burners and several new technologies under development.

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### Energy International Corporation 135 William Pitt Way Pittsburgh, PA 15238

Telephone: (412) 826-5350  
Telex: 5106019265 (U-PARC UQ) FAX: (412) 826-5378  
President: Dr. Alan H. Singleton  
VP, Business Development: Mr. Robert A. Bebout

Energy International Corporation (EI) was formed to develop, license, and market new technologies and services for the advanced utilization of coal, special coal processing services, and the conversion of gas to premium liquid fuels. EI provides these services worldwide, including resource evaluation and selection, environmental impact evaluation, market assessments and project development. These services are available from project inception through operational startup and can involve intermediate and final products.

Product/Service	Description
Advanced Utilization	EI provides special Mineral Processing Services for grinding, washability studies, and testing of coals.
Power Generation Fuel (Underground Coal Gasification)	EI's Underground Coal Gasification technology can supply a range of gas products for industrial fuel use, electrical power generation, or synthesis gas to produce transportation fuels, fertilizers, and plastics from uneconomically minable coal resources.
Coal Derived Products (Coal Water Slurry Fuels)	EI develops and supplies specialized Coal Water Fuel slurries containing from 55% to 65% coal solids which can replace heavy fuel oil for electric power generation and for industrial boilers.
Technical Consultants	EI provides resource assessments, coal evaluations, technology transfer, process design, and project management services.

Everlasting Valve Company  
108 Somogyi Court  
South Plainfield, NJ 07080

**EVERLASTING VALVE COMPANY**

Telephone: (201) 769-0700  
FAX: (201) 769-8697  
Chief Executive Officer:  
International Sales Manager:

Mr. Robert L. Bunting  
Mr. Robert L. Bunting

**International Offices:**

ENGLAND: Armstrong International, Huddersfield, England TEL. 011 (484) 682760  
FAX 011 (484) 686318; GERMANY: Armstrong Machine Works, Aachen, Germany, TEL. 0114924125781  
FAX 0114924138248; AUSTRALIA: Armstrong Steam Control, Punchbowl, N.S.W. 2196, Australia TEL.  
011612750-3822 FAX 0116127581264; SOUTH AFRICA: Everlasting Valve Co. Ltd., Edenvale, Republic of  
South Africa TEL. 01127118233447 FAX 01127118233243

Everlasting Valve Co. is a Division of Armstrong International. It was founded in 1906, initiating its valve activity by supplying valves for steam locomotives. In more recent years, as a result of extremely successful testing under DOE's state-of-the-art Lockhopper Valve Testing and Development Project, the valve has become a standard for lockhoppers and slurry services in coal gasification and coal conversion facilities. Successful applications including Texaco's Cool Water Project, Lurgi's Sasol I, II, and III, ANG, Fru-Con's H-Coal, General Electric, etc., etc.

**Product/Service**

**Description**

Rotating Disc Valves

A metal to metal rotating disc valve designed specifically for difficult dry or wet slurries, coal, coke, vitrified ash services traditionally found in state-of-the-art coal gasification projects. Seat and disc material of Stellite or Ceramics, operating components in stainless or equal, bodies of steel, stainless on high alloys or appropriate to pressures and temperatures. Available through class 2500 and 24" size. Actuation can be accomplished by pneumatic or hydraulic actuators.

Firebrand International Corporation  
1110 Springfield Pike, Suite 4  
Cincinnati, OH 45215

 Firebrand International Corp.

Telephone: (513) 761-4694  
FAX: (513) 436-3375 (before 10:00 A.M. EST)

Chief Executive Officer: Mr. Anthony R. Browne  
International Sales Manager: Mr. Barry R. Brown

**International Offices:**

ENGLAND: Prince Consort House, 27 Albert Embankment, London, England SE17TF TEL.  
011-44-71-735-6730

Firebrand International Corporation has spent nine years developing six new adsorbents more effective than any current alternative systems. The dry powders injected at a stoichiometric ratio of 1.0 to 1.0 (adsorbent/sulfur) achieve a 98% uptake in comparison to similar methodologies at 75%. These reagents can be easily introduced into the "Hot" or "Cold" side of the flue gas stream with minimal retrofitting and capital equipment costs. The spent adsorbents which are compatible with standard solid waste disposal practices can be collected in the electrostatic precipitators. The adsorbents are of two types: "disposable" and "recyclable." Current research is in progress on NO<sub>x</sub> and the conversion of the waste material into fertilizer.

(Continued on next page)



**Firebrand International Corporation (Continued)**

Product/Service	Designation	Description
Advanced Utilization (CCT)	FIRE 1	Furnace Injected Sorbent (FIS)
	FIRE 2	Furnace Injected Recyclable Sorbent (FIRS)
	FIRE 3	Flue Gas Desulfurization (FGD)

**Fluor Daniel**  
**3333 Michelson Drive**  
**Irvine, CA 92730**

**FLUOR DANIEL**



Telephone: (714) 975-7100

Telex: 68-1441 FAX: (714) 975-5271/6549

Chief Executive Officer: Vincent L. Kontny

International Sales Manager: Gerald M. Glenn

**Domestic Offices:** CHICAGO, IL: TEL (312) 368-3500, GREENVILLE, SC: TEL. (803) 298-2500, HOUSTON, TX: TEL. (713) 263-1000; PHILADELPHIA, PA: TEL. (609) 985-1101; REDWOOD CITY, CA: TEL. (415) 595-6000; RICHMOND, VA: A.T. Massey Coal Company, Inc., TEL. (804) 788-1800; CHARLOTTE, NC: Duke/Fluor Daniel, TEL. (704) 357-3271

**International Offices:** SAUDIA ARABIA: Fluor Arabia, Dhahran TEL. (966) 3-857-8577; AUSTRALIA: Fluor Daniel Australia, Melbourne TEL. (61) 03-520-4444; CANADA: Fluor Daniel Canada, Calgary TEL. (010) 403-259-1110; THE NETHERLANDS: Fluor Daniel BV Netherlands, Haarlem TEL. (31) 23-33-90-20; GERMANY: Fluor Daniel GmbH, Dusseldorf TEL. (49) 211-4551-1; ENGLAND: Fluor Daniel, Ltd., London TEL. 44-1-222-7717

Fluor Daniel provides a full range of engineering, construction and related services through over 50 offices worldwide. These services include feasibility studies, conceptual design, project management, engineering, procurement, construction, technical services, project financing, consulting, environmental services, maintenance and plant operations. Our affiliate, AT Massey Coal Company, produces both high quality low-sulfur coal and metallurgical coal and ranks among the 10 largest coal marketers in the United States. Massey sells produced coal and markets coal for independent producers. Fluor Daniel, in partnership with Duke Power, designs and constructs or modernizes coal-fired power plants and performs operations and maintenance.

Product/Service	Description
Power Generation System	Fluor Daniel provides design engineering, procurement and construction of integrated coal gasification power generation systems as a part of our work with combustion turbine technology. Duke/Fluor Daniel has engineered or constructed over 75 conventional fossil fuel generating stations ranging from 5 to 1980Mw and provided maintenance and operating services in over 150 units.
Advanced Utilization (CCT)	Fluor Daniel offers engineering, procurement, construction and consulting support to Clean Coal Technology projects. We have performed over 105 coal gasification studies and participated in 14 major projects including Sasol, the world's largest coal gasification facility, on which Fluor Daniel performed engineering, procurement and construction.
Engineering/Procurement/Construction	Fluor Daniel engineering, procurement and construction experience includes coal mines, coal handling and transport facilities, and plants for utilities and other coal consumers.



**Foster Wheeler Corporation**  
**Perryville Corporate Park**  
**Clinton, NJ 08809-4000**

**Telephone:** (201) 730-4000

**FAX:** (201) 730-4360

**Chief Executive Officer:** Mr. L.E. Azzato

**International Sales Manager:** Mr. B.P. Stephan; Mr. I.G. Lutes

**Domestic Offices:**

ATLANTA, GA; BOSTON, MA; CHARLOTTE, NC; CHICAGO, IL; DENVER, CO; HOUSTON, TX; KANSAS CITY, MO; LOS ANGELES, CA; NEW ORLEANS, LA; NEW YORK, NY; PHILADELPHIA, PA; PITTSBURGH, PA; WASHINGTON, D.C.; AND WINTER PARK, FL

**International Offices:**

AUSTRALIA: TELEX 152838 REWOP AA; CANADA: TELEX 055-60042; CHINA: TELEX 210396 REWOP CN; COLUMBIA: TELEX 396-43254 REWOP CO; ENGLAND: TELEX 851-263984; FRANCE: TELEX 842-210 782; HONG KONG: TELEX 37512 FWAL HX; ITALY: TELEX 843-310548; JAPAN: TELEX 2323192; NETHERLANDS: TELEX 844-34264; NIGERIA: TELEX 22365 FOSWLD NG; SINGAPORE: TELEX RS 39292 FWINTL; SPAIN: TELEX 83122275; contact the main office for further information.

Foster Wheeler Corporation is an engineering, manufacturing, construction, real estate development and service organization with 23 subsidiaries operating worldwide. Founded in 1927, it is currently one of the world's largest engineering and construction organizations. International activities are conducted by affiliates in England, France, Italy, Spain, and Canada. U.S. based industrial subsidiaries supply diversified engineering technologies and allied equipment.

**Product/Service**

**Description**

Advanced Utilization  
Architecture/Engineering  
Boiler Equipment  
Coal Derivatives  
Facility Construction  
Facility Operation  
Financing

Foster Wheeler Energy Corporation, a major United States subsidiary, designs, fabricates, maintains, manufactures, and constructs steam generating equipment for electric utilities and industry. This Foster Wheeler subsidiary furnishes condensers, feed water heaters, and other major auxiliary equipment for coal, oil, and gas-fired installations in the United States and abroad. Foster Wheeler's application of alternate energy sources have advanced the state of the art. Current projects involve refuse-to-energy plants, the cogeneration of industrial steam and electric power, a proprietary sludge drying process and high technology heat recovery equipment.

**Honeywell Incorporated**  
**Industrial Automation and Control**  
**16404 N. Black Canyon Highway**  
**Phoenix, AZ 85023**

**Honeywell**

**Telephone:** (602) 863-5000

**FAX:** (602) 863-5692

**General Manager:** Ed Hurd

**International Sales Manager:** Thomas Jeffries

**International Offices:**

HONG KONG: Asia Pacific Inc., Suite 3408, One Exchange Square, Central TEL. (85205) 8445566, TELEX 81302 HAPG HX; SINGAPORE: Southeast Asia Ltd. Head Office, 1 Maritime Square #02-70, World Trade Center, Singapore 0409 TEL. (65) 278-4555, TELEX RS 34763 HNYWEL

Honeywell's Industrial Automation Systems Division, with headquarters in Phoenix, is the world's leading supplier of industrial process and control systems. Honeywell's systems are designed to increase plant productivity, improve operating efficiency and reduce energy consumption in an industrial setting. The division serves the process and manufacturing industries with emphasis on power generation, refining, bulk chemicals, oil and gas, fine chemicals, pharmaceuticals, pulp and paper, and consumer goods.

(Continued on next page)

**Honeywell Incorporated (Continued)**

Product/Service	Designation	Description
Coal Management	TDC3000	Control system for management of coal from receipt until entry into combustion. Accounting of received coal at un-loading facilities, automatic control and accounting of storage at the stacker-reclaimer, control of tripper car feed to coal silo. Monitor and control of conveyors and emergency shutdown. Integration of weigh scales and coal analyzers.
Power Plant Coal/ Fuel System	TDC3000	Control of Coal Feed to Power Plant Boilers via mills, feeders, etc. Proportional feed vs. demand, with optimization capability. Monitor of emissions, and plant performance.
Fluidized Bed Boiler Control System	TDC3000	Control Systems for control of fluidized bed boilers. Complete boiler and turbine controls systems for power generation. Monitor of emissions and plant performance.
Coal Gasification Control Systems	TDC3000	Control of coal gasifiers, programmable for use with many processes. Complete management systems from unloader to gas out.

**K-Fuel Partnership**  
**1999 Broadway-Suite 2505**  
**Denver, CO 80202**

**K-FUEL® PARTNERSHIP**

Telephone: (303) 293-2992  
 FAX: (303) 293-8430

General Partner: Ted Venners

Domestic Offices: GILLETTE, WY: K-Fuel Processing Facility and Laboratory, P.O. Box 1777, Gillette, WY 82717  
 TEL. (307) 687-1013 FAX (307) 687-1635

K-Fuel Partnership, formed in 1984, markets and licenses the K-Fuel technology worldwide. Partnership-funded research and development has taken the technology from benchtop, pilot plant, and full-scale demonstration facility phases, to commercialization at Fort Union Mine near Gillette, Wyoming. The Gillette facility includes a state-of-the-art laboratory, where feedstock, process, and product analyses allow optimum plant operation and a custom-made end product.

Product/Service	Description
Advanced Utilization Coal Technology Coal Industry	Low-rank feedstocks (i.e., subbituminous coals, lignite) require derating of capacity or costly equipment modifications in order to meet utility and industrial boiler requirements and environmental restrictions. These feedstocks are difficult to handle and expensive to transport because of high moisture content and combustibility. A proven, patented, advanced coal beneficiation technology that economically upgrades low-rank feedstocks, the high-Btu, low sulfur, low moisture, environmentally acceptable K-Fuel product addresses those problems. This technology is available for licensing worldwide.
Coal Exporters	K-Fuel, produced using a proven, patented, advanced coal beneficiation technology that economically upgrades a variety of low-rank feedstocks, is a viable, high-Btu, low sulfur, low moisture energy source for utility and industrial users. Produced to meet the user's boiler specifications and having stable handling and storage characteristics, K-Fuel is competitively priced in the coal market.

Leas Industrial Assoc.  
122 N. 34th St. 10-C  
Richmond, IN 47374

## LEAS INDUSTRIAL ASSOCIATES

Telephone: (317) 935-2856  
Chief Executive Officer:

Mr. Arnold M. Leas

Twenty-one years of aggressive bench, pilot plant, semi-demonstration plant with dual coal-limestone patented process development, full scale plant designs, client-vendor consultations, economic-environmental-evaluations have been made with all private capital. Full scale plant hardware vendor working legal agreements for shop assembly-line fabrication of standardized module units and field erection on precured foundations for expediting start-up and commercial operations. Experienced construction and start-up crews from petroleum chemical refining and coal processing industries assure accelerated commercialization.

Product/Service	Designation	Description
LIA Process, Stage One	Coal-limestone	Coal "S" 50 psig air-steam gasifier and 40 psig limestone-calciner to yield primary separated products syn-coal and lime. Minor separated products of clean 300 BTU gas, gypsum, heavy metal concentrates, agricultural soil erosion preventative. Process thermal efficiency equals 87% plus 5 year payout on capital and EPA compliance.
LIA Process, Stage Two	300 BTU gas	Syn-coal gasification without manufactured oxygen via LIA two-zone circulating fluidized-bed reactor. Process thermal efficiency when stage two added to stage-one equal to overall 86% plus and EPA compliance.
IGCC	Electric	Higher efficiency electric production via gas and steam turbines.

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The M.W. Kellogg Company  
Three Greenway Plaza  
Houston, TX 77046-0395



## The M.W. Kellogg Company

Telephone: (713) 960-2000

Telex: 166385 MWKHOC FAX: (713) 960-2032

Chief Executive Officer: Donald C. Vaughn, President

International Sales Manager: J. Albert Stanley, Senior Vice President of Worldwide Sales

Domestic Offices: DARIEN, CT; WASHINGTON, D.C.

International Offices: ENGLAND: M.W. Kellogg Limited, The M.W. Kellogg Building, Stadium Way, Wembley, Middlesex, HA9 0EE  
TEL. 44-1-903-8484; BRITISH WEST INDIES: Cayman Islands; ARGENTINA: Buenos Aires; SINGAPORE;  
PEOPLE'S REPUBLIC OF CHINA: Beijing; INDONESIA: Jakarta; MALAYSIA: Kuala Lumpur

The M.W. Kellogg Company, an international, technology-based subsidiary of Dresser Industries, Inc., is a world leader in the engineering, procurement, construction and commissioning of chemical, petrochemical, fertilizer, gas processing, refining, and computer integrated manufacturing projects. Additionally, Kellogg provides operations and maintenance capabilities. Kellogg is also on the forefront of clean fuels technology with the acquisition of the KRW coal gasification process and development of clean air technology. The company has completed more than 3,000 major projects and many smaller projects worldwide.

(Continued on next page)

**The M.W. Kellogg Company (Continued)**

<b>Product/Service</b>	<b>Description</b>
Coal Gasification	Kellogg's KRW coal gasification process is capable of operating at high conversion on a wide range of coals. Feeds ranging from lignites and brown coal to high and low volatile bituminous coal have been tested in the Waltz Mill, PA pilot plant using both air and oxygen as oxidants and limestone and dolomite as in-bed sorbents for sulfur. The process can be used to produce low- or moderate-BTU gas for synthesis or for power generation. Hot gas clean-up using Zn ferrite yields low SO <sub>2</sub> emissions, and low-BTU gas yields and low NO <sub>x</sub> in combined cycle power plants.
Pressurized Circulation Fluid Bed Combustion	Kellogg's PCFBC processes pulverized coal and limestone or dolomite in a high velocity reactor, which completely combusts the coal while yielding very low SO <sub>2</sub> and NO <sub>x</sub> emissions. The pressurized flue gas is expanded to produce power in a combined cycle mode. The sorbent is fully oxidized in the reactor, eliminating subsequent treatment of the ash and spent sorbent for disposal. The technology is a low-cost alternative for cogeneration and power applications.
Flue Gas Desulfurization	Kellogg's flue desulfurization technology utilizes a limestone sorbent in a horizontal scrubber. The technology has been proven in commercial operation on large utility boilers feeding both high and low sulfur U.S. coals. The process features high sulfur removal (greater than 90%) and high calcium utilization. Magnesium or dibasic acid addition is often used to enhance the system. A special feature of the horizontal Weir scrubber is both low flue gas pressure-drop and low sorbent circulation, resulting in significant operating advantages.
Design, Procurement, Construction and Plant Services	Kellogg offers EPC capabilities as well as operations and maintenance services on a worldwide basis.
Research and Development Services	Kellogg has bench-scale and pilot plant facilities for the development and testing of coal in gasification and combustion modes. Kellogg's coal lab allows the analysis of coal and ash properties. The company can also prepare design studies for a wide range of process and power applications based on the specific coal properties.

**McNally Wellman Company**  
**4800 Grand Avenue**  
**Pittsburgh, PA 15225**

Telephone: (412) 269-5000  
 Telex: 199211 WELL UT FAX: (412) 269-5030  
 Chief Executive Officer: Raymond M. Koper

International Offices: Please contact company headquarters for further information.

McNally Wellman has enjoyed 100 years of providing a variety of services and products to the coal industry. With extensive experience in bulk material handling and storage, McNally Wellman can design and supply a turnkey system tailored to the requirements of mining operations, electric power plants, or other transportation situations. A recognized leader in coal preparation, McNally Wellman can provide efficient and reliable coal cleaning facilities incorporating the latest in cleaning technology. In addition, McNally Wellman offers a wide range of coal sizing, cleaning and dewatering equipment that has been proven dependable in the coal industry.

<b>Product/Service</b>	<b>Description</b>
Coal Preparation Plants	McNally Wellman preparation plants are designed to recover the best possible product from a seam of coal utilizing water or dense media cleaning circuits. Our "Modular" plants offer a flexible as well as economical alternative to our conventional designs.

(Continued on next page)

**McNally Wellman Company (Continued)**

**Coal Handling Systems & Equipment**

McNally Wellman provides efficient and practical handling systems to move coal effectively. Our belt conveyor systems provide the link between the mine mouth and the preparation plant or the railroad car and the barge. Equipment includes rail car and barge/ship unloading and loading devices.

**Coal Storage Systems**

McNally Wellman will design a system to satisfy any coal storage requirement. Our systems have included traveling trippers, radial stackers, stacking tubes and stacker/reclaimers. In cases where enclosed storage is required, McNally Wellman offers various types of storage systems.

**Coal Processing Equipment**

McNally Wellman features a wide variety of specialized processing equipment to size, clean, and dewater coal. Processing equipment available from McNally include roll crushers, rotary breakers, baum jigs, heavy medium vessels, water-only cyclones, automatic samplers, curved sieves, centrifugal dryers, and thermal dryers.

**MicroFuel Corporation**  
12<sup>th</sup> State Street  
Ely, IA 52227



**Telephone:** (319) 848-7111  
**FAX:** (319) 848-7101  
**Chief Executive Officer:**  
**International Sales Manager:**

Mr. John C. Welling  
Mr. John C. Welling

**Domestic Offices:**  
**International Offices:**

CHARLOTTE, NC: 4450 Town & Country Drive, Charlotte, NC 28226  
Please contact company headquarters for information.

The power industry has long recognized the economic and environmental benefits of firing micronized coal to replace the use of oil and gas. The primary constraint has been the energy input required for the micronization of the fuel. MicroFuel Corporation has developed a centrifugal-pneumatic (CP) micronizer which provides micronized coal (80% < 44 microns) with an energy input of only 20% > conventional coal pulverizers. The MicroFuel micronizer is applicable to any process requiring direct firing by either oil, gas, or pulverized coal, as well as micronization for coal beneficiation. The MicroFuel CP micronizer also processes a wide variety of other products such as limestone, sodium bicarbonate, and other materials used as reagents and sorbents in air quality control systems. The micronization of sorbents greatly improves their utilization in most processes. The markets for the MicroFuel CP micronizer are replacement of natural gas and oil for any direct-fired application, chemical and sorbent preparation for air quality control systems, and specialty products and chemicals requiring very fine consistent particle sizing.

Product/Service	Designation	Description
MicroFuel Micronizer	Coal	The CP micronizer produces micronized coal with a consistent particle size distribution of 100% < 177 microns, 80% < 44 microns with an average particle size of 20 microns at an energy consumption level of 25 KW/ton. The micronized coal is suitable for direct firing in most applications utilizing oil or natural gas.
MicroFuel Micronizer	Special Products	The CP micronizer is also capable of micronizing many products such as limestone, sodium bicarbonate, and other chemicals. Energy requirements and product fineness vary depending on the application and product. A full-scale demonstration unit is available at the home office to evaluate product applicability and design parameters.

**MSE, Inc.**  
**P. O. Box 3767**  
**Butte, MT 59702**



**Telephone:** (406) 494-7100

**FAX:** (406) 494-7230

**Chief Executive Officer:** Donald R. Peoples

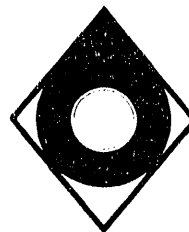
**International Sales Manager:** John M. Sherick

**Domestic Offices:** BUTTE, MT: Component Development and Integration Facility (CDIF), P. O. Box 3767, Butte, MT 59702 TEL. (406) 494-7100; Corporate Office, P. O. Box 4078, Butte, MT 59702 TEL. (406) 723-8213, FAX (406) 723-9377

MSE, Inc., operates the Component Development and Integration Facility (CDIF)--the largest coal-fired magnetohydrodynamic (MHD) testing facility in the world. The CDIF can also be configured to support engineering-scale development testing programs in other coal and energy technologies. MSE, Inc., provides services in process engineering, facility management and operation, plant engineering and power system design and analysis. MSE offers environmental permitting, monitoring and compliance services. MSE's EPA -- certified laboratory performs organic and inorganic analyses and offers chemical consulting and problem solving services.

Product/Service	Description
Coal Research and Development	Research and development in magnetohydrodynamics (MHD), coal handling and processing, high temperature combustion, and experimental hardware assembly and testing. Full analytical and data services are available.
Engineering Services	Facility and process design and engineering for coal and fossil fuel systems and power plants, including coal handling, pulverizing, inerting and drying, combustion, and instrumentation and control.
Facility Management and Operation	Facility management, startup, and operation to ensure reliable performance in compliance with approved procedures and safety, and environmental regulations.
Laboratory Services	EPA-certified laboratory equipped to sample and perform organic and inorganic analyses on a wide range of sample types including water, soils, coal, tailing, ores, hazardous waste, and airborne pollutants.
Environmental Services	Full range of environmental services for mining, coal processing, and power industries.

**Otisca Industries, Ltd.**  
**501 Butternut Street**  
**Syracuse, NY 13208**



**OTISCA**

**Telephone:** (315) 475-5543

**FAX:** (315) 437-5296

**Chief Executive Officer:** Clay D. Smith

**International Sales Manager:** Clay D. Smith

**Domestic Offices:** Please contact company headquarters for further information.

The laboratory at Otisca Industries, Ltd. was established during the summer of 1972 with the purpose of developing a fundamental understanding of coal and unique processes for the desulfurization and deashing of coal. Over the past fourteen years and with significant contributions from C.D. Smith and D.V. Keller, Jr., over 60 patents have been issued most of which are focused on more efficient and economical means to clean coal of all ranks. The dense liquid bath and cyclone separation of fine coal using the liquid fluorochlorocarbons was one of our first innovations (1972) which in time led to the design and construction of a demonstration plant of 125 tons-per-hour (1978). That process was superseded by the T-process (1979) which permitted a

(Continued on next page)

**Otisca Industries, Ltd. (Continued)**

large fraction of the coals to be deashed into the range of under 0.5% wt. % ash and the removal of essentially all of the pyritic sulfur with a BTU yield usually exceeding 97%. The latter has been demonstrated in a two ton-per-day pilot plant (1983) which up to date has produced over 150 tons of dry product in coal water slurry form.

<b>Product/Service</b>	<b>Description</b>
Advanced Utilization	Otisca Industries, Ltd. of Syracuse, NY has developed a patented coal beneficiation technology (the Otisca T-Process) which will remove virtually all of the pyritic and sulfatic sulfur and a significant quantity of mineral matter (ash) from virtually any coal. The T-Process, which is the core of a coal-water slurry manufacturing pilot plant, consists of first milling raw coal to very fine sizes (30 um or finer) followed by an agglomeration step, using pentane, to recover the ultra-clean coal. The coal-water slurry manufacturing pilot plant, which has been operational since 1983, has produced over 150 tons (dry) of coal-water slurry fuel (Otisca Fuel) with an average ash and sulfur content of 0.7 weight percent and 0.7 weight percent respectively. A 15 ton-per-hour Otisca Fuel manufacturing plant has been constructed and startup should be completed by the end of July 1989.

**PAR Enterprises, Inc.**  
12601 Clifton Hunt Lane  
Clifton, VA 22024



**Telephone:** (703) 818-9274  
**Chief Executive Officer:** Wilfred J. Rebello, Ph.D.  
**International Sales Manager:** Wilfred J. Rebello, Ph.D.

**International Offices:** Please contact company headquarters for further information

PAR Enterprises, Inc. (PAR) is a small minority owned and operated engineering firm. The company was formed to provide responsive and cost-effective Planning, Analytical and Research services to executives, scientists and engineers in government and industry. PAR's staff of professionals is particularly experienced with development and application of advanced energy conservation and coal technologies. The staff is also well versed in the development of economic and environmental assessments, energy management systems and energy information systems.

<b>Product/Service</b>	<b>Description</b>
Advanced utilization	The research & development services offered include coal preparation, coal gasification, coal combustion, power generation, heat engines, fuel cells, MHD systems, gas stream cleanup, alternate fuels, air pollution control and environmental impacts. In industrial energy utilization, R&D activities have included waste heat recovery systems, such as, heat exchangers, heat pumps and cogeneration systems and manufacturing process efficiency/productivity improvements using the disciplines of thermodynamics, heat transfer, fluid flow and combustion.



**Pedco, Incorporated**  
**11464 Lippelman Road**  
**Cincinnati, OH 45246**



**Telephone:** (513)771-2570  
**FAX:** (513) 241-7958  
**Chief Executive Officer:** E. E. McCracken  
**International Sales Manager:** W. H. Long

**International Offices:** Please contact company headquarters.

Pedco has been involved with industrial plant design since 1967 and in the course of this activity has developed a patented technology for the clean and economical burning of high sulfur and high ash coals, including coal wastes. The technology accommodates the co-firing of certain industrial wastes. Pedco has licensed Zurn Industries to market and manufacture units using the technology in North America. Pedco is actively seeking licenses or joint venture partners in Europe, Asia and South America.

Product/Service	Designation	Description
Coal Combustion Technology	Pedco RCBCS	The Pedco Rotary Cascading Bed Combustion System is patented in the United States, Canada, Europe, Asia, and South America. It offers industry a means of burning otherwise unusable fuels in an environmentally safe and very economical manner. It can be used to produce process steam or to cogenerate electricity. It can accept a wide variety of fuel sizes and fuels such as gas, oil, and certain wastes, individually or co-fired with other feedstocks.

**Pennsylvania Coke Technology, Inc.**  
**101 North Main Street**  
**Greensburg, PA 15601**

**PACTI**

**Telephone:** (412) 834-7555  
**FAX:** (412) 837-9241  
**Chief Executive Officer:** Mr. Joseph P. Ciarimboli  
**International Sales Manager:** Mr. Joseph P. Ciarimboli

**International Offices:** Please contact headquarters for further information

Pennsylvania Coke Technology, Inc. (PACTI) has developed patented non-recovery cokemaking process technology over the past 18 years. The process technology provides an inexpensive solution to the escalating costs of quality coke production meeting stringent environmental regulations. The proven PACTI coke production system represents the most advanced environmentally accepted process for non-recovery cokemaking, having received the first and only USA EPA approval for "Greenfield" coke production. The process is able to inexpensively convert a wide range of met coals to high quality met coke. By-product recoveries in form of energy co-generation systems were jointly developed with Westinghouse Electric Corp. The PACTI coking system is presently being installed in Mexico. Both the PACTI cokemaking process technology and PACTI/Westinghouse energy cogeneration systems technology are available for licensing worldwide.

Product/Service	Designation	Description
Cokemaking Technology	PACTI	Cokemaking technology with environmentally accepted emissions controls; proven system represents a cost savings of over 60% less capital and 50% less operational costs. Unique process technology features environmental controls and capabilities to capture and destroy hydrocarbon emissions, and convert process energies to commercial energy forms.

**Process Technology, Inc.**  
1122 Calumet Avenue  
Calumet, MI 49913



Telephone: (906) 337-0020  
FAX: (906) 337-0023  
Chief Executive Officer:  
International Sales Manager:

Mel J. Laurila  
Mel J. Laurila

PTI was incorporated in early 1986 to assist the coal industry in improving preparation plant efficiency and control. The PTI coal slurry ash monitor and our preparation plant simulation software are currently employed in both on-line and off-line control schemes. Our staff of engineers come from mining, processing, chemical, electrical, and mechanical engineering disciplines. Such diversity has brought success in development of new coal processing technologies (R&D Division), development of Nuclear on-line slurry analyzers (Process Control Division) user friendly simulation software and plant automation and control projects. Our special consulting services have also been used in market studies and for providing expert testimony in litigation.

Product/Service	Description
PTI Ash Monitor	Nuclear, in-plant, automated slurry ash and solids analyzer.
PTI Simulate	Prep plant simulation Software w/flowsheet Generation, data entry Customization and optimization modules in a user-friendly environment.
Advanced Coal Cleaning Technology Development	Development of new coal cleaning technologies, pyritic sulfur removal, and super clean coals.

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**The Ralph M. Parsons Company**  
100 West Walnut Street  
Pasadena, CA 91124

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**PARSONS**

Telephone: (818) 440-2000  
Telex: 4720569 FAX: (818) 440-2630  
President:  
International Sales Manager:

Mr. Robert B. Sheh  
Mr. Kenneth G. Braden

International Offices:

ENGLAND: Derrick Hedley, Parsons House, Kew Bridge Road, Brentford, Middlesex, TW8 OEH, England, U.K., TEL. 44-1-995-1322; PHILIPPINES: Mr. B.H. Conroy, Legaspi Village, 105 Rada Street, Makati, Metro Manila, Philippines, TEL. 63-2-818-6085.

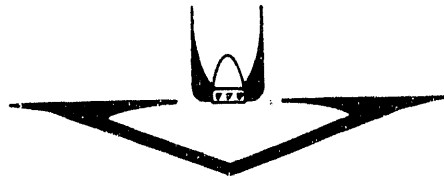
The Ralph M. Parsons Company is a major international engineering-construction firm providing planning, study, design, engineering, procurement, construction and operation services world-wide. It offers expertise/experience in mining, synfuels, process industries, flue gas cleanup (FGC), crude oil recovery/refining, gas processing, sulfur management and infrastructure. Proprietary technology includes coal-fired power plant FGC, sulfur control systems to serve the petroleum/gas processing/other industries, sulfuric acid, and SNG manufacture. Through its parent, the Parsons Corporation, it offers a full range of A&E/Construction services including power plants, transportation, roads, water supply, wastewater/hazardous/nuclear waste management, urban/regional planning.

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**The Ralph M. Parsons Company (Continued)**

Product/Service	Description
Coal-Fired Flue Gas Cleanup	Concept Assessment, Feasibility Study, Design, Engineering, Procurement, Construction (EPC)
Sulfur Management	Sulfur Control/Recovery from Coal-Based Process Units, e.g., Power Plants, Gasification or Liquefaction plants. Production of elemental sulfur or sulfuric acid product, EPC
Coal Gasification	Feasibility Study, Technology Selection, Design, EPC
Coal Liquefaction	Feasibility Study, Technology Selection, Design, EPC
Coal Mining	Resource Evaluation, Mine Plan, Feasibility Study, EPC
Environmental Control	Consulting, Feasibility Study, EPC

**Reiss Viking**  
**P.O. Box 2219**  
**Wichita, KS 67201**



**HEAVY MEDIA  
 MAGNETITE**

Telephone: (316) 832-6661  
 Telex: 1561769 FAX: (316) 832-5046  
 General Manager:

Gary Michael Bradley (Parent Company - Koch Industries)

**Domestic Offices:**

FAIRMONT, WV: P.O. Box 407, Fairmont, WV 26554, TEL. (304) 534-3358; GAULEY, WV: Box 86, Camden-on-Gauley, WV 26208, TEL. (304) 226-5226; TAZEWELL, VA: Route 6, Box 88, Tazewell, VA 24651, TEL. (703) 988-6564; KIMPER, KY: General Delivery, Kimper, KY 41539, TEL. (606) 835-2918; WOODSTOCK, AL: P.O. Box 187, Woodstock, AL 35188, TEL. (205) 938-7887; WEST FRANKFORT, IL: P.O. Box 448, West Frankfort, IL 62896, TEL. (618) 937-1132.

Reiss Viking, a division of The C. Reiss Coal Company, a subsidiary of Koch Carbon, is North America's largest supplier of magnetite to the heavy media industry. The statistical processing control program at each of six locations insures our customers and Reiss Viking that our magnetite sizing is consistent and meets specifications. With our twenty-four hour service, customers are insured that product is available any time of the day or night. With our 25 years of experience, commitment to quality and a stable market presence, our customers are assured of long-term magnetite service and supply.

Product/Service	Description
Heavy Media Magnetite	A black, crystalline iron oxide used to alter the specific gravity of separation slurries in those coal cleaning plants set up to use any of the various heavy-media preparation processes.
Black Ox	High purity, pulverized, material black iron oxide sand additive for use in ferrous and non-ferrous metal applications within the foundry industry.

Riley Stoker Corporation  
P.O. Box 15040  
Worcester, MA 01615-0400



Telephone: (508) 852-7100  
Telex: 920428 Fax: (508) 852-7548, (508) 852-7558  
Chief Executive Officer: H. Kerner Smith  
International Sales Manager: David A. Harris

**International Offices:** BELGIUM: Chaudronneries Pierre Brouhon, Rue de la Station, 41 bis, 4341 AWANS TEL. (041) 63 88 20 21 22;  
AUSTRALIA: Clyde-Riley Dodds Pty., Ltd., 123 Gotha Street, Fortitude Valley, Queensland 4006 TEL. (07) 854 1522; FRANCE: FAMA, 8 Rue d'Athènes, 75009 Paris TEL. 42 82 93 31; JAPAN: Mitsui Engineering & Shipbuilding Co., Ltd., 6-4 Tsukiji 5-chome, Chuo-ku, Tokyo 104; COLOMBIA: Representaciones Internacionales Ltda, P. O. Box 949, Medellín TEL. 248-51-89 or 246-56-94; SWITZERLAND: Centrex S.A., 24 Avenue Dumas B P 305 1211, Geneva 25 TEL. (022) 46 82 26; EGYPT: Arab Engineering & Distribution Co., 2 Saraya El Korba Street, Garden City, P. O. Box 901, Cairo; INDIA: Ideal Enterprises, 402 Hemkunt Tower, 98 Nehru Place, Post Box 4411, New Delhi-110019 TEL. 6415435; ISREAL: PETCO International Ltd., 55 Shderot Bialik, Ramat-Hashron TEL. (972) 3-5401812; PAKISTAN: Qamar Traders, P. O. Box 1014, Ikram Building, Outside Akbari Gate, Lahore-8 TEL. 62336 or 56936; TAIWAN: Taiwan Development Co., Ltd., 3rd Floor, 5 Tsing Tao East Road, Taipei R.O.C. TEL. (886) 2-3912366; VENEZUELA: Eduardo Calcano & Cia., C.A., Centr Plaza, Torre B-Penthouse, Avenida Francisco de Miranda, Apartado de Correos 613071 Chaca, Caracas 1060-A

Riley Stoker Corporation was founded in 1913. Since 1981 the company has been a subsidiary of Ashland Oil, Inc. Riley designs, manufactures and constructs traditionally-fired boilers, fluidized bed combustion boilers, and waste-to-energy systems in capacities from 222,675 to 2,086,188 kg/steam/hr (50,000 to 4,600,000 pounds of steam per hour).

Product/Service	Description
Boilers	Riley manufactures a line of coal pulverizers, burners for coal, gas and oil, and stokers for all types of coal, cellulose fuels and waste. The company provides a range of services for boiler and fuel burning equipment, including inspections, repairs and maintenance. It has its own construction capabilities for complete boiler erection as well as modifications and rebuilds. Riley operates a center for fuel burning research, and a manufacturing plant in Erie, PA with easy access to water, rail truck and air shipping.
Stokers	
Pulvizers	
Construction	

Ryan Fincor  
28 Allegheny Avenue  
Suite 1201  
Towson, MD 21204



Telephone: (301) 321-7021  
FAX: (301) 828-8657  
Chief Executive Officer: William N. Clements  
Vice President - Engineering: Herbert E. Steinman

**Domestic Offices:** MASONTOWN, PA: (Engineering) 216 S. Main Street, P.O. Box 109, Masontown, PA 15461

Ryan Fincor formed in 1988 to market ITN cyclone and screen process together with Low Oil Agglomeration system to recover fine coal lost to reject from washing plants. Combination of systems will process and recover coal size 16 mesh to zero in marketable form with acceptable moisture content. The same systems can be utilized in recovering coals in existing reject piles and/or settling ponds of coal refuse.

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**Ryan Fincor (Continued)**

Systems applicable to any reject product of 60% ash or less with recoveries in range of 40-60%.

Both systems commercially operational for two years.

Product/Service	Designation	Description
Fine coal recovery	ITN cyclone and screen system and Low Oil Agglomeration.	Combined systems have feed capacity of 80 tons per hour with screen system processing 16 mesh x 170 mesh and Low Oil Agglomeration recovering carbon in 170 mesh x 0 size.

**Schmidt Associates, Inc.**  
**7333 Fair Oaks Road**  
**Cleveland, OH 44146**



**Schmidt associates, inc.**

**Telephone:** (216) 439-7300

**FAX:** (216) 232-9939

**Chief Executive Officer:**

Charles M. Schmidt

**International Sales Manager:**

George C. Repko

**International Offices:**

Please contact company headquarters for further information.

Schmidt Associates, Inc. is an employee-owned professional engineering corporation comprised of dedicated, experienced engineers capable of performing a wide range of engineering and consulting services. These services include mechanical, electrical, structural, and chemical abilities, with vast experience in the industrial boiler market from studies and retrofitting of all types of existing boiler installations to the complete installation of new facilities encompassing any or all new technologies required in the industrial field today for not only technically successful operations, but also economical success as well. Schmidt Associates, Inc. has specialized in central utilities services for industrial, institutional, and governmental plants including studies, tests, application, and installation of new technologies in industry today.

Product/Service	Description
Advanced Utilization	Conducted extensive research and design work for the government on advanced coal utilization techniques for industrial boilers including coal-oil and coal-water mixtures, slagging coal combustors and fluidized bed boilers.
Architecture/Engineering	Expertise in coal utilization from conception of idea to detailed design.
Boiler Equipment	Specify appropriate equipment for clients.
Facility Construction	Detailed design of numerous coal facilities from point of coal receipt to exit of gases from stack. Conduct on-site inspection of facilities while under construction.

**SGI International**  
3366 North Torrey Pines Court  
Suite 220  
La Jolla, CA 92037



**SGI INTERNATIONAL**

**Telephone:** (619) 452-0841  
**FAX:** (619) 452-9953  
**Chief Executive Officer:**  
**Principal Point of Contact:**

**William M. Owens**  
**Ernest P. Esztergar**

SGI's primary business niche is coal conversion, coal cleaning, and coal upgrading process technologies. Main activities include commercialization and licensing; project development of large-scale process plants (resource evaluation, plant siting, and development of financing); and research and development through all phases.

Product/Service	Designation	Description
Coal Conversion Technologies	LFC-1	Coal upgrading with hydrocarbon liquid and gas production (demonstration and commercialization).
	LFC-2	Coal desulfurization with hydrocarbon liquid and gas production (pilot).
	LFC-3	Carbon production with hydrocarbon liquid and gas production (pilot).
	LFC-4	Coal upgrading with water and CO <sub>2</sub> recovery (applied research, bench scale).
Applied Research	N/A	Coal-derived products for non-fuel use; computerized process control; and computer software process modeling software development.

**Slurry Systems, Inc.**  
P.O. Box 772  
Athens, OH 45701

**Telephone:** (614) 593-1500  
**Chief Executive Officer:**

**Dr. Robert L. Savage**

Specializing in chemical process development as applied to coal technology. Laboratory, pilot plant and commercial plant experience.

Product/Service	Description
Carbon Black from Coal	Carbon black containing less than one percent ash can be produced from coal without any further processing to remove ash. Synthesis gas (32% carbon monoxide and 50% hydrogen) and a low-volatile, porous char are produced concurrently with the carbon black.
Sulfur Removal from Coal	Ethanol can be used to remove 80 to 95% of both organic and inorganic sulfur from coal. The sulfur is removed as gaseous hydrogen sulfide which can be converted to sulfuric acid or elemental sulfur. Other reaction by-products can be recycled or converted to marketable organic chemicals. There are no waste products to dispose of.
Coal-Oil and Coal-Oil-Water Slurries	Low-sulfur and/or low-sulfur, low-ash coal slurries provide an environmentally acceptable replacement fuel for oil or gas fired boilers.

**Slurrytech, Inc.**  
7027 S.W. 148th Terrace  
Miami, FL 33158

**SLURRYTECH, INC.**  
A SUBSIDIARY OF FUELS MANAGEMENT INC.

**Telephone:** (305) 253-4560  
**FAX:** (202) 333-0474  
**Chief Executive Officer:**  
**International Sales Manager:**

Donald D. Dunlop  
Donald D. Dunlop

**Domestic Offices:**

WASHINGTON, DC: 1425 44th Street, N.W., Washington, DC 20007

Slurrytech, Inc. is the licensing entity for Co-AL, the patent protected coal water fuel technology originally developed at Alfred University. Since 1980, the technology has led the coal water fuel development field in process, scale-up, and combustion advancement. Slurrytech has worked with development partners around the world to complete the commercial development of Co-AL.

**Product/Service**

**Description**

Coal Water Fuel

Coal Water Fuel, marketed under the name Co-AL, developed originally at Alfred University and patent protected worldwide. Co-AL is unique in the use of particle size distribution to realize a high solids loading (up to 75%) with a low viscosity (1000 cps). Because of this particle size distinction, Co-AL is a stable fuel and does not require costly stabilizing chemicals. Slurrytech has this technology available for license and, alternatively, will supply slurry product through its parent corporation, Fuels Management, inc.

**Stone & Webster Engineering Corporation**  
245 Summer Street  
Boston, MA 02210



**Telephone:** (617) 589-5111  
**Telex:** W.U. 94-0001 **FAX:** (617) 589-2156, (617) 589-8071  
**Chief Executive Officer:** Frank W. Ries, Chairman  
**International Sales Manager:** Raymond F. Rugg

**Domestic Offices:**

CHERRY HILL, NJ; CHICAGO, IL; DENVER, CO; FORT LAUDERDALE, FL; HOUSTON, TX; NEW YORK, NY; SAN FRANCISCO, CA

**International Offices:**

UNITED KINGDOM: Milton Keynes; CANADA: Toronto; Stone & Webster also maintains offices in the following cities: Abu Dhabi, Dammam, Kuala Lumpur and Seoul. Please contact headquarters in Boston for further information.

Stone & Webster Engineering Corporation, which celebrated its Centennial in 1989, is one of the world's largest engineering and construction firms. Since its founding, as a two-man consultancy in Boston, the firm has planned, engineered and provided construction and construction-management services for utilities and industrial power concerns worldwide. Have designed and/or built plants with a total capacity exceeding 50 million kilowatts, the company is considered one of the world's largest and most experienced engineer-constructors of coal power facilities. Over the years, Stone & Webster has helped many domestic and international clients develop technologies that can lead to cleaner and more efficient use of coal. For instance, in the United States the company has conceptually designed integrated gasification/combine-cycle systems for new generating stations and evaluated the use of coal liquids for existing oil-fired station. Stone & Webster also worked on the first utility coal-gasification project in Brazil. Today, we continue to work with government agencies and private firms on new ways to clean and burn fossil fuels. Our development projects include fluid bed combustors, a retrofit combustor system that eliminates a variety of pollutants and a furnace injection system that removes sulfur dioxide. Listed below, are some of the areas in which Stone & Webster applies its consulting, engineering and construction expertise.

(Continued on next page)

**Stone & Webster Engineering Corporation (Continued)**

<b>Product/Service</b>	<b>Description</b>
Advanced Utilization	Coal processing systems: direct and indirect liquefaction; coal gasification combined cycle power systems; advanced power generation systems; pressurized fluidized bed technology; externally fired high temperature gas turbine combined cycle systems and direct fired dual working fluid power cycles.
Coal Industry	Coal drying technologies: surface and underground coal mining; coal handling; fuel analysis.
Coal Mining	Correlation and preliminary evaluation of data; mine planning and engineering design (surface and underground): pit planning and design; underground planning and design, production engineering, land reclamation. Drilling; blasting engineering and optimization; equipment selection and justification; budget review; reserve analysis; haulroad design; coal evacuation and loading design; auxiliary utility design: compressor systems, water piping systems; ventilation design; slope stability engineering; economic analysis; fatal flaw analysis; geological aspects: exploration methods and requirements, preliminary evaluations.
Coal Transport	Railroad construction, design and engineering; truck-shovel optimization; coal slurry technology.
Facility Construction	Silo design and engineering; conveyor systems; coal loadout facilities; crushing operations and design.

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**Texaco Development Corporation**  
 2000 Westchester Avenue  
 White Plains, NY 10650



**Telephone:** (914) 253-4003  
**Telex:** 1791144 **FAX:** (914) 253-7744  
**Chief Executive Officer:** H. Richard Horner  
**International Sales Manager:** Madeleine R. Marchese

**International Offices:** EUROPE: Ed Gerstbrein, Texaco Petroleum Maatschappij (Nederland) BV, Weena 166, 3012 CR Rotterdam, The Netherlands TEL. (010) 403-40 33-381 TELEX 23573 FAX (010) 40 33 586; Dick Guenther, Texaco Technology Europe GMBH, Zeppellnalle 50, D-6000 Frankfurt/M. 90, Federal Republic of Germany. TEL. 49-69-701047, FAX 49-69-6318-2020, TELEX 411569

Texaco Development Corporation (TDC) is responsible for the patent and licensing activities of its Parent Company, Texaco Inc. and a number of Texaco's subsidiary companies. As a wholly-owned subsidiary corporation, TDC has access to and active cooperation with all departments, affiliates and other subsidiaries of one of the largest integrated petroleum companies in the world. This provides TDC with research, engineering, producing, manufacturing, marketing and technical services availability in 96 countries. Texaco has been developing its gasification technology for over 40 years and has licensed over 90 oil and gas gasification plants around the world. It is the acknowledged leader in coal gasification with six commercial plants licensed worldwide; two of which are now in design and/or construction.

<b>Product/Service</b>	<b>Designation</b>	<b>Description</b>
Texaco Coal Gasification	TCGP	The Texaco Coal Gasification Process produces:  Synthesis gas (H <sub>2</sub> +CO) for manufacturing ammonia, methanol, hydrogen, oxo-chemicals, acetic acid & anhydride, Process (TCGP) and pure carbon monoxide as well as fuel gas (H <sub>2</sub> +CO) for electric-power generation, refineries, industrial plants & city distribution and reducing gas (H <sub>2</sub> +CO) for liberating metals from their ores.

(Continued on next page)



**Texaco Development Corporation (Continued)**

Synthesis fuel and/or reducing gases can be produced from solid carbonaceous fuels (including lignites, bituminous coals, anthracites and petroleum coke), coal tar and coal-liquefaction residue with pure oxygen, oxygen enriched air or air fed as the oxidant dependent upon the application.

Solid feedstock is ground to a controlled particle-size distribution, slurried in water or oil, and pumped to a specially designed burner, which mixes slurry and oxidant in a refractory-lined, entrained-bed, slagging gasifier. Partial combustion under closely controlled conditions yields syngas, fuel gas, or reducing gas, which may be either quenched by direct contact with hot water or cooled indirectly in a syngas cooler (waste-heat boiler), so as to produce steam according to optimum energy utilization for the complete project. Gasifier-effluent slag accumulates in a lock hopper for easy removal.

Because of the high temperature and pressure used in the gasifier, by-product tars, phenols, and hydrocarbons heavier than methane are not produced. Most of the process water is recycled. Water-soluble inorganic material is removed by processing a small stream of waste water. Sulfur released by gasification as H<sub>2</sub>S, with a minor amount of COS, is removed from the cooled product gas in a conventional downstream gas-treating section and then routed to a Claus unit or a tail-gas-treating unit for sulfur recovery. Byproduct slag and elemental sulfur are marketable commodities and air emissions can easily be controlled to 10-20% of U.S. Environmental Protection agency allowables for new source performance standards.

**Ultrasystems Engineers & Constructors, Inc.**  
 16845 Von Karman Avenue  
 Irvine, CA 92714



Telephone: (714) 863-7000  
 Telex: 69-2356 FAX: (714) 852-9697  
 Chief Executive Officer: John P. Coyle

Ultrasystems offers the complete range of services necessary to perform major engineering, procurement and construction contracts. These services include economic and feasibility studies, conceptual designs, technical development support, design reviews, project planning and management, process engineering, detail engineering design, procurement of equipment and material, plant construction, startup, performance testing and operator training activities.

Product/Service	Description
Coking and Formcoke	Licensing rights to the Peabody continuous coking process and formcoke process. Devolatilization of coal produces low Btu gas for above-grate combustion or heat recovery. Commercial units operating in U.S. and South Africa.
Coal Gas Clean-Up	Exclusive licensee of Hiperion sulfur removal process. Catalytic conversion of hydrogen sulfide, carbonyl sulfide and mercaptan from coke oven gas or coal gasification. One-step conversion of sulfurous compound to elemental sulfur. Commercial units operational in U.S. and Japan.
Coal-Fired Power Plants	Feasibility studies to turnkey installation. Commercial units operating in the U.S.
Wastewater Clean-Up	Fixed-firm anaerobic digestion of high COD wastewater. Simultaneous biogas recovery will provide energy needs to host plant.
Coal Gasification	Mansfield two-stage low Btu system. First gasification accomplished through traveling grate, followed by second-stage, fixed-bed gasification.

**Universal Energy International, Inc.**  
P.O. Drawer 5180  
Little Rock, AR 72225



**Telephone:** (501) 666-2446  
**Telex:** 536411,284794 **FAX:** (501) 682-7691  
**Chief Executive Officer:** J. Frank Angelo  
**International Sales Manager:** J. Frank Angelo

**International Offices:** Please contact headquarters for further information.

UNIVERSAL ENERGY INTERNATIONAL, INC (UEI, USA) is a US Company involved in the development and commercialization of Advanced, Cyclonic, Rotary Kiln Combustion Systems, Afterburner, and Burner Systems for the clean and efficient combustion of all coals, lignites, slurries, sludges, industrial and biomass wastes and blends/mixtures for heat, gas, flame (direct use such as calcination), steam and power production. UEI offers complete, 'turn key' systems including 'co-generation' systems in most countries of the world. UEI is interested in entering into License and Technical Collaboration with companies, globally, enabling some local manufacturing. UEI is actively involved in major research and development activities with the US Department of Energy, the University of Pittsburgh (PA), Bituminous Coal Research National Laboratory and other major institutions involving Sulfur capture from high Sulfur coals, during combustion, at precise temperatures, in UEI's Fluidized Bed Rotary Kiln Combustion Systems.

Product/Service	Description
Cyclonic/Fluidized Rotary Kiln Combustion Systems	20-400 Tons per day, per train Combustion/Gasification modes of operation. Feed stocks-coals of all types, lignite, high sulfur high ash coals, slurry, sludges, biomass, hazardous/industrial wastes, blends-process heat/steam/power systems complete, turnkey.

**Vernex Research Corporation**  
P.O. Box 1263  
Hampton Bays, NY 11946

## Vernex Research Corporation

ADVANCING COAL SCIENCE & TECHNOLOGY

**Telephone:** (516) 728-1304  
**Chief Executive Officer:** William Slegeir, PhD  
**International Sales:** Renee Slegeir

**Domestic Offices:** Please contact company Headquarters for further information

Vernex Research Corporation was founded in 1988, to enhance and market unique, proprietary software for coal selection and utilization initially conceived by Slegeir Associates. Vernex Research Corporation continues a leadership position in evaluating the impact of mineral matter and ash chemistry on fusibilities and boiler slagging tendencies. Vernex's lead product, PC-compatible software called CALAFT, augments and enhances the conventional ASTM ash fusion temperature (AFT) test, overcoming significant deficiencies in applying AFTs to boiler performance. CALAFT predicts AFTs from chemical composition. The software avoids inadequacies of the conventional test, offering coal suppliers and users an unprecedented level of power in assessing boiler fusibilities and slagging tendencies. Vernex has also compiled ash viscosity software and pioneered novel mineral matter/ash characterization techniques.

Product/Service	Description
AFT Software	Vernex has developed software that predicts AFTs from ash ultimate analyses for coals and coal blends. May be used to estimate effects of additives and differences between boiler and lab ash. Provides estimation of the reliability and sensitivity of each predicted AFT. Works interactively or processes files of data; results can be imported into spreadsheet program.

(Continued on next page)

**Vernex Research Corporation (Continued)**

**Viscosity Software**                      Vernex has developed software that allows the estimation of ash viscosity from the composition of the ash or coal mineral matter.

**Ash Analysis**                              Vernex has pioneered novel approaches for the characterization of ash and mineral matter, emphasizing the impact of compositional variability of fusibility parameters. Approaches emphasize microcharacterization, using synchrotron radiation for optimal spatial resolution.

**Western Energy Company**  
**16 East Granite**  
**Butte, MT 59701**



**WESTERN ENERGY COMPANY**



**Telephone:** (406) 723-5441  
**Telex:** 910-963-2408    **FAX:** (406) 252-2090  
**President:** James J. Murphy  
**Sr. VP/Operations Officer:** Paul Gatzemeier  
**International Sales Manager:** James M. Kelly

**Domestic Offices:**                      BILLINGS, MT: Western Energy Company, 13 N. Broadway, Billings, MT 59103 TEL. (406) 252-2277

Western Energy Company (WECO) is a wholly-owned subsidiary of Entech, Inc. which is the wholly-owned, non-utility subsidiary of Montana Power Company. WECO is engaged in the production and the sale of coal. WECO's Rosebud Mine, located near Colstrip, Montana, produced more than 16 million tons of coal in 1988 and WECO subsidiary, Northwestern Resources Co., produced nearly 8 million tons of coal in 1989 from its Jewett Mine, Jewett, Texas, and its Grass Creek Mine located near Kirby, Wyoming. WECO has patented a state-of-the-art coal beneficiation process and is currently planning to construct a 300,000 ton per year process demonstration plant at the Rosebud Mine. This plant is scheduled to go on-line sometime in late 1991.

Product/Service	Designation	Description
Advanced Coal Conversion	ACCP (Patent #4,725,337)	<p>The Advanced Coal Conversion Process (ACCP) produces a high quality stable synthetic fuel from processing a continuous stream of low rank coal. The ACCP uses low pressure and moderate temperature, along with a blend of inert gases, specifically proportioned for the characteristics of the feed coal being used to dry the coal. The ACCP causes the moisture holding capillaries to shrink, and the carboxylic acid groups to be thermally destroyed. As a result of these physical and chemical changes, the coal becomes drier and hydrophobic. This stops any material reabsorption of moisture which could cause spontaneous combustion.</p> <p>Additionally, the ACCP significantly reduces the sulfur content of the feed coal. As the capillaries in the coal particle shrink, the ash and sulfur (pyrites) are liberated from the coal and can be easily removed. Organic sulfur leaves as a distillate. The net result of the ACCP is the transformation of low rank, subbituminous coal into a high quality synthetic coal product, in the bituminous rank, with greatly improved moisture, ash and sulfur characteristics.</p>



**Willbros USA, Inc.**  
Suite 700, 2431 East 61st Street  
Tulsa, OK 74136

**Telephone:** (918) 748-7000  
**Telex:** 79-6660 **FAX:** (918) 748-7087  
**Chief Executive Officer:** L.J. Bump

**International Offices:** REPUBLIC OF PANAMA: Edificio Torre Banco Germanico, 8th Floor, Panama 1 TEL. (507) 63-9282 TELEX 3380;  
NIGERIA: 256 Kofo Abayomi St., P.O. Box 1057, Victoria Island, Lagos, 614877 TELEX 21115; OMAN: P.O. Box  
142, Muscat, Sultanate of Oman TEL. 590355 TELEX 5387; UNITED KINGDOM: Provincial House, 62-68 Eden  
Street, Kingston-upon-Thames, Surrey KT11EJ TEL. (01) 549-4471 TELEX 928172

Willbros USA, Inc. is a subsidiary of Willbros Group, Inc. which provides worldwide construction of pipelines and related facilities, onshore contract rotary drilling, maintenance of pipeline systems, dredging, transportation and pipe coating to the energy industry. Engineering and project management services are also provided to the energy industry, the U.S. Armed Forces and the telecommunications industry.

Product/Service	Description
Energy Transportation	Pipeline and facilities construction. Engineering and project management.

**Williams Technologies, Inc.**  
320 South Boston, Suite 831  
Tulsa, OK 74103

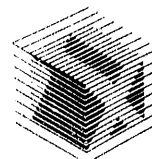
**Telephone:** (918) 582-5811  
**FAX:** (918) 584-0474  
**Chief Executive Officer:** David R. Williams, Jr.  
**International Sales Manager:** H.J. Brolick

**International Offices:** Please contact the company headquarters for further information.

Principal business is project assessment, development, and management from initiation of concept through commercial implementation, including financial sourcing. Manages R&D partnership for oil and mineral technologies, R&D program for coal liquefaction technology and operation of Black Mesa coal slurry pipeline. Provides consulting with regard to economic feasibility or technical evaluation of energy or resource projects. Manages operating facilities and technology development for others. Special expertise in development of coal slurry pipeline projects through past worldwide experience and ongoing operations management of Black Mesa Pipeline.

Product/Service	Description
Coal Transport	Provides development, management, financial packaging and operation management of coal slurry pipeline systems.
Architectural/Engineering	Provides consulting services in planning and feasibility study, as well as management of design, construction, and operations for coal slurry pipeline and oil and gas pipeline systems. Provides similar services for cogeneration plants and alternative energy projects.
Coal Derivatives	Management services for coal liquefaction and deep cleaning R&D.

**Xcel Group, Inc.**  
**675 N. Brookfield Road**  
**Brookfield, WI 53045**



**XCEL GROUP INC.**

**Telephone:** (414) 797-4080

**FAX:** (414) 784-5036

**Chief Executive Officer:**

Gerald T. Petersen

**International Sales Manager:**

Paul S. Gurski

Process engineering firm with extensive background in coal technology process development to include the specification, design, construction, start-up and operation of coal processing equipment. Xcel just completed a design, supply and test NATO-funded contract awarded in international competition for an R&D gasification facility in Athens, Greece. It provided start-up problem-solving services for a U.S. coal waste gasification project. Recently, Xcel organized a consortium of manufacturing firms to pursue a regional industrial waste recycling facility. Technical support services include feasibility assessments, U.S. equipment sourcing, custom equipment design, market research and application studies and project management. Particularly knowledgeable in U.S. utility market "clean fuel" needs and combined cycle applications.

**Product/Service**

**Description**

Technology/Evaluations

Evaluations of emerging and commercially mature technologies to include technical and economic evaluation for specific market applications.

"Clean Coal" Applications

Investigation of a specific technology or competing technologies for utility-scale or large industrial power generation applications.

Equipment Sourcing/Design

Identification of U.S.-based sources to meet specific processing needs or custom design and supply required equipment.

Project Management

Project management services to include permitting, engineering and construction.

Environmental Services

Environmental assessments, process evaluations, and designs to assure compliance to industrial discharge limits.

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**Architecture/Engineering:**

Firms providing power and/or industrial plant design services.

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**Acurex Corporation**  
**Environmental Systems Division**  
**555 Clyde Avenue**  
**P.O. Box 7044**  
**Mountain View, CA 94039**



**Environmental Systems Division**

**Telephone:** (415) 961-5700

**Telex:** 325961 **FAX:** (415) 964-5145

**President:** Gilbert Decker

**International Sales Manager:** David Delasanta

**Domestic Offices:** TRIANGLE PARK, NC: P.O. Box 13109, Research Triangle Park, NC 27709; GOLETA, CA: Santa Barbara Operations, 250 Storke Road, Suite 1, Goleta, California 93117

**International Offices:** Please contact headquarters for information.

The Environmental Systems Division of Acurex Corporation provides a full range of fuel services to government and industry. These include combustion facility design, operation and maintenance; environmental engineering and pollution control; and emissions sampling and analysis. Through its research for federal and state agencies such as the Environmental Protection Agency, the Gas Research Institute, the Department of Energy, and the California Energy Commission, the division develops technologies for commercial application and is able to provide industry with turnkey, state-of-the-art solutions for all combustion-related environmental engineering needs.

<b>Product/Service</b>	<b>Description</b>
Advanced Utilization	Testing of solvent-refined coal; assessment of clean coal use in stationary and mobile engines; testing of coal-oil mixtures in boilers; fuel staging research; assessment of coal-oil mixtures as light-off fuel; hot gas cleaning technology for coal-fired, pressurized, fluidized bed combustors.
Architecture/Engineering	Prototype design, fabricate and install coal combustion research furnaces. Design, fabricate and install pilot coal gasifiers, and fluidized bed combustors.
Boiler Equipment	Low SO <sub>2</sub> and low NO <sub>x</sub> combustion control technology; boiler modification/engineering; test coal additive to alter flyash characteristics; co-firing of hazardous waste in boilers; perform risk assessment of controlling NO <sub>x</sub> emission from coal utility boilers.
Coal Derivatives	Clean coal use in stationary and mobile engines; demonstrate coal-oil mixture prep plant.
Facility Construction	Construction management; install coal combustion furnace; install pilot coal gasifier; supply anthracite gasifier.
Facility Operation	Operation of coal burning plants/equipment; O&M of fluidized bed combustor.

**AEP Energy Services, Inc.**  
**1 Riverside Plaza**  
**Columbus, Ohio 43215**



**Telephone:** (614) 223-1000  
**Telex:** 810 482 1627 **FAX:** (614) 223-1822/1823  
**Chief Executive Officer/Chairman:** W. S. White, Jr.  
**International Sales Manager:** Donald A. Dick, Vice President & Managing Director

AEP Energy Services, Inc. (AEPES) is a wholly owned subsidiary of American Electric Power Company, Inc. (AEP), one of the largest electric utility holding companies in the U.S. For more than eighty years, AEP has planned, engineered, designed and constructed the most highly integrated and interconnected system in the world. Today the AEP System consists of over 23,000 MW of generating capacity, over 2,000 miles of 765 kV transmission line and over 100,000 miles of distribution line to provide reliable power to over 2.6 million customers. AEP is one of the largest users of coal in the U.S. and we mine over 11 million tons of coal annually from our four subsidiary mining divisions. Our expertise in utility operations and mining extends from longwall mining and the largest capacity coal washing plant in the U.S. to advanced research in coal utilization. AEPES was established to offer the experience and expertise of AEP and its subsidiaries to foreign and domestic organizations, public and private companies, and government agencies.

Product/Service	Description
Architect/Engineering Services	Power plant, T&D, substation, environmental and mining engineering/consulting; advanced coal utilization technology; testing and training.

**Aptech Engineering Services, Inc.**  
**1257 Elko Drive**  
**Sunnyvale, CA 94089**



**Telephone:** (408) 745-7000  
**FAX:** (408) 734-0445  
**Chief Executive Officer:** Dr. Geoffrey R. Egan  
**International Sales Manager:** Mr. Steven A. Lefton

**Domestic Offices:** SOUTH CENTRAL OFFICE: 901 Threadneedle, Suite 100, Houston, Texas 77079 TEL. (713) 558-3200 FAX (713) 558-3761; EAST COAST OFFICE: 601 North Fairfax, Suite 420, Alexandria, Virginia 22314 TEL. (703) 683-2062 FAX (703) 683-2132  
**International Offices:** Please contact company Headquarters for further information.

APTECH works with utility and industrial clients to solve their most intractable metallurgical, mechanical, and fireside problems. Our exceptional services have been fully tested and shaken down at utility boilers across the United States.

Product/Service	Designation	Description
Increased Life and Reliability of Superheaters and Reheaters	TUBEMOD™	Dramatically increases the life and reliability of superheaters and reheaters by adjusting the tube temperature profile. Tubes operating at excessive temperatures are cooled down, thus reducing failures and increasing section lifetime.

(Continued on next page)

**Aptech Engineering Services, Inc. (Continued)**

<p>Remaining Life Prediction System for Boiler Tubing</p>	<p><b>RUL<sup>®</sup> System</b></p>	<p>A turnkey system to nondestructively measure and calculate the remaining useful life of superheaters and reheaters.</p>
<p>Reduction of Slagging and Emissions from Utility Boilers</p>	<p><b>Cofiring</b></p>	<p>Special techniques and instrumentation for optimizing the cofiring of natural gas with coal without damaging the boiler tubing.</p>

**Baker/TSA, Inc.**  
**Airport Office Park, Building 3**  
**420 Rouser Road**  
**Coraopolis, PA 15108**



*"50 Years of Shaping the World in Which We Live"*

**Baker/TSA, Inc.**

Telephone: (412) 269-6000  
 Telex: 866287 FAX: (412) 269-6097  
 Chief Executive Officer:  
 International Sales Manager:

C. Joseph Touhill, Ph.D., P.E.  
 John D. Whiteford

**Domestic Offices:** MERRILLVILLE, IN: 701 East 83rd Avenue, Merrillville, IN 46410 TEL. (219) 736-0263; JACKSON, MS: 3957 Northview Drive, Jackson, MS 39206 TEL. (601) 362-5481; WESTBORO, MA: Lyons Street, Westboro, MA 01581 TEL. (508) 366-9191; HALLOWELL, ME: 103 Water Street, Hallowell, ME 04347 TEL. (207) 622-3724.

**International Offices:** Locations pending, please contact company headquarters for further information.

Baker/TSA, Inc. is the environmental management unit of the Michael Baker Corporation, a full service architectural, engineering and planning firm established in 1940. The firm has a long history of providing professional services to the coal industry and major consumers of coal, including the electric utility and steelmaking industries. Specific coal related services include by-product disposal and utilization investigations, landfill design and permitting, economic evaluations and regulatory impact analyses. Clients include the Electric Power Research Institute, National Coal Association/American Mining Congress, Consolidation Coal Company, USX Corporation, Bethlehem Steel Corporation, and Armco Steel Corporation.

Product/Service	Description
Emissions Control and Waste Disposal Systems	A full range of emission control by-products utilization and disposal services are offered. Baker/TSA, Inc. is capable of evaluating a full range of combustion and emission control technologies.
Advanced Utilization	A full range of emission control by-products utilization and disposal services are offered. Baker/TSA, Inc. is capable of evaluating a full range of combustion and emission control technologies.
Utilities	A full range of emission control by-products utilization and disposal services are offered. Baker/TSA, Inc. is capable of evaluating a full range of combustion and emission control technologies.
Architecture/Engineering	Various units of the Corporation provide a full spectrum of A/E services including environmental engineering, geophysical testing, geotechnical engineering, mining engineering, industrial hygiene, asbestos abatement design, architecture, civil engineering, structural engineering, electrical engineering, mechanical engineering, and fire protection design.



**Bechtel Power Corporation**  
**9801 Washingtonian Boulevard**  
**Gaithersburg, MD 20878-5356**



**Telephone:** (301) 417-3000  
**Telex:** (301) 374-6647 **FAX:** (301) 926-6003  
**Chief Executive Officer:** A. Zaccaria  
**Vice President and Manager:** R.W. Haviland

Bechtel Power Corporation, a member of the Bechtel group of companies, is well-known throughout the world as a premier engineering/construction/management firm specializing in a wide range of services to the power industry. Bechtel's experience includes operating plant services, and the engineering and construction of over 250 fossil-fired units. Services provided to the power industry include planning, engineering studies, environmental licensing, emission control, detailed engineering, procurement, construction, construction management, project management, start-up, plant operation, availability improvement, and plant life-cycle management services.

Product/Service	Description
Advanced Coal Utilization	Solid Fuels Management - Services to assess the physical and chemical qualities of coal. Services to develop and build coal transport, handling, and beneficiation systems to provide a fuel which best matches the boiler and emission control requirements. Conceptual design, detailed system design, and equipment selection for fuel systems from the mine to the boiler; Coal Technology - Services to provide feasibility studies, economic evaluations, conceptual design, cost estimates, detailed engineering, procurement, and construction utilizing advanced, coal technology such as direct and indirect liquefaction/gasification combined cycle plants; atmospheric and pressurized fluidized bed combustors; pulverized coal-fired plants with wet or dry flue gas desulfurization systems. Services to provide conceptual designs and cost estimates for the commercialization of advanced cleaning, drying, and wet carbonization technologies and processes under development. Design, construction, and operation of pilot plants and proof-of-concept test facilities; New Fuel Forms - Services to design and build process, transport, and distribution facilities for new fuels form coal such as coal-water slurries, agglomerated fine coal, and dewatered lignite;
Architect/Engineer	Architect/engineer and construction services to domestic utilities, independent power producers, and cogenerators including operation of fossil-fired plants. Full service turnkey programs including lump sum contracting, economic and technical feasibility studies, environmental licensing, project management, and start-up services. Operating plant services including refurbishment, availability improvement, and life cycle management.

**Bibb and Associates, Inc.**  
**Engineers • Architects • Consultants**  
**6750 Antioch Road**  
**Shawnee Mission, KS 66204**



**Telephone:** (913) 236-7200  
**FAX:** (913) 236-4426  
**President:** Robert A. Bibb, P.E.  
**International Sales Manager:** Robert A. Bibb, P.E.

Bibb and Associates is an engineering, architecture and consulting firm focusing on studies and design for fossil and alternate fuel district heating and power plants. The firm has worked extensively in the U.S. market and is expanding its services to international projects. Approaches to projects include EPC, turnkey, design/build and conventional engineer-owner relationships. Full in-house resources include mechanical, electrical, structural, civil, controls, sanitary, and chemical engineers and architects. The firm relies heavily on Intergraph and AutoCad computer drafting and design systems.

(Continued on next page)

**Bibb and Associates, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Architecture/Engineering (A&E)	Bibb and Associates offers extensive expertise in technical and economic feasibility studies for coal, oil and natural gas fired steam and steam electric district heating and power plants, simple and combined cycle combustion turbine power and cogeneration plants and diesel and dual fuel engine generator plants. Full engineering services are provided from studies through detailed design, resident engineering, construction management, startup, and performance testing. Services are provided to electric utilities, power developers, and industrial companies.

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**Black & Veatch, Engineers - Architects**  
8400 Ward Parkway  
Kansas City, MO 64114



**Telephone:** (913) 339-2000

**Telex:** 4-2523 **FAX:** (913) 339-8711

**Chief Executive Officer:** John H. Robinson, Managing Partner

**International Sales Manager:** Rolf Stamm, Partner and President of Black and Veatch International

**Domestic Offices:** 33 throughout U.S.

**International Offices:** Cairo, Egypt; Bangkok, Thailand; Sydney, NSW, Australia; New Delhi, India; Tokyo, Japan; Ja Karta, Indonesia; Izmir, Turkey; London, United Kingdom.

Black & Veatch, Engineers-Architects is one of the world's leading engineering and architectural design firms. Founded in 1915, the firm is a partnership headquartered in Kansas City, Missouri, with offices in more than 40 cities around the world. Black & Veatch is directed by a managing partner and six executive partners. The firm engages in engineering, design, procurement, and field management. All major disciplines are represented. More than 50 percent of the 4,000 employees have college degrees. These include professional civil, electrical, mechanical, nuclear, chemical, sanitary, architectural, and structural engineers. Associated with them are architects, planners, economic and financial specialists, hydrologists, chemists, biologists, administrative personnel.

<b>Product/Service</b>	<b>Description</b>
Engineering Services for Fossil Power Plants	The firm engages in engineering services for the generation, transmission, and distribution of electric power; collection, treatment, and disposal of wastewater. Comprehensive licensing, permitting and environmental consultation on mining, transportation and power plant projects. Mine engineering and mine reclamation consultation.
Coal Handling Systems	Black & Veatch designs the bituminous, subbituminous, and lignite terminating and handling facilities which are integral to coal fueled power plants. These facilities include systems for unloading (ocean-going ships, barges, railcars and on/off highway trucks), storing, reclaiming, crushing and weighing of coal to annual throughput capacities in excess of 9 million tons per year. Coal procurement and transportation consultation in areas of strategic planning and contracting. Heavy-haul railroad consultation including new and rehabilitated rail lines, motive power and railcar acquisitions, and equipment maintenance facilities.
Coal Quality Analysis	The Utilization Cost Program (UCP) is a rapid evaluation tool developed by Black & Veatch that takes you from coal quality data to total busbar costs on both new and existing units. It provides the capability to determine the impact of coal quality on unit design, unit performance, capital costs, and operating costs.
Port Facilities	The complete design of dock and cargo handling facilities has been accomplished by Black & Veatch in connecting with a number of projects. These design engagements have included facilities for the unloading, storage, and loading of various fuels and general cargo as well as ancillary facilities including railroad sidings, warehousing, and bulk storage.

**Blakley, Buturla Consulting Engineers**  
 621 South 4th Avenue  
 Caldwell, ID 83605

**BLAKLEY, BUTURLA**  
 CONSULTING ENGINEERS

**Telephone:** (208) 454-3033  
**FAX:** (208) 459-1984  
**Owner/Principal Engineer:** Frank J. Buturla, P.E.

Blakley, Buturla Consulting Engineers is a multi-disciplined engineering firm offering specialized engineering and technical support services to its clients. Formerly Blakley Engineers, Inc., the firm was established in 1958. Mr. Buturla, a former engineering executive with Morrison-Knudsen Corporation's mining division purchased the firm in February 1988.

Mr. Buturla has international experience in open cast coal operations, including design and start-up of major projects, including BWE, dragline and truck and shovel operations.

Product/Service	Description
Architecture Engineering	Design facilities, equipment specifications, mine design, feasibility studies, reserve confirmation.
Technical Consultants	Technical advisory services, troubleshooting, start-up recommendations, economic analysis.

**Braun Engineering Associates, P.C.**  
 299 Edison Avenue  
 West Babylon, NY 11704

**BEA** BRAUN ENGINEERING ASSOCIATES

**Telephone:** (516) 694-6509  
**FAX:** (516) 694-6529  
**Chief Executive Officer:** Robert J. Braun, P.E.  
**International Sales Manager:** Robert J. Braun, P.E.

**Domestic Offices:** MADISON, CT: 149 Durham Road, Madison, CT 06443 TEL. (203) 245-9777

Braun Engineering Associates is a fully integrated engineering firm providing mechanical and electrical power engineering services to utility and industrial clients. Project capabilities include engineering design and operations management of central heating plants, cogeneration installations, district heating and cooling systems. Our power system designs provide full spectrum services analysis with complete CAD capability. In addition to professional registration, BEA personnel hold several high Pressure Boiler Operating Engineers and Refrigeration Systems Operator Licenses and Unlimited Horsepower Diesel Licenses, and several national plant engineering operating and maintenance certificates.

Product/Service	Description
Architecture/Engineering	Steam plants, steam distribution systems, power generation, central chilled water and high temp. hot water plants, heat recovery, air pollution control, feasibility studies, electric utility interconnection, electric power cogeneration.
Facility Construction	Steam plants, steam distribution systems, power generation, central chilled water and high temp. hot water plants, heat recovery, air pollution control, feasibility studies, electric utility interconnection, electric power cogeneration.
Facility Operation	Power plant operation, operations and maintenance management, facility planning surveys, energy management.

**Brown and Root, Inc.**  
4100 Clinton Dr.  
Houston, TX 70020-6299



**Brown & Root, Inc.**

Telephone: (713) 676-3011  
Telex: (713) 676-4109 FAX: (713) 676-4191  
Chief Executive Officer: W.B. Pieper  
International Sales Manager: T. Smith, III

**Domestic Offices:** MOBILE, AL; LONG BEACH, CA; SAN RAMON, CA; WASHINGTON, DC.  
**International Offices:** ENGLAND; MEXICO; VENEZUELA; BRAZIL; AUSTRALIA; THE NETHERLANDS; NORWAY; PHILIPPINES;  
CHINA; EGYPT; CANADA; INDONESIA; JAPAN; SINGAPORE; MALAYSIA; SAUDI ARABIA; SCOTLAND;  
BAHRAIN; U.A.E.

Brown & Root and its associated companies form one of the world's largest and most diversified groups of engineering and construction companies. Brown & Root, Inc. was formed in 1914 and has been a wholly-owned subsidiary of the Halliburton Company since 1962. Our growth record is a direct reflection of the reputation we have earned as a leader in the industry, being ranked No. 1 five times and No. 2 five times by Engineering News Record. Our philosophy of work is summarized by the words: Quality, Cost and Schedule. Brown & Root offers a total range of services from preliminary studies, process selection, procurement, construction and operational maintenance and also provides management counseling and guidance in technical, financial, legal and general business matters.

Product/Service	Description
Power Plants	Complete range of services required for design and construction of power plants, including coal fired plants, combustion turbines, diesel generators, oil and gas fired plants, nuclear and cogeneration. Engineered and/or constructed in excess of 10,000 MWe of fossil fired plants.
Mining	Complete range of services required for design and construction of mining facilities including solution mining, underground, and surface mining.

**Burns & McDonnell**  
4800 E. 63rd Street  
Kansas City, MO 64130

EMPLOYEE - OWNED  
**Burns & McDonnell**  
ENGINEERS - ARCHITECTS - CONSULTANTS

Telephone: (816) 333-4375  
Telex: (910) 771-3059 BURNS MCDKSC FAX: (816) 333-3690  
Chief Executive Officer: Newton A. Campbell  
International Sales Manager: Larry Thies

**Domestic Offices:** ST. LOUIS, MO: 10795 Watson Road, St. Louis, MO 63127 TEL. (314) 821-9016; OVERLAND PARK, KS: 10890 Benson Drive, Overland Park, KS 66225 TEL. (913) 451-8008; MIAMI, FL: 4950 S.W. 72nd Avenue, Suite 108, Miami, FL 33155 TEL. (305) 661-1527; WEST PALM BEACH, FL: 5725 Corporate Way, Suite 208, West Palm Beach, FL 33407 TEL. (407) 686-0207; DENVER, CO: 8055 E. Tufts Avenue, Suite 330, Denver, CO 80237 TEL. (303) 721-9292; PUEBLO, CO: 222 S. Union Avenue, Suite 201, Pueblo, CO 81003 TEL. (719) 545-3535; DALLAS, TX: 18333 Preston Road, Suite 460, Dallas, TX 75252 TEL. (214) 248-9570

Founded in 1898, Burns & McDonnell is a full-service architectural/engineering firm. Employee-owned since January 1986, Burns & McDonnell is a leader in electric power design, and has provided comprehensive engineering for coal-fired units ranging in size up to 670 megawatts. The firm has also engineered more than 35 fluidized-bed boiler installations. Burns & McDonnell has designed and specified air pollution control systems for utility and industrial clients since the early 1950s. Expertise includes writing equipment specifications, detail process design, construction and start-up services, and emission compliance and performance testing.

(Continued on next page)

**Burns & McDonnell (Continued)**

<b>Product/Service</b>	<b>Description</b>
Architecture/Engineering	Burns & McDonnell's involvement in electric power generation began in 1900 with the design of a coal-fired electric power plant. The firm's experience includes a wide range of unit sizes and plant features, including wet and dry FGD systems, electrostatic precipitators and baghouses. Burns & McDonnell also has experience with a variety of coals. Each power plant is designed to include the features needed to meet siting, operational, environmental and other requirements.

**Chas. T. Main, Inc.**  
**101 Huntington Avenue**  
**Boston, MA 02199**



**Telephone:** (617) 262-3200  
**Telex:** 4430035/CTMAIN **FAX:** (617) 859-2576  
**Chief Executive Officer:** James T. Callahan, President  
**International Sales Manager:** Bahman Yamin-Afshar

**Domestic Offices:** CHARLOTTE, NC: 4701 Hedgemore Drive, Charlotte, NC 28209 TEL. (704) 529-6246; PASADENA, CA: 100 West Walnut Street, Pasadena, CA 91124 TEL. (800) 362-6304

A subsidiary of The Parsons Corporation, Chas. T. Main, Inc. (MAIN), established in 1893, is a major international engineering and construction firm with over 1,300 people representing all engineering disciplines, process engineering, architecture, project management, construction management, procurement, quality assurance, and project controls functions. MAIN serves electric utilities and other energy producers; pulp and paper producers; the chemical process industry; high-technology manufacturers; the printing industry; commercial enterprises and institutions; and government agencies. Services provided range from feasibility studies, consultant services, to turnkey supply of complete operating facilities.

<b>Product/Service</b>	<b>Description</b>
Services to the Power Industry	Over 4,200 public and private sector clients throughout the world have been served by our specialists in Thermal Power, Industrial Power, Hydroelectrical Power, and Power Delivery. Projects have included power generation and delivery services to over 100 utilities in the United States and to clients in over 60 countries worldwide. MAIN's power generation experience includes engineering design and construction management services for over 56,000 megawatts of installed capacity, including oil-fired, combined cycle gas/turbine, hydroelectric, coal/lignite, and cogeneration. Additionally, MAIN has extensive experience with transmission lines, substations, and numerous distribution, switchyard, communication, and load management systems.

**CLI Corporation**  
430 Park West One  
Pittsburgh, PA 15275



**CLI CORPORATION**  
*Engineers and Contractors*

Telephone: (412) 788-6688  
FAX: (412) 788-6690  
Chief Executive Officer:  
International Sales Manager:

David G. Chedgy  
David G. Chedgy

**International Offices:** Please contact company headquarters for further information.

CLI Corporation is a major design and construction company in the coal and mineral industry. The Corporation specializes in feasibility studies, definite estimates, engineering, and turnkey construction for coal preparation and other mineral processing plants and the associated material handling systems. The Company also produces specialty equipment related to the processing industry. A subsidiary company is also involved in contract operations of mining facilities. The Company has internationally recognized coal and mineral processing specialists and a full complement of professional engineers and construction specialists.

Product/Service	Designation	Description
Architecture/ Engineering	CLI-1	Conceptual, preliminary, and actual design of coal and mineral process plants and material handling systems, including conveying, blending, and storage.
Coal Mining	CLI-2	Contract operations of mines and processing plants, including owner/operator contracts. Major coal processing of contracts of 1200 TPH presently under contract.
Facility Construction	CLI-3	Construction of turnkey or negotiated process plants and material handling facilities.
Advanced Utilization	CLI-4	Producer of ultra-low ash and sulfur coal and coal water slurries (CWS).

**Coal Industry Consultants, Inc.**  
P.O. Box 3090  
Naperville, IL 60566-7090



Telephone: (708) 420-8830  
FAX: (708) 420-8894  
Chief Executive Officer:  
International Sales Manager:

Mr. Donald L. Schaible, P.E.  
Mr. Donald L. Schaible, P.E.

Established in 1985, CINCO provides highly specialized consulting services in all phases of coal exploration, mining, preparation, utilization, and marketing, including fuel supply contract analysis, property appraisals, flowsheet design, supervision of exploration programs, feasibility and reserve studies, mine design and operation analysis. CINCO's principals have executed assignments in, and are familiar with, most of the world's coal-producing nations, and have recently provided technical assistance to coal organizations in Chile, Colombia, and India. Client mix includes mining companies, electric utilities, industrial firms, steel companies, railroads, government agencies, banks, insurance companies, attorneys, developers, landowners, and investors. Total employees 7; 4 professional staff.

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**Coal Industry Consultants, Inc. (Continued)**

Product/Service	Description
Consulting Services	Determination of the maximum economically recoverable reserves of a particular deposit and the optimum rate of production.
	Estimation of the optimum quality and yield of coal that can be produced from a deposit with consideration of levels of beneficiation.
	Suitability of the application of a given coal to a process in terms of utilization equipment.
	Value of a mine or a producing company based on profitability, fixed assets, and reserves.
	Develop mine plans including extraction sequence, equipment lists, and capital and operating costs.

**CRS Sirrinc Engineers, Inc.**  
**1041 East Butler Road**  
**P.O. Box 5456**  
**Greenville, SC 29607**



**Telephone:** (803) 281-3700  
**FAX:** (803) 281-3712  
**Chief Executive Officer:**  
**International Sales Manager:**

Bruce Wilkinson, Houston, Texas  
 Dave Syphard, Greenville, South Carolina (803/676-6000)

**Domestic Offices:** Major cities in the U.S. - Contact Corporate Headquarters for further information - 713/552-2000 or 1-800-672-2777.

CRS Sirrinc Engineers, Inc., a design/construction and consulting firm serving the power generation industry with feasibility studies, cost estimating, preliminary and detailed engineering, architectural design, permitting, construction management, turnkey contracting, start-up and plant operations management. Also provides power project development, project financing, and equity investments in projects. Much of our major success in new sales can be attributed to our strategy of improving market share in our strong markets. We've expanded into fields that combine our financial strength with our strong technical knowledge. Utility and industrial power facilities, cogeneration, environmental design and control, and risk management are all areas with which we have an impressive foundation of experience.

Product/Service	Description
Engineering Design and Construction	CRS Sirrinc Engineers, Inc. is among the top engineering design and construction firms in the United States, with affiliates in foreign countries. We have current experience in the design, construction, and retrofit of coal-fired utility and industrial power plants, including circulating fluidized combustion boilers, cogeneration units, and independent power production plants.
Alternative Services	As an alternative to conventional owner-engineer-constructor relationship, Sirrinc offers equity participation in selected projects through its CRSS Capital affiliate. Inquiries regarding particular project structuring opportunities are invited.

**Dorgan Associates, Inc.**  
5610 Medical Circle, Suite 31  
Madison, WI 53719-1227



**Dorgan Associates, Inc.**  
**Consulting Engineers and Scientists**

Telephone: (608) 273-0044

FAX: (608) 273-0614

Chief Executive Officer:

Dr. Charles E. Dorgan, P.E., Ph.D.

International Sales Manager:

Mr. Eric T. Truelove, P.E.

Dorgan Associates is a consulting engineering firm specializing in energy use, storage, and production technologies. Past and present customers include the Electric Power Research Institute (EPRI), major utilities throughout the United States, government agencies, engineering firms, and manufacturers. Dorgan Associates has produced the Cold Air Distribution Design Guide (EPRI EM-5730) and the Field Evaluation of Cold Air Distribution Systems guide (EPRI EM-5447). In addition, Dorgan Associates has developed and conducted courses in energy engineering, energy management, thermal storage, and HVAC. These courses have been conducted throughout the United States, Canada, Asia, and Africa.

Product/Service	Description
Advanced Utilization	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.
Architecture-Engineering (A&E)	Provide engineering consultation for energy use, storage, and production technologies.
Facility Construction	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.
Facility Operation	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.

**Eavenson, Auchmuty & Greenwald**  
Airport Office Park III  
420 Rouser Road  
Coraopolis, PA 15108



**Consultants to the Mining Industry**

Telephone: (412) 262-5300

FAX: (412) 262-5303

Chairman of the Board:

Edward H. Greenwald, Sr.

President:

Richard F. Wesner

Executive Vice President:

Edward H. Greenwald, Jr.

Domestic Offices:

SHADY SPRINGS, WV: P.O. Box 147, Shady Springs, WV 25918 TEL. (304) 763-3023; DANVILLE, PA:  
R.D. #4, Box 279, Danville, PA 17821 TEL. (717) 275-4043

For nearly seventy years EA&G has performed consulting work concerned with the mining, transportation, and marketing of coal and other minerals. The firm's capabilities encompass both economic and technical analysis over a full spectrum of mining industry tasks and requirements. EA&G's expertise has relevancy at every stage involved in the development of a project -- from original conception through feasibility determination, design, engineering, construction, start-up, and full operation. The firm strongly believes that the economics of a project must be advanced parallel to the solutions to each project's distinct technical problems. The integration of these two inseparable factors underlies EA&G's approach to every task which it undertakes on behalf of its clients.

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**Eavenson, Auchmuty & Greenwald (Continued)**

Product/Service	Description
Architecture/Engineering (A&E) Technical Consultants	<ul style="list-style-type: none"> <li>• Preliminary project engineering for surface and underground mining operations, including determination of both technical and economic feasibility;</li> <li>• Marketing, including analysis of existing markets and projections of future consumption trends;</li> <li>• Transportation of mineral products by rail, water, truck, conveyor, and pipeline;</li> <li>• Environmental and site planning, including the intricacies of permitting, licensure, and statutory/regulatory conformance;</li> <li>• Mineral preparation and beneficiation, material handling, blending, and other steps and technologies involved in materials handling and treatment;</li> <li>• Business management services to optimize profitability, identify and eliminate waste of loss factors, and provide knowledgeability concerning state-of-the-art management practices elsewhere in the industry;</li> <li>• Specialized services in the areas of taxation, forensics, arbitration, and related subjects impacting both planned and existing operations;</li> <li>• Geological analysis, exploration, and reserve studies;</li> <li>• Valuations and appraisals of reserves and facilities;</li> <li>• Technology-intensive computer-assisted research and development, both "project-oriented" and with reference to existing operations.</li> </ul>

**Fluor Daniel**  
3333 Michelson Drive  
Irvine, CA 92730

**FLUOR DANIEL**



Telephone: (714) 975-7100

Telex: 68-1441 FAX: (714) 975-5271/6549

Chief Executive Officer: Vincent L. Kontny

International Sales Manager: Gerald M. Glenn

**Domestic Offices:**

CHICAGO, IL: TEL (312) 368-3500, GREENVILLE, SC: TEL. (803) 298-2500, HOUSTON, TX: TEL. (713) 263-1000; PHILADELPHIA, PA: TEL. (609) 985-1101; REDWOOD CITY, CA: TEL. (415) 595-6000; RICHMOND, VA: A.T. Massey Coal Company, Inc., TEL. (804) 788-1800; CHARLOTTE, NC: Duke/Fluor Daniel, TEL. (704) 357-3271

**International Offices:**

SAUDIA ARABIA: Fluor Arabia, Dhahran TEL. (966) 3-857-8577; AUSTRALIA: Fluor Daniel Australia, Melbourne TEL. (61) 03-520-4444; CANADA: Fluor Daniel Canada, Calgary TEL. (010) 403-259-1110; THE NETHERLANDS: Fluor Daniel BV Netherlands, Haarlem TEL. (31) 23-33-90-20; GERMANY: Fluor Daniel GmbH, Dusseldorf TEL. (49) 211-4551-1; ENGLAND: Fluor Daniel, Ltd., London TEL. 44-1-222-7717

Fluor Daniel provides a full range of engineering, construction and related services through over 50 offices worldwide. These services include feasibility studies, conceptual design, project management, engineering, procurement, construction, technical services, project financing, consulting, environmental services, maintenance and plant operations. Our affiliate, AT Massey Coal Company, produces both high quality low-sulfur coal and metallurgical coal and ranks among the 10 largest coal marketers in the United States. Massey sells produced coal and markets coal for independent producers. Fluor Daniel, in partnership with Duke Power, designs and constructs or modernizes coal-fired power plants and performs operations and maintenance.

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**Fluor Daniel (Continued)**

<b>Product/Service</b>	<b>Description</b>
Power Generation System	Fluor Daniel provides design engineering, procurement and construction of integrated coal gasification power generation systems as a part of our work with combustion turbine technology. Duke/Fluor Daniel has engineered or constructed over 75 conventional fossil fuel generating stations ranging from 5 to 1980Mw and provided maintenance and operating services in over 150 units.
Advanced Utilization (CCT)	Fluor Daniel offers engineering, procurement, construction and consulting support to Clean Coal Technology projects. We have performed over 105 coal gasification studies and participated in 14 major projects including Sasol, the world's largest coal gasification facility, on which Fluor Daniel performed engineering, procurement and construction.
Engineering/Procurement/ Construction	Fluor Daniel engineering, procurement and construction experience includes coal mines, coal handling and transport facilities, and plants for utilities and other coal consumers.

**Foster Wheeler Corporation**  
**Perryville Corporate Park**  
**Clinton, NJ 08809-4000**



Telephone: (201) 730-4000  
 FAX: (201) 730-4360

Chief Executive Officer: Mr. L.E. Azzato  
 International Sales Manager: Mr. B.F. Stephan; Mr. I.G. Lutes

**Domestic Offices:** ATLANTA, GA; BOSTON, MA; CHARLOTTE, NC; CHICAGO, IL; DENVER, CO; HOUSTON, TX; KANSAS CITY, MO; LOS ANGELES, CA; NEW ORLEANS, LA; NEW YORK, NY; PHILADELPHIA, PA; PITTSBURGH, PA; WASHINGTON, D.C.; AND WINTER PARK, FL

**International Offices:** AUSTRALIA: TELEX 152838 REWOP AA; CANADA: TELEX 055-60042; CHINA: TELEX 210396 REWOP CN; COLUMBIA: TELEX 396-43254 REWOP CO; ENGLAND: TELEX 851-263984; FRANCE: TELEX 842-210 782; HONG KONG: TELEX 37512 FWAL HX; ITALY: TELEX 843-310548; JAPAN: TELEX 2323192; NETHERLANDS: TELEX 844-34264; NIGERIA: TELEX 22365 FOSWLD NG; SINGAPORE: TELEX RS 39292 FWINTL; SPAIN: TELEX 83122275; contact the main office for further information.

Foster Wheeler Corporation is an engineering, manufacturing, construction, real estate development and service organization with 23 subsidiaries operating worldwide. Founded in 1927, it is currently one of the world's largest engineering and construction organizations. International activities are conducted by affiliates in England, France, Italy, Spain, and Canada. U.S. based industrial subsidiaries supply diversified engineering technologies and allied equipment.

<b>Product/Service</b>	<b>Description</b>
Advanced Utilization Architecture/Engineering Boiler Equipment Coal Derivatives Facility Construction Facility Operation Financing	Foster Wheeler Energy Corporation, a major United States subsidiary, designs, fabricates, maintains, manufactures, and constructs steam generating equipment for electric utilities and industry. This Foster Wheeler subsidiary furnishes condensers, feed water heaters, and other major auxiliary equipment for coal, oil, and gas-fired installations in the United States and abroad. Foster Wheeler's application of alternate energy sources have advanced the state of the art. Current projects involve refuse-to-energy plants, the cogeneration of industrial steam and electric power, a proprietary sludge drying process and high technology heat recovery equipment.



**GAI Consultants**  
**570 Beatty Road**  
**Monroeville, PA 15146**

**Telephone:** (412) 856-6400

**FAX:** (412) 856-4970

**Chief Executive Officer:**

**International Sales Manager:**

Dr. Anthony M. DiGioia, Jr.

Dr. Anthony M. DiGioia, Jr.

**Domestic Offices:**

CHARLESTON, WV: 4715-C MacCorkle Avenue SE, Charleston, WV 25304 TEL. (304) 925-7730, FAX (304) 925-7776; ORLANDO, FL: 1833 Edgewater Drive, Orlando, FL 32804 TEL. (407) 423-8398, FAX (407) 843-1070; RALEIGH, NC: 401 Glenwood Avenue, Raleigh, NC 27603 TEL. (919) 828-0801, FAX (407) 833-2784; MT. LAUREL, NJ: 300 Birchfield Drive, Suite 301, Mt. Laurel, NJ 08054 TEL. (609) 273-6585, FAX (609) 273-0050

**International Offices:**

Please contact Monroeville office for further information.

GAI Consultants professional staff of 390 engineers, geologists, scientists, environmental specialists, planners, economists, and technical and administrative personnel provides a comprehensive range of quality planning, study, and design services in civil, environmental, geotechnical, and structural engineering; energy; mining (including pre-blasting and pre-mining surveys); soil science and agronomy; water resources; industrial/hazardous waste management; transportation; site development; and construction monitoring.

**Product/Service**

**Description**

Mine Planning and Design

Full design and planning services for new or expanding mines include drilling, geophysical testing, feasibility studies, mine layouts, permitting, and selection of mining methods and mine access. GAI also provides assistance in planning and siting auxiliary mine facilities and beneficiation and coal gasification facilities.

Waste Disposal and Land Reclamation

Waste disposal and land reclamation services range from overall engineering design and materials handling procedures to environmental studies, and ground-water investigations. GAI provides services for dry refuse disposal areas and slurry impoundments; treatment of acid mine drainage; design of waste disposal dams and ponds; and regrading, revegetation, and reclamation planning.

Environmental and Subsidence Engineering

Environmental services include pollution abatement, reclamation planning, environmental impact statements, waste disposal and permitting studies, ground-water monitoring, and acid mine drainage studies. Subsidence-related services include subsidence plans, mine and surface stabilization, prediction of subsidence and ground movement, subsidence investigation and control plans, and design of subsidence-resistant structures.

**General Physics Corporation**  
6700 Alexander Bell Drive  
Columbia, MD 21046



**GENERAL PHYSICS  
CORPORATION**

**Telephone:** (301) 290-2300

**Telex:** 7108622878 **FAX:** (301) 290-2600

**Vice President Fossil Services:**

Herman P. Stone II

**International Sales Manager:**

David Huckeba

**Domestic Offices:**

LOCKPORT, NY: 111 Main Street, Lockport, NY 14094; SCHENECTADY, NY: 426 Franklin Street, Schenectady, NY 12305

**International Offices:**

SINGAPORE: Robert Young, Director/GP Asia, Pte. Ltd., 80 Marine Parade Road, #11-01 Parkway Parade, Singapore 1544, TEL. 65-3453633, FAX 65-3457938

General Physics Corporation is a mature and established company that provides diverse technical services to industries and government. General Physics employs over 1,600 people and had over \$134 million in annual sales in 1989. We are a high-technology company organized to respond to individual client needs. General Physics has a well-qualified staff of former power plant supervisors, managers, and operators. They understand the problems and concerns of the coal industry. We have developed a methodology that has been proven effective in solving plant problems. The key to our performance has been enthusiasm, imagination, and performance.

**Product/Service**

**Description**

**Operations Support Services**

The services available in operations support include: Audits of Coal Sampling Equipment and Sample Preparation; Combustion Technology Improvement Programs; Coal Handling System Descriptions; Coal Handling Operating Procedures; Alarm/Abnormal Response Procedures; Start Up Procedures and Support; Coal Handler Qualification Programs; Operations Audit; Human Factors Assessments; and Thermal Performance Monitors.

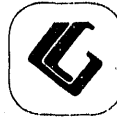
**Training Services**

We are also involved in all aspects of training plant personnel with particular emphasis on developing training programs based upon specific client needs. These include: Training Program Needs Analysis; Coal Handler Training Program Design and Development; Development of Classroom, Self-Taught, Laboratory, In-Plant, Simulator and On-the-Job Training Programs for Coal Handling Systems; Preparing Training Materials; Conducting Training Programs; Developing Operations and Maintenance Qualification and Requalification Programs; Administration Materials; Coal Handling Systems Training; Advanced Operator Training (Combustion Efficiency); and Simulator Training.

**Maintenance Services**

General Physics has been involved in providing maintenance services since 1971. These maintenance support and maintenance training services include: Preventive/Corrective Maintenance Procedures; Coal Unloaders; Stacker Reclaimers; Crushers; Conveyor Belts; Coal Silos; Feeders; Other Equipment; Mechanical Maintenance Training of Coal Equipment; Electrical Maintenance Training of Coal Equipment; Instrument Maintenance Training of Coal Equipment; Technical Repair Specifications; Maintenance Planning Support; Outage Management and Support; Diagnostic Testing and Inspection; Preventive Maintenance Programs; Reliability Centered Maintenance Programs; Maintenance Audits; Preventive Maintenance Procedures; Inspection and Repair Procedures; and Spare Parts Program.

**Gilbert/Commonwealth, Inc.**  
P.O. Box 1498  
Reading PA 19603-1498



**Gilbert/Commonwealth**

**ENGINEERS/CONSULTANTS Reading, PA**

**Telephone:** (215) 775-2600  
**Telex:** 836-431 **FAX:** (215) 775-2670  
**Chief Executive Officer:** Charles D. Williams  
**International Sales Manager:** Peter A. Hededus

**International Offices:** ZIMBABWE: Peter Cochrane, Gilbert (Zimbabwe) Ltd., 3rd Floor, Zambia House, Corner Julius Nyerere & Union Ave., Harare TEL. 263-4 791108, TELEX 6125 BICON ZW; ENGLAND: Keith Millard, Gilbert Associates (Europe) Ltd., Fraser House, London Road, Twickenham, Middlesex, TW1-3ST TEL. 44 81 891-4383, TELEX 266-951 GILBT G; ENGLAND: R. Bruce Wilson, Halcrow Gilbert Associates, Ltd., Burderop Park, Swindon, Wiltshire SN4 0QD TEL. 44 79 381-4756 TELEX 44844 HALWIL G; AUSTRALIA: Peter Browne, CMPS Pty Limited, 200 Mary Street, Brisbane, Queensland 4000 TEL. 61 7 233-1611 TELEX AA41539; EGYPT: Vincent W. Condath, Jr., Gilbert Associates (Middle East) SAE, 12 Sebaweeh el Masri Street, Nasr City, Cairo TEL. 20 2 601-123 TELEX 21157 GAMEL; SAUDIA ARABIA: Gilbert-ACES, c/o Arabian Consulting Engineering Services (ACES), P.O. Box 146, Riyadh TEL. 966 1 464-3538 TELEX 400763 ACES SJ

Gilbert/Commonwealth (G/C) provides consulting engineering and allied capabilities to a wide variety of industrial, utility, and governmental clients around the world. Our extensive experience with fossil fuels and fossil fueled power plants encompasses the full range of consulting engineering services, including feasibility studies, engineering analyses, trade-off studies, independent engineers reports, conceptual and final design, cost estimates, planning and scheduling, specifications, quality assurance, construction management, and startup and test. Gilbert/Commonwealth's commitment to and experience with advanced energy technologies is well known, with many assignments for industry and government agencies, including the design and operation of the High Sulphur Center for the Electric Power Research Institute. Further, G/C's engineering and applications experience with acid rain and greenhouse effect problems has put the company at the leading edge of research on these important issues. Gilbert/Commonwealth has been the prime contractor on several Department of Energy advanced energy projects which focused on technologies such as duct injection, fluidized bed combustion, gas stream clean-up, and magnetohydrodynamics. G/C is one of the operators of DOE's Pittsburgh Energy Technology Center and is the A/E services contractor for DOE's Morgantown Energy Technology Center, both of which are coal research facilities.

<b>Product/Service</b>	<b>Description</b>
Architecture/Engineering	Complete consulting engineering services, including feasibility studies, engineering analyses, trade-off studies, independent engineers reports, conceptual and final design, cost estimates, planning and scheduling, specifications, quality assurance, construction management, startup and test.

**Harris Group Inc.**  
P.O. Box 3855  
Seattle, WA 98124



**Harris Group Inc.**

**Telephone:** (206) 382-7410  
**Telex:** 15-2917 **FAX:** (206) 382-9645  
**Chief Executive Officer:** Robert M. Harris, Chairman and CEO  
**International Sales Manager:** John D. Logsdon

**Domestic Offices:** PORTLAND, OR: 1750 N.W. Front Avenue, Portland, OR 97209 TEL. (503) 228-7200; BELLINGHAM, WA: 1111 Cornwall Avenue, Bellingham, WA 98225 TEL. (206) 734-4944; APPLETON, WI: 4321 W. College Avenue, Appleton, WI 54914 TEL. 414) 749-4600

**International Offices:** CANADA: Fourth Floor, 233 West 1st Street, North Vancouver, B.C. V7M 1B3 TEL. (604) 985-6485

Backed by more than four decades of engineering experience, Harris Group Inc. has become widely regarded as a leader in engineering design for industrial situations. Our staff of approximately 500 includes professionals in all of the major engineering disciplines. Harris Group Inc. has the capability and capacity to handle both large and small projects from the very earliest stages through to the completion of construction. We routinely provide services for, but not limited to, the steam and metallurgical coal, cogeneration, and coal transshipment industries. Areas of expertise offered in coal handling are size reduction; screening and classification; blending and sampling; storage and reclamation; unit train and ship loading/unloading; conveying and transshipment.

Product/Service	Description
Specialized Coal Handling	Harris Group Inc. staff members have accumulated many years of experience in coal handling in the United States, Canada, and Europe. Services provided include project management, planning, engineering permitting, construction management, and startup and training assistance. Typical systems provided are: export terminals complete with dock facilities; automated stacking and reclaiming; shiploading and unloading with enclosed tubular conveyor galleries; overland conveyor systems; state-of-the art transshipment facilities with totally enclosed storage and conveying; general coal handling from mine mouth to preparation plant and beyond.

**HDR, Inc.**  
8404 Indian Hills Drive  
Omaha, NE 68114-4049



**Telephone:** (402) 399-1000  
**FAX:** (402) 399-1238  
**Chairman, HDR, Inc.:** Jean Tietz  
**Chief Operating Officer, HDR, Inc.:** Francis Jelensperger  
**President, HDR Engineering, Inc.:** Richard R. Bell  
**Director, National Power and Energy Programs:** Robert P. Knudsen

**Domestic Offices:** Alexandria, VA; Anchorage, AK; Austin, TX; Charlotte, NC; Chicago, IL; Dallas, TX; Denver, CO; Fresno, CA; Greensboro, NC; Irvine, CA; Kansas City, KS; Minneapolis, MN; Omaha, NE; Phoenix, AZ; Pittsburgh, PA; Portland, OR; Sacramento, CA; Seattle, WA; Spokane, WA; Tampa, FL; Virginia Beach, VA; and White Plains, NY

HDR, Inc. is a nationally recognized, full-service corporation in engineering and architectural design, and facilities management. HDR, Inc. is the holding company for three operating companies: HDR Engineering, Inc., Henningson, Durham & Richardson, Inc., and HDR FM, Inc.

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**HDR, Inc. (Continued)**

HDR was founded in 1917 in Omaha, Nebraska. Today, the corporation has 22 offices nationwide and employs more than 1,250 people, including nearly 850 engineers, architects, and other professionals. HDR was bought in 1983 by the French company, Bouygues, S.A., one of the largest design/build companies in the world.

Product/Service	Description
Architecture/Engineering (A&E)	HDR Engineering provides full-service waste/energy, water/wastewater, and transportation engineering services. Henningson, Durham & Richardson specializes in architectural design of health care, justice, and corporate facilities. HDR FM, Inc. offers integrated facilities management services.
Power Generation Systems	HDR Engineering provides full professional engineering services for power generation systems, including cogeneration plants, power plant rehabilitation systems, retrofitting, hydropower, district heating and cooling, transmission and distribution, alternative fuels utilization and fluidized bed combustion. We are experienced in the utilization of such fuels as solid waste, coal, oil, wood waste, black liquor, industrial and wastewater sludges, methane gas, digester gas, and others.
Utilities	HDR Engineering's work for utilities includes projects for more than 100 energy utilities in 20 states, as well as water and wastewater clients throughout the United States.
Emissions Control and Waste Disposal Systems	Our firm designs state-of-the-art facilities which satisfy all Clean Air Act requirements. HDR Engineering is recognized as an industry leader in providing engineering services for solid waste collection and disposal systems.
Technical Consultants	HDR provides complete technical consultation in all areas related to waste management and energy recovery, water and wastewater projects, environmental issues, transportation systems and bridges; health care, justice, and corporate facilities; and facilities management.

**Henkles & McCoy, Inc.**  
 985 Holly Road, P.O. Box 950  
 Blue Bell, PA 19422-0900



Telephone: (215) 283-7600  
 FAX: (215) 283-7587

**Chief Executive Officer:** Paul M. Henkels  
**President/Chief Operating Officer:** Dr. Kenneth L. Rose  
**International Sales Manager:** W. Bruce App  
 Mr. Ian H. Sargent, Division Manager, Engineering Division

**Domestic Offices:** Oreland, PA; Rising Sun, MD; New Castel, DE; Burlington, NJ; Portland, OR; York, PA; Aurora, CO; Lewisville, TX; Elkhart, IN; Oxford, MA; Newington, VA; Richmond, VA; Tampa, FL; Fontana, CA  
**International Offices:** Please contact International Operations Division for further information.

Henkels & McCoy is an international engineering, construction and support services company. Services include most engineering disciplines, project support services, construction or construction management, and training. Applications include industrial and commercial facilities and transmission and distribution systems for electric power, telecommunications and data, and energy products. We provide design/build turnkey construction. We act as either prime contractor or subcontractor to manufacturers, utilities, government agencies, or other contractors. We have served client organizations in Canada, South America, Africa, the Middle East and Asia. Responsiveness, flexibility and product quality characterize our customer service philosophy. "PERFORMANCE has built our business...."

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**Henkles & McCoy, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Architecture/Engineering	Our Engineering Division is a multi-disciplined organization serving the industrial, utility, and communications markets for over 60 years. We have engineered major new plants and facilities and have rehabilitated others for a variety of applications. Each client's needs are addressed on a specific project basis. While developing the project's plans and specifications we design all pertinent systems, select appropriate equipment and incorporate operating considerations. Typical projects include the electrical, mechanical, civil/structural, and general site engineering disciplines supported by our architectural capabilities, as needed, for offices, laboratories, warehouses, etc.
Corrosion Control	The Corrosion Control Department within the Engineering Division provides comprehensive services for underground, above ground and marine structures, tanks and pipelines. We perform corrosion surveys and stray current analysis, monitor existing systems, audit corrosion control programs, design cathodic protection systems, evaluate reinforced concrete, and evaluate/design protective coating systems.

**ICF Kaiser Engineers**  
1800 Harrison Street  
Oakland, CA 94612

**ICF KAISER  
ENGINEERS**

**Telephone:** (415) 268-6000

**Telex:** 335326 **FAX:** (415) 268-5355

**Chief Executive Officer:** William Stitt, Chairman  
Raymond List, President

**Domestic Offices:** PITTSBURGH, PA: Four Gateway Center, 12th Floor, Pittsburgh, PA 15222 TEL. (412) 281-8121, FAX (412) 281-8145

**International Offices:** AUSTRALIA: IBM Building, Level 4, 1060 Wasy Street, West Perth, Western Australia 6005 TEL. 61-9 327-5211, TELEX AA 94559; PORTUGAL: Avenida Marques de Tomar, 44-5, 1000 Lisbon TEL. 011-351-1 734074, TELEX 42656-Protoc P, FAX 351-1 777-189

ICF Kaiser Engineers is an international engineering and construction firm, headquartered in Oakland, California. The company provides services to private and public sector clients involved with transportation, advanced technology, environmental, industrial and other infrastructure projects. The firm employs 1,600 professionals.

**Product/Service**

Architecture/Engineering

Facility Construction



**John T. Boyd Company**  
400 Oliver Building  
535 Smithfield Street  
Pittsburgh, PA 15222-2384

**JOHN T. BOYD COMPANY**



**MINING AND  
GEOLOGICAL  
ENGINEERS**

Telephone: (412) 562-1770

FAX: (412) 562-1953

Chief Executive Officer:

International Sales Manager:

James W. Boyd

Bradley Charles Lewis

Domestic Offices:

DENVER, CO: Suite 1028, Lincoln Tower Building, Denver, CO 80245 TEL. (303) 861-4339

FAX (303) 861-4379

John T. Boyd Company (BOYD) is one of the largest independent engineering consulting firms in the United States exclusively serving the world's coal and mineral industries. We have provided mining engineering, environmental and financial consultation services to a diverse worldwide client base for more than 45 years. Our continued success is a result of providing consistent and reliable service and finding practical and economical solutions to clients' unique problems. We are proud of the level of commitment we extend to clients. Our reports are accepted by major financial institutions and government agencies in fulfillment of their requirements. BOYD is prepared to meet the needs of the vital, demanding, and constantly changing coal and mineral industries.

**Product/Service**

**Description**

Architecture/Engineering

Technical Consulting

BOYD manages and supervises geological and exploration programs; develops mine plans and performs mine and preparation plant feasibility studies; designs material handling systems; performs geotechnical and rock mechanic studies; obtains mining permits; certifies quality and quantity of reserves; prepares environmental impact statements; evaluates fuel economics; develops forecasts of costs, production, and financial returns; appraises and evaluates mining properties, plants, and equipment; provides expert witness testimony and litigation support; analyzes fuel supplies and haulage and transportation methods; assists in contract negotiations; and identifies and forecasts markets.

**J.W. Miller & Associates, Inc.**

Miller Building  
No. 2 Hale Street  
Charleston, WV 25301



MILLER ENTERPRISES

Telephone: (304) 343-9524

FAX: (304) 343-9530

President:

Vice President:

Vice President:

Mr. James W. Miller

Mr. David S. Miller

Mr. Gary J. Miller

Incorporated since 1964.

**Product/Service**

Geological Exploration; Coal Mining, Underground, Surface, Auger; Coal Preparation; Coal Exploration; Coal Transportation; Port Facilities; Efficiency and Productivity Studies; Appraisals; Coal Analysis; Financing; Complete Feasibility Studies; Economic Evaluations; Market Studies; Management/Operations Research; Design Contracting; Exploration, Drilling, Preparation Plant Construction, Mine and Plant Management, Beehive Coke Oven Construction, RR Loading and Unloading

United States Department of Energy

Lane Engineering, Inc.  
11739 Chanticleer Drive  
Pensacola, FL 32507

# LANE ENGINEERING, INC.

Telephone: (904) 492-3050  
Chief Executive Officer: John W. Lane

Product/Service	Description
Architecture/Engineering	Professional engineering services.

The M.W. Kellogg Company  
Three Greenway Plaza  
Houston, TX 77046-0395



## The M.W. Kellogg Company

Telephone: (713) 960-2000  
Telex: 166385 MWKHOC FAX: (713) 960-2032  
Chief Executive Officer: Donald C. Vaughn, President  
International Sales Manager: J. Albert Stanley, Senior Vice President of Worldwide Sales

**Domestic Offices:** DARIEN, CT; WASHINGTON, D.C.  
**International Offices:** ENGLAND: M.W. Kellogg Limited, The M.W. Kellogg Building, Stadium Way, Wembley, Middlesex, HA9 0EE  
TEL. 44-1-903-8484; BRITISH WEST INDIES: Cayman Islands; ARGENTINA: Buenos Aires; SINGAPORE;  
PEOPLE'S REPUBLIC OF CHINA: Beijing; INDONESIA: Jakarta; MALAYSIA: Kuala Lumpur

The M.W. Kellogg Company, an international, technology-based subsidiary of Dresser Industries, Inc., is a world leader in the engineering, procurement, construction and commissioning of chemical, petrochemical, fertilizer, gas processing, refining, and computer integrated manufacturing projects. Additionally, Kellogg provides operations and maintenance capabilities. Kellogg is also on the forefront of clean fuels technology with the acquisition of the KRW coal gasification process and development of clean air technology. The company has completed more than 3,000 major projects and many smaller projects worldwide.

Product/Service	Description
Coal Gasification	Kellogg's KRW coal gasification process is capable of operating at high conversion on a wide range of coals. Feeds ranging from lignites and brown coal to high and low volatile bituminous coal have been tested in the Waltz Mill, PA pilot plant using both air and oxygen as oxidants and limestone and dolomite as in-bed sorbents for sulfur. The process can be used to produce low- or moderate-BTU gas for synthesis or for power generation. Hot gas clean-up using Zinc ferrite yields low SO <sub>2</sub> emissions, and low-BTU gas yields and low NO <sub>x</sub> in combined cycle power plants.
Pressurized Circulation Fluid Bed Combustion	Kellogg's PCFBC processes pulverized coal and limestone or dolomite in a high velocity reactor, which completely combusts the coal while yielding very low SO <sub>x</sub> and NO <sub>x</sub> emissions. The pressurized flue gas is expanded to produce power in a combined cycle mode. The sorbent is fully oxidized in the reactor, eliminating subsequent treatment of the ash and spent sorbent for disposal. The technology is a low-cost alternative for cogeneration and power applications.
Flue Gas Desulfurization	Kellogg's flue desulfurization technology utilizes a limestone sorbent in a horizontal scrubber. The technology has been proven in commercial operation on large utility boilers feeding both high and low sulfur U.S. coals. The process features high sulfur removal (greater than 90%) and high calcium utilization. Magnesium or dibasic acid addition is often used to enhance the system. A special feature of the horizontal Weir scrubber is both low flue gas pressure drop and low sorbent circulation, resulting in significant operating advantages.

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### The M.W. Kellogg Company (Continued)

Design, Procurement,  
Construction  
and Plant Services

Kellogg offers EPC capabilities as well as operations and maintenance services on a worldwide basis.

Research and Development  
Services

Kellogg has bench-scale and pilot plant facilities for the development and testing of coal in gasification and combustion modes. Kellogg's coal lab allows the analysis of coal and ash properties. The company can also prepare design studies for a wide range of process and power applications based on the specific coal properties.

### McNally Wellman Company 4800 Grand Avenue Pittsburgh, PA 15225

Telephone: (412) 269-5000

Telex: 199211 WELL UT FAX: (412) 269-5030

Chief Executive Officer: Raymond M. Koper

**International Offices:** Please contact company headquarters for further information.

McNally Wellman has enjoyed 100 years of providing a variety of services and products to the coal industry. With extensive experience in bulk material handling and storage, McNally Wellman can design and supply a turnkey system tailored to the requirements of mining operations, electric power plants, or other transportation situations. A recognized leader in coal preparation, McNally Wellman can provide efficient and reliable coal cleaning facilities incorporating the latest in cleaning technology. In addition, McNally Wellman offers a wide range of coal sizing, cleaning and dewatering equipment that has been proven dependable in the coal industry.

#### Product/Service

#### Description

Coal Preparation Plants

McNally Wellman preparation plants are designed to recover the best possible product from a seam of coal utilizing water or dense media cleaning circuits. Our "Modular" plants offer a flexible as well as economical alternative to our conventional designs.

Coal Handling Systems &  
Equipment

McNally Wellman provides efficient and practical handling systems to move coal effectively. Our belt conveyor systems provide the link between the mine mouth and the preparation plant or the railroad car and the barge. Equipment includes rail car and barge/ship unloading and loading devices.

Coal Storage Systems

McNally Wellman will design a system to satisfy any coal storage requirement. Our systems have included traveling trippers, radial stackers, stacking tubes and stacker/reclaimers. In cases where enclosed storage is required, McNally Wellman offers various types of storage systems.

Coal Processing Equipment

McNally Wellman features a wide variety of specialized processing equipment to size, clean, and dewater coal. Processing equipment available from McNally include roll crushers, rotary breakers, baum jigs, heavy medium vessels, water-only cyclones, automatic samplers, curved sieves, centrifugal dryers, and thermal dryers.

**MK-Ferguson Company**  
One Erieview Plaza  
Cleveland, OH 44114



**Telephone:** (215) 523-5600

**FAX:** (215) 523-5922

**Chairman/Chief Executive Officer:**

Keith M. Price

**V.P. - International Operations:**

Darryl G. Moffett

**Domestic Offices:**

Los Angeles, CA; Boise, ID; St. Louis, MO; San Francisco, CA; Washington, DC

**International Offices:**

Manila, Philippines; Warsaw, Poland; Singapore; London, England

**Product/Service**

**Description**

Architecture/Engineering

Facilities Construction

MK-Ferguson Company, subsidiary of Morrison Knudsen Corporation, is an international firm engaged in design, construction, and program management in energy, industrial, and government markets. It has proven capability for construction of totally integrated grassroots facilities, plant expansion, and modernization and retrofit programs. MK-Ferguson services range from feasibility studies through design, procurement, construction, and startup. The company has extensive experience in power and steam generation and related environmental control facilities, having completed over 150 such major projects in the past 10 years. Recent projects include: flue gas cleaning systems for Basin Electric Power Coop., Sunflower Electric, Cleveland Electric Illuminating Co., and Tucson Electric Power Co.; coal-fired power plants for Utah Power & Light and Central and Southwest Services; wood-fired power plant for Washington Water Power Co.; and two NOXSO power plants for U.S. DOE.

**Montague Systems, Inc.**  
P. O. Box 5428  
Greenville, SC 29606



**Telephone:** (803) 297-9080

**FAX:** (803) 297-0150

**Chief Executive Officer:**

Bert L. Montague II

**International Sales Manager:**

Richard M. Sickinger

**Domestic Offices:**

GREENVILLE, SC: Suite 200, 201 Brookfield Parkway, Greenville, SC 29607 TEL. (803) 297-9080; SUMTER, SC: 303 East Liberty Street, Sumter, SC 29150 TEL. (803) 775-1102

Montague Systems, Inc. was founded in 1914 as a provider of equipment and services to the sawmill industry. Since that time, Montague Systems has evolved into a major provider of bulk materials handling systems to the industrial, mining, utility and pulp & paper industries. The company designs, engineers, fabricates (from its own 375,000 sq. ft. fabrication facility) and installs/erects the systems it provides. The company is highly rated by Dun and Bradstreet and has provided single systems valued at \$40,000,000.

**Product/Service**

**Description**

Architecture/Engineering

Design, engineering and detailing of bulk materials handling systems for industrial, mining, utility and pulp & paper industries.

Coal Exporters

Design, engineer, fabricate and install conveying systems for load out onto barges/ships.

(Continued on next page)

**Montague Systems, Inc. (Continued)**

Coal Mining	Design, engineer, fabricate and install conveying systems from mine mouth to load out.
Coal Transport	Design, engineer, fabricate, and install conveying systems.
Facility Construction	Installation/erection of coal conveying systems at mines, coal terminals, industrial or power plant sites.

**MSE, Inc.**  
**P. O. Box 3767**  
**Butte, MT 59702**



**Telephone:** (406) 494-7100  
**FAX:** (406) 494-7230  
**Chief Executive Officer:**  
**International Sales Manager:**

Donald R. Peoples  
 John M. Sherick

**Domestic Offices:** BUTTE, MT: Component Development and Integration Facility (CDIF), P. O. Box 3767, Butte, MT 59702 TEL. (406) 494-7100; Corporate Office, P. O. Box 4078, Butte, MT 59702 TEL. (406) 723-8213, FAX (406) 723-9377

MSE, Inc., operates the Component Development and Integration Facility (CDIF)--the largest coal-fired magnetohydrodynamic (MHD) testing facility in the world. The CDIF can also be configured to support engineering-scale development testing programs in other coal and energy technologies. MSE, Inc., provides services in process engineering, facility management and operation, plant engineering and power system design and analysis. MSE offers environmental permitting, monitoring and compliance services. MSE's EPA -- certified laboratory performs organic and inorganic analyses and offers chemical consulting and problem solving services.

<b>Product/Service</b>	<b>Description</b>
Coal Research and Development	Research and development in magnetohydrodynamics (MHD), coal handling and processing, high temperature combustion, and experimental hardware assembly and testing. Full analytical and data services are available.
Engineering Services	Facility and process design and engineering for coal and fossil fuel systems and power plants, including coal handling, pulverizing, inerting and drying, combustion, and instrumentation and control.
Facility Management and Operation	Facility management, startup, and operation to ensure reliable performance in compliance with approved procedures and safety, and environmental regulations.
Laboratory Services	EPA-certified laboratory equipped to sample and perform organic and inorganic analyses on a wide range of sample types including water, soils, coal, tailing, ores, hazardous waste, and airborne pollutants.
Environmental Services	Full range of environmental services for mining, coal processing, and power industries.

**Non Recovery Coke Associates**  
**William Penn Plaza**  
**2790 Mosside Blvd.**  
**Monroeville, PA 15146**

**NRCA**

**Telephone:** (412) 373-8020  
**FAX:** (412) 373-7065  
**Chief Executive Officer:**  
**International Sales Manager:**

Mr. Raymond Sturgulewski  
Mr. Joseph P. Ciarimboli (Greensburg, PA office)

**Domestic Offices:**  
**International Offices:**

GREENSBURG, PA: 101 N. Main Street, Greensburg, PA 15601 TEL. (412) 834-7555  
ENGLAND: James O'Malley, 18 Berkeley Street, London W1X 5AE TEL. 01-408-0589  
TELEX 28868 Argusr; MEXICO: Vidal Muhech, Baja California 200, 06760 Mexico, D.F. TEL. 564-70-66  
TELEX 017-74-315

Non Recovery Coke Associates (NRCA) is an association consisting of Pennsylvania Coke Technology, Inc., Roberts and Schaefer Corp., and Westinghouse Electric Corp. that provide engineering and construction services for the installation and operations of the patented PACTI non-recovery and/or energy recovery cokemaking production system. Roberts and Schaefer has over 10 years engineering support to the development of the PACTI systems. Westinghouse has jointly developed a novel energy co-generation system to the patented PACTI cokemaking system. This association is currently negotiating the construction of a major coke production facility in Europe and is prepared to install such facilities worldwide. Presently, NRCA is constructing a PACTI cokemaking facility in Mexico under a joint development with Industrial Minera de Mexico, S.A.

Product/Service	Designation	Description
Coke Production Engineering and Construction	NRCA	NRCA provides engineering and construction services for the installation of the patented "PACTI" cokemaking system. Services range from initial feasibility studies and environmental impact studies to engineering, construction and operational technical support to coke and coke/energy production systems.

**NUS Corporation**  
**910 Clopper Rd.**  
**Gaithersburg, MD 20877**



**Telephone:** (301) 987-6543  
**Telex:** 710-828-0540 (NUWASH) **FAX:** (301) 258-8764  
**Chief Executive Officer:** Charles F. Jones  
**International Sales Manager:** Mr. John T. Stone

**Domestic Offices:**  
**International Offices:**

25 Offices within the U. S.  
JAPAN: Japan NUS Co., 7-1, Nishi-Shinjuku 2-Chome, Shinjuku-Ku, Tokyo 163 TEL. 81-3-343-1775; FEDERAL  
REPUBLIC OF GERMANY: NIS Nuklear-Ingenieur-Service GMBH, Donaustabbe 23, D-6450 Hanau-1 TEL. 49-6181-10940

Headquartered in Gaithersburg, MD, NUS Corporation is an international engineering and environmental consulting firm with more than 1900 employees. NUS provides consulting, engineering, hazardous waste management, training, and laboratory services for clients whose operations impact broad energy and environmental concerns. NUS provides complete environmental services, power plant support services, comprehensive training programs for power plant operations and maintenance personnel (Spanish, Portuguese, English) and design/engineering services.

(Continued on next page)

**NUS Corporation (Continued)**

Product/Service	Description
Facility Operation	NUS provides a broad range of consulting and field support services specially designed to enhance efficiency and cost-effective operations at fossil-fueled power generating plants and related facilities. Services involve plant operations and maintenance assistance, plant information management, personnel training, plant chemistry consulting and management consulting. Specific services include: operating, maintenance administrative and test procedure development; plant operating manual development; environmental compliance manuals; systems description development; vendor information development and revision; plant startup assistance; construction management of plant modifications and backfits; maintenance management; chemistry program review; training program design; skills instruction. NUS also provides architect/engineering services for fossil plant modification and design backfit requirements.
Facility Construction	
Architecture/Engineering	

**Parsons Brinckerhoff Quade & Douglas, Inc.**  
**One Penn Plaza**  
**New York, NY 10119**



**Telephone:** (212) 465-5000  
**Telex:** WU 12-5441, RCA 232117 **FAX:** (212) 465-5096 (USA)  
 (212) 465-5028 (Int'l)

**Chief Executive Officer:** James L. Lammie  
**International Sales Manager:** Robert Prieto

**Domestic Offices:** Over 50 offices in the U.S. and abroad. **SAN FRANCISCO, CA:** Mining Division Headquarters, 303 Second Street, Suite 700 North, San Francisco, CA 94107-1317 TEL. (415) 243-4600 FAX (415) 243-9501; **DENVER, CO:** Mining Division Branch Office, 1331 Seventeenth Street, Suite 400, Denver, CO 80202 TEL. (303) 297-0900 FAX (303) 297-0607; **HOUSTON, TX:** PB/KBB Subsidiary, 11767 Katy Freeway, Suite 810, Houston, TX 77079 TEL. (713) 496-5590 FAX (713) 496-5658

**International Offices:** AUSTRALIA; EGYPT; HONG KONG, JAPAN; JORDAN PAKISTAN; REPUBLIC OF CHINA; SINGAPORE, TURKEY; UNITED KINGDOM. For phone numbers in Pacific Rim countries and U.K. office, contact Hong Kong Office TEL. (852) 844-7488; for Middle East offices and Pakistan TEL. 44-81-332-2740

Parsons Brinckerhoff is a 105-year-old multidisciplinary consulting engineering, planning, architecture and construction management firm providing services to public and private clients throughout the world. Preeminent in the planning and design of transportation systems and facilities, the firm is also a leader in the design and engineering of diverse underground structures and systems; tunnels for transit systems and water resources systems; nuclear waste repositories; storage of petroleum resources, natural gas, and compressed air in caverns and wells. It specializes in mine planning and design that incorporates geotechnical and environmental engineering, and project and construction management. Mine services range from technical and environmental audit to complete feasibility study, mine planning and design, and detailed design of shafts and hoists.

Product/Service	Description
Design Engineering	Underground and surface mines; mine drainage treatment; mine cleaning; clean-up of hydrocarbons; mine surface facilities; preparation plant; land reclamation; railroad loading/unloading; and tidewater/river/lake/dock facilities.  The Energy Systems Group of Parsons Brinckerhoff has specialized expertise in the design of cogeneration plants; waste-to-energy and waste incineration facilities; hydroelectric facilities; industrial utility systems; heat transfer, electrical power generation and distribution systems, and fluidized bed and gas/compressed air storage systems.
Consulting Services	Geological exploration; underground and surface mines; feasibility studies; port facilities; townsite planning; efficiency/productivity studies; economic evaluations.

**Quad Three Group, Inc.**  
37 North Washington Street  
Wilkes-Barre, PA 18701



**Telephone:** (717) 829-4200  
**FAX:** (717) 829-0302  
**Chief Executive Officer:**

John L. Churnetski, P.E.

Quad Three Group, Inc. is located in Northeastern Pennsylvania in the center of a major anthracite coal region. We are a full service architectural and engineering firm consisting of 85 professionals and providing such services as land use planning, space utilization studies, building and building systems designs, utility systems engineering, bridge and roadway design, surveying and environmental assessment, management and remediation design.

The company has substantial experience in the design of coal handling system and coal combustion projects for steam generation and steam/electric power projects, serving district heat applications and cogeneration systems.

The firm uses state-of-the-art CADD systems for all work and is a leader in the A/E industry in computer applications in design and drafting. All architectural and engineering disciplines necessary for the projects undertaken are represented on staff.

**The Ralph M. Parsons Company**  
100 West Walnut Street  
Pasadena, CA 91124

**PARSONS**

**Telephone:** (818) 440-2000  
**Telex:** 4720569 **FAX:** (818) 440-2630  
**President:**  
**International Sales Manager:**

Mr. Robert B. Sheh  
Mr. Kenneth G. Braden

**International Offices:**

ENGLAND: Derrick Hedley, Parsons House, Kew Bridge Road, Brentford, Middlesex, TW8 OEH, England, U.K., TEL. 44-1-995-1322; PHILIPPINES: Mr. B.H. Conroy, Legaspi Village, 105 Rada Street, Makati, Metro Manila, Philippines, TEL. 63-2-818-6085.

The Ralph M. Parsons Company is a major international engineering-construction firm providing planning, study, design, engineering, procurement, construction and operation services world-wide. It offers expertise/experience in mining, synfuels, process industries, flue gas cleanup (FGC), crude oil recovery/refining, gas processing, sulfur management and infrastructure. Proprietary technology includes coal-fired power plant FGC, sulfur control systems to serve the petroleum/gas processing/other industries, sulfuric acid, and SNG manufacture. Through its parent, the Parsons Corporation, it offers a full range of A&E/Construction services including power plants, transportation, roads, water supply, wastewater/hazardous/nuclear waste management, urban/regional planning.

Product/Service	Description
Coal-Fired Flue Gas Cleanup	Concept Assessment, Feasibility Study, Design, Engineering, Procurement, Construction (EPC)
Sulfur Management	Sulfur Control/Recovery from Coal-Based Process Units, e.g., Power Plants, Gasification or Liquefaction plants. Production of elemental sulfur or sulfuric acid product, EPC
Coal Gasification	Feasibility Study, Technology Selection, Design, EPC
Coal Liquefaction	Feasibility Study, Technology Selection, Design, EPC
Coal Mining	Resource Evaluation, Mine Plan, Feasibility Study, EPC
Environmental Control	Consulting, Feasibility Study, EPC



**S&C Thermal Systems, Inc.**  
**3314 Highway 162**  
**Post Office Box 1246**  
**Granite City, IL 62040**



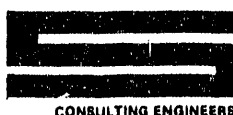
**Telephone:** (618) 452-3000  
**Telex:** TWX 910-756-2352 **FAX:** (618) 876-0865  
**Chairman:** Emmanuel Merle  
**President:** Christian Joly  
**International Sales Manager:** Richard P. Kuo, Sr. Vice President  
**Senior Vice President:** Roland Otte

**Domestic Offices:** NEW YORK, NY: 767 Fifth Avenue, New York, NY 10153, TEL. (212) 421-1944, FAX (212) 421-1937  
**International Offices:** PARIS: TEL. 33 (1) 47-56-22-22, FAX 33 (1) 40-87-01-28

S&C Thermal Systems, Inc. is a member of the Thion Group of companies. Thion, established in 1843, is an international energy resources and services group with interests in Europe and the United States. The Company provides a full range of thermal energy services to commercial, industrial, residential, institutional and government sectors. Major areas of business include: operation and maintenance of individual building heating and cooling plants under long-term energy service contracts; design, construction, financing and operation of district heating and cooling systems and cogeneration plants; energy audits and technical feasibility studies; energy performance contracting and third party financing; waste-to energy plants and waste recycling.

Product/Service	Designation	Description
Facilities Operations	Chauffage	24 hr. plant O&M, fuel supply retrofit, finance
Facilities Construction	District heating and cooling	Design, build, own, operate
Power Generation	Cogeneration	Design, build, own, operate
Financing and Resource Packaging		Energy plants, performance contracts.

**Schmidt Associates, Inc.**  
**7333 Fair Oaks Road**  
**Cleveland, OH 44146**



**Schmidt associates, inc.**

**Telephone:** (216) 439-7300  
**FAX:** (216) 232-9939  
**Chief Executive Officer:** Charles M. Schmidt  
**International Sales Manager:** George C. Repko

**International Offices:** Please contact company headquarters for further information.

Schmidt Associates, Inc. is an employee-owned professional engineering corporation comprised of dedicated, experienced engineers capable of performing a wide range of engineering and consulting services. These services include mechanical, electrical, structural, and chemical abilities, with vast experience in the industrial boiler market from studies and retrofitting of all types of existing boiler installations to the complete installation of new facilities encompassing any or all new technologies required in the industrial field today for not only technically successful operations, but also economical success as well. Schmidt Associates, Inc. has specialized in central utilities services for industrial, institutional, and governmental plants including studies, tests, application, and installation of new technologies in industry today.

(Continued on next page)

**Schmidt Associates, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Advanced Utilization	Conducted extensive research and design work for the government on advanced coal utilization techniques for industrial boilers including coal-oil and coal-water mixtures, slagging coal combustors and fluidized bed boilers.
Architecture/Engineering	Expertise in coal utilization from conception of idea to detailed design.
Boiler Equipment	Specify appropriate equipment for clients.
Facility Construction	Detailed design of numerous coal facilities from point of coal receipt to exit of gases from stack. Conduct on-site inspection of facilities while under construction.

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**Science Applications International Corporation**  
**Physical Sciences Group**  
**14062 Denver West Parkway, Suite 255**  
**Golden, CO 80401**



*An Employee-Owned Company*

**Telephone:** (303) 279-7242  
**FAX:** (303) 279-5525  
**Group Manager:**

Howard R. Pratt

**Domestic Offices:**

SAN DIEGO, CA: (corporate headquarters) 10210 Campus Point Drive, San Diego, CA 92121, TEL. (619) 546-6000.

Founded in 1969 by a small group of research scientists, SAIC has grown into a large, diversified, high-technology corporation. SAIC's revenues exceed \$1 billion and the company employs over 11,000 people in more than 200 location. A selected listing of products and services that SAIC provides to the coal industry is given below. For further information please contact Dermot Ross-Brown or Bill Thompson in the Golden office.

<b>Product/Service</b>	<b>Description</b>
Engineering Services	Areas of specialization include: resource evaluation; exploration and development; mine planning; drilling and blasting; analysis of pillar stability, ground support, and use of backfill; subsidence investigations; stability and design of excavated mine slopes, spoil piles, and waste pond; and hydrological investigations.
Environmental Services	With over 1,200 environmental professionals the company is able to provide scientific, engineering and management skills to the solutions of a wide variety of environmental problems.
Coal Processing	SAIC manufactures on-line coal analyzers to meet a variety of process control and quality control needs. These include the Model 200 Sulfur Meter, the Model 400 Ashmeter™, and the Model 600 Moisture Meter. The company is also experienced in the development and application of clean coal technologies.
Laboratory Testing Services	Laboratory services include the Rock Mechanics Laboratory which is fully equipped to perform routine and special tests on rocks and soils. Most mechanical, thermal and permeability tests can be carried out at up to 60,000 psi confining pressure, 20,000 psi pore pressure and 150°C temperature. Complex behaviors and processes can be simulated. The laboratory also designs and manufactures a wide variety of specialized test equipment.

(Continued on next page)

### Science Applications International Corporation (Continued)

**Field Testing & Instrumentation**

The company manufactures electronic equipment for monitoring high explosive tests, as well as downhole pressure probes, and microseismic monitoring systems. A full range of geotechnical field testing services is offered.

**Data Acquisition & Analysis**

SAIC has extensive experience in developing data acquisition systems, and providing on-line analysis of the data.

**Spire Corporation**  
**Patriots Park**  
**Bedford, MA 01730**



**Telephone:** (617) 275-6000

**Telex:** 951072 **FAX:** (617) 275-7470

**Chief Executive Officer:**

Roger G. Little

**SPI-WEAR™ Contact:**

Mr. Peter Loges

**Ion Implantation Contact:**

Mr. Raymond Bricault

Spire offers two major technologies for coal-based systems: (1) SPI-WEAR™ for precisely measuring wear, erosion, and corrosion in mechanical systems; and (2) ion implantation treatments to enhance wear and corrosion resistance. SPI-WEAR™ is a powerful method for in-situ wear measurement and on-line diagnostic monitoring, which is based on radionuclides induced in wearing surfaces by energetic ion beams. Gamma rays from the activated surface are easily detected outside allowing precise measurement of surface loss from inaccessible locations. Extremely accurate, flexible, and unaffected by local conditions such as temperature or pressure, it is an ideal solution to wear measurement problems in many components of power generation systems. Extreme precision reduces testing time and allows resolution of subtle tribological phenomena such as break-in or lubricant additive depletion.

Spire is a leader in surface modification by ion implantation and other vacuum technologies for improving wear and corrosion resistance without dimensional changes. Spire is a diversified research firm with three main business areas: surface modification, electronic materials, and photovoltaics. The Ion Implantation Division employs about 45 technical personnel devoted to ion implantation, sputtering, and other ion beam processes. In-house facilities include eight mass-analyzed ion implanters, three sputtering machines, one non-mass-analyzed implanter, one PACVD system, and one ion beam enhanced deposition system. Evaporators, electron beam annealing accelerators and extensive materials characterization equipment are also available.

Product/Service	Description
SPI-WEAR™ 200 Analyzer	System for on-line diagnostic monitoring of surface loss due to wear, erosion, or corrosion. Includes: multichannel analyzer with internal HV supply, timing control, dead-time corrections, pulse shaping pre-amplifier. Controlled by PC operating in parallel using menu driven software package. Includes all cables and NaI detector.
SPI-WEAR™ Support Services	Accelerator activations, customized selection of beam parameters, depth profile calibrations, on-site technical support, data analysis.
Ion Implantation Services	Ion implantation consists of directing ions of a desired chemical species through an accelerating electric field to implant them into a target material. Ions are electrically extracted from plasma, focused by magnetic and electrostatic lenses, and accelerated to high energies. Advanced implanters use magnetic analysis to separate desired ions by their mass/charge ratio prior to implantation.

**SSR Engineers, Inc.**  
2234 Lewis Avenue  
P.O. Box 20876  
Billings, MT 59104

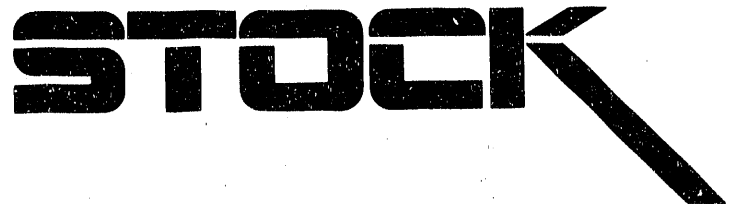


Telephone: (406) 656-8100  
FAX: (406) 652-2758  
Chief Executive Officer: J.R. Rush, P.E.  
International Sales Manager: W.F. (Bill) Hart, P.E.

SSR Engineers, Inc. is a medium size consulting firm with 30 years of experience in power system design for substations, transmission, distribution, and utility system studies. In addition to planning and design, SSR Engineers offers a wide variety of testing and technical services. We provide a full range of power engineering services to over 50 utilities, many of which depend on SSR Engineers for all of their power engineering requirements.

Product/Service	Description
Electric Power System Design	EHV transmissions structural design and analysis; overhead/underground distribution planning and design; substation planning and protective relay design; construction management; co-generation; load management; combustion turbine/diesel generation systems; motor control centers; rate and short circuit studies.
Mechanical Design	Mechanical/electrical design for commercial and institutional buildings, high pressure steam boiler plants thermal storage, energy conservation audits, economic and feasibility studies.
Technical/testing Services	System commissioning and equipment acceptance testing for relay and control systems, large power transformers, power factor, insulation, high voltage cable.

**Stock Equipment Company**  
A Unit of General Signal Corp.  
16490 Chillicothe Road  
Chagrin Falls, OH 44022-4398



Telephone: (216) 543-6000  
Telex: 196071 FAX: (216) 543-6678  
Chief Executive Officer: Mr. Joseph J. Tannehill  
International Sales Manager: Mr. David R. Brown

Domestic Offices: LYNN HAVEN, FL: Merrick Division, 10 Arthur Drive, Lynn Haven, FL 32444, TEL. (904) 265-3611  
International Offices: JAPAN: Stock Japan, Ltd., 1719-1, Aza Kasashi-Mae, Ohata, Niihari-Mura, Niihari-Gun, Ibaraki Prefecture, 300-41 Japan TEL. (81)(298) 62-5162

Since its founding in 1929, Stock has become the standard of quality by which all others who produce products for the power industry have been measured. Stock has a major commitment to scientific and engineering development of electronic controls and bulk material handling technology, backed by extensive testing facilities. Stock Equipment Company serves a worldwide market with their own manufacturing facilities plus work in concert with other international companies which share their commitment to engineering excellence. The result is a broad-based engineering and manufacturing company; one that blends extensive experience with design innovation and a commitment to quality and customer satisfaction.

(Continued on next page)

**Stock Equipment Company (Continued)**

Product/Service	Description
Coal Feed Systems for Bunker-to-Pulverizer Fluidized Bed Boilers Stoker Applications	Stock has been the design leader in developing gravimetric feeders for pulverized feed system and for replacement of older volumetric models for better efficiency. Stock has also developed a low-pressure gravimetric feeder to meet the rapid growth of fluidized bed boiler technology. These feeders are available in varying lengths and sizes to meet the necessary applications.
Bulk Material Valves	The STOCK Bulk Material Valve is designed for material handling applications which involve harsh environments, wide temperature ranges, pressure differentials, or unusual flow characteristics. These valves have been applied successfully in thousands of worldwide installations and adapted as the industry standard.
Batching, Weighing & Conveyor Belt Scales	Stock offers a complete line of process batching, platform, and continuous weighing equipment. All stock scales are built around a universal weighing and a microprocessor-based control system which assures cost effective operation.
Continuous Coal Analyzer	The coal analyzer has been specifically designed to provide accurate information on elemental analysis in coal quality in order to sort, blend, and optimize the use of fuel being processed. The information will be provided as the coal is being processed. The Continuous Coal Analyzer successfully combines very fundamental analysis methods with high quality machine design.

**Stone & Webster Engineering Corporation**  
 245 Summer Street  
 Boston, MA 02210



**Telephone:** (617) 589-5111  
**Telex:** W.U. 94-0001 **FAX:** (617) 589-2156, (617) 589-8071  
**Chief Executive Officer:** Frank W. Ries, Chairman  
**International Sales Manager:** Raymond F. Rugg

**Domestic Offices:** CHERRY HILL, NJ; CHICAGO, IL; DENVER, CO; FORT LAUDERDALE, FL; HOUSTON, TX; NEW YORK, NY; SAN FRANCISCO, CA  
**International Offices:** UNITED KINGDOM: Milton Keynes; CANADA: Toronto; Stone & Webster also maintains offices in the following cities: Abu Dhabi, Dammam, Kuala Lumpur and Seoul. Please contact headquarters in Boston for further information.

Stone & Webster Engineering Corporation, which celebrated its Centennial in 1989, is one of the world's largest engineering and construction firms. Since its founding, as a two-man consultancy in Boston, the firm has planned, engineered and provided construction and construction-management services for utilities and industrial power concerns worldwide. Have designed and/or built plants with a total capacity exceeding 50 million kilowatts, the company is considered one of the world's largest and most experienced engineer-constructors of coal power facilities. Over the years, Stone & Webster has helped many domestic and international clients develop technologies that can lead to cleaner and more efficient use of coal. For instance, in the United States the company has conceptually designed integrated gasification/combine-cycle systems for new generating stations and evaluated the use of coal liquids for existing oil-fired station. Stone & Webster also worked on the first utility coal-gasification project in Brazil. Today, we continue to work with government agencies and private firms on new ways to clean and burn fossil fuels. Our development projects include fluid bed combustors, a retrofit combustor system that eliminates a variety of pollutants and a furnace injection system that removes sulfur dioxide. Listed below, are some of the areas in which Stone & Webster applies its consulting, engineering and construction expertise.

Product/Service	Description
Advanced Utilization	Coal processing systems: direct and indirect liquefaction; coal gasification combined cycle power systems; advanced power generation systems; pressurized fluidized bed technology; externally fired high temperature gas turbine combined cycle systems and direct fired dual working fluid power cycles.

(Continued on next page)

**Stone & Webster Engineering Corporation (Continued)**

Coal Industry	Coal drying technologies: surface and underground coal mining; coal handling; fuel analysis.
Coal Mining	Correlation and preliminary evaluation of data; mine planning and engineering design (surface and underground): pit planning and design; underground planning and design, production engineering, land reclamation. Drilling; blasting engineering and optimization; equipment selection and justification; budget review; reserve analysis; haulroad design; coal evacuation and loading design; auxiliary utility design: compressor systems, water piping systems; ventilation design; slope stability engineering; economic analysis; fatal flaw analysis; geological aspects: exploration methods and requirements, preliminary evaluations.
Coal Transport	Railroad construction, design and engineering; truck-shovel optimization; coal slurry technology.
Facility Construction	Silo design and engineering; conveyor systems; coal loadout facilities; crushing operations and design.

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**Tippett & Gee, Inc.**  
502 North Willis  
Abilene, TX 79603

*Tippett & Gee*  
— Engineers - Architects —

Telephone: (915) 673-8291  
FAX: (915) 672-5251  
Chief Executive Officer: Louis S. Gee  
International Sales Manager: Robert S. Gee, President

Tippett & Gee was organized in 1954 to serve the electric utility industry. The Company offers complete engineering/architectural services. The Company's specialty is the design of fossil fuel fired central power stations. The Company has dealt extensively with both steam electric and combustion turbine generation and combined cycles. The Company's designs have received national recognition for innovative features, high availability and low \$/KW installed costs. Project capabilities include initial load studies, siting studies, environmental permitting, design, procurement, construction management and startup services.

Product/Service	Description
Architecture/Engineering	During the past decade Tippett & Gee has designed and placed in service three major power stations firing solid fuel. The first was a 450 MW mine mouth plant in South Texas utilizing 5000 Btu/lb lignite. This high sulfur fuel has 32% ash, a moisture content of 28% and has an extremely high slagging and fouling tendency. The second plant was a 450 MW mine mouth plant in East Texas utilizing 4300 Btu/lb lignite. This high sulfur fuel has 28% ash, a moisture content of 35% and has an extremely high fouling potential. The Company's latest design was a 700 MW plant in North Texas utilizing western sub-bituminous coal from Exxon's Rawhide mine in Wyoming. Each of these plants had electrostatic precipitators and wet scrubbers.

Ultrasystems Engineers & Constructors, Inc.  
16845 Von Karman Avenue  
Irvine, CA 92714



Telephone: (714) 863-7000  
Telex: 69-2356 FAX: (714) 852-9697  
Chief Executive Officer: John P. Coyle

Ultrasystems offers the complete range of services necessary to perform major engineering, procurement and construction contracts. These services include economic and feasibility studies, conceptual designs, technical development support, design reviews, project planning and management, process engineering, detail engineering design, procurement of equipment and material, plant construction, startup, performance testing and operator training activities.

Product/Service	Description
Coking and Formcoke	Licensing rights to the Peabody continuous coking process and formcoke process. Devolatilization of coal produces low Btu gas for above-grate combustion or heat recovery. Commercial units operating in U.S. and South Africa.
Coal Gas Clean-Up	Exclusive licensee of Hiperion sulfur removal process. Catalytic conversion of hydrogen sulfide, carbonyl sulfide and mercaptan from coke oven gas or coal gasification. One-step conversion of sulfurous compound to elemental sulfur. Commercial units operational in U.S. and Japan.
Coal-Fired Power Plants	Feasibility studies to turnkey installation. Commercial units operating in the U.S.
Wastewater Clean-Up	Fixed-firm anaerobic digestion of high COD wastewater. Simultaneous biogas recovery will provide energy needs to host plant.
Coal Gasification	Mansfield two-stage low Btu system. First gasification accomplished through traveling grate, followed by second-stage, fixed-bed gasification.

United Engineers & Constructors  
30 South 17th Street  
P.O. Box 8223  
Philadelphia, PA 19101

## United Engineers & Constructors

A Raytheon Company

Telephone: (215) 422-4400  
Telex: 83-4203 FAX: (215) 422-4648  
Chief Executive Officer: Gunnar E. Sarsten  
International Sales Manager: Thomas H. Zarges

**Domestic Offices:** BOSTON, MA: 100 Summer St., Boston, MA 02110 TEL. (617) 338-6000; CHICAGO, IL: 1430 Branding Lane, Suite 125, Downers Grove, IL 60515 TEL. (708) 515-3500; DENVER, CO: 700 S. Ash St., P.O. Box 5888, Denver, CO 80217 TEL. (303) 758-1122; PITTSBURGH, PA: Penn Center East, 600 Penn Center Blvd., Pittsburgh, PA 15235 TEL. (412) 825-4400; WINSTON-SALEM, NC: 900 NCNB Plaza 1022 W. 3rd St., Winston-Salem, NC 27101 TEL. (919) 748-0431

**International Offices:** ENGLAND: Badger Catalytic Ltd., C.I. Tower, St. George Square, High Street, New Malden, Surrey, KT3 4HH TEL. 1-949-0055

United Engineers & Constructors, a wholly-owned subsidiary of Raytheon Company, ranks as one of the top ten engineering, construction, and contract maintenance firms in the U.S. It was founded in 1928 and has over 5,000 employees serving a wide range of industries including power, metals, chemicals and biotechnology, electronics, aerospace, mining, petroleum and gas processing, general manufacturing and government.

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### United Engineers & Constructors (Continued)

Product/Service	Description
Architecture/Engineering	All phases of engineering of coal-fired power generation plants including fluid bed combustion, environmental engineering, licensing, and waste management. Capabilities include feasibility studies, cost estimates, preliminary engineering, conceptual design, detailed design, and procurement.
Facility Construction	Every type of construction arrangement from direct hire to complete subcontract. We can provide all construction services including field engineering, labor relations, safety programs, quality assurance, project controls, expediting, cost management, and construction inspection.
Facility Operation	Operation and maintenance activities of fossil-fueled plants including plant life extension, modifications, retrofits, testing and startup, operator training, and energy economics.

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United Engineers & Constructors Inc.  
Stearns-Roger Division  
P. O. Box 5888  
Denver, CO 80217

**United Engineers  
& Constructors**  
A Raytheon Company

Telephone: (303) 758-1122

Telex: (303) 692-2208

Chief Executive Officer: Gunnar Sarsten  
International Sales Manager: Lawrence J. Weber

**Domestic Offices:** PHILADELPHIA, PA: UE&C, 30 South 17th Street, P. O. Box 8223, Philadelphia, PA 19101 TEL. (215) 422-3000; BOSTON, MA: UE&C, 100 Summer Street, Boston, MA 02110 TEL. (617) 338-6000; CHICAGO, IL: UE&C, Opus West II, 1411 Opus Place, Downers Grove, IL 60515 TEL. (312) 960-9200; WEST PALM BEACH, FL: UE&C, 7289 Garden Road, P. O. Box 15348, West Palm Beach, FL 33416 TEL. (407) 844-7900.

**International Offices:** ENGLAND: Stearns-Catalytic International Ltd., C.I. Tower, St. George Square, High Street, New Malden, Surrey, KT3 4HH TEL. 1-949-0055.

Stearns-Roger has been serving the needs of the mining, metallurgical and inorganic chemicals industries since 1885. Today, as a Division of United Engineers & Constructors, we offer the broadest technology base of any U.S. engineering, construction, and maintenance firm. UE&C is at work around the world on more than 1,000 projects of varying size and scope. Our coal experience ranges from conceptual engineering studies to coal mining and handling facilities design; coal processing, beneficiation, and gasification projects; and construction and operation of coal conversion plants. Our engineering and construction management professionals are available to assist with projects worldwide.

Product/Service	Description
Architecture/Engineering	Complete services from conceptual studies through detailed design.
Facility Construction	Construction Management



**Willbros USA, Inc.**  
**Suite 700, 2431 East 61st Street**  
**Tulsa, OK 74136**



**Telephone:** (918) 748-7000  
**Telex:** 79-6660 **FAX:** (918) 748-7087  
**Chief Executive Officer:** L.J. Bump

**International Offices:** **REPUBLIC OF PANAMA:** Edificio Torre Banco Germanico, 8th Floor, Panama 1 TEL. (507) 63-9282 **TELEX** 3380;  
**NIGERIA:** 256 Kofo Abayomi St., P.O. Box 1057, Victoria Island, Lagos, 614877 **TELEX** 21115; **OMAN:** P.O. Box  
 142, Muscat, Sultanate of Oman TEL. 590355 **TELEX** 5387; **UNITED KINGDOM:** Provincial House, 62-68 Eden  
 Street, Kingston-upon-Thames, Surrey KT11EJ TEL. (01) 549-4471 **TELEX** 928172

Willbros USA, Inc. is a subsidiary of Willbros Group, Inc. which provides worldwide construction of pipelines and related facilities, onshore contract rotary drilling, maintenance of pipeline systems, dredging, transportation and pipe coating to the energy industry. Engineering and project management services are also provided to the energy industry, the U.S. Armed Forces and the telecommunications industry.

Product/Service	Description
Energy Transportation	Pipeline and facilities construction. Engineering and project management.

**Williams Technologies, Inc.**  
**320 South Boston, Suite 831**  
**Tulsa, OK 74103**

**Telephone:** (918) 582-5811  
**FAX:** (918) 584-0474  
**Chief Executive Officer:** David R. Williams, Jr.  
**International Sales Manager:** H.J. Brolick

**International Offices:** Please contact the company headquarters for further information.

Principal business is project assessment, development, and management from initiation of concept through commercial implementation, including financial sourcing. Manages R&D partnership for oil and mineral technologies, R&D program for coal liquefaction technology and operation of Black Mesa coal slurry pipeline. Provides consulting with regard to economic feasibility or technical evaluation of energy or resource projects. Manages operating facilities and technology development for others. Special expertise in development of coal slurry pipeline projects through past worldwide experience and ongoing operations management of Black Mesa Pipeline.

Product/Service	Description
Coal Transport	Provides development, management, financial packaging and operation management of coal slurry pipeline systems.
Architectural/Engineering	Provides consulting services in planning and feasibility study, as well as management of design, construction, and operations for coal slurry pipeline and oil and gas pipeline systems. Provides similar services for cogeneration plants and alternative energy projects.
Coal Derivatives	Management services for coal liquefaction and deep cleaning R&D.

**ZBA, Inc.**  
**Engineers/Architects**  
**23 East Seventh Street, Suite 2000**  
**Cincinnati, OH 45202**



**Telephone:** (513) 421-3363

**FAX:** (513) 421-3363

**Chief Executive Officer:** Donald R. Bahnfleth, P.E.

**International Sales Manager:** Norman E. Miller

**Domestic Offices:** IOWA CITY, IA: 220 Lafayette Street, Suite 180, Iowa City, IA 52245 TEL. (319) 337-2950; HUNTSVILLE, AL: 315 Cahill Drive, P.O. Box 804, Huntsville, AL 35804 TEL. (205) 536-1525

ZBA was organized as an engineering consultant firm in 1957 and in 1973 an architectural division was added to enable the firm to furnish complete design capabilities to serve the needs of the industrial, institutional and governmental clients. ZBA provided architectural design, mechanical engineering, electrical engineering, instrumentation and controls, computer-aided design, construction management and operator training.

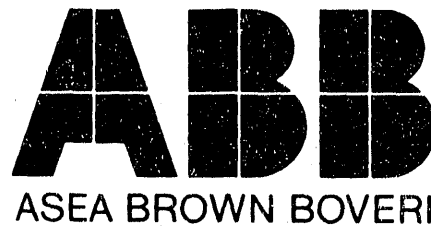
<b>Product/Service</b>	<b>Description</b>
Central Heating Plants	Comprehensive Feasibility Studies; Steam Boilers and Turbine Generators; Peaking, Simple Cycle and Combined Cycle Turbines; Single and Dual Fuel Reciprocating Engines; DDC Monitoring, Control and Instrumentation; Environmental Permitting; and Particulate, SO <sub>2</sub> and NO <sub>x</sub> Control Systems
Cogeneration Plants	Steam Turbines Topping Cycle, Bottoming Cycle; Reciprocating Engines Water Jacket Recovery, Exhaust Heat Receiver
Electrical Transmission Distribution	Substations to 100 MVA; Transmission to 230 kv; Planning Studies; Standards; Overhead and Underground and Distribution

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**Boiler Equipment: Firms providing coal and/or derivative combustion  
and steam generation equipment and systems.**

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**ABB Combustion Engineering  
1000 Prospect Hill Road  
Windsor, CT 06095**



**Telephone:** (203) 285-2602

**Telex:** COM 67121183 **FAX:** (203) 285-4172

**Chief Executive Officer:** Percy Barnevik

**International Sales Manager:** Jerry W. Vargo

**International Offices:** HONG KONG: Tony C. Lao FAX 1-011-852-845-2561; INDIA: Saibal Ganguly  
FAX 1-011-91-11-684-0297

With over 75 years of experience in coal combustion, ABB Combustion Engineering is the world's leading supplier of coal-fired steam generation systems and technology. ABB-CE technology has been chosen for over 280,000 MW of coal-fired generating capacity by the world's electric utilities. ABB-CE continues to build its expertise with recent major contract awards for coal-fired boilers in Indonesia, Korea, Thailand, the People's Republic of China, Canada, and the United States.

<b>Product/Service</b>	<b>Description</b>
Coal-Fired Boilers	ABB Combustion Engineering provides efficient coal-fired boilers for power plants rated up to 1000 MW. Units can be designed for subcritical or supercritical pressure operation.

Abresist Corporation  
 State Road 13 North  
 P.O. Box 38  
 Urbana, IN 46990



Telephone: (219) 774-3327

FAX: (219) 774-8188

Chief Executive Officer:

Joe Accetta

International Sales Manager:

Joe Accetta

**Domestic Offices:**

FLEMINGTON, NJ: Ray Elbertson, 129 Old Clinton Road, Flemington, NJ TEL. (201) 788-6006; ISSAQUAH, WA: Owen Shea, 208 Mountain Park Blvd., Southwest E.204, Issaquah, WA TEL. (206) 392-6777; HOUSTON: TX, Wakefield Associates, 2600 Southwest Freeway, Suite 716, Houston, TX TEL. (713) 520-5083; SAN MATEO, CA: Floyd Welch & Associates, P.O. Box 5407, San Mateo, CA TEL. (415) 349-0077; DUNWOODY, GA: Davis Energy Products, P.O. Box 88448, Dunwoody, GA TEL. (404) 395-0771; PRAIRIE VILLAGE, KS, Btu Company, P.O. Box 8226, Prairie Village, KS TEL. (913) 362-8540; CINCINNATI, OH: Ellman Equipment Company, 10921 Reed Hartman Highway, Cincinnati, OH TEL. (513) 984-2301.

**International Offices:**

WEST GERMANY: Schmelzbasaltwerk Kalenborn, D-5467 Vettelschoss 2, bei Linz am Rhein, Kalenborn, West Germany TEL. 2645-180.

Abresist Corporation and Schmelzbasaltwerk Kalenborn (Parent Company) specialize in the manufacture of basalt and ceramic lined pipe, fittings, cyclones, fans, hoppers and other components exposed to abrasive wear from the handling of bulk solids or slurries. These linings were pioneered by kalenborn and have been in use for almost 70 years in every major manufacturing industry. Capabilities include design, manufacture and on site installation.

Product/Service	Designation	Description
	ABRESIST	Made from basalt rock, ABRESIST linings resist abrasive wear in coal hoppers, spirals, prep plant piping and vessels and in the bottom and fly ash systems. ABRESIST pipe is now the world standard for hydraulic ash conveyance, providing 20-40 years service.
Boiler Equipment	ALRESIST (KALOCER in Europe)	This alumina based ceramic is used where abrasive wear is combined with impact and is very popular in certain prep plant applications, pulverized fuel piping and fans, and pulverizer cones.
	SILRESIST (KALSICA in Europe)	Silicon carbide ceramic linings used in places where temperature extremes plus abrasion and impact compound the wear problems.
	KALCOR	Aluminum Corundum material with 30+% of Zircon, used in many of the same areas as ALRESIST or SILRESIST. Has more manufacturing possibilities in some cases with large or more involved pieces.
	KALEN (Not available in North America)	UHMW material used for mild abrasion & slide promotion.

**Acurex Corporation**  
**Environmental Systems Division**  
**555 Clyde Avenue**  
**P.O. Box 7044**  
**Mountain View, CA 94039**



**Telephone:** (415) 961-5700  
**Telex:** 325961 **FAX:** (415) 964-5145  
**President:** Gilbert Decker  
**International Sales Manager:** David Delasanta

**Domestic Offices:** TRIANGLE PARK, NC: P.O. Box 13109, Research Triangle Park, NC 27709; GOLETA, CA: Santa Barbara Operations, 250 Storke Road, Suite 1, Goleta, California 93117

**International Offices:** Please contact headquarters for information.

The Environmental Systems Division of Acurex Corporation provides a full range of fuel services to government and industry. These include combustion facility design, operation and maintenance; environmental engineering and pollution control; and emissions sampling and analysis. Through its research for federal and state agencies such as the Environmental Protection Agency, the Gas Research Institute, the Department of Energy, and the California Energy Commission, the division develops technologies for commercial application and is able to provide industry with turnkey, state-of-the-art solutions for all combustion-related environmental engineering needs.

<b>Product/Service</b>	<b>Description</b>
Advanced Utilization	Testing of solvent-refined coal; assessment of clean coal use in stationary and mobile engines; testing of coal-oil mixtures in boilers; fuel staging research; assessment of coal-oil mixtures as light-off fuel; hot gas cleaning technology for coal-fired, pressurized, fluidized bed combustors.
Architecture/Engineering	Prototype design, fabricate and install coal combustion research furnaces. Design, fabricate and install pilot coal gasifiers, and fluidized bed combustors.
Boiler Equipment	Low SO <sub>2</sub> and low NO <sub>x</sub> combustion control technology; boiler modification/engineering; test coal additive to alter flyash characteristics; co-firing of hazardous waste in boilers; perform risk assessment of controlling NO <sub>x</sub> emission from coal utility boilers.
Coal Derivatives	Clean coal use in stationary and mobile engines; demonstrate coal-oil mixture prep plant.
Facility Construction	Construction management; install coal combustion furnace; install pilot coal gasifier; supply anthracite gasifier.
Facility Operation	Operation of coal burning plants/equipment; O&M of fluidized bed combustor.

**Ahlstrom Pyropower**  
5120 Shoreham Place  
San Diego, CA 92122



**Telephone:** (619) 458-3000

**Telex:** 506-170

**President:**

Mr. Eric Oakes

**Director, International Marketing:**

Mr. Harry Lampenius

**Domestic Offices:**

SAN DIEGO, CA: Pyropower Corporation, Mr. William Compas, President, 5120 Shoreham Place, San Diego, CA 92122 TEL. (619) 458-3000; Pyropower Development Corporation, Mr. Ed Landry, President, 5120 Shoreham Place, San Diego, CA 92122 TEL. (619) 458-3000

**International Offices:**

FINLAND: Ahlstrom Boilers, Mr. Teuvo Pullkinen, General Manager, P.O. Box 184, SF-78201 Varkaus, Finland TEL. (358) 72 211; ENGLAND: Ahlstrom Pyropower Development Ltd., Mr. Robert Ciavarella, Managing Director, Ahlstrom House, 3, The Quintet, Churchfield Road, Walton on Thames, Surrey KT12 2TW TEL. (0932) 243477; JAPAN: Shinko Pyropower, Mr. Keisuke Shimizu, Managing Director, Tatsunuma Building, 3-19 Yaesu, 1-Chome, Chuo-Ku, Tokyo, Japan TEL. 3-218-6601

Ahlstrom Pyropower Inc., headquartered in San Diego, California, was formed September 1, 1989, to consolidate the power boiler activities of the A. Ahlstrom Corporation, a Finnish based international industrial group.

Ahlstrom Pyropower, Inc. is a global energy company that develops power plants burning coal and other solid opportunity fuels in AHLSTROM PYROFLOW® Circulating Fluidized Bed (CFB) Systems. In addition to coordinating the deliveries of industrial and utility boilers worldwide, Ahlstrom Pyropower oversees the operations of Ahlstrom Boilers, Pyropower and Pyropower Development Corporation, the Hans Ahlstrom Laboratory and Ahlstrom Pyropower's Research and Development Center.

Product/Service	Designation	Description
Special Coal System	CFB	The first commercial CFB boiler built was an Ahlstrom Pyroflow Boiler, and it was started up in 1979. Pyroflow is the trade name for CFB boilers developed by Ahlstrom. There are over 90 Ahlstrom Pyroflow units in operation or under construction worldwide, with over 200 unit years of operating experience.
Alternate Coal System	CFB	Pyroflow CFB boilers are suitable for burning coal, peat, bark, wood waste, and other indigenous fuels.

## ABT

**Allegheny Boiler Tube & Mfg. Co.**  
P.O. Box 700  
Juniper & Douglas Streets  
McKeesport, PA 15184

**Allegheny Boiler Tube  
& Mfg. Co.**

**Telephone:** (412) 751-3430

**FAX:** (412) 751-7527

**Vice President:**

Mr. John C. Baver

**Vice President:**

Mr. George W. Zech

**Sales Manager:**

Mr. Fritz H. Bachman

Allegheny Boiler Tube & Mfg. Co. is a specialty fabricator of boiler components and ASME Code pressure vessels. ABT has an in-house machine shop and an outside field construction division, which performs work within a 500 mile radius of Pittsburgh. ABT offers worldwide competitive prices and exports throughout the world.

(Continued on next page)

**Allegheny Boiler Tube & Mfg. Co. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Boiler Components	Generating tubes, superheater and economizer elements, burner openings, membrane waterwall panels, custom bent tubing, machined headers and tube shields.
ASME Code Vessels	Pressure vessels, tanks, shells, heat exchangers, waste heat boilers, water cooled BOF hoods and panels.

**Allen-Bradley Company**  
**Presence Sensing Products Division**  
**Fireye Products**  
**265 Winter Street**  
**Waltham, MA 02154**



**ALLEN-BRADLEY**  
A ROCKWELL INTERNATIONAL COMPANY

**Telephone:** (617) 466-8000  
**Telex:** 4430195ECA **FAX:** (617) 890-7939  
**Chief Executive Officer:** Keith D. Nosbusch  
**International Sales Manager:** Donna M. LeBrun

**Domestic Offices:** HIGHLAND HEIGHTS, OH: 625 Alpha Drive, Highland Heights, OH 44143 TEL. (216) 449-1500

Allen-Bradley, A Rockwell International Company, is a major manufacturer of industrial automation controls and systems including data acquisition, communications and quality management products.

<b>Product/Service</b>	<b>Description</b>
Boiler Equipment	Fireye Produces: Flame scanners - detect presence and absence of flame emanating from commercial, industrial and utility burners. Flame safeguard controls - helps prevent unburned fuel from accumulating in boiler/furnace combustion chamber in the event of flame failure through: visual indication and alarm, cut off ignition energy, de-energize fuel valves. May be used with Allen-Bradley Programmable Logic Controllers in Burner Management Systems.

**Babcock & Wilcox**  
Power Generation Group  
20 S. Van Buren Avenue  
Barberton, OH 44203-0351



**Babcock & Wilcox**  
a McDermott company

Telephone: (216) 753-4511  
Telex: 986406 FAX: (216) 860-1886  
Chief Executive Officer:  
International Sales Manager:

Robert E. Howson (McDermott International, New Orleans, LA office)  
Ian K. Anderson (Cambridge, Ontario office)

Domestic Offices: NEW ORLEANS, LA: McDermott International, 1010 Common Street, New Orleans, LA 70160  
International Offices: CAMBRIDGE, ONTARIO: Babcock & Wilcox International, 581 Coronation Boulevard, Cambridge, Ontario N1R 5V3

The Babcock & Wilcox company has been a leader in coal-fired steam boilers ever since George Babcock & Stephen Wilcox were granted a patent on the safety tube boiler in 1867. Today, B&W builds coal-fired boilers with steaming capacities from 100,000 pounds per hour up to 9,300,000 pounds per hour. Reliable operation has always been a key goal. American Electric Power operated its Mountaineer power plant -- including a B&W 1300 MWE boiler -- continuously for 607 days in 1986 and 1987. Let us provide you with the same quality.

Product/Service	Description
Boilers	Conventional boilers fired by stoker or pulverized coal. Fluid bed boilers of bubbling, circulating, and pressurized design.
Burners	Conventional and low NO <sub>x</sub>
Pulverizer Mills	Our rugged MPS model mill has been proven in over 600 units on a wide variety of coals.
Env. Control Systems	In cooperation with the Clean Coal Program of the U.S. Department of Energy, B&W has demonstrated sulfur removal in the lower furnace (fluid bed), the upper furnace (LIMB), the boiler back end (LIDS), and in the precipitator (ESOX). Consider B&W if you need a customized retrofit application to minimize sulfur.
Flue Gas Desulfurization (scrubbers)	B&W scrubbers are in operation and construction from 25 MW <sub>e</sub> to 1300 MW <sub>e</sub> , using lime, limestone, thiosorbic lime, and sodium.

**Carnot**  
15991 Red Hill Avenue  
Suite 110  
Tustin, CA 92680



Telephone: (714) 259-9520  
FAX: (714) 259-0372  
Chief Executive Officer:  
International Sales Manager:  
Manager, Utilities Systems:  
Director of Testing Services:

Barry L. McDonald  
Mark D. McDannel  
David O. Czerniak  
Robert A. Finken

Carnot is a consulting and engineering organization specializing in fuels, fuels utilization, combustion and combustion-generated air pollution emissions, emissions control, emissions testing, and regulatory affairs. The organization possesses technical expertise for a variety of stationary combustion device types including utility and industrial boilers; municipal solid waste and other refuse-fueled boilers; as well as medical and hazardous waste incinerators, fluidized-bed boilers; and simple-cycle, combined-cycle, and cogeneration gas turbines and a variety of specialized process equipment.

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**Carnot (Continued)**

Product/Service	Description
Emissions Control, Process Improvement	Carnot offers unbiased expertise in the selection of appropriate control technologies (many of which its people helped pioneer). Carnot's philosophy is that combustion-generated air pollutant emissions should and can be controlled using the most-effective available technique with the least impact upon unit operating flexibility and thermal performance. Carnot has experience with devices burning conventional fuels (i.e., coal, natural gas, fuel oil, etc.), as well as less-common fuels such as petroleum coke, refinery gas, wood and agricultural wastes, coal-water slurries and coal-oil mixtures, oil-water emulsions, municipal solid waste, landfill gas, and methanol. Carnot's emissions expertise covers a wide variety of species including NO <sub>x</sub> , SO <sub>x</sub> , CO, particulates of all types, metals, organics, and other toxics.
Research, Development, and Design	Carnot uses its combustion and process expertise to design investigative programs to solve many different real-world process and emissions problems. The company has conducted many successful technology demonstrations and aided in their development. Our expertise includes advanced burner and combustor design, post combustor controls, reagent injection for emissions reduction, and emissions control planning. When appropriate, Carnot designs small scale experimental simulators and laboratory investigations for novel problems.
Emissions Testing	Carnot provides a full range of in-house testing and process equipment including mobile laboratories, continuous emission monitors, and sampling methodologies for virtually any industrial pollutant of concern in liquid, solid, and gaseous streams.
Regulatory Engineering	Carnot's regulatory staff keeps abreast of domestic and international affairs and offers assistance in permitting and siting projects, especially those of a unique nature. Carnot has helped its clients meet some of the most demanding emissions regulations in the world.

**Combustion Power Company**  
 1020 Marsh Road, Suite 100  
 Menlo Park, CA 94025



**Combustion<sup>®</sup>  
 Power  
 Company**

POWER IS OUR MIDDLE NAME™

Telephone: (415) 324-4744  
 FAX: (415) 324-0788  
 Chief Executive Officer:  
 International Sales Manager:

Frank Walton  
 Don L. McKenzie

**Domestic Offices:**

RIDGEWOOD, NEW JERSEY: 1200 E. Ridgewood Avenue, Ridgewood, NJ 07450 TEL. (201) 652-9298, FAX (201) 652-2896

Since 1968, Combustion Power Company has been a U.S. industry leader in the development and sales of high performance, low-emission fluidized bed combustion technology. In addition to its patented FI CIRC™ circulating fluidized bed boiler, which has been setting new industry standards for low emissions, Combustion Power offers fluid bed combustion for sludge incineration, gasifiers and air heaters, and is pioneering in high pressure, high temperature granular bed filter systems for cleaning of hot flue gases in high temperature/pressure applications.

Product/Service	Description
FI CIRC™. Circulating Fluid Bed Combustor Boiler.	A unique, patented circulating fluidized bed boiler system capable of achieving extremely low emissions: >99% combustion efficiency, sulfur suppression above 98% and NO <sub>x</sub> suppression efficiency >90%.
Fluid Bed Combustors	Custom engineered fluidized bed combustion systems for low capital cost sludge incineration gasifiers and air heaters.

**Conco Systems, Inc.**  
135 Sylvan Street  
Verona, PA 15147



ESTABLISHED  
1923

Telephone: (800) 345-3476  
Telex: 866255 FAX: (412) 826-8255  
Chief Executive Officer: George Saxon, Sr.  
International Sales Manager: George Saxon, Jr.

Domestic Offices: KANSAS CITY, KS; WESTLAKE VILLAGE, CA; FORT LAUDERDALE, FL

Fully integrated firm providing absolutely the best services for proper maintenance and operation of condensers, heat exchangers, and service water systems.

Product/Service	Description
Tube Cleaning Equipment	Exclusive manufacturer of water powered tube cleaning tools for condensers and heat exchangers.
Tube Cleaning Services	Services utilizing exclusive tools.
NDT-Eddy Current Testing	Condition assessment of major cooling components.
Consulting	Preliminary opinion, root cause analysis, water treatment audits.
Failure Analysis	By nuevo laboratory techniques.
Process Modeling	Model cooling systems.

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**Control Components Inc.**  
22591 Avenida Empresa  
Rancho Santa Margarita, CA 92688



**Control Components Inc.**  
An IMI company

Telephone: (714) 858-1877  
Telex: 685500 FAX: (714) 858-1878  
Chief Executive Officer: Stuart Carson  
International Sales Manager: David Mincofar

Domestic Offices: HOUSTON, TX: Ronald Parker, CCI Houston, 1325 S. Creek Dr., Houston, TX 77084 TEL. (713) 492-6904, FAX (713) 492-6980, TELEX 79-2339

International Offices: ENGLAND: Colin Wright, CCI International Ltd., P.O. Box 216, Witton, Birmingham B6 7BA TEL. 44-21 356-4848, FAX 44-21 356-0251; SINGAPORE: S.K. Wong, Koson b.v. 7500A Beach Rd., #07-302, The Plaza, 0719 TEL. 65 296-2455, FAX 65-291-0763 Additional Offices and Representatives: Please contact company headquarters for further information.

Control Components Inc. was founded in 1961 to produce instrumentation valves for industry. CCI has long been recognized as a technological leader in the control valve segment of the valve industry for its development of the patented DRAG® velocity control valve for severe service applications in the power and process industries. In 1980, CCI also acquired the control valves of the renowned Bailey Controls Company. These valves are used primarily for boiler feedwater control, steam pressure reducing, heater level control, desuperheater water flow control and pump recirculation.

(Continued on next page)

**Control Components In : (Continued)**

Product/Service	Designation	Description
Control Valves	CCI-DRAG® 100D Control Valve	For severe service applications - combats noise, erosion and cavitation by forcing process fluid to follow a tortuous path of right angle turns through trim, thus controlling damaging velocities.
	CCI-Bailey Utility Valves	D-10, B-33, E-40 and A1 valves for low to moderate pressure drop liquid and steam application. The flow is controlled by the annular area of the trim or the port area of the cage.

**CRS Sirrinc Engineers, Inc.**  
**1041 East Butler Road**  
**P.O. Box 5456**  
**Greenville, SC 29607**



**Telephone:** (803) 281-3700  
**FAX:** (803) 281-3712

**Chief Executive Officer:**  
**International Sales Manager:**

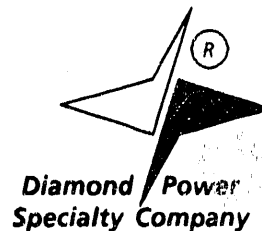
Bruce Wilkinson, Houston, Texas  
 Dave Syphard, Greenville, South Carolina (803/676-6000)

**Domestic Offices:** Major cities in the U.S. - Contact Corporate Headquarters for further information - 713/552-2000 or 1-800-672-2777.

CRS Sirrinc Engineers, Inc., a design/construction and consulting firm serving the power generation industry with feasibility studies, cost estimating, preliminary and detailed engineering, architectural design, permitting, construction management, turnkey contracting, start-up and plant operations management. Also provides power project development, project financing, and equity investments in projects. Much of our major success in new sales can be attributed to our strategy of improving market share in our strong markets. We've expanded into fields that combine our financial strength with our strong technical knowledge. Utility and industrial power facilities, cogeneration, environmental design and control, and risk management are all areas with which we have an impressive foundation of experience.

Product/Service	Description
Engineering Design and Construction	CRS Sirrinc Engineers, Inc. is among the top engineering design and construction firms in the United States, with affiliates in foreign countries. We have current experience in the design, construction, and retrofit of coal-fired utility and industrial power plants, including circulating fluidized combustion boilers, cogeneration units, and independent power production plants.
Alternative Services	As an alternative to conventional owner-engineer-constructor relationship, Sirrinc offers equity participation in selected projects through its CRSS Capital affiliate. Inquiries regarding particular project structuring opportunities are invited.

**Diamond Power Specialty Company**  
**2600 East Main Street**  
**Lancaster, OH 43130**



**Telephone:** (614) 687-6500  
**Telex:** 246635 **FAX:** (614) 687-4189  
**Chief Executive Officer:** Paul E. Perrone  
**International Sales Manager:** James E. Arens

**International Offices:** AUSTRALIA: Diamond Power Australia, 5 Herefort Rd., Berkeley Vale, NSW TEL. 61-43-88-4655; CANADA: Diamond Canapower, 1122 Pioneer Road, Burlington, Ontario TEL. (416) 355-0321; FINLAND: Diamond Superior OY, PL 33, 00701 Helsinki TEL. 358-0-358311; PEOPLES REPUBLIC OF CHINA: Diamond Power Hubei Machine Co., Ltd., 139 Cheng Bei Lu, Xinsi Zhen, Jingshan County, Hubei TELEX 416006 DPSHB CN; SWEDEN: Diamond Superior AB, P.O. Box 20035, S-161 02 Bromma TEL. 46-8-290440; ENGLAND: Diamond Power Specialty Ltd., Glasgow Road, Dumbarton, Scotland G82 1ES TEL. 44-389-64151; SOUTH AFRICA: Diamond Power Specialty Pty. Ltd., 8-10 Fairbanks Road, Vandervijlpark, Transvaal, RSA TEL. 016-814018/9

Diamond Power is the world's largest manufacturer of boiler cleaning systems with special emphasis on the utility, pulp and paper, process industry, industrial, cogeneration and refuse boiler markets. Diamond maintains fourteen service centers worldwide with six located in the U.S. to provide parts distribution and equipment rebuild and maintenance services for its customers. Diamond also maintains an extensive network of service engineers to provide on-site service, consultation, and supervision. The reliability of Diamond's equipment, coupled with its boiler cleaning expertise, provide its customers with a fully integrated package to assist in the efficient operation of their boilers.

Product/Service	Designation	Description
Boiler Cleaning Systems	Sootblowers	Diamond manufactures a wide range of sootblowers designed for virtually every market. Heavy duty retractable sootblowers are applied for utility type boilers up to 120 ft. wide. Heavy duty retractables resist corrosion and give maximum cleaning energy for the pulp and paper marketplace. Fixed position rotating element sootblowers provide cleaning for package and light industrial boilers.
	Controls	Diamond's complete line of sootblower controls include small relay, Microprocessor and CRT based systems. These may function as stand alone systems or they may be interfaced with the plant's Distributed Control System.
	Water Level Monitoring Systems	Diamond's boiler drum level equipment covers a full spectrum of monitoring products including port type gauges, support tubes, gauge valves, fiber optic sighting equipment, and electrode based remote level indicators (MERLI™). No matter what your needs, we have the right gauge equipment for you.
	Air Port Cleaning Systems	Diamond's port cleaning systems are specifically designed for automatic cleaning of the air ports on recovery boilers. A heavy duty air cylinder mounted to each port and operated from a programmable control system keep the ports open to improve boiler operation.
	Maintenance and Rebuild Services	Diamond provides maintenance and rebuild services at the plant site or at one of our six U.S. Service Centers. Our rebuild service ranges from component rebuild to the rebuild of entire sootblowers. All rebuild components use genuine Diamond parts and carry the same warranty as new equipment. Services include maintenance contracts as well as per diem service assistance.
Mirror Insulation		Mirror insulation is a high quality, all metal, reflective insulation made for easy removal and reinstallation. It has the capability of providing excellent thermal insulation and at the same time can be cleaned or decontaminated, if necessary, by simple wash down procedures. Mirror is made for the smallest piping right up to and including reactor vessel insulation.

**Eneract Management Services, Inc.**  
**550 Bailey Avenue, #220**  
**Fort Worth, TX 76107**



**Eneract Management Services, Inc.**

**Telephone:** (817) 334-0052

**FAX:** (817) 877-0958

**Chief Executive Officer:** Mr. Paul A. Corwin

**International Sales Manager:** Mr. Paul A. Corwin

**International Offices:** Please contact company headquarters for further information.

Eneract Management Services, Inc., provides a broad range of technical and managerial services to a diverse group of clients. Our corporate goal has always been to provide the highest levels of performance and to deliver timely, relevant, and cost-effective solutions to our clients' specific needs. Our individual consultants and project teams are capable of tapping the multidisciplinary talents within our company. We can then provide multidimensional approaches to resolving our clients' problems. Additionally, Eneract prides itself in meeting or beating all scheduled delivery dates. Our projects have ranged from a few thousand dollars to over \$1 million.

Product/Service	Designation	Description
Boiler Equipment: Portable Process Sampling Systems	LA PAK 2000	Portable state of the art analytical sampling equipment. Designed to monitor pH, specific and cation conductivity and dissolved oxygen.
On-Line Chemical Monitoring Systems	System 3000	On-line monitoring capacity for pH, specific and cation conductivity, dissolved oxygen, silica, sodium and total organic carbon.
Technical Consultants: Performance Assessment Audits		Pre- or post-operational performance assessments designed to meet client or regulatory compliance.
Facilities Operations: Performance Improvement Technology		Provides a full range of services, including preparation of system descriptions, operating procedures, training program development and implementation, and qualification programs for plant operators.

**FluidDyne Engineering Corporation**  
**5900 Olson Memorial Highway**  
**Minneapolis, Minnesota 55422**



**Telephone:** (612) 544-2721

**Telex:** 290518 **FAX:** (612) 546-5617

Founded in 1952, FluidDyne began in-house fluidized bed combustion development work in 1971, and has designed, built and tested FBC systems which burn a wide range of fuels. These systems can produce steam, hot water or clean hot air. Cogeneration systems are also available.

Product/Service	Description
Boiler Systems	Coal and Waste Coal fired fluid bed boiler systems. Design or Design/Build.

**Foster Wheeler Corporation**  
**Perryville Corporate Park**  
**Clinton, NJ 08809-4000**



**Telephone:** (201) 730-4000

**FAX:** (201) 730-4360

**Chief Executive Officer:** Mr. L.E. Azzato

**International Sales Manager:** Mr. B.P. Stephan; Mr. I.G. Lutes

**Domestic Offices:** ATLANTA, GA; BOSTON, MA; CHARLOTTE, NC; CHICAGO, IL; DENVER, CO; HOUSTON, TX; KANSAS CITY, MO; LOS ANGELES, CA; NEW ORLEANS, LA; NEW YORK, NY; PHILADELPHIA, PA; PITTSBURGH, PA; WASHINGTON, D.C.; AND WINTER PARK, FL

**International Offices:** AUSTRALIA: TELEX 152838 REWOP AA; CANADA: TELEX 055-60042; CHINA: TELEX 210396 REWOP CN; COLUMBIA: TELEX 396-43254 REWOP CO; ENGLAND: TELEX 851-263984; FRANCE: TELEX 842-210 782; HONG KONG: TELEX 37512 FWAL HX; ITALY: TELEX 843-310548; JAPAN: TELEX 2323192; NETHERLANDS: TELEX 844-34264; NIGERIA: TELEX 22365 FOSWLD NG; SINGAPORE: TELEX RS 39292 FWINTL; SPAIN: TELEX 83122275; contact the main office for further information.

Foster Wheeler Corporation is an engineering, manufacturing, construction, real estate development and service organization with 23 subsidiaries operating worldwide. Founded in 1927, it is currently one of the world's largest engineering and construction organizations. International activities are conducted by affiliates in England, France, Italy, Spain, and Canada. U.S. based industrial subsidiaries supply diversified engineering technologies and allied equipment.

<b>Product/Service</b>	<b>Description</b>
Advanced Utilization Architecture/Engineering Boiler Equipment Coal Derivatives Facility Construction Facility Operation Financing	Foster Wheeler Energy Corporation, a major United States subsidiary, designs, fabricates, maintains, manufactures, and constructs steam generating equipment for electric utilities and industry. This Foster Wheeler subsidiary furnishes condensers, feed water heaters, and other major auxiliary equipment for coal, oil, and gas-fired installations in the United States and abroad. Foster Wheeler's application of alternate energy sources have advanced the state of the art. Current projects involve refuse-to-energy plants, the cogeneration of industrial steam and electric power, a proprietary sludge drying process and high technology heat recovery equipment.

**Fuel Tech**  
61 Taylor Reed Place  
Stamford, CT 06906



**Telephone:** (203) 359-1320  
**FAX:** (203) 359-9317

**Chief Executive Officer:** Mr. George F. Shulof  
**International Sales Manager:** Mr. Eugene J. Capriotti

**Domestic Offices:** SANTA FE SPRINGS, CA: Mr. M. R. Mulhem, 9926 Pioneer Blvd, Santa Fe Springs, CA 90670 TEL. (213) 942-0585, FAX (213) 942-1240; SAN FRANCISCO, CA: Mr. Michael Gamburg, 750 17th Ave, Suite 102, San Francisco, CA 94121 TEL. (415) 221-6177, FAX (415) 221-6178

**International Offices:** ENGLAND: Mr. Jeremy Peter-Hoblyn, 28A Cadogan Square, London SW1X OJH. TEL. 1-581-2051, FAX 1-589-8108; WEST GERMANY: Mr. Joachim Von Bergmann, Frankfurter Strasse 33-35, Eschborn 6236 TEL. 49-6196-48613, FAX 49-6196-42012; JAPAN: Dr. H. Saito, Kitano Maru Residence, 3rd Floor, 2-3-9 Kudan Kita, Chiyoda-Ku, Tokyo 102

Fuel Tech is a dynamic high-technology company dedicated to the development and commercialization of new chemical and mechanical systems to reduce emissions and improve the efficiency of fossil-fueled combustion systems. Founded in Boston, Massachusetts in 1981, Fuel Tech provides a unique systems approach to the solution of air pollution problems for customers in the industrial, marine, petroleum and electric utility markets.

Product/Service	Description
Boiler Equipment	The NO <sub>x</sub> OUT Process is a NO <sub>x</sub> reduction technology for utility and industrial boilers which involves the injection of enhanced urea and other chemicals into the combustion gases of a boiler. NO <sub>x</sub> OUT provides significant reductions over a wide range of combustor types, temperatures, and fuels. It is easily retrofitted, requires minimum space, and is estimated to cost one-fifth that of SCR.
Facility Operation	

**Henry Vogt Machine Co., Inc.**  
P.O. Box 1918  
Louisville, KY 40201



**Telephone:** (502) 634-1500

**Telex:** 204 230 VOGT LVL **FAX:** (502) 634-0549

**Chief Executive Officer:** Mr. Henry Heuser Jr.

**International Sales Manager:** Mr. Dennie Hunt, Mr. James Davis

**Domestic Offices:** LOUISVILLE, KY: 1000 West Ormsby Avenue, Louisville, KY 40210

Henry Vogt Machine Company was founded in 1880 and since then has become one of the foremost manufacturers of forged steel valves, fossil fuel fired and heat recovery boilers and commercial ice making machines. Vogt boilers are found in various utility and petrochemical plants in the U.S. Vogt, along with its licensees in the Netherlands, Japan and India have provided boilers for plants in South Korea, mainland China, Thailand, Indonesia, India, Iran, Egypt, England, the Netherlands and South America. Vogt quality is renowned throughout the world. Vogt is also involved with government and professional agencies such as California Energy Commission and Electric Power Research Institute in developing the basic design concept for new utilization or product.

(Continued on next page)

**Henry Vogt Machine Co., Inc. (Continued)**

Product/Service	Designation	Description
Field Erected Boilers	Class VS Boilers	Vogt stoker fired, field erected boilers range in capacity from 50,000 lbs/hr to 120,000 lbs/hr. Pressure/Temperatures range from 150 psig, sat to 750 psig, 750 F. Gas and/or Oil firing capability can be provided. Other pertinent equipment such as FD Fans, Soot Blowers, Air Heaters and Deaerators can be included. Vogt can also supervise the Erection and Commissioning of the Boilers.
Heat Recovery Boilers	Class MSG Boilers	Boilers range from 50,000 to 500,000 lbs/hr of steam with pressure/Temp. ratings from 150 psig sat. to 1600 psig, 1000 F superheat. Steam can be produced at various levels and can include Resuperheaters. Exhaust gasses from Coal Gasification processes, Coal Gas fired Gas Turbines and Fluidized Bed Combustors can also be used in the Heat Recovery Boilers.

**Honeywell Incorporated**  
**Industrial Automation and Control**  
**16404 N. Black Canyon Highway**  
**Phoenix, AZ 85023**

**Honeywell**

**Telephone:** (602) 863-5000  
**FAX:** (602) 863-5692

**General Manager:** Ed Hurd  
**International Sales Manager:** Thomas Jeffries

**International Offices:** HONG KONG: Asia Pacific Inc., Suite 3408, One Exchange Square, Central TEL. (85205) 8445566, TELEX 81302 HAPG HX; SINGAPORE: Southeast Asia Ltd. Head Office, 1 Maritime Square #02-70, World Trade Center, Singapore 0409 TEL. (65) 278-4555, TELEX RS 34763 HNYWEL

Honeywell's Industrial Automation Systems Division, with headquarters in Phoenix, is the world's leading supplier of industrial process and control systems. Honeywell's systems are designed to increase plant productivity, improve operating efficiency and reduce energy consumption in an industrial setting. The division serves the process and manufacturing industries with emphasis on power generation, refining, bulk chemicals, oil and gas, fine chemicals, pharmaceuticals, pulp and paper, and consumer goods.

Product/Service	Designation	Description
Coal Management	TDC3000	Control system for management of coal from receipt until entry into combustion. Accounting of received coal at un-loading facilities, automatic control and accounting of storage at the stacker-reclaimer, control of tripper car feed to coal silo. Monitor and control of conveyors and emergency shutdown. Integration of weigh scales and coal analyzers.
Power Plant Coal/ Fuel System	TDC3000	Control of Coal Feed to Power Plant Boilers via mills, feeders, etc. Proportional feed vs. demand, with optimization capability. Monitor of emissions, and plant performance.
Fluidized Bed Boiler Control System	TDC3000	Control Systems for control of fluidized bed boilers. Complete boiler and turbine controls systems for power generation. Monitor of emissions and plant performance.
Coal Gasification Control Systems	TDC3000	Control of coal gasifiers, programmable for use with many processes. Complete management systems from unloader to gas out.



**Howard Needles Tammen & Bergendoff**  
600 - 108th Ave. N.E., Suite 405  
Bellevue, WA 98004



HOWARD NEEDLES TAMMEN & BERGENDOFF  
ARCHITECTS ENGINEERS PLANNERS

Telephone: (206) 455-3555  
Telex: 298007 HNTB UR FAX: (206) 453-9179  
Partner: Hugh E. Schall, PE

Domestic Offices: KANSAS CITY, MO: 9200 Ward Parkway, Kansas City, MO 64114 TEL. (816) 333-4800

HNTB, established in 1914, is a multidisciplinary design firm with a network of over 30 offices and over 2,000 employees throughout the United States. Organized as partnership, HNTB provides comprehensive services in architecture, engineering, and planning. HNTB currently ranks eleventh among U.S. leading architectural and engineering firms according to *Building Design and Construction* magazine.

Product/Service	Description
Architecture/Engineering	HNTB offers key services to the mining industry and to government agencies. Our services to both public and private sector clients include: regulatory compliance; professional witness services; reclamation design; abandoned mine land reclamation design and construction supervision.

**Kunkle Valve Division**  
Kunkle Industries Inc.  
8222 Bluffton Road  
P.O. Box 1740  
Fort Wayne, IN 46801-1740



Telephone: (219) 747-1533  
FAX: (219) 747-7958  
Chief Executive Officer: W.E. Newell, President  
International Sales Manager: Dan A. Simerman, Vice President, Sales

Kunkle Valve serves a variety of OEMS and users while meeting the requirements of ASME as well as critical military standards. Kunkle Valve meets today's most rigid quality requirements. We offer the end-user safe, high-performance products that feature superior engineering and rugged durability.

Product/Service	Description
Boiler Equipment	Safety valves, relief valves and safety-relief valves for long-term use in industrial steam, air and liquid applications of boilers, pumps and compressors.

**MicroFuel Corporation**  
1205 State Street  
Ely, IA 52227



Telephone: (319) 848-7111  
FAX: (319) 848-7101  
Chief Executive Officer:  
International Sales Manager:

Mr. John C. Welling  
Mr. John C. Welling

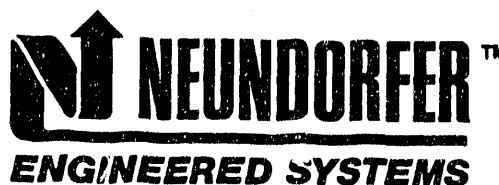
Domestic Offices:  
International Offices:

CHARLOTTE, NC: 4450 Town & Country Drive, Charlotte, NC 28226  
Please contact company headquarters for information.

The power industry has long recognized the economic and environmental benefits of firing micronized coal to replace the use of oil and gas. The primary constraint has been the energy input required for the micronization of the fuel. MicroFuel Corporation has developed a centrifugal-pneumatic (CP) micronizer which provides micronized coal (80% < 44 microns) with an energy input of only 20% > conventional coal pulverizers. The MicroFuel micronizer is applicable to any process requiring direct firing by either oil, gas, or pulverized coal, as well as micronization for coal beneficiation. The MicroFuel CP micronizer also processes a wide variety of other products such as limestone, sodium bicarbonate, and other materials used as reagents and sorbents in air quality control systems. The micronization of sorbents greatly improves their utilization in most processes. The markets for the MicroFuel CP micronizer are replacement of natural gas and oil for any direct-fired application, chemical and sorbent preparation for air quality control systems, and specialty products and chemicals requiring very fine consistent particle sizing.

Product/Service	Designation	Description
MicroFuel Micronizer	Coal	The CP micronizer produces micronized coal with a consistent particle size distribution of 100% < 177 microns, 80% < 44 microns with an average particle size of 20 microns at an energy consumption level of 25 KW/ton. The micronized coal is suitable for direct firing in most applications utilizing oil or natural gas.
MicroFuel Micronizer	Special Products	The CP micronizer is also capable of micronizing many products such as limestone, sodium bicarbonate, and other chemicals. Energy requirements and product fineness vary depending on the application and product. A full-scale demonstration unit is available at the home office to evaluate product applicability and design parameters.

**Neundorfer, Incorporated**  
4590 Hamann Parkway  
Willoughby, OH 44094



Telephone: (216) 942-8990  
FAX: (216) 942-6824  
President:  
Sales Manager:

Michael Neundorfer  
Patti Ensel

Neundorfer provides products and services related to air pollution abatement, using electrostatic precipitation. Electric power generation, metals processing, rock products (cement) and paper industries are the major types of businesses served since the early 1970s. Products include system upgrades, rebuilding microprocessor controls for voltage and rapping, discharge electrodes, plate alignment systems, pneumatic and electric rappers, voltage isolation and stabilizing components, feedwater heater level controls, coal sampling devices and boiler tube deslagging systems. Services include consulting, field service, training, and performance diagnosis of electrostatic precipitator operations. Neundorfer is associated with the National Air Vibrator Company (NAVCO) of Houston, Texas, producers of pneumatic equipment.

(Continued on next page)

**Neundorfer, Incorporated (Continued)**

Product/Service	Designation	Description
NAVCO Rappers EMR Rappers	R2, R3, R4 EMR 20110, EMR 20220	Pneumatic Impact Rappers, Pin Plates, Anvil Beam Sockets Magnetic Impulse Rappers
Discharge Wires Plate Alignment Hopper Evacuation MVCII MicroRap PS90	DE Electrodes Straighteners R3, PP3 Voltage Control Rapper Control Purge Stabilizer	Discharge Electrode Wires, spring & solid shroud Plate Realignment System Hopper Evacuation Systems Microprocessor-based Voltage Control System Microprocessor-based Rapper Control System Hopper-mounted lower wire frame air-purged insulating stabilizer
COAL LANTZ Mdc2000	Coal Sampler Feedwater Control	Automatically extracts sample of coal on as-burned basis Microprocessor-based or software algorithm to optimize levels of feedwater heaters

**Peabody Engineering Corp.**  
39 Maple Tree Avenue  
Stamford, CT 06906



Telephone: (203) 327-7000  
Telex: 96-5911 PEABODY ENG STD FAX: (203) 978-1358  
Chief Executive Officer: Mr. Frank E. Lammes  
International Sales Manager: Mr. Harold Althen

**International Offices:** CANADA: John Leonard, Peabody Engineering Canada, 530 Otto Road, Unit #14, Mississauga, Ontario L5T 2L5 TEL. (416) 795-1550 FAX (416) 795-1030; MEXICO: Jerry Schermer, Ingenieria Peabody, Lope de Vega 117, Piso, Mexico DFN 11560 TEL. (525) 254-3099 FAX (525) 254-6364

Peabody Engineering products are used worldwide to satisfy combustion requirements at utilities and industrial plants. Products include several types of burners, ignitors, flame detectors, burner management systems, and specialized combustion equipment such as air heaters. Peabody coal burners and coal preparation equipment are used in a variety of applications. With more than 70 years of combustion experience, Peabody is qualified to handle individual combustion requirements.

Product/Service	Description
Coal Burners	Peabody scroll-type tertiary solid fuel burners efficiently fire pulverized coal with low unburned carbon and particulate emissions. Burners are designed for three separate, controllable combustion air streams, have the capability of firing supplementary fuels - oil or gas - separately or simultaneously, and are available in capacities from 10-million Btu/hr and up.
Ignitors	A complete range of ignition equipment is available including electric, gas-electric, and oil-electric models.
Flame Scanners	A family of flame scanning equipment is available to sense the presence and condition of coal flames. Scanners include ultraviolet and infrared models plus the new SmartScan™ microcomputer controlled flame scanner.

(Continued on next page)

**Peabody Engineering Corp. (Continued)**

**Burner Management**

Complete systems are available to supervise all the steps for safe combustion including burner start-up, operation, and shut-down.

**Pulverizers**

Coal pulverizers handle all grades for a variety of fineness, offer full control of the grinding atmosphere, and provide thorough disintegration and homogenization of pulverized material.

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**Riley Stoker Corporation**  
**P.O. Box 15040**  
**Worcester, MA 01615-0400**



**Telephone:** (508) 852-7100  
**Telex:** 920428 **Fax:** (508) 852-7548, (508) 852-7558  
**Chief Executive Officer:** H. Kerner Smith  
**International Sales Manager:** David A. Harris

**International Offices:**

**BELGIUM:** Chaudronneries Pierre Broubon, Rue de la Station, 41 bis, 4341 AWANS TEL. (041) 63 88 20 21 22;  
**AUSTRALIA:** Clyde-Riley Dodds Pty., Ltd., 123 Gotha Street, Fortitude Valley, Queensland 4006 TEL. (07) 854 1522; **FRANCE:** FAMA, 8 Rue d'Athenes, 75009 Paris TEL. 42 82 93 31; **JAPAN:** Mitsui Engineering & Shipbuilding Co., Ltd., 6-4 Tsukiji 5-chome, Chuo-ku, Tokyo 104; **COLOMBIA:** Representaciones Internacionales Ltda, P. O. Box 949, Medellin TEL. 248-51-89 or 246-56-94; **SWITZERLAND:** Centrex S.A., 24 Avenue Dumas B P 305 1211, Geneva 25 TEL. (022) 46 82 26; **EGYPT:** Arab Engineering & Distribution Co., 2 Saraya El Korba Street, Garden City, P. O. Box 901, Cairo; **INDIA:** Ideal Enterprises, 402 Hemkunt Tower, 98 Nehru Place, Post Box 4411, New Delhi-110019 TEL. 6415435; **ISREAL:** PETCO International Ltd., 55 Shderot Bialik, Ramat-Hashron TEL. (972) 3-5401812; **PAKISTAN:** Qamvs Traders, P. O. Box 1014, Ikram Building, Outside Akbari Gate, Lahore-8 TEL. 62336 or 56936; **TAIWAN:** Taiwan Development Co., Ltd., 3rd Floor, 3 Tsing Tao East Road, Taipei R.O.C. TEL. (886) 2-3912366; **VENEZUELA:** Eduardo Calcano & Cia., C.A., Centr Plaza, Torre B-Penthouse, Avenida Francisco de Miranda, Apartado de Correos 613071 Chaca, Caracas 1060-A

Riley Stoker Corporation was founded in 1913. Since 1981 the company has been a subsidiary of Ashland Oil, Inc. Riley designs, manufactures and constructs traditionally-fired boilers, fluidized bed combustion boilers, and waste-to-energy systems in capacities from 222,675 to 2,086,188 kg/steam/hr (50,000 to 4,600,000 pounds of steam per hour).

**Product/Service**

**Description**

**Boilers**  
**Stokers**  
**Pulverizers**  
**Construction**

Riley manufactures a line of coal pulverizers, burners for coal, gas and oil, and stokers for all types of coal, cellulose fuels and waste. The company provides a range of services for boiler and fuel burning equipment, including inspections, repairs and maintenance. It has its own construction capabilities for complete boiler erection as well as modifications and rebuilds. Riley operates a center for fuel burning research, and a manufacturing plant in Erie, PA with easy access to water, rail truck and air shipping.

Schmidt Associates, Inc.  
7333 Fair Oaks Road  
Cleveland, OH 44146



Schmidt associates, inc.

Telephone: (216) 439-7300

FAX: (216) 232-9939

Chief Executive Officer:

International Sales Manager:

Charles M. Schmidt

George C. Repko

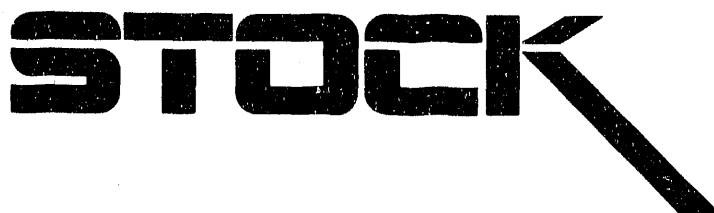
International Offices:

Please contact company headquarters for further information.

Schmidt Associates, Inc. is an employee-owned professional engineering corporation comprised of dedicated, experienced engineers capable of performing a wide range of engineering and consulting services. These services include mechanical, electrical, structural, and chemical abilities, with vast experience in the industrial boiler market from studies and retrofitting of all types of existing boiler installations to the complete installation of new facilities encompassing any or all new technologies required in the industrial field today for not only technically successful operations, but also economical success as well. Schmidt Associates, Inc. has specialized in central utilities services for industrial, institutional, and governmental plants including studies, tests, application, and installation of new technologies in industry today.

Product/Service	Description
Advanced Utilization	Conducted extensive research and design work for the government on advanced coal utilization techniques for industrial boilers including coal-oil and coal-water mixtures, slagging coal combustors and fluidized bed boilers.
Architecture/Engineering	Expertise in coal utilization from conception of idea to detailed design.
Boiler Equipment	Specify appropriate equipment for clients.
Facility Construction	Detailed design of numerous coal facilities from point of coal receipt to exit of gases from stack. Conduct on-site inspection of facilities while under construction.

Stock Equipment Company  
A Unit of General Signal Corp.  
16490 Chillicothe Road  
Chagrin Falls, OH 44022-4398



Telephone: (216) 543-6000

Telex: 196071 FAX: (216) 543-6678

Chief Executive Officer:

International Sales Manager:

Mr. Joseph J. Tannehill

Mr. David R. Brown

Domestic Offices:

International Offices:

LYNN HAVEN, FL: Merrick Division, 10 Arthur Drive, Lynn Haven, FL 32444, TEL. (904) 265-3611

JAPAN: Stock Japan, Ltd., 1719-1, Aza Kasashi-Mae, Ohata, Niihari-Mura, Niihari-Gun, Ibaraki Prefecture, 300-41 Japan TEL. (81)(298) 62-5162

Since its founding in 1929, Stock has become the standard of quality by which all others who produce products for the power industry have been measured. Stock has a major commitment to scientific and engineering development of electronic controls and bulk material handling technology, backed by extensive testing facilities. Stock Equipment Company serves a worldwide market with their own manufacturing facilities plus work in concert with other international companies which share their commitment to engineering excellence. The result is a broad-based engineering and manufacturing company; one that blends extensive experience with design innovation and a commitment to quality and customer satisfaction.

(Continued on next page)

**Stock Equipment Company (Continued)**

<b>Product/Service</b>	<b>Description</b>
Coal Feed Systems for Bunker-to-Pulverizer Fluidized Bed Boilers Stoker Applications	Stock has been the design leader in developing gravimetric feeders for pulverized feed system and for replacement of older volumetric models for better efficiency. Stock has also developed a low-pressure gravimetric feeder to meet the rapid growth of fluidized bed boiler technology. These feeders are available in varying lengths and sizes to meet the necessary applications.
Bulk Material Valves	The STOCK Bulk Material Valve is designed for material handling applications which involve harsh environments, wide temperature ranges, pressure differentials, or unusual flow characteristics. These valves have been applied successfully in thousands of worldwide installations and adapted as the industry standard.
Batching, Weighing & Conveyor Belt Scales	Stock offers a complete line of process batching, platform, and continuous weighing equipment. All stock scales are built around a universal weighing and a microprocessor-based control system which assures cost effective operation.
Continuous Coal Analyzer	The coal analyzer has been specifically designed to provide accurate information on elemental analysis in coal quality in order to sort, blend, and optimize the use of fuel being processed. The information will be provided as the coal is being processed. The Continuous Coal Analyzer successfully combines very fundamental analysis methods with high quality machine design.

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**Woodward Governor Company**  
**Engine & Turbine Controls**  
**1000 E. Drake Road**  
**P.O. Box 1519**  
**Fort Collins, CO 80522**



**Telephone:** (303) 482-5811  
**Telex:** 4-5691    **FAX:** (303) 498-3050  
**Chief Executive Officer:** Mr. Cal Covert  
**International Sales Manager:** Mr. Andy Pawlish

**Corporate Headquarters:** 501 N. Second Street, Rockford, Illinois 61125  
**International Offices:** ENGLAND: Woodward Governor (U.K.) Ltd., P.O. Box 15, Slough SL1 4DD, Telex: 848181, FAX 44 (753) 76199; JAPAN: Woodward Governor (Japan) Ltd., P.O. Box 1, Inba-gun, Chiba-ken, 286-02, Telex: 3762-164, FAX 81 (476) 93-7939; THE NETHERLANDS: Woodward Governor Nederland B.V., P.O. Box 34, 2130AA Hoofddorp, Telex: 74508, FAX 31-2503-36529; AUSTRALIA: P.O. Box 319, Kingsgrove, NSW 2208, Telex: AA24175, FAX 61 (2) 750-6272; BRAZIL: Woodward Governor (Reguladores) Ltda., Caixa Postal - 1785, 13080 Campinas, S.P., Telex: 191844, FAX 55 (192) 42-2992

Woodward Governor Company, founded in 1870, serves the prime mover control and accessory markets. The Fort Collins, Colorado location produces turbine and engine controls for all industrial applications. In addition to the overseas branches, Woodward has more than 26 Authorized Independent Service Facilities worldwide. These support facilities and branches can provide repair, training and field service assistance. Woodward has a complete product line from standard mechanical-hydraulic governors to the latest in customized digital control systems. Listed below is just a sample of a wide range of product offerings.

<b>Product/Service</b>	<b>Description</b>
NetCon 5000 Digital Control System	A state-of-the-art controller that can be programmed to control many types of systems. The NetCon 5000 controls prime mover processes, as well as providing intelligent sequencing and system monitoring.
2301A Speed Control	Controls the speed or load of diesel or gas engines, or steam or gas turbines. The control is compatible with SPM-A synchronizers, load sensors and other power generation controls.

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**Emissions Control and  
Waste Disposal Systems:**

Firms providing in-process (LIMB, etc.) and stack (ESP, Baghouses, cyclones, etc.) emissions control systems, and waste stream management, disposal, and recycling technology.

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AFT, Inc.  
200 Public Square  
21-3604-K  
Cleveland, OH 44114-2375



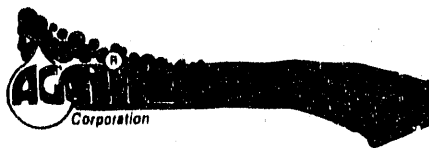
Telephone: (216) 586-5206  
Telex: 6873120 FAX: (216) 586-5448  
Chief Executive Officer: Jerry J. Oliver  
International Sales Manager: William F. Christensen

Domestic Offices: BRIDGEPORT, NJ: 618 Heron Drive, P.O. Box 339, Bridgeport, NJ 08014

AFT, Inc. is involved in the production and marketing of coal fuels that have been beneficiated using AFT's patented SPRAYFLOT™ flotation cells. The company also licenses the technology, sells equipment, and participates in joint ventures worldwide. One of the original developers of coal-water slurries, the company is now able to apply its mineral separation technology to the recovery of fine coal from coal waste streams.

Product/Service	Description
Coal Derivatives Advanced Utilization	The SPRAYFLOT™ cell can be flotation cell used to effectively reduce ash and sulfur levels in high-ash coal waste streams, while recovering fine coal that cannot be recovered by more conventional means. As the integral part of AFT's unique beneficiation system, it ensures improved separation, selectivity, and recovery, when compared to conventional flotation methods.

**Agglite Corporation**  
P. O. Box 1647  
Charlottesville, VA 22902



**Telephone:** (804) 977-7040  
**FAX:** (804) 977-1916  
**Chief Executive Officer:** Peter W. Schmidt  
**International Sales Manager:** Gary D. Courts

**Domestic Offices:** CHESAPEAKE, VA: 2701 Vepco St., Chesapeake, VA 23323 TEL. (804) 487-9631

The Agglite Corporation owns a patented process to manufacture high quality lightweight aggregate from coal fly ash. This lightweight aggregate is used as a primary ingredient in concrete and concrete block manufacturing. Agglite is owned by Allied Concrete Company, a large American concrete-products company with over 40 years of manufacturing experience in redi-mix concrete, concrete block, prestressed concrete and other building materials. Fly ash, along with cement and other ingredients are agglomerated into hardened pellets. These pellets provide the block or ready-mixed concrete producer several advantages over existing materials including decreased manufacturing costs, lower unit weight and improved particle shape.

Product/Service	Description
Coal Derivatives	<p>There is an increasing need for economically attractive and environmentally sound alternatives to disposal of high volumes of combustion by-products. The development of our manufactured lightweight aggregate process through the operation of laboratory and pilot-scale facilities has led to the successful construction and operation of commercial plants with two major utility companies. The Agglite process is not limited to low carbon fly ashes like most conventional uses.</p> <p>The basic Agglite technology involves material agglomeration through the operation of a pan pelletizer. We are currently involved in efforts to process a variety of ashes and other advanced coal combustion by-products to render them environmentally acceptable and to facilitate handling and transportation of materials back to mine sites or other areas.</p>

**Aptech Engineering Services, Inc.**  
1257 Elko Drive  
Sunnyvale, CA 94089



**Telephone:** (408) 745-7000  
**FAX:** (408) 734-0445  
**Chief Executive Officer:** Dr. Geoffrey R. Egan  
**International Sales Manager:** Mr. Steven A. Lefton

**Domestic Offices:** SOUTH CENTRAL OFFICE: 901 Threadneedle, Suite 100, Houston, Texas 77079 TEL. (713) 558-3200 FAX (713) 558-3761; EAST COAST OFFICE: 601 North Fairfax, Suite 420, Alexandria, Virginia 22314 TEL. (703) 683-2062 FAX (703) 683-2132

**International Offices:** Please contact company Headquarters for further information.

APTECH works with utility and industrial clients to solve their most intractable metallurgical, mechanical, and fireside problems. Our exceptional services have been fully tested and shaken down at utility boilers across the United States.

(Continued on next page)



**Aptech Engineering Services, Inc. (Continued)**

Product/Service	Designation	Description
Increased Life and Reliability of Superheaters and Reheaters	TUBEMOD™	Dramatically increases the life and reliability of superheaters and reheaters by adjusting the tube temperature profile. Tubes operating at excessive temperatures are cooled down, thus reducing failures and increasing section lifetime.
Remaining Life Prediction System for Boiler Tubing	RUL® System	A turnkey system to nondestructively measure and calculate the remaining useful life of superheaters and reheaters.
Reduction of Slagging and Emissions from Utility Boilers	Cofiring	Special techniques and instrumentation for optimizing the cofiring of natural gas with coal without damaging the boiler tubing.

**Babcock & Wilcox**  
**Power Generation Group**  
 20 S. Van Buren Avenue  
 Barberton, OH 44203-0351



Telephone: (216) 753-4511  
 Telex: 986406 FAX: (216) 860-1886

Chief Executive Officer: Robert E. Howson (McDermott International, New Orleans, LA office)  
 International Sales Manager: Ian K. Anderson (Cambridge, Ontario office)

Domestic Offices: NEW ORLEANS, LA: McDermott International, 1010 Common Street, New Orleans, LA 70160  
 International Offices: CAMBRIDGE, ONTARIO: Babcock & Wilcox International, 581 Coronation Boulevard, Cambridge, Ontario N1R 5V3

The Babcock & Wilcox company has been a leader in coal-fired steam boilers ever since George Babcock & Stephen Wilcox were granted a patent on the safety tube boiler in 1867. Today, B&W builds coal-fired boilers with steaming capacities from 100,000 pounds per hour up to 9,300,000 pounds per hour. Reliable operation has always been a key goal. American Electric Power operated its Mountaineer power plant -- including a B&W 1300 MWe boiler -- continuously for 607 days in 1986 and 1987. Let us provide you with the same quality.

Product/Service	Description
Boilers	Conventional boilers fired by stoker or pulverized coal. Fluid bed boilers of bubbling, circulating, and pressurized design.
Burners	Conventional and low NO <sub>x</sub>
Pulverizer Mills	Our rugged MPS model mill has been proven in over 600 units on a wide variety of coals.
Env. Control Systems	In cooperation with the Clean Coal Program of the U.S. Department of Energy, B&W has demonstrated sulfur removal in the lower furnace (fluid bed), the upper furnace (LIMB), the boiler back end (LIDS), and in the precipitator (ESOX). Consider B&W if you need a customized retrofit application to minimize sulfur.
Flue Gas Desulfurization (scrubbers)	B&W scrubbers are in operation and construction from 25 MW <sub>e</sub> to 1300 MW <sub>e</sub> , using lime, limestone, thiosortic lime, and sodium.

**Baker/TSA, Inc.**  
**Airport Office Park, Building 3**  
**420 Rouser Road**  
**Coraopolis, PA 15108**



*"50 Years of  
Shaping the World  
in Which We Live"*

**Baker/TSA, Inc.**

**Telephone:** (412) 269-6000

**Telex:** 866287 **FAX:** (412) 269-6097

**Chief Executive Officer:**

C. Joseph Touhill, Ph.D., P.E.

**International Sales Manager:**

John D. Whiteford

**Domestic Offices:**

MERRILLVILLE, IN: 701 East 83rd Avenue, Merrillville, IN 46410 TEL. (219) 736-0263; JACKSON, MS: 3957 Northview Drive, Jackson, MS 39206 TEL. (601) 362-5481; WESTBORO, MA: Lyons Street, Westboro, MA 01581 TEL. (508) 366-9191; HALLOWELL, ME: 103 Water Street, Hallowell, ME 04347 TEL. (207) 622-3724.

**International Offices:**

Locations pending, please contact company headquarters for further information.

Baker/TSA, Inc. is the environmental management unit of the Michael Baker Corporation, a full service architectural, engineering and planning firm established in 1940. The firm has a long history of providing professional services to the coal industry and major consumers of coal, including the electric utility and steelmaking industries. Specific coal related services include by-product disposal and utilization investigations, landfill design and permitting, economic evaluations and regulatory impact analyses. Clients include the Electric Power Research Institute, National Coal Association/American Mining Congress, Consolidation Coal Company, USX Corporation, Bethlehem Steel Corporation, and Armco Steel Corporation.

<b>Product/Service</b>	<b>Description</b>
<b>Emissions Control and Waste Disposal Systems</b>	A full range of emission control by-products utilization and disposal services are offered. Baker/TSA, Inc. is capable of evaluating a full range of combustion and emission control technologies.
<b>Advanced Utilization</b>	A full range of emission control by-products utilization and disposal services are offered. Baker/TSA, Inc. is capable of evaluating a full range of combustion and emission control technologies.
<b>Utilities</b>	A full range of emission control by-products utilization and disposal services are offered. Baker/TSA, Inc. is capable of evaluating a full range of combustion and emission control technologies.
<b>Architecture/Engineering</b>	Various units of the Corporation provide a full spectrum of A/E services including environmental engineering, geophysical testing, geotechnical engineering, mining engineering, industrial hygiene, asbestos abatement design, architecture, civil engineering, structural engineering, electrical engineering, mechanical engineering, and fire protection design.

**Battelle**  
505 King Avenue  
Columbus, OH 43201



**Telephone:** (614) 424-6424

**Telex:** 24-5454 **FAX:** (614) 424-5263

**Chief Executive Officer:**

Dr. Douglas E. Olesen

**International Sales Manager:**

Mr. John S. Christie

**Domestic Offices:**

RICHLAND, WA: Battelle Boulevard, Richland, WA 99352 TEL. (509) 375-2121

**International Offices:**

GERMANY: Am Romerhof 35, Frankfurt Germany TEL. 49-69-79080; SWITZERLAND: 7, route de Drize, Carouge-Geneva TEL. 41-22-270270

Battelle assists industry and government in developing, commercializing, and managing technology. With a wide range of scientific and technical capabilities, Battelle solves problems, develops and improves products and processes, provides on-site technical assistance, and manages large, complex technology programs. Its 7,500 staff serve clients in more than 30 countries with other offices in many of the largest cities in the world. Battelle was founded by Ohio industrialist Gordon Battelle, who recognized that a constantly changing world can be improved through advances in technology and education.

<b>Product/Service</b>	<b>Description</b>
Coal Utilization Technologies	A multiclient effort to identify and assess new coal utilization technology is now in its ninth year of operation. There are no significant penalties for late participants.
Fluidized-Bed Technology	Extensive experiences with multisolid fluidized-bed technology is available for use in various applications including combustion, gasification, desulfurization, etc. Some uses are now available only through licenses.
New Materials	As in most applications, the performance of materials eventually becomes the primary factor limiting usage. Battelle has numerous ongoing programs to assist in problem definition and materials selection with regard to various coal utilization technologies.
Coal Beneficiation	Processes for advanced treatment of coal is an area of much current activity with substantial patent protection now being developed. Use of combined fields and application of genetic manipulation of biological agents are under study.
Emissions Control	The research area still receiving much attention is the development of improved technology for the control of emissions, including hydrothermal treatment, means to optimize cleaning plants, high temperature combustion systems, fiber filters, use of additives, improved wet-scrubbing processes, and waste utilization and disposal.
Process Optimization	One of the key aspects of any new technology is proper modeling of the system before construction and installation of the full scale system. Battelle has provided pioneering of this service in this area over the years.

Carnot  
15991 Red Hill Avenue  
Suite 110  
Tustin, CA 92680



Telephone: (714) 259-9520  
FAX: (714) 259-0372  
Chief Executive Officer:  
International Sales Manager:  
Manager, Utilities Systems:  
Director of Testing Services:

Barry L. McDonald  
Mark D. McDannel  
David O. Czerniak  
Robert A. Finken

Carnot is a consulting and engineering organization specializing in fuels, fuels utilization, combustion and combustion-generated air pollution emissions, emissions control, emissions testing, and regulatory affairs. The organization possesses technical expertise for a variety of stationary combustion device types including utility and industrial boilers; municipal solid waste and other refuse-fueled boilers; as well as medical and hazardous waste incinerators, fluidized-bed boilers; and simple-cycle, combined-cycle, and cogeneration gas turbines and a variety of specialized process equipment.

Product/Service	Description
Emissions Control, Process Improvement	Carnot offers unbiased expertise in the selection of appropriate control technologies (many of which its people helped pioneer). Carnot's philosophy is that combustion-generated air pollutant emissions should and can be controlled using the most-effective available technique with the least impact upon unit operating flexibility and thermal performance. Carnot has experience with devices burning conventional fuels (i.e., coal, natural gas, fuel oil, etc.), as well as less-common fuels such as petroleum coke, refinery gas, wood and agricultural wastes, coal-water slurries and coal-oil mixtures, oil-water emulsions, municipal solid waste, landfill gas, and methanol. Carnot's emissions expertise covers a wide variety of species including NO <sub>x</sub> , SO <sub>x</sub> , CO, particulates of all types, metals, organics, and other toxics.
Research, Development, and Design	Carnot uses its combustion and process expertise to design investigative programs to solve many different real-world process and emissions problems. The company has conducted many successful technology demonstrations and aided in their development. Our expertise includes advanced burner and combustor design, post combustor controls, reagent injection for emissions reduction, and emissions control planning. When appropriate, Carnot designs small scale experimental simulators and laboratory investigations for novel problems.
Emissions Testing	Carnot provides a full range of in-house testing and process equipment including mobile laboratories, continuous emission monitors, and sampling methodologies for virtually any industrial pollutant of concern in liquid, solid, and gaseous streams.
Regulatory Engineering	Carnot's regulatory staff keeps abreast of domestic and international affairs and offers assistance in permitting and siting projects, especially those of a unique nature. Carnot has helped its clients meet some of the most demanding emissions regulations in the world.

**CH2M Hill International Ltd.**  
6060 S. Willow Drive  
P.O. Box 24548  
Denver, CO 80222



**CH2M HILL  
INTERNATIONAL LTD.**

**Telephone:** (303) 796-9001  
**Telex:** 4742047 CH2M PTL    **FAX:** (303) 796-8710  
**Managing Director:** Howard Schirmer, Jr., PE

**Domestic Offices:** CH2M HILL, Inc. includes nearly 60 offices in North America  
**International Offices:** AUSTRALIA:\* Sydney, Australia; EGYPT: Alexandria and Cairo, Egypt; ENGLAND:\* London, England;  
TAIWAN:\* Taipei, Taiwan  
(\*To open in 1990-1991)

CH2M HILL International Ltd. is a wholly-owned subsidiary of CH2M HILL Ltd., a firm of engineers, planners, economists, and scientists with more than 25 years experience in international projects. CH2M Hill provides comprehensive planning, study, design, and construction management services for clients with interests in: industrial plants and processes, geotechnical services, solid and hazardous waste management and disposal, water supply and wastewater, water resources, irrigation, city and regional planning, economics, and program management.

Product/Service	Description
Consulting Engineering	Pre-project planning and project support services include feasibility studies and assessments; earth sciences; environmental impact studies; regional/urban/rural planning and site evaluation. Among project preparation services are detailed designs, technical appraisals, funding and procurement advice, tender documents, and bid evaluation. Additional services include construction implementation and post-construction services.
Industrial Facility Engineering	Specialized services include site environmental audits, industrial site selection, permitting and development, plus hydroelectric, thermal, solar, bio-energy, geothermal, and cogeneration systems. Industrial wastes management and control services are also provided.

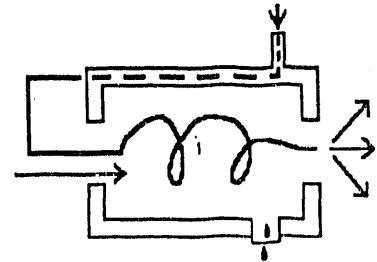
**Coal Tech Corp.**  
P.O. Box 154  
Merion Station, PA 19066

**Telephone:** (215) 667-0442  
**FAX:** (215) 667-6632  
**Chief Executive Officer:**  
**International Sales Manager:**

Dr. Bert Zauderer  
Dr. Bert Zauderer

**Domestic Offices:** MERION STATION, PA: 275 N. Highland Avenue, Merion Station, PA, 19066 TEL. (215) 667-0442

**COAL TECH CORP**  
Merion, PA



For the past decade, Coal Tech has developed an advanced air cooled combustor which has to-date demonstrated 80+% ash retention in the form of inert slag, 2/3 reduction of NO<sub>x</sub>, and over 80% reduction of SO<sub>2</sub> emissions. The combustor has been tested on a 20 MMBtu/hr [5040 kcal/hr] boiler since early 1987. It can economically retrofit oil/gas designed industrial and utility boilers to coal or solid waste fuels, and convert ashes with leachable heavy metals to inert slag. Coal Tech plans to market and/or license the combustor for these applications, and to continue combustor development in the areas of solid waste disposal.

(Continued on next page)

Coal Tech Corp. (Continued)

Product/Service	Description
Advanced Utilization (CCT)	Coal Tech is seeking to form a joint venture with an international energy concern to demonstrate the combustor at the 100+ MMBtu/hr scale for large industrial/utility boilers with coal/solid waste fuels.
Facilities Construction/ Technical Consultants	Coal Tech will design, and fabricate test facilities using the Coal Tech combustor at the 2 to 50 MMBtu/hr scale. It can provide technical services in the slagging combustion field, as well as test a client's fuels at its 20 MMBtu/hr combustor facility.
Emission Controls & Waste Disposal System	The Coal Tech combustor is available for licensing for use in organic chemical wastes incineration for conversion of leachable ashes/solids to inert slag.

Commercial Testing and Engineering Co.  
1919 S. Highland Avenue, Suite 210-B  
Lombard, IL 60148



Telephone: (708) 953-9300  
Telex: 285951 COMTECO LMB UR  
Chief Executive Officer:  
Vice President - Controller:

FAX: (708) 953-9306  
Mr. R.J. Morlock, P.E.  
Mr. E.J. Yauch

Domestic Offices:

BIRMINGHAM, AL TEL. (205) 942-3120; MOBILE, AL TEL. (205) 432-2781; KENAI, AK TEL. (907) 776-5550; LONG BEACH, CA TEL. (213) 437-6668; CRAIG, CO TEL. (303) 824-4154; DENVER, CO TEL. (303) 373-4772; GOLDEN, CO TEL. (303) 278-9521; JACKSONVILLE, FL TEL. (904) 693-0114; TAMPA, FL TEL. (813) 248-6566; SOUTH HOLLAND, IL TEL. (708) 331-2900; HENDERSON, KY TEL. (502) 827-1187; JEFF, KY TEL. (606) 439-1313; MIDDLESBORO, KY TEL. (606) 248-4205; PIKEVILLE, KY TEL. (606) 432-2511; ST. ROSE, LA TEL. (504) 467-5522; BALTIMORE, MD TEL. (301) 354-2677; CONNEAUT, OH TEL. (216) 224-2261; TOLEDO, OH TEL. (419) 698-8049; CHARLEROI, PA TEL. (412) 483-3540; NEW BETHLEHEM, PA TEL. (814) 275-4515; NORTH CHARLESTON, SC TEL. (803) 744-7240; DEER PARK, TX TEL. (713) 479-8716; PRICE, UT TEL. (801) 637-7540; NORFOLK, VA TEL. (804) 489-2216; ANMOORE, WV TEL. (304) 623-3329; CEREDO, WV TEL. (304) 453-6682; CHARLESTON, WV TEL. (304) 925-6631  
SALES OFFICE: George Dickinson, 9-2452 St. Andrew Boulevard, Lady Lake, Florida 32659  
TEL. (904) 753-2764

Commercial Testing & Engineering Co. (CT&E) is the largest independent coal testing organization in the United States, with over 40 branch laboratories and 30 separate sampling operations strategically located in principal coal mining areas, Great Lakes and tidewater ports, river loading facilities, and major consumption areas. In addition to its coal-related services, the Company performs inspection, sampling, and testing of other bulk commodities, such as chemicals, fertilizers, minerals, ferro-alloys, and bauxite. CT&E's Environmental Group performs organic and inorganic analyses, as well as bioassay studies. Founded in 1908, CT&E is a member of the International SGS Group (*Société Générale de Surveillance*), with 199 Companies located in 140 countries throughout the world.

Product/Service

Coal core logging and evaluation  
Coal inspection and analysis  
Coal inventory reconciliation  
Environmental testing and analysis

Product/Service

Coal washability studies  
Stockpile density and quality surveys  
Overburden and topsoil analysis  
Bias testing

(Continued on next page)

**Commercial Testing and Engineering Co. (Continued)**

Preparation plant performance tests  
 Minerals testing and analysis  
 Draft surveys

Fuel oil testing and analysis  
 Water analysis  
 Instruments for coal and coke evaluation

**Electric Power Research Institute**  
 3412 Hillview Avenue  
 P.O. Box 10412  
 Palo Alto, CA 94303



**Telephone:** (415) 855-2000  
**Telex:** 910-373-1163 EPRI PLA **FAX:** (415) 855-2954  
**Chief Executive Officer:** Richard E. Balzhiser  
**International Sales Manager:** Jay Kopelman

**International Offices:** Please contact EPRI headquarters for further information.

The Electric Power Research Institute (EPRI) manages a program of collaborative research and development on behalf of the U.S. electric utility industry and its customers. Funded through voluntary contributions by some 660 member utilities, EPRI's work covers a broad range of technologies related to the generation, delivery, and use of electricity.

Product/Service	Description
Development of new efficient applications of electricity	Selected key products, among dozens, include a warm air heat storage furnace, an optimal controller for cool storage, an advanced variable speed heat pump, an arc furnace dust treatment process, an electric van, probabilistic and scenario forecasting guidebooks, residential customer preference models, a demand-side planning workstation, a commercial unitary dual-fuel heat pump, and a storage heat pump water heater.
Development of cost-effective and safe technologies that address environmental issues	Selected key products include probabilistic seismic hazard methodology, a concrete silo spent fuel storage demonstration, an erosion/corrosion prediction and analysis computer code, a method for reducing the rate of radiation buildup on piping, a health risk assessment of SO <sub>x</sub> and disposal or possible reuse of large volumes of coal ash.
Development of cost-effective ways to use existing power plants while preparing for future electricity needs	Selected key products include guidelines for converting baseload fossil plants to cycling, on-line monitoring for critical plant equipment, an analytical model for predicting coolant activity, fossil plant nondestructive evaluation guidelines, the Coal Quality Impact Model, atmospheric fluidized-bed combustion demonstrations, and combustion and integrated gasification combined cycle demonstrations.
Development and demonstration of efficient, reliable and safe electricity delivery systems	Selected key products include a transmission line workstation, improved tree trimming equipment, Flexible AC Transmission Systems (FACTS), substation automation, and advanced power transformers.

**Ellison Consultants**  
4966 Tall Oaks Drive  
Monrovia, MD 21770-9316



**Telephone:** (301) 865-5302

**FAX:** (301) 831-5443

**Chief Executive Officer:**

Mr. William Ellison

**International Sales Manager:**

Mrs. Gerd A. Ellison

Formed in 1981, this independent consultancy specializes in assessment and commercial application of SO<sub>2</sub> and NO<sub>x</sub> control technologies and methods for management of collected wastes. The firm has extensive engineering design and technical marketing experience and background in all worldwide countries that utilize state-of-the-art technology for control of air pollution in the firing of solid fuels including municipal solid wastes. Clients include government agencies, electric utility companies, gas cleaning equipment and gypsum manufacturing companies, law firms, and technical development organizations.

Product/Service	Description
SO <sub>2</sub> Control Technology Evaluation	Consulting expertise in evaluation, selection and conceptual design of applicable emission control means
Management of Collected Gas Cleaning Wastes	Expert technical services in planning and establishment of programs for utilization or environmentally acceptable disposal of solid and liquid wastes.

**EnCoal**  
105 East 4th Street  
Cincinnati, OH 45202



**Telephone:** (513) 621-3733

**FAX:** (513) 621-3734

**Chief Executive Officer:**

L. Robert Folan

**International Sales Manager:**

Alan Tweedale

**Domestic Offices:**

HOT SPRINGS, VA: P.O. Box 826, Hot Springs, VA 24445 TEL. (703) 839-5111

**International Offices:**

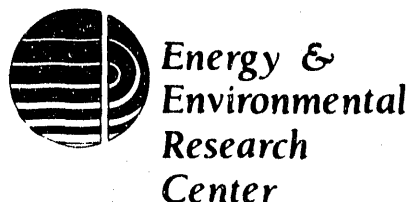
ENGLAND: 213 Upper Richmond Road West, London, SW14 8QT England TEL. 011-44-81-878-8355

EnCoal was founded in 1985 as the U.S. partnership between L. Robert Folan and Alan Tweedale. Tweedale has led the British Coal Board's research into clean coal burning technology since World War II. In the 1980's, he took this technology private with Energy Supplies, Ltd., which is very active today throughout the United Kingdom. EnCoal brings this technology into the United States market featuring small fluidized beds. EnCoal's first project will be to rebuild the power plant of The Homestead Hotel in Hot Springs, Virginia with a clean burning, coal fired cogeneration plant.

Product/Service	Description
EnCoal designs, builds, finances, and operates small steam driven power plants.	EnCoal contracts with customers to reduce their energy costs by utilizing clean combustion technology to produce steam that in turn produces electricity, process steam, heating, and air conditioning. EnCoal's technology complies with the proposed Clean Air Act of 1990, and is predicated on bottom line savings to the customer through a long term contract with EnCoal.



Energy and Environmental Research Center  
Box 8213, University Station  
Grand Forks, ND 58202



Telephone: (701) 777-5000

Telex: 332537 FAX: (701) 777-5181

Chief Executive Officer: Gerald H. Groenewold

International Sales Manager: Gerald H. Groenewold

Domestic Offices: GRAND FORKS, ND: 15 North 23rd Street, Grand Forks, ND 58203

The Energy and Environmental Research Center (EERC) at the University of North Dakota features an integrated systems approach to energy and environmental research and technology development. Originally a federal coal research facility, EERC became part of the University of North Dakota in 1983. Since that time, EERC has expanded its coal research programs to become the leading low-rank coal research facility in the world. In addition, EERC has the leading groundwater research program in this region and has major and expanding research programs in waste management, air emissions control, fluidized-bed combustion, coal-water fuels, mild gasification, liquefaction, and H<sub>2</sub> production.

Product/Service	Description
Fuels and Process Chemistry Research Institute	A major thrust of the Fuels and Process Chemistry Research Institute (FPCRI) of the Energy and Environmental Research Center is the development of new processes for more efficient production and/or utilization of fuels and chemicals. Expertise and capabilities include scientists and engineers from most technical disciplines with many years of experience in severe condition processing; flexible and reliable equipment to develop process concepts; pilot-scale equipment configurable to a variety of processing schemes needed to provide process validation for new technologies; and complete analytical support, including fully equipped laboratories and proven capabilities in development of new analytical methods.
Mining and Mineral Resources Research Institute	The mission of the Mining and Mineral Resources Research Institute (MMRRI) is to conduct and promote basic and applied research related to mining, minerals, groundwater, waste management, and energy resources; participate in the educational programs of the University of North Dakota and other universities; and provide a wide range of services to the mining, mineral, and energy resources industry, as well as to the state and nation. Current MMRRI programs include applied chemistry, environmental microbiology, energy policy, fundamental geology, groundwater and waste management, mine land reclamation, resource evaluation, and underground coal gasification.
Combustion and Environmental Systems Research Institute	The Combustion and Environmental Systems Research Institute (CESRI) of the Energy and Environmental Research Center performs basic research into the fundamental chemical and physical mechanisms that occur during the combustion of coal and other fuels, as well as their effects on environmental systems. The effects of fuel quality on system operation; the problems related to deposition, corrosion, and erosion; the performance of gaseous and particulate removal devices; and the efficient conversion of fuel to energy are all studied.

**Energy and Environmental Research Corporation**  
**18 Mason**  
**Irvine, CA 92718**

Energy and  
Environmental  
Research Corporation

**Telephone:** (714) 859-8851

**Telex:** 181787 **FAX:** (714) 859-3194

**Chief Executive Officer:** Thomas J. Tyson

**International Sales Manager:** Glenn England

**Domestic Offices:** ORRVILLE, OH: 1645 N. Main, Orrville, OH 44667 TEL. (216) 682-4007, FAX (216) 684-2110; DURHAM, NC: 3622 Lyckan Parkway, Durham, NC 27707 TEL. (919) 489-1726, FAX (919) 493-5670; WHITEHOUSE, NJ: P.O. Box 189, Whitehouse, NJ 08888 TEL. (201) 589-1726, FAX (201) 534-9018

**International Offices:** Please contact company headquarters for further information.

EER specializes in combustion and air pollution control for coal. This includes the development and application of advanced combustion systems and emission control equipment. EER also specializes in the turning and optimization of combustion equipment. This includes burner balancing, sootblower optimization and other techniques to produce optimum thermal performance and minimum emissions. EER has experience with all fossil fuels including coal, oil and gas. EER also has experience in the incineration of waste materials including hazardous waste, municipal solid waste and medical waste. Annual sales are approximately \$9,000,000. Employees number about 100, mostly engineers with advanced degrees.

Product/Service	Description
Coal Quality Evaluation	Comparative evaluations of alternate coals including analysis and test burns.
Emissions Compliance	Evaluations of alternate strategies for meeting NO <sub>x</sub> , SO <sub>2</sub> and particulate emission regulations at minimum total cost.
Performance Optimization	Tuning coal combustion systems for maximum efficiency, minimum emissions and minimum total cost.
SO <sub>2</sub> Control Systems	Several SO <sub>2</sub> control processes including in furnace and duct sorbent injection systems.
NO <sub>x</sub> Control Systems	Several NO <sub>x</sub> control processes including reburning, ammonia injection, flue gas recirculation, low NO <sub>x</sub> burners and several new technologies under development.

**The ERM Group**  
**855 Springdale Drive**  
**Exton, PA 19341**



**Telephone:** (800) 544-3117  
**Telex:** 49600537 **FAX:** (215) 524-7335

**Founder:** Paul H. Woodruff  
**International Sales Manager:** Amir Metry

**Domestic Offices:** VANCOUVER, BC, CANADA TEL. (604) 684-4434; COLUMBUS, OH TEL. (614) 433-7900; BOSTON, MA TEL. (617) 742-8228; WOODBURY, NY TEL. (516) 921-4300; BELLEVUE, WA TEL. (206) 827-9440; DEERFIELD, IL TEL. (708) 940-7200; ENGLEWOOD, CO TEL. (303) 741-5050; TAMPA, FL TEL. (813) 622-8727; BRENTWOOD, TN TEL. (615) 373-3350; HOUSTON, TX TEL. (713) 496-9600; WALNUT CREEK, CA TEL. (415) 946-0455

**International Offices:** CONSETT, ENGLAND: Northern Environmental Consultants, Ltd. TEL. (011-44-207) 507254; LONDON, ENGLAND: Environmental Resources, Ltd. TEL. (011-44-71) 486-1211; Four Elements, Ltd. TEL. (011-44-71) 233-1088; NORTHAMPTON, ENGLAND: Environmental Resources, Ltd. TEL. (011-44) 604-791551; MADRAS, INDIA: Environmental Resources Management (India), Pvt. Ltd. TEL. (011-91-44) 45-0773-45-0425; MILANO ITALY: Produzione Ambiente Risorse, P.A.R.s.r.l. TEL. (011-39-2) 659-9437; SCHWALBACH, GERMANY: ERL-Deutschland GmbH TEL. (011-49) 6196-84741; TSINSHATSUI, KOWLOON: ERL (Asia) Ltd. TEL. (011-85-2) 72-20292

The ERM Group is an organization of more than 1200 employees working from more than 60 offices to provide exceptional environmental consulting, construction management, analytical laboratory, and information and data management services to a wide range of private and public sector clients. The ERM Group is a technically oriented consulting organization with in-depth experience in these areas: site remediation; hydrogeology; hazardous/solid waste management; management consulting; engineering services; underground tank management; environmental science; air pollution control; computer services; construction management; and health, safety, and toxicology.

Product/Service	Description
Permitting and Siting	Finding optimum locations for facilities, preparing necessary permits, and negotiating permit specifications with agencies.
Emissions Controls	Estimating and sampling emissions, modeling pollutant transport and dispersion, determining real risk to receptors, designing emissions control strategies and systems to protect receptors and comply with regulations.
Environmental Planning	Preparing environmental management strategies for all aspects of operations.
Waste Handling	Designing systems to collect, and developing plans to landfill coal ash.

**Everlasting Valve Company**  
108 Somogyi Court  
South Plainfield, NJ 07080

**EVERLASTING VALVE COMPANY**

Telephone: (201) 769-0700  
FAX: (201) 769-8697  
Chief Executive Officer:  
International Sales Manager:

Mr. Robert L. Bunting  
Mr. Robert L. Bunting

**International Offices:**

ENGLAND: Armstrong International, Huddersfield, England TEL. 011 (484) 682760  
FAX 011 (484) 686318; GERMANY: Armstrong Machine Works, Aachen, Germany, TEL. 0114924125781  
FAX 0114924138248; AUSTRALIA: Armstrong Steam Control, Punchbowl, N.S.W. 2196, Australia TEL.  
011612750-3822 FAX 0116127581264; SOUTH AFRICA: Everlasting Valve Co. Ltd., Edenvale, Republic of  
South Africa TEL. 01127118233447 FAX 01127118233243

Everlasting Valve Co. is a Division of Armstrong International. It was founded in 1906, initiating its valve activity by supplying valves for steam locomotives. In more recent years, as a result of extremely successful testing under DOE's state-of-the-art Lockhopper Valve Testing and Development Project, the valve has become a standard for lockhoppers and slurry services in coal gasification and coal conversion facilities. Successful applications including Texaco's Cool Water Project, Lurgi's Sasol I, II, and III, ANG, Fru-Con's H-Coal, General Electric, etc., etc.

**Product/Service**

**Description**

**Rotating Disc Valves**

A metal to metal rotating disc valve designed specifically for difficult dry or wet slurries, coal, coke, vitrified ash services traditionally found in state-of-the-art coal gasification projects. Seat and disc material of Stellite or Ceramics, operating components in stainless or equal, bodies of steel, stainless on high alloys or appropriate to pressures and temperatures. Available through class 2500 and 24" size. Actuation can be accomplished by pneumatic or hydraulic actuators.

**GAI Consultants**  
570 Beatty Road  
Monroeville, PA 15146



Telephone: (412) 856-6400  
FAX: (412) 856-4970  
Chief Executive Officer:  
International Sales Manager:

Dr. Anthony M. DiGioia, Jr.  
Dr. Anthony M. DiGioia, Jr.

**Domestic Offices:**

CHARLESTON, WV: 4715-C MacCorkle Avenue SE, Charleston, WV 25304 TEL. (304) 925-7730, FAX (304) 925-7776; ORLANDO, FL: 1833 Edgewater Drive, Orlando, FL 32804 TEL. (407) 423-8398, FAX (407) 843-1070; RALEIGH, NC: 401 Glenwood Avenue, Raleigh, NC 27603 TEL. (919) 828-0801, FAX (407) 833-2784; MT. LAUREL, NJ: 300 Birchfield Drive, Suite 301, Mt. Laurel, NJ 08054 TEL. (609) 273-6585, FAX (609) 273-0050

**International Offices:**

Please contact Monroeville office for further information.

GAI Consultants professional staff of 390 engineers, geologists, scientists, environmental specialists, planners, economists, and technical and administrative personnel provides a comprehensive range of quality planning, study, and design services in civil, environmental, geotechnical, and structural engineering; energy; mining (including pre-blasting and pre-mining surveys); soil science and agronomy; water resources; industrial/hazardous waste management; transportation; site development; and construction monitoring.

(Continued on next page)

**GAI Consultants (Continued)**

Product/Service	Description
Mine Planning and Design	Full design and planning services for new or expanding mines include drilling, geophysical testing, feasibility studies, mine layouts, permitting, and selection of mining methods and mine access. GAI also provides assistance in planning and siting auxiliary mine facilities and beneficiation and coal gasification facilities.
Waste Disposal and Land Reclamation	Waste disposal and land reclamation services range from overall engineering design and materials handling procedures to environmental studies, and ground-water investigations. GAI provides services for dry refuse disposal areas and slurry impoundments; treatment of acid mine drainage; design of waste disposal dams and ponds; and regrading, revegetation, and reclamation planning.
Environmental and Subsidence Engineering	Environmental services include pollution abatement, reclamation planning, environmental impact statements, waste disposal and permitting studies, ground-water monitoring, and acid mine drainage studies. Subsidence-related services include subsidence plans, mine and surface stabilization, prediction of subsidence and ground movement, subsidence investigation and control plans, and design of subsidence-resistant structures.

**GeoResearch, Inc.**  
 2815 Montana Avenue  
 Billings, MT 59101



**Telephone:** (406) 248-6771  
**FAX:** (406) 248-6770  
**Chief Executive Officer:** Douglas Richardson, Ph.D.  
**International Sales Manager:** Douglas Richardson, Ph.D.

**International Offices:** Please contact company headquarters for further information.

GeoResearch, Inc., provides comprehensive environmental consulting services to coal mining, coal processing, and coal burning industries. GeoResearch is an experienced multidisciplinary firm, with staff including expert hydrogeologists, meteorologists, air quality specialists, analytical chemists, environmental engineers, and computer programmers. GeoResearch has extensive experience in issues pertaining to acid rain. GeoResearch is currently conducting a two year study in conjunction with the Government of Italy to assess the occurrence and potential for acid rain there. GeoResearch also offers Global Positioning Satellite (GPS) survey services integrated with computer based Geographic Information Systems (GIS) to produce surveys, maps, and to effectively manage geographic data of all types.

Product/Service	Description
Air Quality Services	Monitoring system design and computer dispersion modeling of all relevant parameters including: meteorology, SO <sub>2</sub> , NO <sub>x</sub> , O <sub>3</sub> , H <sub>2</sub> S, odor, total and respirable particulates, etc. Acid rain studies. Source apportionment.
Water/Ground Water Services	Hydrogeologic analysis, aquifer testing, ground water monitoring, water supply, mine dewatering, mine drainage, water quality, hydrochemistry, flow measurements, aquifer remediation.
Computer Mapping Services	State-of-the-art computer based survey and mapping capabilities utilizing Global Positioning Satellite technology integrated with ARC/INFO GIS software. Positional and topographic tolerances to ± 2 cm.

## GRAVER WATER INTERNATIONAL

Graver Water International  
2720 U.S. Highway 22  
Union, NJ 07083

Telephone: (908) 964-2565  
Telex: 6853093 GRAVX UW  
Chief Executive Officer: Leonard Linon  
International Sales Manager: Robert O'Connell

International Offices: Licensee Network Located Throughout The World

The Graver Company is a member of the multi-billion dollar Marmon Group. Graver Water International, a Division of the Graver Company, actively markets and pursues projects on a global basis, utilizing the expertise and experience of its other divisions; Graver Water, Graver Chemical, Unitech and Ecodyne Limited, to design and supply a comprehensive line of water and waste treatment equipment. Our products and systems are aimed toward the electric utility, cogeneration, chemical, petroleum, electronics, pharmaceutical, pulp and paper, and metals industry.

Product/Service	Description
Utility Waste Treatment	Treatment system for coal pile runoff, maintenance cleaning wastes, FGD and wet scrubber blowdown.
Pretreatment	Full line of solids contact and lamella clarifiers, gravity and pressure filters for removal of suspended solids, organics, turbidity reduction and/or softening.
Thermal Processes	Spray and tray type boiler feedwater deaerating heaters, evaporators and crystalizers; hot process and zeolite softeners for hardness reduction.
Makeup and Condensate Demineralizers	Cation, anion and mixed bed ion exchange equipment; Powdex design combining ion exchange and filtration.

Greenley Energy Holdings of PA, Inc.  
101 N. Main Street  
Greensburg, PA 15601

## GREENLEY

Telephone: (412) 834-7555  
FAX: (412) 837-9241  
Chief Executive Officer: Mr. Joseph Ciarimboli  
International Sales Manager: Mr. Joseph Ciarimboli

International Offices: Please contact company headquarters for further information

Greenley Energy Holdings of PA, Inc. is an active coal processing company reclaiming waste refuse bituminous coal without beneficiation for use in fluidized bed furnace for power generation. The company has developed the first coal processing system for such application and has developed novel reclamation techniques for vegetation directly onto coal surfaces, avoiding the need for top soils. The latter effort was developed jointly with Pennsylvania State University. The company has unique talents in the determination of mining plans of refuse coals.

Product/Service	Designation	Description
Coal Waste Processing	"Greenley"	Greenley offers unique capabilities in the utilization and processing of waste refuse bituminous coals and in the development of inexpensive reclamation programs for environmental requirements for waste coal piles and surface coal mining.

HDR, Inc.  
8404 Indian Hills Drive  
Omaha, NE 68114-4049



Telephone: (402) 399-1000

FAX: (402) 399-1238

Chairman, HDR, Inc.:

Jean Tietz

Chief Operating Officer, HDR, Inc.:

Francis Jelensperger

President, HDR Engineering, Inc.:

Richard R. Bell

Director, National Power and

Energy Programs:

Robert P. Knudsen

Domestic Offices:

Alexandria, VA; Anchorage, AK; Austin, TX; Charlotte, NC; Chicago, IL; Dallas, TX; Denver, CO; Fresno, CA; Greensboro, NC; Irvine, CA; Kansas City, KS; Minneapolis, MN; Omaha, NE; Phoenix, AZ; Pittsburgh, PA; Portland, OR; Sacramento, CA; Seattle, WA; Spokane, WA; Tampa, FL; Virginia Beach, VA; and White Plains, NY

HDR, Inc. is a nationally recognized, full-service corporation in engineering and architectural design, and facilities management. HDR, Inc. is the holding company for three operating companies: HDR Engineering, Inc., Henningson, Durham & Richardson, Inc., and HDR FM, Inc.

HDR was founded in 1917 in Omaha, Nebraska. Today, the corporation has 22 offices nationwide and employs more than 1,250 people, including nearly 850 engineers, architects, and other professionals. HDR was bought in 1983 by the French company, Bouygues, S.A., one of the largest design/build companies in the world.

**Product/Service**

**Description**

Architecture/Engineering (A&E)

HDR Engineering provides full-service waste/energy, water/wastewater, and transportation engineering services. Henningson, Durham & Richardson specializes in architectural design of health care, justice, and corporate facilities. HDR FM, Inc. offers integrated facilities management services.

Power Generation Systems

HDR Engineering provides full professional engineering services for power generation systems, including cogeneration plants, power plant rehabilitation systems, retrofitting, hydropower, district heating and cooling, transmission and distribution, alternative fuels utilization and fluidized bed combustion. We are experienced in the utilization of such fuels as solid waste, coal, oil, wood waste, black liquor, industrial and wastewater sludges, methane gas, digester gas, and others.

Utilities

HDR Engineering's work for utilities includes projects for more than 100 energy utilities in 20 states, as well as water and wastewater clients throughout the United States.

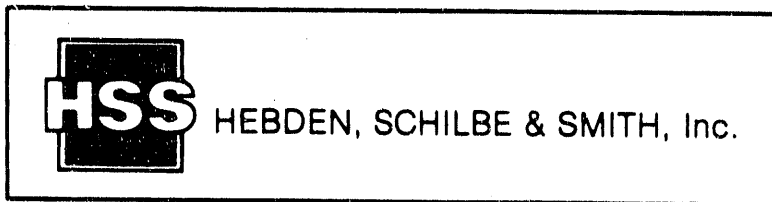
Emissions Control and Waste Disposal Systems

Our firm designs state-of-the-art facilities which satisfy all Clean Air Act requirements. HDR Engineering is recognized as an industry leader in providing engineering services for solid waste collection and disposal systems.

Technical Consultants

HDR provides complete technical consultation in all areas related to waste management and energy recovery, water and wastewater projects, environmental issues, transportation systems and bridges; health care, justice, and corporate facilities; and facilities management.

**Hebden, Schilbe & Smith, Inc.**  
3025 Washington Road  
McMurray, PA 15317



**Telephone:** (412) 341-5858

**FAX:** (412) 941-5799

**Chief Executive Officer:**

Paul F. Riederer

**International Sales Manager:**

Joe Hareza

**International Offices:**

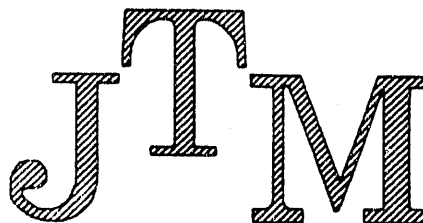
Please contact Company Headquarters for further information.

HSS is a 25 year old organization with a strong background in coal handling and processing equipment. HSS Sampling Systems are being used in the United States, South America and China by both the coal producers and coal fired utilities. Presently we've got systems operating at Consol's Baltimore Dock export facility as well as Dominion Terminal's export facility in Newport News, VA.

HSS custom designs sampling systems to retrofit existing facilities or for installation in new facilities.

Product/Service	Designation	Description
Conventional Samplers	TE or VE	HSS manufactures a full line of conventional baffle plate C-Type cutters for use in 3-Stage or 2-Stage systems. Systems are available with hydraulic or mechanical drives.
Sweep Samplers	RSDL	HSS manufactures rotary sweep samplers for each retrofit along existing conveyor stringers. These units are available with either electric motor or hydraulic motor drives.
Crushing/Sampling Module	CSS-1	HSS' "CSS" module is both an economical and compact sampling device capable of crushing, sampling and dividing the primary sample stream.

**JTM Industries, Inc.**  
1000 Cobb Place Boulevard  
Building 400  
Kennesaw, GA 30144



**Telephone:** (404) 424-1900

**FAX:** (404) 424-9290

**Chief Executive Officer:**

Mr. Bill G. Fletcher

**Executive Vice President:**

Mr. Dennis L. Kinder

**Domestic Offices:**

HOUSTON, TX: 4800 Sugar Grove Boulevard, #410, Stafford, TX 77477 TEL. (713) 240-4082;  
ALLENTOWN, PA: 420 W. Emmaus Avenue, Allentown, AP 18103 TEL. (215) 797-7674; DAYTON, OH:  
240 W. Elmwood Drive, Suite 2011, Dayton, OH 45459 TEL. (513) 435-3194; RICHMOND, VA: 1202  
Bellwood Road, Richmond, VA 23237 TEL. (804) 271-7887

JTM Industries, Inc., a wholly-owned subsidiary of USPCI and Union Pacific Corporation, is a full-service by-product management company headquartered in Marietta, Georgia. JTM provides by-product management programs to the generators of combustion and mineral processing by-products by: (1) developing and implementing proprietary processes which generate higher market value products from coal combustion residue; and (2) developing proprietary processes to accommodate reuse and/or disposal of more highly regulated non-hazardous ash streams. JTM has three divisions, each concentrating in a specific area of by-product management while drawing upon the expertise available throughout the corporation.

(Continued on next page)



## JTM Industries, Inc. (Continued)

Product/Service	Description
Ash Management Division	AMD markets coal combustion by-products such as fly ash, bottom ash and fly ash lightweight aggregate throughout the U.S. These markets include concrete and concrete products, highway projects, structural fills, soil stabilization, chemical fixation and grouting. AMD maintains a fully-equipped R&D laboratory in Houston, Texas.
Mineral By-Products Division	MBD develops and markets products derived from by-products of cement and lime production. These products include Gypcem <sup>®</sup> , Multical <sup>®</sup> , Peanut Maker <sup>®</sup> and Pozzalime <sup>®</sup> . Pozzalime <sup>®</sup> is used at industrial and commercial waste treatment sites as a drying agent and soil amendment on construction projects. Gypcem <sup>®</sup> is used to control the set in portland cement. FilterEze <sup>™</sup> , a relatively new product, is used as a sludge conditioner.
Operations Division	The Operations Division, created January 1, 1989, manages the disposal of combustion by-products in an environmentally acceptable manner. Realizing that proper disposal techniques constitute a major portion of most by-product management programs and are becoming increasingly complicated and expensive, JTM organized this division to totally concentrate its efforts in this area.
Municipal Services Corporation	MSC is involved in the utilization and disposal of municipal solid waste ash and is currently involved in research and development of products from MSW ash in JTM's pilot plant located in Taylorsville, Georgia, to develop new technology. JTM considers this activity one of its greatest potential growth areas. MSC is developing a MSW ash landfill in Sawyer, North Dakota.
KBK Enterprises, Inc.	KBK is the engineering subsidiary company of JTM. KBK is an engineering group which provides services to utilities, cogenerators, municipalities, real estate developers and manufacturers. KBK provides internal engineering support to JTM and USPCI and offers its unique consulting services on an independent basis in: ash management, landfill design and permitting, environmental site assessment, ash handling equipment design, material processing plant design, construction management and real estate development.
Melitech, Inc.	Melitech, Inc. is a subsidiary of JTM that specializes in marketing pulverized fuel ash (PFA) into nonconventional PFA markets. In addition, it provides specialty chemicals to the carpet industry in the United States and Canada. Present nonconventional PFA markets include SB latex filler, asphalt roofing shingle filler, roofing granules and asphaltic concrete extender. Technical service is provided in the chemical products and non-conventional PFA markets.

The M.W. Kellogg Company  
Three Greenway Plaza  
Houston, TX 77046-0395



## The M.W. Kellogg Company

Telephone: (713) 960-2000

Telex: 166385 MWKHOC FAX: (713) 960-2032

Chief Executive Officer: Donald C. Vaughn, President

International Sales Manager: J. Albert Stanley, Senior Vice President of Worldwide Sales

Domestic Offices: DARIEN, CT; WASHINGTON, D.C.

International Offices: ENGLAND: M.W. Kellogg Limited, The M.W. Kellogg Building, Stadium Way, Wembley, Middlesex, HA9 0EE  
TEL. 44-1-903-8484; BRITISH WEST INDIES: Cayman Islands; ARGENTINA: Buenos Aires; SINGAPORE;  
PEOPLE'S REPUBLIC OF CHINA: Beijing; INDONESIA: Jakarta; MALAYSIA: Kuala Lumpur

The M.W. Kellogg Company, an international, technology-based subsidiary of Dresser Industries, Inc., is a world leader in the engineering, procurement, construction and commissioning of chemical, petrochemical, fertilizer, gas processing, refining, and computer integrated manufacturing projects. Additionally, Kellogg provides operations and maintenance capabilities. Kellogg is also on the forefront of clean fuels technology with the acquisition of

(Continued on next page)

**The M.W. Kellogg Company (Continued)**

the KRW coal gasification process and development of clean air technology. The company has completed more than 3,000 major projects and many smaller projects worldwide.

<b>Product/Service</b>	<b>Description</b>
Coal Gasification	Kellogg's KRW coal gasification process is capable of operating at high conversion on a wide range of coals. Feeds ranging from lignites and brown coal to high and low volatile bituminous coal have been tested in the Waltz Mill, PA pilot plant using both air and oxygen as oxidants and limestone and dolomite as in-bed sorbents for sulfur. The process can be used to produce low- or moderate-BTU gas for synthesis or for power generation. Hot gas clean-up using Zinc ferrite yields low SO <sub>x</sub> emissions, and low-BTU gas yields and low NO <sub>x</sub> in combined cycle power plants.
Pressurized Circulation Fluid Bed Combustion	Kellogg's PCFBC processes pulverized coal and limestone or dolomite in a high velocity reactor, which completely combusts the coal while yielding very low SO <sub>x</sub> and NO <sub>x</sub> emissions. The pressurized flue gas is expanded to produce power in a combined cycle mode. The sorbent is fully oxidized in the reactor, eliminating subsequent treatment of the ash and spent sorbent for disposal. The technology is a low-cost alternative for cogeneration and power applications.
Flue Gas Desulfurization	Kellogg's flue desulfurization technology utilizes a limestone sorbent in a horizontal scrubber. The technology has been proven in commercial operation on large utility boilers feeding both high and low sulfur U.S. coals. The process features high sulfur removal (greater than 90%) and high calcium utilization. Magnesium or dibasic acid addition is often used to enhance the system. A special feature of the horizontal Weir scrubber is both low flue gas pressure drop and low sorbent circulation, resulting in significant operating advantages.
Design, Procurement, Construction and Plant Services	Kellogg offers EPC capabilities as well as operations and maintenance services on a worldwide basis.
Research and Development Services	Kellogg has bench-scale and pilot plant facilities for the development and testing of coal in gasification and combustion modes. Kellogg's coal lab allows the analysis of coal and ash properties. The company can also prepare design studies for a wide range of process and power applications based on the specific coal properties.

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**MicroFuel Corporation**  
1205 State Street  
Ely, IA 52227



Telephone: (319) 848-7111  
FAX: (319) 848-7101  
Chief Executive Officer:  
International Sales Manager:

Mr. John C. Welling  
Mr. John C. Welling

Domestic Offices:  
International Offices:

CHARLOTTE, NC: 4450 Town & Country Drive, Charlotte, NC 28226  
Please contact company headquarters for information.

The power industry has long recognized the economic and environmental benefits of firing micronized coal to replace the use of oil and gas. The primary constraint has been the energy input required for the micronization of the fuel. MicroFuel Corporation has developed a centrifugal-pneumatic (CP) micronizer which provides micronized coal (80% < 44 microns) with an energy input of only 20% > conventional coal pulverizers. The MicroFuel micronizer is applicable to any process requiring direct firing by either oil, gas, or pulverized coal, as well as micronization for coal beneficiation. The MicroFuel CP micronizer also processes a wide variety of other products such as limestone, sodium bicarbonate, and other materials used as reagents and sorbents in air quality control systems. The micronization of sorbents greatly improves their utilization in most processes. The markets for the MicroFuel CP micronizer are replacement of natural gas and oil for any direct-fired application, chemical and sorbent preparation for air quality control systems, and specialty products and chemicals requiring very fine consistent particle sizing.

(Continued on next page)

**MicroFuel Corporation (Continued)**

Product/Service	Designation	Description
MicroFuel Micronizer	Coal	The CP micronizer produces micronized coal with a consistent particle size distribution of 100% < 177 microns, 80% < 44 microns with an average particle size of 20 microns at an energy consumption level of 25 KW/ton. The micronized coal is suitable for direct firing in most applications utilizing oil or natural gas.
MicroFuel Micronizer	Special Products	The CP micronizer is also capable of micronizing many products such as limestone, sodium bicarbonate, and other chemicals. Energy requirements and product fineness vary depending on the application and product. A full-scale demonstration unit is available at the home office to evaluate product applicability and design parameters.

**Molecular Technology Corporation (MOTEC)**

P.O. Box 6298  
 1401 Timken Place, S.W.  
 Canton, OH 44706



Telephone: (216) 452-3383

FAX: (216) 452-7337

Chief Executive Officer: Michael P. May

International Sales Manager: Michael P. May

Molecular Technology Corporation (MOTEC) is an Ohio-based corporation which performs chemical research and development via a unique technology, which it has termed "Catalysis Prediction." Catalysis Prediction is a predictive method of conducting a catalyst search based on fundamental principles. Through the use of this technology, a catalyst search can be accomplished in the most expedient and cost-effective manner with the certainty of results. MOTEC enters into contractual arrangements to apply this technology to an area of interest. Since research and development is performed essentially at cost, commercially viable projects conclude with a negotiable license or sale of the process.

Product/Service	Description
Catalytic Flue Gas Treatment	The prediction of catalysts for use in systems to remove harmful effluents (NO <sub>x</sub> , SO <sub>x</sub> , etc. ) from flue gas.

**Monex Resources**  
45 NE Loop 410  
Suite 700  
San Antonio, Texas 78216



**Telephone:** (512) 349-4069

**Fax:** (512) 349-8512

**Chief Executive Officer:**

Gerry J. Gordon

**International Sales Manager:**

W.E. Ellis, Jr.

**Domestic Offices:**

SAN ANTONIO, TX: Corporate Office, 45 NE Loop 410, Suite 700, San Antonio, TX 78216 TEL. (512) 349-4069;  
ATLANTA, GA: Southern Regional Office, 2030 Powers Ferry Road, Suite 206, Atlanta, GA 30339 TEL. (404) 955-0089;  
GREENSBORO, NC: Mid-Atlantic Regional Office, 2708 Church Street, Suite G, Greensboro, NC 27405 TEL. (919) 375-4066;  
AUBURNDALE, FL: Southeastern Regional Office, 227 Pearl Street, Auburndale, FL 33823 TEL. (813)967-6626;  
SAN ANTONIO, TX: Southwestern Regional Office, 45 NE Loop 410, Suite 700, San Antonio, TX 78216 TEL. (512) 341-6182

Monex Resources, Inc. is an American corporation headquartered in San Antonio, Texas with over one million tons of fly ash and bottom ash sold annually. Currently nearing the beginning of its fourth decade of operations, Monex Resources has become a national leader in fly ash marketing and handling by providing a fly ash distribution system including over fifteen power plants in ten states reaching from Virginia through the Carolinas, Georgia, Florida to Texas. The Company also operates admixture manufacturing facilities in Florida, North Carolina and Texas and ash landfills throughout the southern and southeastern states.

**Product/Service**

**Description**

**Fly Ash**

Through selective collection and classification at the power station, Monex is able to produce only the highest quality, consistent fly ash, featuring lower loss on ignition (carbon content) and the highest performance characteristics in concrete. In addition to its utilization in the production of concrete and concrete products, fly ash is also provided for use as a mineral filler in asphaltic concretes and other industrial uses, as an additive for the stabilization of chemical wastes and sludges, as an effective pozzolanic cementing agent in grouts and controlled density fills, and in the production of road base and roller compacted concretes.

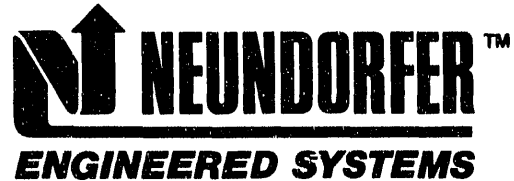
**Bottom ash**

Monex bottom ash is a valuable additional by-product of the coal combustion process. In its processed form, Monex pyrite-free bottom ash is an attractive, cost-effective alternative to manufactured lightweight aggregates in the manufacture of concrete products. While the characteristics of the bottom ash vary by source, significant savings in the cost of aggregates are possible, while producing a concrete unit of desirable texture, weight, absorption characteristics, and shrinkage. Bottom ash is also extensively utilized as a correcting material, in the manufacture of portland cement providing a source of the alumina and iron compounds required for cement clinker production.

**Ash Disposal**

Through its Utility Services division, Monex performs ash management services for the electricity generating industries. Utility Services is responsible for the management, transportation, placement, compaction, and reclamation of fly ash, bottom ash, and ponded ash in environmentally acceptable landfills. This division managed some 1.5 million tons of ash disposal in the year ended June, 1988.

**Neundorfer, Incorporated**  
**4590 Hamann Parkway**  
**Willoughby, OH 44094**



**Telephone:** (216) 942-8990  
**FAX:** (216) 942-6824

**President:** Michael Neundorfer  
**Sales Manager:** Patti Ensel

Neundorfer provides products and services related to air pollution abatement, using electrostatic precipitation. Electric power generation, metals processing, rock products (cement) and paper industries are the major types of businesses served since the early 1970s. Products include system upgrades, rebuilding microprocessor controls for voltage and rapping, discharge electrodes, plate alignment systems, pneumatic and electric rappers, voltage isolation and stabilizing components, feedwater heater level controls, coal sampling devices and boiler tube deslagging systems. Services include consulting, field service, training, and performance diagnosis of electrostatic precipitator operations. Neundorfer is associated with the National Air Vibrator Company (NAVCO) of Houston, Texas, producers of pneumatic equipment.

Product/Service	Designation	Description
NAVCO Rappers EMR Rappers	R2, R3, R4 EMR 20110, EMR 20220	Pneumatic Impact Rappers, Pin Plates, Anvil Beam Sockets Magnetic Impulse Rappers
Discharge Wires Plate Alignment Hopper Evacuation MVCII MicroTap PS90	DE Electrodes Straighteners R3, PP3 Voltage Control Rapper Control Purge Stabilizer	Discharge Electrode Wires, spring & solid shroud Plate Realignment System Hopper Evacuation Systems Microprocessor-based Voltage Control System Microprocessor-based Rapper Control System Hopper-mounted lower wire frame air-purged insulating stabilizer
COAL LANTZ Mdc2000	Coal Sampler Feedwater Control	Automatically extracts sample of coal on as-burned basis Microprocessor-based or software algorithm to optimize levels of feedwater heaters

**O'Brien Industries, Inc.**  
**10574 Ravenna Road**  
**Twinsburg, OH 44087**



**Telephone:** (216) 487-1500  
**FAX:** (216) 425-8202

**Chief Executive Officer:** K.J. Zinkan  
**International Sales Manager:** Joseph Wood

**Domestic Offices:** LIVINGSTON, NJ: 95 Dorsa Avenue, Livingston, NJ 07039 TEL. (201) 992-0660 FAX (201) 992-2250

O'Brien industries, Inc., a subsidiary of Zinkan Enterprises, Inc., was founded in 1940 and markets specialty chemicals used in mining and utilities throughout the U.S.A. and in other countries. Currently, O'Brien is looking to develop a working partner in Europe and Australia.

(Continued on next page)

**O'Brien Industries, Inc. (Continued)**

<b>Product/Service</b>	<b>Designation</b>	<b>Description</b>
Dust Control for Coal or Mineral Handling and Crushing System	DT-16	A patented polymer based product which is safe to use and is very low in cost.
Dust Control for Roadways	DT-350	A resin-based, safe to use long lasting product which provides a low cost, long term dust control solution.

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**Passamaquoddy Technology**  
178 Middle Street  
P.O. Box 7412 DTS  
Portland, ME 04112



**Passamaquoddy  
Technology**

**Telephone:** (207) 773-8656

**FAX:** (207) 773-8832

**Chief Executive Officer:**

Mr. Garrett L. Morrison, Ph.D.

**International Sales Manager:**

Mr. Donald W. Perkins, Jr.

**Domestic Offices:**

THOMASTON, ME: Office of Research & Development, U.S. Route One, P.O. Box 350, Thomaston, ME 04861

Passamaquoddy Technology is dedicated to developing cost effective solutions to complex environmental problems that confront heavy industry. Passamaquoddy Technology is currently demonstrating its Recovery Scrubber at commercial scale. Also under development are solutions to carbon dioxide emissions, economically viable use of waste tires, and economically viable use of municipal incinerator ash.

<b>Product/Service</b>	<b>Description</b>
Recovery Scrubber	The Recovery Scrubber is a flue gas desulfurization technology (90% + SO <sub>2</sub> scrubbing efficiency, significant NO <sub>x</sub> and CO <sub>2</sub> scrubbing) that utilizes a waste product as scrubbing reagent, produces marketable byproducts (fertilizer, distilled water, and cement kiln feed), and is applicable to fossil-fired boilers in the utility, cement, paper and waste-to-energy industries. The Recovery Scrubber is unique in its use of a waste stream as scrubbing reagent, its production of byproducts with proven markets, and its potential to defray operating and capital costs through reagent tipping fees and byproduct sales revenue. The Recovery Scrubber is currently being demonstrated at commercial scale. Inquiries regarding performance characteristics and cost estimates for specific sites are welcome.

**Pennsylvania Coke Technology, Inc.**  
**101 North Main Street**  
**Greensburg, PA 15601**

## PACTI

**Telephone:** (412) 834-7555

**FAX:** (412) 837-9241

**Chief Executive Officer:**

Mr. Joseph P. Ciarimboli

**International Sales Manager:**

Mr. Joseph P. Ciarimboli

**International Offices:**

Please contact headquarters for further information

Pennsylvania Coke Technology, Inc. (PACTI) has developed patented non-recovery cokemaking process technology over the past 18 years. The process technology provides an inexpensive solution to the escalating costs of quality coke production meeting stringent environmental regulations. The proven PACTI coke production system represents the most advanced environmentally accepted process for non-recovery cokemaking, having received the first and only USA EPA approval for "Greenfield" coke production. The process is able to inexpensively convert a wide range of met coals to high quality met coke. By-product recoveries in form of energy co-generation systems were jointly developed with Westinghouse Electric Corp. The PACTI coking system is presently being installed in Mexico. Both the PACTI cokemaking process technology and PACTI/Westinghouse energy cogeneration systems technology are available for licensing worldwide.

Product/Service	Designation	Description
Cokemaking Technology	PACTI	Cokemaking technology with environmentally accepted emissions controls; proven system represents a cost savings of over 60% less capital and 50% less operational costs. Unique process technology features environmental controls and capabilities to capture and destroy hydrocarbon emissions, and convert process energies to commercial energy forms.

**The Ralph M. Parsons Company**  
**100 West Walnut Street**  
**Pasadena, CA 91124**

**PARSONS**

**Telephone:** (818) 440-2000

**Telex:** 4720569 **FAX:** (818) 440-2630

**President:**

Mr. Robert B. Sheh

**International Sales Manager:**

Mr. Kenneth G. Braden

**International Offices:**

ENGLAND: Derrick Hedley, Parsons House, Kew Bridge Road, Brentford, Middlesex, TW8 OEH, England, U.K., TEL. 44-1-995-1322; PHILIPPINES: Mr. B.H. Conroy, Legaspi Village, 105 Rada Street, Makati, Metro Manila, Philippines, TEL. 63-2-818-6085.

The Ralph M. Parsons Company is a major international engineering-construction firm providing planning, study, design, engineering, procurement, construction and operation services world-wide. It offers expertise/experience in mining, synfuels, process industries, flue gas cleanup (FGC), crude oil recovery/refining, gas processing, sulfur management and infrastructure. Proprietary technology includes coal-fired power plant FGC, sulfur control systems to serve the petroleum/gas processing/other industries, sulfuric acid, and SNG manufacture. Through its parent, the Parsons Corporation, it offers a full range of A&E/Construction services including power plants, transportation, roads, water supply, wastewater/hazardous/nuclear waste management, urban/regional planning.

(Continued on next page)

**The Ralph M. Parsons Company (Continued)**

Product/Service	Description
Coal-Fired Flue Gas Cleanup	Concept Assessment, Feasibility Study, Design, Engineering, Procurement, Construction (EPC)
Sulfur Management	Sulfur Control/Recovery from Coal-Based Process Units, e.g., Power Plants, Gasification or Liquefaction plants. Production of elemental sulfur or sulfuric acid product, EPC
Coal Gasification	Feasibility Study, Technology Selection, Design, EPC
Coal Liquefaction	Feasibility Study, Technology Selection, Design, EPC
Coal Mining	Resource Evaluation, Mine Plan, Feasibility Study, EPC
Environmental Control	Consulting, Feasibility Study, EPC

**Ryan Fincor**  
**28 Allegheny Avenue**  
**Suite 1201**  
**Towson, MD 21204**



**Telephone:** (301) 321-7021  
**FAX:** (301) 828-8657  
**Chief Executive Officer:**  
**Vice President - Engineering:**

William N. Clements  
 Herbert E. Steinman

**Domestic Offices:** MASONTOWN, PA: (Engineering) 216 S. Main Street, P.O. Box 109, Masontown, PA 15461

Ryan Fincor formed in 1988 to market ITN cyclone and screen process together with Low Oil Agglomeration system to recover fine coal lost to reject from washing plants. Combination of systems will process and recover coal size 16 mesh to zero in marketable form with acceptable moisture content. The same systems can be utilized in recovering coals in existing reject piles and/or settling ponds of coal refuse.

Systems applicable to any reject product of 60% ash or less with recoveries in range of 40-60%.

Both systems commercially operational for two years.

Product/Service	Designation	Description
Fine coal recovery	ITN cyclone and screen system and Low Oil Agglomeration.	Combined systems have feed capacity of 80 tons per hour with screen system processing 16 mesh x 170 mesh and Low Oil Agglomeration recovering carbon in 170 mesh x 0 size.



**Technology & Management Services, Inc.**  
20201 Century Boulevard  
Germantown, MD 20874



**Telephone:** (301) 353-0102  
**FAX:** (301) 353-0514  
**Chief Executive Officer:**  
**International Sales Manager:**

Roy A. Wujkowski  
Roger W.A. LeGassie, Vice President  
Jaqueline Boucher, Partner, CO<H>EREN<H>CE, s.c.

**Domestic Offices:**

MCLEAN, VA: 6845 Elm Street, Ste. 709, McLean, VA 22101 TEL. (703) 448-1081  
FAX (703) 448-1230

**International Office:**

BELGIUM: CO<H>EREN<H>CE, s.c., avenue des bouleaux, 10, B-5870 Mont St. Guibert, Belgium  
TEL. 010/45 40 39 FAX 010/45 40 48

Technology & Management Services, Inc. (TMS) is a corporation with over 13 years of high technology, project management, and environmental expertise, with particular emphasis on fossil energy. The technical staff is comprised of engineers, scientists, and managers with major industrial, state, and federal government experience. TMS is involved in overseas technology transfer of fossil energy technology and has provided services in this area to the U.S. Department of Energy (DOE) and major domestic and foreign corporations and utilities. TMS brings sophisticated management skills to financial analysis and decisionmaking support to major energy projects. The TMS staff is skilled in many areas of energy conservation systems, environmental impact analysis, waste disposal systems and major project financing.

**Product/Service**

**Description**

Environmental Systems

TMS has performed a number of significant environmental impact analyses of major fossil energy systems. The staff is capable of providing technical and engineering services for emissions control and waste disposal systems. TMS has provided technological support for the U.S. DOE on the Clean Coal Technology Demonstration Programs.

**Texaco Development Corporation**  
2000 Westchester Avenue  
White Plains, NY 10650



**TEXACO  
DEVELOPMENT  
CORPORATION**  
*We've got the energy!*

**Telephone:** (914) 253-4003  
**Telex:** 1791144 **FAX:** (914) 253-7744  
**Chief Executive Officer:** H. Richard Homer  
**International Sales Manager:** Madeleine R. Marchese

**International Offices:**

EUROPE: Ed Gerstbrein, Texaco Petroleum Maatschappij (Nederland) BV, Weena 166, 3012 CR Rotterdam, The Netherlands TEL. (010) 403-40 33-381 TELEX 23573 FAX (010) 40 33 586; Dick Guenther, Texaco Technology Europe GMBH, Zeppellnalle 50, D-6000 Frankfurt/M. 90, Federal Republic of Germany. TEL. 49-69-701047, FAX 49-69-6318-2020, TELEX 411569

Texaco Development Corporation (TDC) is responsible for the patent and licensing activities of its Parent Company, Texaco Inc. and a number of Texaco's subsidiary companies. As a wholly-owned subsidiary corporation, TDC has access to and active cooperation with all departments, affiliates and other subsidiaries of one of the largest integrated petroleum companies in the world. This provides TDC with research, engineering, producing, manufacturing, marketing and technical services availability in 96 countries. Texaco has been developing its gasification technology for over 40 years and has licensed over 90 oil and gas gasification plants around the world. It is the acknowledged leader in coal gasification with six commercial plants licensed worldwide; two of which are now in design and/or construction.

(Continued on next page)

**Texaco Development Corporation (Continued)**

<b>Product/Service</b>	<b>Designation</b>	<b>Description</b>
Texaco Coal Gasification	TCGP	<p>The Texaco Coal Gasification Process produces:</p> <p>Synthesis gas (<math>H_2+CO</math>) for manufacturing ammonia, methanol, hydrogen, oxo-chemicals, acetic acid &amp; anhydride, Process (TCGP) and pure carbon monoxide as well as fuel gas (<math>H_2+CO</math>) for electric-power generation, refineries, industrial plants &amp; city distribution and reducing gas (<math>H_2+CO</math>) for liberating metals from their ores.</p> <p>Synthesis fuel and/or reducing gases can be produced from solid carbonaceous fuels (including lignites, bituminous coals, anthracites and petroleum coke), coal tar and coal-liquefaction residue with pure oxygen, oxygen enriched air or air fed as the oxidant dependent upon the application.</p> <p>Solid feedstock is ground to a controlled particle-size distribution, slurred in water or oil, and pumped to a specially designed burner, which mixes slurry and oxidant in a refractory-lined, entrained-bed, slagging gasifier. Partial combustion under closely controlled conditions yields syngas, fuel gas, or reducing gas, which may be either quenched by direct contact with hot water or cooled indirectly in a syngas cooler (waste-heat boiler), so as to produce steam according to optimum energy utilization for the complete project. Gasifier-effluent slag accumulates in a lock hopper for easy removal.</p> <p>Because of the high temperature and pressure used in the gasifier, by-product tars, phenols, and hydrocarbons heavier than methane are not produced. Most of the process water is recycled. Water-soluble inorganic material is removed by processing a small stream of waste water. Sulfur released by gasification as <math>H_2S</math>, with a minor amount of <math>COS</math>, is removed from the cooled product gas in a conventional downstream gas-treating section and then routed to a Claus unit or a tail-gas-treating unit for sulfur recovery. Byproduct slag and elemental sulfur are marketable commodities and air emissions can easily be controlled to 10-20% of U.S. Environmental Protection agency allowables for new source performance standards.</p>

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**Ultrasystems Engineers & Constructors, Inc.**  
16845 Von Karman Avenue  
Irvine, CA 92714



Telephone: (714) 863-7000  
Telex: 69-2356      FAX: (714) 852-9697  
Chief Executive Officer:      John P. Coyle

Ultrasystems offers the complete range of services necessary to perform major engineering, procurement and construction contracts. These services include economic and feasibility studies, conceptual designs, technical development support, design reviews, project planning and management, process engineering, detail engineering design, procurement of equipment and material, plant construction, startup, performance testing and operator training activities.

<b>Product/Service</b>	<b>Description</b>
Coking and Formcoke	Licensing rights to the Peabody continuous coking process and formcoke process. Devolatilization of coal produces low Btu gas for above-grate combustion or heat recovery. Commercial units operating in U.S. and South Africa.

(Continued on next page)

**Ultrasystems Engineers & Constructors, Inc. (Continued)**

Coal Gas Clean-Up	Exclusive licensee of Hiperion sulfur removal process. Catalytic conversion of hydrogen sulfide, carbonyl sulfide and mercaptan from coke oven gas or coal gasification. One-step conversion of sulfurous compound to elemental sulfur. Commercial units operational in U.S. and Japan.
Coal-Fired Power Plants	Feasibility studies to turnkey installation. Commercial units operating in the U.S.
Wastewater Clean-Up	Fixed-firm anaerobic digestion of high COD wastewater. Simultaneous biogas recovery will provide energy needs to host plant.
Coal Gasification	Mansfield two-stage low Btu system. First gasification accomplished through traveling grate, followed by second-stage, fixed-bed gasification.

**Wahlco, Inc.**  
**3600 West Segerstrom Avenue**  
**Santa Ana, CA 92704**



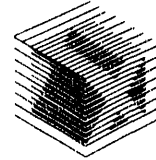
**Telephone:** (714) 979-7300  
**Telex:** 295522 WAHLCO SNA **FAX:** (714) 850-0775  
**Chief Executive Officer:** Mr. W. Clay Matthews  
**International Sales Manager:** Mr. Barry J. Southam

**Domestic Offices:** LEAWOOD, KS: 4707 College Boulevard, Suite 201, Leawood, KS 6621 TEL. (913) 491-9292, FAX (913) 491-6627; THORTON, IL: 470 W. 172 St., Thornton IL 60476 TEL. (312) 877-5300, FAX (312) 877-5315  
**International Offices:** Please contact company headquarters for further information.

Coals, with low sulphur and/or high ash content, produce fly ash which is collected at relatively low efficiencies by electrostatic precipitators; flue gas conditioning systems markedly enhance precipitator performance in such cases. Wahlco, Inc. is the pioneer and the leading manufacturer of flue gas conditioning systems worldwide. Wahlco sulfur trioxide (SO<sub>2</sub>) and ammonia (NH<sub>3</sub>) flue gas conditioning systems have solved problems of collecting fly ash in electrostatic precipitators for over 280 boilers worldwide...at a cost less than one-half that of other alternatives. Since its founding in 1972, Wahlco, Inc. has accumulated and maintained the leading body of theoretical and practical flue gas conditioning knowledge anywhere.

Product/Service	Description
Sulfur Trioxide Flue Gas Conditioning	A Wahlco Flue Gas Conditioning System, either by sulfur burning or sulfur dioxide vaporization, injects trace amounts of SO <sub>2</sub> into the flue gas before it reaches the precipitator. The SO <sub>2</sub> reduces fly ash resistivity, allowing the precipitator to function at optimum efficiency. This, in turn, allows coal fired plants to run at maximum output while meeting air pollution standards for both SO <sub>2</sub> and particulates.
Ammonia Flue Gas Conditioning	Wahlco ammonia based systems are often utilized to neutralize excessive amounts of sulfur trioxide resulting from combustion of medium to high sulfur coal or oil. Reduction of precipitator rapping losses as well as, in some cases, precipitator operation enhancement can also result.
Combined SO <sub>2</sub> /NH <sub>3</sub> Conditioning Systems	When sulfur trioxide and ammonia are combined in a single Wahlco Flue Gas Conditioning System, the effect is to create an almost ideal ash for electrostatic precipitation through optimization of the surface conductivity of the particle. This system can be utilized when "worse case" coals are encountered.

**Xcel Group, Inc.**  
**675 N. Brookfield Road**  
**Brookfield, WI 53045**



**XCEL GROUP INC.**

**Telephone:** (414) 797-4080  
**FAX:** (414) 784-5036  
**Chief Executive Officer:**  
**International Sales Manager:**

**Gerald T. Petersen**  
**Paul S. Gurski**

Process engineering firm with extensive background in coal technology process development to include the specification, design, construction, start-up and operation of coal processing equipment. Xcel just completed a design, supply and test NATO-funded contract awarded in international competition for an R&D gasification facility in Athens, Greece. It provided start-up problem-solving services for a U.S. coal waste gasification project. Recently, Xcel organized a consortium of manufacturing firms to pursue a regional industrial waste recycling facility. Technical support services include feasibility assessments, U.S. equipment sourcing, custom equipment design, market research and application studies and project management. Particularly knowledgeable in U.S. utility market "clean fuel" needs and combined cycle applications.

<b>Product/Service</b>	<b>Description</b>
Technology/Evaluations	Evaluations of emerging and commercially mature technologies to include technical and economic evaluation for specific market applications.
"Clean Coal" Applications	Investigation of a specific technology or competing technologies for utility-scale or large industrial power generation applications.
Equipment Sourcing/Design	Identification of U.S.-based sources to meet specific processing needs or custom design and supply required equipment.
Project Management	Project management services to include permitting, engineering and construction.
Environmental Services	Environmental assessments, process evaluations, and designs to assure compliance to industrial discharge limits.

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**Zinkan Enterprises, Inc.**  
**10574 Ravenna Road**  
**Twinsburg, OH 44087**



**Telephone:** (216) 487-1500  
**FAX:** (216) 425-8202  
**Chief Executive Officer:**  
**International Sales Manager:**

**K.J. Zinkan**  
**K.J. Zinkan**

Zinkan Enterprises, Inc. markets commodities in the Midwest and Northeastern U.S.A. Founded in 1982, we are a distributor for Dupont and manufacture products developed by our own R&D staff. Beyond the commodities sold, Zinkan Enterprises also holds or has filed patents in the specialty chemical area of corrosion inhibition, dust control and cooling water treatment. This technology is marketed by a wholly owned subsidiary, O'Brien Industries, Inc.

<b>Product/Service</b>	<b>Designation</b>	<b>Description</b>
Waste Acid Stream Neutralization	Magnesium Hydroxide Slurry	A 57% active slurry which is shipped in drums, totes, or bulk. Useful in AMD application or with any low pH neutralization.

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**Facilities Construction:**

Firms providing construction services,  
often in conjunction with A&E firms.

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Acurex Corporation  
Environmental Systems Division  
555 Clyde Avenue  
P.O. Box 7044  
Mountain View, CA 94039



Telephone: (415) 961-5700  
Telex: 325961 FAX: (415) 964-5145  
President: Gilbert Decker  
International Sales Manager: David Delasanta

**Domestic Offices:** TRIANGLE PARK, NC: P.O. Box 13109, Research Triangle Park, NC 27709; GOLETA, CA: Santa Barbara Operations, 250 Storke Road, Suite 1, Goleta, California 93117  
**International Offices:** Please contact headquarters for information.

The Environmental Systems Division of Acurex Corporation provides a full range of fuel services to government and industry. These include combustion facility design, operation and maintenance; environmental engineering and pollution control; and emissions sampling and analysis. Through its research for federal and state agencies such as the Environmental Protection Agency, the Gas Research Institute, the Department of Energy, and the California Energy Commission, the division develops technologies for commercial application and is able to provide industry with turnkey, state-of-the-art solutions for all combustion-related environmental engineering needs.

Product/Service	Description
Advanced Utilization	Testing of solvent-refined coal; assessment of clean coal use in stationary and mobile engines; testing of coal-oil mixtures in boilers; fuel staging research; assessment of coal-oil mixtures as light-off fuel; hot gas cleaning technology for coal-fired, pressurized, fluidized bed combustors.
Architecture/Engineering	Prototype design, fabricate and install coal combustion research furnaces. Design, fabricate and install pilot coal gasifiers, and fluidized bed combustors.
Boiler Equipment	Low SO <sub>2</sub> and low NO <sub>x</sub> combustion control technology; boiler modification/engineering; test coal additive to alter flyash characteristics; co-firing of hazardous waste in boilers; perform risk assessment of controlling NO <sub>x</sub> emission from coal utility boilers.
Coal Derivatives	Clean coal use in stationary and mobile engines; demonstrate coal-oil mixture prep plant.
Facility Construction	Construction management; install coal combustion furnace; install pilot coal gasifier; supply anthracite gasifier.
Facility Operation	Operation of coal burning plants/equipment; O&M of fluidized bed combustor.

**Braun Engineering Associates, P.C.**  
299 Edison Avenue  
West Babylon, NY 11704

**BEA** BRAUN ENGINEERING ASSOCIATES

Telephone: (516) 694-6509

FAX: (516) 694-6529

Chief Executive Officer:

Robert J. Braun, P.E.

International Sales Manager:

Robert J. Braun, P.E.

Domestic Offices:

MADISON, CT: 149 Durham Road, Madison, CT 06443 TEL. (203) 245-9777

Braun Engineering Associates is a fully integrated engineering firm providing mechanical and electrical power engineering services to utility and industrial clients. Project capabilities include engineering design and operations management of central heating plants, cogeneration installations, district heating and cooling systems. Our power system designs provide full spectrum services analysis with complete CAD capability. In addition to professional registration, BEA personnel hold several high Pressure Boiler Operating Engineers and Refrigeration Systems Operator Licenses and Unlimited Horsepower Diesel Licenses, and several national plant engineering operating and maintenance certificates.

Product/Service	Description
Architecture/Engineering	Steam plants, steam distribution systems, power generation, central chilled water and high temp. hot water plants, heat recovery, air pollution control, feasibility studies, electric utility interconnection, electric power cogeneration.
Facility Construction	Steam plants, steam distribution systems, power generation, central chilled water and high temp. hot water plants, heat recovery, air pollution control, feasibility studies, electric utility interconnection, electric power cogeneration.
Facility Operation	Power plant operation, operations and maintenance management, facility planning surveys, energy management.

**Brown and Root, Inc.**  
4100 Clinton Dr.  
Houston, TX 70020-6299



**Brown & Root, Inc.**

Telephone: (713) 676-3011

Telex: (713) 676-4109 FAX: (713) 676-4191

Chief Executive Officer:

W.B. Pieper

International Sales Manager:

T. Smith, III

Domestic Offices:

MOBILE, AL; LONG BEACH, CA; SAN RAMON, CA; WASHINGTON, DC.

International Offices:

ENGLAND; MEXICO; VENEZUELA; BRAZIL; AUSTRALIA; THE NETHERLANDS; NORWAY; PHILIPPINES; CHINA; EGYPT; CANADA; INDONESIA; JAPAN; SINGAPORE; MALAYSIA; SAUDI ARABIA; SCOTLAND; BAHRAIN; U.A.E.

Brown & Root and its associated companies form one of the world's largest and most diversified groups of engineering and construction companies. Brown & Root, Inc. was formed in 1914 and has been a wholly-owned subsidiary of the Halliburton Company since 1962. Our growth record is a direct reflection of the reputation we have earned as a leader in the industry, being ranked No. 1 five times and No. 2 five times by Engineering News Record. Our philosophy of work is summarized by the words: Quality, Cost and Schedule. Brown & Root offers a total range of services from preliminary studies, process selection, procurement, construction and operational maintenance and also provides management counseling and guidance in technical, financial, legal and general business matters.

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**Brown and Root, Inc. (Continued)**

Product/Service	Description
Power Plants	Complete range of services required for design and construction of power plants, including coal fired plants, combustion turbines, diesel generators, oil and gas fired plants, nuclear and cogeneration. Engineered and/or constructed in excess of 10,000 MWe of fossil fired plants.
Mining	Complete range of services required for design and construction of mining facilities including solution mining, underground, and surface mining.

**CLI Corporation**  
**430 Park West One**  
**Pittsburgh, PA 15275**



**CLI CORPORATION**  
*Engineers and Contractors*

Telephone: (412) 788-6688  
 FAX: (412) 788-6690  
 Chief Executive Officer:  
 International Sales Manager:

David G. Chedgy  
 David G. Chedgy

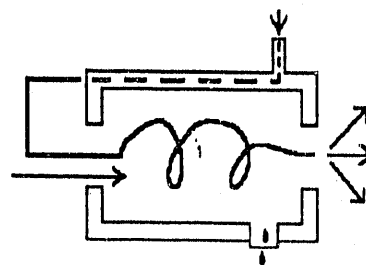
**International Offices:** Please contact company headquarters for further information.

CLI Corporation is a major design and construction company in the coal and mineral industry. The Corporation specializes in feasibility studies, definite estimates, engineering, and turnkey construction for coal preparation and other mineral processing plants and the associated material handling systems. The Company also produces specialty equipment related to the processing industry. A subsidiary company is also involved in contract operations of mining facilities. The Company has internationally recognized coal and mineral processing specialists and a full complement of professional engineers and construction specialists.

Product/Service	Designation	Description
Architecture/ Engineering	CLI-1	Conceptual, preliminary, and actual design of coal and mineral process plants and material handling systems, including conveying, blending, and storage.
Coal Mining	CLI-2	Contract operations of mines and processing plants, including owner/operator contracts. Major coal processing of contracts of 1200 TPH presently under contract.
Facility Construction	CLI-3	Construction of turnkey or negotiated process plants and material handling facilities.
Advanced Utilization	CLI-4	Producer of ultra-low ash and sulfur coal and coal water slurries (CWS).

**Coal Tech Corp.**  
P.O. Box 154  
Merion Station, PA 19066

**COAL TECH CORP**  
Merion, PA



**Telephone:** (215) 667-0442  
**FAX:** (215) 667-6632  
**Chief Executive Officer:**  
**International Sales Manager:**

Dr. Bert Zauderer  
Dr. Bert Zauderer

**Domestic Offices:**

MERION STATION, PA: 275 N. Highland Avenue, Merion Station, PA, 19066 TEL. (215) 667-0442

For the past decade, Coal Tech has developed an advanced air cooled combustor which has to-date demonstrated 80+% ash retention in the form of inert slag, 2/3 reduction of NO<sub>x</sub>, and over 80% reduction of SO<sub>2</sub> emissions. The combustor has been tested on a 20 MMBtu/hr [5040 kcal/hr] boiler since early 1987. It can economically retrofit oil/gas designed industrial and utility boilers to coal or solid waste fuels, and convert ashes with leachable heavy metals to inert slag. Coal Tech plans to market and/or license the combustor for these applications, and to continue combustor development in the areas of solid waste disposal.

**Product/Service**

**Description**

Advanced Utilization (CCT)

Coal Tech is seeking to form a joint venture with an international energy concern to demonstrate the combustor at the 100+ MMBtu/hr scale for large industrial/utility boilers with coal/solid waste fuels.

Facilities Construction/ Technical Consultants

Coal Tech will design, and fabricate test facilities using the Coal Tech combustor at the 2 to 50 MMBtu/hr scale. It can provide technical services in the slagging combustion field, as well as test a client's fuels at its 20 MMBtu/hr combustor facility.

Emission Controls & Waste Disposal System

The Coal Tech combustor is available for licensing for use in organic chemical wastes incineration for conversion of leachable ashes/solids to inert slag.

**CRS Sirrinc Engineers, Inc.**  
1041 East Butler Road  
P.O. Box 5456  
Greenville, SC 29607



**Telephone:** (803) 281-3700  
**FAX:** (803) 281-3712  
**Chief Executive Officer:**  
**International Sales Manager:**

Bruce Wilkinson, Houston, Texas  
Dave Syphard, Greenville, South Carolina (803/676-6000)

**Domestic Offices:**

Major cities in the U.S. - Contact Corporate Headquarters for further information - 713/552-2000 or 1-800-672-2777.

CRS Sirrinc Engineers, Inc., a design/construction and consulting firm serving the power generation industry with feasibility studies, cost estimating, preliminary and detailed engineering, architectural design, permitting, construction management, turnkey contracting, start-up and plant operations management. Also provides power project development, project financing, and equity investments in projects. Much of our major success in new sales can be attributed to our strategy of improving market share in our strong markets. We've expanded into fields that combine our financial strength with our strong technical knowledge. Utility and industrial power facilities, cogeneration, environmental design and control, and risk management are all areas with which we have an impressive foundation of experience.

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**CRS Sirrinc Engineers, Inc. (Continued)**

Product/Service	Description
Engineering Design and Construction	CRS Sirrinc Engineers, Inc. is among the top engineering design and construction firms in the United States, with affiliates in foreign countries. We have current experience in the design, construction, and retrofit of coal-fired utility and industrial power plants, including circulating fluidized combustion boilers, cogeneration units, and independent power production plants.
Alternative Services	As an alternative to conventional owner-engineer-constructor relationship, Sirrinc offers equity participation in selected projects through its CRSS Capital affiliate. Inquiries regarding particular project structuring opportunities are invited.

**Dominion Energy**  
**Federal Reserve Building**  
**P. O. Box 26532**  
**Richmond, VA 23261**



**Telephone:** (804) 775-5814  
**FAX:** (804) 775-5720, 775-5822  
**Chief Executive Officer:** Tyndall L. Baucom  
**International Sales Manager:** John J. Frank

**International Offices:** Please contact company headquarters for further information.

Dominion Energy is the cogeneration power development subsidiary of Dominion Resources, Inc., an \$11 billion holding company headquartered in the capital of the state of Virginia. Dominion Resources owns and operates one of America's largest electric utilities, Virginia Power, which serves more than 1.7 million homes and businesses, over 32,000 square miles, with 12,000 megawatts in electric generating capacity. Dominion Energy, established in 1987, has interests in United States projects utilizing various technologies and fuel sources that total more than 2,000 megawatts. It brings full-service capability to the growing global market.

Product/Service	Description
Facility Construction	Dominion Energy offers full construction services, including project design, and legal and environmental permitting. It brings the combined experience and expertise of a staff that has overseen the creation and modification of some of America's most technologically advanced generating systems.
Facility Operation	After construction Dominion Energy offers full operations services.
Financing	Through its Dominion Resources, Inc., parent company, Dominion Energy has ongoing working relationships with more than 80 investment and commercial banks in the United States, Europe and Asia. It has secured financing for major energy projects around the United States.

**Dorgan Associates, Inc.**  
5610 Medical Circle, Suite 31  
Madison, WI 53719-1227



**Dorgan Associates, Inc.**  
**Consulting Engineers and Scientists**

Telephone: (608) 273-0044  
FAX: (608) 273-0614  
Chief Executive Officer:  
International Sales Manager:

Dr. Charles E. Dorgan, P.E., Ph.D.  
Mr. Eric T. Truelove, P.E.

Dorgan Associates is a consulting engineering firm specializing in energy use, storage, and production technologies. Past and present customers include the Electric Power Research Institute (EPRI), major utilities throughout the United States, government agencies, engineering firms, and manufacturers. Dorgan Associates has produced the Cold Air Distribution Design Guide (EPRI EM-5730) and the Field Evaluation of Cold Air Distribution Systems guide (EPRI EM-5447). In addition, Dorgan Associates has developed and conducted courses in energy engineering, energy management, thermal storage, and HVAC. These courses have been conducted throughout the United States, Canada, Asia, and Africa.

Product/Service	Description
Advanced Utilization	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.
Architecture-Engineering (A&E)	Provide engineering consultation for energy use, storage, and production technologies.
Facility Construction	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.
Facility Operation	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.

**EnCoal**  
105 East 4th Street  
Cincinnati, OH 45202



Telephone: (513) 621-3733  
FAX: (513) 621-3734  
Chief Executive Officer:  
International Sales Manager:

L. Robert Folan  
Alan Tweeddale

Domestic Offices:  
International Offices:

HOT SPRINGS, VA: P.O. Box 826, Hot Springs, VA 24445 TEL. (703) 839-5111  
ENGLAND: 213 Upper Richmond Road West, London, SW14 8QT England TEL. 011-44-81-878-8355

EnCoal was founded in 1985 as the U.S. partnership between L. Robert Folan and Alan Tweeddale. Tweeddale has led the British Coal Board's research into clean coal burning technology since World War II. In the 1980's, he took this technology private with Energy Supplies, Ltd., which is very active today throughout the United Kingdom. EnCoal brings this technology into the United States market featuring small fluidized beds. EnCoal's first project will be to rebuild the power plant of The Homestead Hotel in Hot Springs, Virginia with a clean burning, coal fired cogeneration plant.

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**EnCoal (Continued)**

Product/Service	Description
EnCoal designs, builds, finances, and operates small steam driven power plants.	EnCoal contracts with customers to reduce their energy costs by utilizing clean combustion technology to produce steam that in turn produces electricity, process steam, heating, and air conditioning. EnCoal's technology complies with the proposed Clean Air Act of 1990, and is predicated on bottom line savings to the customer through a long term contract with EnCoal.

**Foster Wheeler Corporation**  
**Perryville Corporate Park**  
**Clinton, NJ 08809-4000**



**Telephone:** (201) 730-4000  
**FAX:** (201) 730-4360

**Chief Executive Officer:** Mr. L.E. Azzato  
**International Sales Manager:** Mr. B.P. Stephan; Mr. I.G. Lutes

**Domestic Offices:** ATLANTA, GA; BOSTON, MA; CHARLOTTE, NC; CHICAGO, IL; DENVER, CO; HOUSTON, TX; KANSAS CITY, MO; LOS ANGELES, CA; NEW ORLEANS, LA; NEW YORK, NY; PHILADELPHIA, PA; PITTSBURGH, PA; WASHINGTON, D.C.; AND WINTER PARK, FL

**International Offices:** AUSTRALIA: TELEX 152838 REWOP AA; CANADA: TELEX 055-60042; CHINA: TELEX 210396 REWOP CN; COLUMBIA: TELEX 396-43254 REWOP CO; ENGLAND: TELEX 851-263984; FRANCE: TELEX 842-210 782; HONG KONG: TELEX 37512 FWAL HX; ITALY: TELEX 843-310548; JAPAN: TELEX 2323192; NETHERLANDS: TELEX 844-34264; NIGERIA: TELEX 22365 FOSWLD NG; SINGAPORE: TELEX RS 39292 FWINTL; SPAIN: TELEX 83122275; contact the main office for further information.

Foster Wheeler Corporation is an engineering, manufacturing, construction, real estate development and service organization with 23 subsidiaries operating worldwide. Founded in 1927, it is currently one of the world's largest engineering and construction organizations. International activities are conducted by affiliates in England, France, Italy, Spain, and Canada. U.S. based industrial subsidiaries supply diversified engineering technologies and allied equipment.

Product/Service	Description
Advanced Utilization Architecture/Engineering Boiler Equipment Coal Derivatives Facility Construction Facility Operation Financing	Foster Wheeler Energy Corporation, a major United States subsidiary, designs, fabricates, maintains, manufactures, and constructs steam generating equipment for electric utilities and industry. This Foster Wheeler subsidiary furnishes condensers, feed water heaters, and other major auxiliary equipment for coal, oil, and gas-fired installations in the United States and abroad. Foster Wheeler's application of alternate energy sources have advanced the state of the art. Current projects involve refuse-to-energy plants, the cogeneration of industrial steam and electric power, a proprietary sludge drying process and high technology heat recovery equipment.

**GRAY STAR™ Division**  
**EAMarketing Inc.**  
**5010 Mayfield Rd.**  
**Cleveland, OH 44124**



**GRAY STAR™ DIVISION**  
**EAMARKETING, INC.**

**Telephone:** (216) 291-2840  
**FAX:** (216) 291-3422  
**Chief Executive Officer:**  
**International Sales Manager:**

**Mr. Edmund F. Avolio**  
**Mr. Michael J. Williams**

GRAY STAR™ offers design and site selection for volume metallurgical coke drying plants of 20 to 50 metric tons per hour or more.

GRAY STAR™ has been operating a Met coke drying plant in Birmingham, Alabama since 1985.

EAMarketing, the parent of GRAY STAR™ has been a broker and trader of metallurgical coke and coal since 1975.

1990 saw development of "RAPID FOAM™". This is a specially developed and designed product for use as a slag foamer in high voltage electric furnaces.

**Product/Service**

Design of volume metallurgical coke drying plants in the 20 to 50 ton per hour range. This service can include site and equipment selection.

---

**H.B. Zachary Company**  
**P.O. Box 21130**  
**San Antonio, TX 78221-0130**



**Telephone:** (512) 922-1213  
**Telex:** 76-7426 **FAX:** (512) 927-8060  
**Chief Executive Officer:** H. B. Zachary  
**International Sales Manager:** Robert E. Hood

**International Offices:** Please contact company Headquarters for further information.

H. B. Zachary Company is a world leader in the construction industry with over sixty-five years of building a wide variety of construction projects. Including power, process, transportation, mining/minerals (lignite, fluorspar and "frac sand"), hydraulics/water works, general industrial/manufacturing, commercial, maintenance, and pipeline. Projects have been constructed in Alaska, Bangladesh, Canada, Chile, Greece, Kwajalien, Oman, Peru, Puerto Rico, Saudia Arabia, Sinai Desert, South Africa, Spain, and Thailand. By accommodating the owner's preference of design firms the Company has good relations with many engineering firms. The company also functions as consortium manager to provide complete design, construction, financing, and maintenance responsibilities.

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**H.B. Zachary Company (Continued)**

Product/Service	Description
Contract Mining	Topsoil requirements, hydrologic balance, disposal of excess spoil, coal or mineral recovery, mineral processing waste banks, environmental protection, pipelines, backfilling & grading, revegetation, Class I-III roads, special conditions.
Facility Construction	Loading facilities, storage and stockpile facilities, sheds, shops and other buildings, water treatment and water storage facilities, settling basins and impoundments, coal processing and other waste disposal areas, roads, railroads and other transport facilities.
Facility Operations & Maintenance	Operations plan, air pollution control plan, fish & wildlife plan, reclamation plan, diversions, protection of public parks & historic places, use of public roads.

**Harris Group Inc.**  
**P.O. Box 3855**  
**Seattle, WA 98124**



**Harris Group Inc.**

**Telephone:** (206) 382-7410  
**Telex:** 15-2917 **FAX:** (206) 382-9645  
**Chief Executive Officer:** Robert M. Harris, Chairman and CEO  
**International Sales Manager:** John D. Logsdon

**Domestic Offices:** PORTLAND, OR: 1750 N.W. Front Avenue, Portland, OR 97209 TEL. (503) 228-7200; BELLINGHAM, WA: 1111 Cornwall Avenue, Bellingham, WA 98225 TEL. (206) 734-4944; APPLETON, WI: 4321 W. College Avenue, Appleton, WI 54914 TEL. 414) 749-4600  
**International Offices:** CANADA: Fourth Floor, 233 West 1st Street, North Vancouver, B.C. V7M 1B3 TEL. (604) 985-6485

Backed by more than four decades of engineering experience, Harris Group Inc. has become widely regarded as a leader in engineering design for industrial situations. Our staff of approximately 500 includes professionals in all of the major engineering disciplines. Harris Group Inc. has the capability and capacity to handle both large and small projects from the very earliest stages through to the completion of construction. We routinely provide services for, but not limited to, the steam and metallurgical coal, cogeneration, and coal transshipment industries. Areas of expertise offered in coal handling are size reduction; screening and classification; blending and sampling; storage and reclamation; unit train and ship loading/unloading; conveying and transshipment.

Product/Service	Description
Specialized Coal Handling	Harris Group Inc. staff members have accumulated many years of experience in coal handling in the United States, Canada, and Europe. Services provided include project management, planning, engineering permitting, construction management, and startup and training assistance. Typical systems provided are: export terminals complete with dock facilities; automated stacking and reclaiming; shiploading and unloading with enclosed tubular conveyor galleries; overland conveyor systems; state-of-the art transshipment facilities with totally enclosed storage and conveying; general coal handling from mine mouth to preparation plant and beyond.

**Henkles & McCoy, Inc.**  
985 Jolly Road, P.O. Box 950  
Blue Bell, PA 19422-0900



**Telephone:** (215) 283-7600  
**FAX:** (215) 283-7587

**Chief Executive Officer:** Paul M. Henkels  
**President/Chief Operating Officer:** Dr. Kenneth L. Rose  
**International Sales Manager:** W. Bruce App  
Mr. Ian H. Sargent, Division Manager, Engineering Division

**Domestic Offices:** Oreland, PA; Rising Sun, MD; New Castel, DE; Burlington, NJ; Portland, OR; York, PA; Aurora, CO; Lewisville, TX; Elkhart, IN; Oxford, MA; Newington, VA; Richmond, VA; Tampa, FL; Fontana, CA  
**International Offices:** Please contact International Operations Division for further information.

Henkels & McCoy is an international engineering, construction and support services company. Services include most engineering disciplines, project support services, construction or construction management, and training. Applications include industrial and commercial facilities and transmission and distribution systems for electric power, telecommunications and data, and energy products. We provide design/build turnkey construction. We act as either prime contractor or subcontractor to manufacturers, utilities, government agencies, or other contractors. We have served client organizations in Canada, South America, Africa, the Middle East and Asia. Responsiveness, flexibility and product quality characterize our customer service philosophy. "PERFORMANCE has built our business...."

Product/Service	Description
Architecture/Engineering	Our Engineering Division is a multi-disciplined organization serving the industrial, utility, and communications markets for over 60 years. We have engineered major new plants and facilities and have rehabilitated others for a variety of applications. Each client's needs are addressed on a specific project basis. While developing the project's plans and specifications we design all pertinent systems, select appropriate equipment and incorporate operating considerations. Typical projects include the electrical, mechanical, civil/structural, and general site engineering disciplines supported by our architectural capabilities, as needed, for offices, laboratories, warehouses, etc.
Corrosion Control	The Corrosion Control Department within the Engineering Division provides comprehensive services for underground, above ground and marine structures, tanks and pipelines. We perform corrosion surveys and stray current analysis, monitor existing systems, audit corrosion control programs, design cathodic protection systems, evaluate reinforced concrete, and evaluate/design protective coating systems.

**ICF Kaiser Engineers**  
1800 Harrison Street  
Oakland, CA 94612

**ICF KAISER  
ENGINEERS**

**Telephone:** (415) 268-6000

**Telex:** 335326 **FAX:** (415) 268-5355

**Chief Executive Officer:** William Stitt, Chairman  
Raymond List, President

**Domestic Offices:** PITTSBURGH, PA: Four Gateway Center, 12th Floor, Pittsburgh, PA 15222 TEL. (412) 281-8121, FAX (412) 281-8145

**International Offices:** AUSTRALIA: IBM Building, Level 4, 1060 Wasy Street, West Perth, Western Australia 6005 TEL. 61-9 327-5211, TELEX AA 94559; PORTUGAL: Avenida Marques de Tomar, 44-5, 1000 Lisbon TEL. 011-351-1 734074, TELEX 42656-Protex P, FAX 351-1 777-189

ICF Kaiser Engineers is an international engineering and construction firm, headquartered in Oakland, California. The company provides services to private and public sector clients involved with transportation, advanced technology, environmental, industrial and other infrastructure projects. The firm employs 1,600 professionals.

**Product/Service**

Architecture/Engineering

Facility Construction

**Interstate Equipment Corporation**  
300 Mt. Lebanon Blvd.  
Pittsburgh, PA 15234



**Telephone:** (412) 563-5556

**FAX:** (412) 563-6741

**Chief Executive Officer:** James F. Vogel

**International Sales Manager:** Leo J. Vogel, Jr.

**International Offices:** INDIA: B.R. Vadera, 9-D Sagar Apt., 6 Tilak Marg, New Delhi 11001 TEL. 386-489

Since 1903, Interstate Equipment Corporation has been engaged in the design, manufacture and installation of Aerial Tramway (Ropeway) Systems for the mining industry. The company has always had a strong marketing effort directed at the coal and thermal power industries. Primarily the Aerial Tramway Systems have served the coal industry in the transport of coal from the mine to the preparation plant and in many cases the transport of the preparation plant rejects to the refuse area.

**Product/Service**

**Description**

Coal Transport

The company offers complete turnkey services of all types of Aerial Tramway Systems, including units to convey coal and mine refuse. The range of service includes feasibility studies, design, manufacturing and installation on a worldwide basis. Aerial Tramways have proven themselves over the years a low cost of transportation, particularly in rough terrain.

Facility Construction

Transportation Equipment

Mining Equipment

The M.W. Kellogg Company  
Three Greenway Plaza  
Houston, TX 77046-0395



## The M.W. Kellogg Company

Telephone: (713) 960-2000  
Telex: 166385 MWKHOC FAX: (713) 960-2032  
Chief Executive Officer: Donald C. Vaughn, President  
International Sales Manager: J. Albert Stanley, Senior Vice President of Worldwide Sales

Domestic Offices: DARIEN, CT; WASHINGTON, D.C.  
International Offices: ENGLAND: M.W. Kellogg Limited, The M.W. Kellogg Building, Stadium Way, Wembley, Middlesex, HA9 0EE  
TEL. 44-1-903-8484; BRITISH WEST INDIES: Cayman Islands; ARGENTINA: Buenos Aires; SINGAPORE;  
PEOPLE'S REPUBLIC OF CHINA: Beijing; INDONESIA: Jakarta; MALAYSIA: Kuala Lumpur

The M.W. Kellogg Company, an international, technology-based subsidiary of Dresser Industries, Inc., is a world leader in the engineering, procurement, construction and commissioning of chemical, petrochemical, fertilizer, gas processing, refining, and computer integrated manufacturing projects. Additionally, Kellogg provides operations and maintenance capabilities. Kellogg is also on the forefront of clean fuels technology with the acquisition of the KRW coal gasification process and development of clean air technology. The company has completed more than 3,000 major projects and many smaller projects worldwide.

Product/Service	Description
Coal Gasification	Kellogg's KRW coal gasification process is capable of operating at high conversion on a wide range of coals. Feeds ranging from lignites and brown coal to high and low volatile bituminous coal have been tested in the Waltz Mill, PA pilot plant using both air and oxygen as oxidants and limestone and dolomite as in-bed sorbents for sulfur. The process can be used to produce low- or moderate-BTU gas for synthesis or for power generation. Hot gas clean-up using Zinc ferrite yields low SO <sub>x</sub> emissions, and low-BTU gas yields and low NO <sub>x</sub> in combined cycle power plants.
Pressurized Circulation Fluid Bed Combustion	Kellogg's PCFBC processes pulverized coal and limestone or dolomite in a high velocity reactor, which completely combusts the coal while yielding very low SO <sub>x</sub> and NO <sub>x</sub> emissions. The pressurized flue gas is expanded to produce power in a combined cycle mode. The sorbent is fully oxidized in the reactor, eliminating subsequent treatment of the ash and spent sorbent for disposal. The technology is a low-cost alternative for cogeneration and power applications.
Flue Gas Desulfurization	Kellogg's flue desulfurization technology utilizes a limestone sorbent in a horizontal scrubber. The technology has been proven in commercial operation on large utility boilers feeding both high and low sulfur U.S. coals. The process features high sulfur removal (greater than 90%) and high calcium utilization. Magnesium or dibasic acid addition is often used to enhance the system. A special feature of the horizontal Weir scrubber is both low flue gas pressure drop and low sorbent circulation, resulting in significant operating advantages.
Design, Procurement, Construction and Plant Services	Kellogg offers EPC capabilities as well as operations and maintenance services on a worldwide basis.
Research and Development Services	Kellogg has bench-scale and pilot plant facilities for the development and testing of coal in gasification and combustion modes. Kellogg's coal lab allows the analysis of coal and ash properties. The company can also prepare design studies for a wide range of process and power applications based on the specific coal properties.



**MK-Ferguson Company**  
One Erieview Plaza  
Cleveland, OH 44114



Telephone: (215) 523-5600  
FAX: (215) 523-5922  
Chairman/Chief Executive Officer: Keith M. Price  
V.P. - International Operations: Darryl G. Moffett

Domestic Offices: Los Angeles, CA; Boise, ID; St. Louis, MO; San Francisco, CA; Washington, DC  
International Offices: Manila, Philippines; Warsaw, Poland; Singapore; London, England

Product/Service	Description
Architecture/Engineering	MK-Ferguson Company, subsidiary of Morrison Knudsen Corporation, is an international firm engaged in design, construction, and program management in energy, industrial, and government markets. It has proven capability for construction of totally integrated grassroots facilities, plant expansion, and modernization and retrofit programs. MK-Ferguson services range from feasibility studies through design, procurement, construction, and startup. The company has extensive experience in power and steam generation and related environmental control facilities, having completed over 150 such major projects in the past 10 years. Recent projects include: flue gas cleaning systems for Basin Electric Power Coop., Sunflower Electric, Cleveland Electric Illuminating Co., and Tucson Electric Power Co.; coal-fired power plants for Utah Power & Light and Central and Southwest Services; wood-fired power plant for Washington Water Power Co.; and two NOXSO power plants for U.S. DOE.
Facilities Construction	

**Modern Refractories Service Corp.**  
747 Erie Avenue  
North Tonawanda, NY 14120

**MODERN REFRACTORIES SERVICE CORP.**



*Modern Solutions to Refractory Problems*

Telephone: (716) 693-8076  
FAX: (716) 693-5736  
Chief Executive Officer: Robert J. Kish  
President: William R. Arnold  
Vice President of Operations: John Arnold  
Vice President of Sales: Gregory Klein

Modern Refractories Service Corp. was founded in 1973. The company has been an entrepreneur in down time saving procedure for refractory repairs. The Hot Suit System allows video inspections and repair work to be done in an operation facility. A video tape can be made of the inside refractory of a furnace, oven, or kiln at it's operating or near operating temperature. It can be evaluated to determine the material needs prior to a scheduled down time. Material arrival can coincide with the maintenance schedule. Call Modern for consultation in maintenance inspections, down time savings repairs, emergency inspections, and your special material needs.

(Continued on next page)

**Modern Refractories Service Corp. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Inspections	The Hot Suit System developed and patented by Modern is used in conjunction with modified video equipment which can provide video tape of high temperature areas. Video tape inspections done in emergency situations give decisionmakers the opportunity to review problems with more detail, subsequently providing information for more effective solutions.
Cost-Effective Repairs	The Hot Suit System can be used to make repairs. Rebuilds, guniting, cleaning scale, and rodding regenerators are made possible with minimized down time.
Custom-Brick Manufacture	Bricks and shapes can be made to specification. Special material capabilities include a negligible expansion characteristic used for high temperature repairs.
Advanced Application Processes	Sales and/or service of modified pump and pumpable ceramic fiber are used to increase shell insulation or fill leaks and joints. Treated ceramic tubes are used to repair gasoline leaks. Both of these applications save down time, increase equipment life, and are more cost-effective than alternative methods.

**Montague Systems, Inc.**  
P. O. Box 5428  
Greenville, SC 29606



Telephone: (803) 297-9080  
FAX: (803) 297-0150

Chief Executive Officer: Bert L. Montague II  
International Sales Manager: Richard M. Sickinger

Domestic Offices: GREENVILLE, SC: Suite 200, 201 Brookfield Parkway, Greenville, SC 29607 TEL. (803) 297-9080; SUMTER, SC: 303 East Liberty Street, Sumter, SC 29150 TEL. (803) 775-1102

Montague Systems, Inc. was founded in 1914 as a provider of equipment and services to the sawmill industry. Since that time, Montague Systems has evolved into a major provider of bulk materials handling systems to the industrial, mining, utility and pulp & paper industries. The company designs, engineers, fabricates (from its own 375,000 sq. ft. fabrication facility) and installs/erects the systems it provides. The company is highly rated by Dun and Bradstreet and has provided single systems valued at \$40,000,000.

<b>Product/Service</b>	<b>Description</b>
Architecture/Engineering	Design, engineering and detailing of bulk materials handling systems for industrial, mining, utility and pulp & paper industries.
Coal Exporters	Design, engineer, fabricate and install conveying systems for load out onto barges/ships.
Coal Mining	Design, engineer, fabricate and install conveying systems from mine mouth to load out.
Coal Transport	Design, engineer, fabricate, and install conveying systems.
Facility Construction	Installation/erection of coal conveying systems at mines, coal terminals, industrial or power plant sites.



**Mountain States Mineral Enterprises, Inc.**  
**4370 South Fremont Avenue**  
**Tucson, AZ 85714-1629**

**Telephone:** (602) 792-2800  
**Telex:** 510-600-7949 **FAX:** (602) 294-3841  
**Chief Executive Officer:** Edward S. Frohling  
**International Sales Manager:** Edward S. Frohling

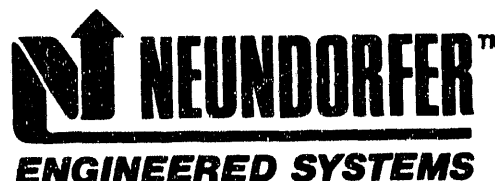
**Domestic Offices:** ELKO, NV: 174 W. Idaho Street, Elko, Nevada 89801 TEL. (702) 753-8510, FAX (702) 753-8511

Mountain States Mineral Enterprises, Inc. (MSME) established headquarters in Tucson, AZ, USA, in 1969 to provide engineering services to the mining industry of the Southwest United States and Northern New Mexico. Today, MSME serves the entire mineral industry worldwide, specializing in the design and construction of process plants. MSME offers a complete range of services from sampling and analysis to process design, engineering, construction, start-up, and various proprietary technologies for minerals beneficiation. MSME staff members have extensive background in the design and operation of sophisticated systems and process plants for the recovery of a wide range of minerals.

Product/Service	Description
Engineering/Construction	MSME provides services that include mine planning, feasibility studies, flowsheet development, pilot plant testing, conceptual and detail engineering, procurement, construction, and start-up assistance. These services can be provided for mineral materials handling systems, plant retrofitting, revamping, and new plant design.
	MSME designs and manufactures heavy media systems, the moving belt separator, and an ultrasonic device for cleaning mineral surfaces, and for making and breaking of emulsions.

**Neundorfer, Incorporated**  
**4590 Hamann Parkway**  
**Willoughby, OH 44094**

**Telephone:** (216) 942-8990  
**FAX:** (216) 942-6824  
**President:** Michael Neundorfer  
**Sales Manager:** Patti Ensel



Neundorfer provides products and services related to air pollution abatement, using electrostatic precipitation. Electric power generation, metals processing, rock products (cement) and paper industries are the major types of businesses served since the early 1970s. Products include system upgrades, rebuilding microprocessor controls for voltage and rapping, discharge electrodes, plate alignment systems, pneumatic and electric rappers, voltage isolation and stabilizing components, feedwater heater level controls, coal sampling devices and boiler tube deslagging systems. Services include consulting, field service, training, and performance diagnosis of electrostatic precipitator operations. Neundorfer is associated with the National Air Vibrator Company (NAVCO) of Houston, Texas, producers of pneumatic equipment.

Product/Service	Designation	Description
NAVCO Rappers	R2, R3, R4	Pneumatic Impact Rappers, Pin Plates, Anvil Beam Sockets
EMR Rappers	EMR 20110, EMR 20220	Magnetic Impulse Rappers

(Continued on next page)

**Neundorfer, Incorporated (Continued)**

Discharge Wires	DE Electrodes	Discharge Electrode Wires, spring & solid shroud
Plate Alignment	Straighteners	Plate Realignment System
Hopper Evacuation	R3, PP3	Hopper Evacuation Systems
MVCII	Voltage Control	Microprocessor-based Voltage Control System
MicroRap	Rapper Control	Microprocessor-based Rapper Control System
PS90	Purge Stabilizer	Hopper-mounted lower wire frame air-purged insulating stabilizer
COAL LANTZ	Coal Sampler	Automatically extracts sample of coal on as-burned basis
Mdc2000	Feedwater Control	Microprocessor-based or software algorithm to optimize levels of feedwater heaters

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**Non Recovery Coke Associates**  
**William Penn Plaza**  
**2790 Mosside Blvd.**  
**Monroeville, PA 15146**

**NRCA**

Telephone: (412) 373-8020  
 FAX: (412) 373-7065  
 Chief Executive Officer:  
 International Sales Manager:

Mr. Raymond Sturgulewski  
 Mr. Joseph P. Ciarimboli (Greensburg, PA office)

Domestic Offices:  
 International Offices:

GREENSBURG, PA: 101 N. Main Street, Greensburg, PA 15601 TEL. (412) 834-7555  
 ENGLAND: James O'Malley, 18 Berkeley Street, London W1X 5AE TEL. 01-408-0589  
 TELEX 28868 Argusr; MEXICO: Vidal Muhech, Baja California 200, 06760 Mexico, D.F. TEL. 564-70-66  
 TELEX 017-74-315

Non Recovery Coke Associates (NRCA) is an association consisting of Pennsylvania Coke Technology, Inc., Roberts and Schaefer Corp., and Westinghouse Electric Corp. that provide engineering and construction services for the installation and operations of the patented PACTI non-recovery and/or energy recovery cokemaking production system. Roberts and Schaefer has over 10 years engineering support to the development of the PACTI systems. Westinghouse has jointly developed a novel energy co-generation system to the patented PACTI cokemaking system. This association is currently negotiating the construction of a major coke production facility in Europe and is prepared to install such facilities worldwide. Presently, NRCA is constructing a PACTI cokemaking facility in Mexico under a joint development with Industrial Minera de Mexico, S.A.

Product/Service	Designation	Description
Coke Production Engineering and Construction	NRCA	NRCA provides engineering and construction services for the installation of the patented "PACTI" cokemaking system. Services range from initial feasibility studies and environmental impact studies to engineering, construction and operational technical support to coke and coke/energy production systems.



**Oglebay Norton Company**  
**1100 Superior Ave.**  
**Cleveland, Ohio 44114**

**Telephone:** (216) 861-3300, (216) 861-8707  
**Telex:** 62836077 ONCO-CLEVE **FAX:** 216-861-2863  
**Chief Executive Officer:** Renold D. Thompson  
**International Sales Manager:** J. Douglas Loughhead

Minerals, lake transportation and manufacturing are the major areas in which Oglebay Norton serves steelmakers, utilities, chemical and glass producers, manufacturers and other basic industries. Produces Ohio No.8 Seam Coal (Steam) with daily production capabilities of 4000NT Deep Mine located on NS Railroad at St. Clairesville, Ohio. Twelve thousand contiguous acres of coal reserves located in Boone County, WV. Five seams with average quality being 12,500 BTU's and 1% sulfur. Production is scheduled for fourth quarter 1989.

Product/Service	Designation	Description
Coal Mining		
Coal Transport	Ceredo Dock	Barge loading facility located near Huntington, WV on the Ohio River. Jointly served by CSX and NS railways (unit train capable) with annual capacity of 8,000,000 tons.
Facilities Construction	Licking River Terminal Co.	Barge loading facility located near Cincinnati, Ohio. Unit train capable and served by the CSX railway. Annual capacity of 8,000,000 tons.
Facilities Operation	Columbia Transportation Division	Offers a full range of 13 lake carriers to handle bulk materials on the Great Lakes.

**Porta-Kamp Houston**  
**P.O. Box 7064**  
**Houston, TX 77248**



**Telephone:** (713) 674-3163  
**Telex:** 790-221 **FAX:** (713) 674-4844  
**Chief Executive Officer:** Ken R. Mills, President  
**International Sales Manager:** William H. Bigelow, Vice President

Porta-Kamp is a Houston based International Corporation founded in 1955 to manufacture housing for personnel operating in remote areas of the world. Porta-Kamp currently operates approximately 500,000 square feet of enclosed floor space on 85 acres, all in the Greater Houston area. Porta-Kamp serves the domestic and international construction, oil, geophysical, pipeline, mining, drilling industries, various government entities and many foreign governments. We have produced over 55,000 units and shipped them to 134 countries. We offer a simple, high-quality product with the maximum value at a minimum cost in the shortest possible time.

Product/Service	Description
Facility Construction	Relocatable and semi-permanent camp facilities, including housing, Kitchen-Diner, Bath-Toilets, Laundries, Offices, etc. Helicopter Lift Units, special designed light weight units for helicopter lift to extremely remote areas. Pre-Fabricated and Modular Homes, for family accommodations at permanent remote locations. Custom rig-up of trucks and related construction equipment, and world wide distribution of specialty truck parts and equipment.

**Qualtec, Inc.**  
**11300 U.S. Highway 1, Suite 500**  
**Palm Beach Gardens, FL 33408**



**Telephone:** (407) 775-8300  
**FAX:** (407) 775-8301  
**Chief Executive Officer:** Roger A. Eatman, President & CEO  
**International Sales Manager:** Fred Trice, Director, Special Projects  
Bob Bartz, Director, Technical Services

QUALTEC, INC. is a subsidiary of FPL Group, Inc. (the holding company which also owns Florida Power & Light Co.). Established in 1985, QUALTEC's utility-related businesses provide specialty support services to U.S. and international electric utilities, independent power producers, and architectural/engineering firms.

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<b>Product/Service</b>	<b>Description</b>
Facility Operation	Project management; cost/estimating; planning & scheduling systems; construction management; professional and technical; contract labor; power plant equipment inspection, testing, maintenance and labeling; training; procedures development; operations audits; maintenance/outages/backfit; services.
Facility Construction	

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**R.L. Coolsaet Construction Co.**  
**Contractors**  
**P.O. Box 279**  
**28800 Goddard Road**  
**Taylor, MI 48180**

**Telephone:** (313) 946-9300  
**FAX:** (313) 946-9303  
**Chief Executive Officer:** Jeffrey A. Coolsaet  
**International Sales Manager:** Ryan Colonnello

R.L. Coolsaet Construction Company has been in the pipeline construction business since 1936, doing various work for major transmission companies such as building oil, natural gas and other cross-country pipelines. We have experienced personnel, equipment, insurance and bonding available for large construction projects.

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<b>Product/Service</b>	<b>Description</b>
Facility Construction	Coal Slurry Pipeline Construction

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**The Ralph M. Parsons Company**  
100 West Walnut Street  
Pasadena, CA 91124

**PARSONS**

**Telephone:** (818) 440-2000

**Telex:** 4720569 **FAX:** (818) 440-2630

**President:**

Mr. Robert B. Sheh

**International Sales Manager:**

Mr. Kenneth G. Braden

**International Offices:**

ENGLAND: Derrick Hedley, Parsons House, Kew Bridge Road, Brentford, Middlesex, TW8 OEH, England, U.K., TEL. 44-1-995-1322; PHILIPPINES: Mr. B.H. Conroy, Legaspi Village, 105 Rada Street, Makati, Metro Manila, Philippines, TEL. 63-2-818-6085.

The Ralph M. Parsons Company is a major international engineering-construction firm providing planning, study, design, engineering, procurement, construction and operation services world-wide. It offers expertise/experience in mining, synfuels, process industries, flue gas cleanup (FGC), crude oil recovery/refining, gas processing, sulfur management and infrastructure. Proprietary technology includes coal-fired power plant FGC, sulfur control systems to serve the petroleum/gas processing/other industries, sulfuric acid, and SNG manufacture. Through its parent, the Parsons Corporation, it offers a full range of A&E/Construction services including power plants, transportation, roads, water supply, wastewater/hazardous/nuclear waste management, urban/regional planning.

<b>Product/Service</b>	<b>Description</b>
Coal-Fired Flue Gas Cleanup	Concept Assessment, Feasibility Study, Design, Engineering, Procurement, Construction (EPC)
Sulfur Management	Sulfur Control/Recovery from Coal-Based Process Units, e.g., Power Plants, Gasification or Liquefaction plants. Production of elemental sulfur or sulfuric acid product, EPC
Coal Gasification	Feasibility Study, Technology Selection, Design, EPC
Coal Liquefaction	Feasibility Study, Technology Selection, Design, EPC
Coal Mining	Resource Evaluation, Mine Plan, Feasibility Study, EPC
Environmental Control	Consulting, Feasibility Study, EPC

Riley Stoker Corporation  
P.O. Box 15040  
Worcester, MA 01615-0400



Telephone: (508) 852-7100  
Telex: 920428 Fax: (508) 852-7548, (508) 852-7558  
Chief Executive Officer: H. Kerner Smith  
International Sales Manager: David A. Harris

**International Offices:**  
BELGIUM: Chaudronneries Pierre Broubon, Rue de la Station, 41 bis, 4341 AWANS TEL. (041) 63 88 20 21 22;  
AUSTRALIA: Clyde-Riley Dodds Pty., Ltd., 123 Gotha Street, Fortitude Valley, Queensland 4006 TEL. (07) 854 1522;  
FRANCE: FAMA, 8 Rue d'Athènes, 75009 Paris TEL. 42 82 93 31; JAPAN: Mitsui Engineering & Shipbuilding Co., Ltd., 6-4 Tsukiji 5-chome, Chuo-ku, Tokyo 104; COLOMBIA: Representaciones Internacionales Ltda, P. O. Box 949, Medellín TEL. 248-51-89 or 246-56-94; SWITZERLAND: Centrex S.A., 24 Avenue Dumas B P 305 1211, Geneva 25 TEL. (022) 46 82 26; EGYPT: Arab Engineering & Distribution Co., 2 Saraya El Korba Street, Garden City, P. O. Box 901, Cairo; INDIA: Ideal Enterprises, 402 Hemkunt Tower, 98 Nehru Place, Post Box 4411, New Delhi-110019 TEL. 6415435; ISREAL: PETCO International Ltd., 55 Shderot Bialik, Ramat-Hashron TEL. (972) 3-5401812; PAKISTAN: Qamar Traders, P. O. Box 1014, Ikram Building, Outside Akbari Gate, Lahore-8 TEL. 62336 or 56936; TAIWAN: Taiwan Development Co., Ltd., 3rd Floor, 5 Tsing Tao East Road, Taipei R.O.C. TEL. (886) 2-3912366; VENEZUELA: Eduardo Calcano & Cia., C.A., Centr Plaza, Torre B-Penthouse, Avenida Francisco de Miranda, Apartado de Correos 613071 Chaca, Caracas 1060-A

Riley Stoker Corporation was founded in 1913. Since 1981 the company has been a subsidiary of Ashland Oil, Inc. Riley designs, manufactures and constructs traditionally-fired boilers, fluidized bed combustion boilers, and waste-to-energy systems in capacities from 222,675 to 2,086,188 kg/steam/hr (50,000 to 4,600,000 pounds of steam per hour).

Product/Service	Description
Boilers	Riley manufactures a line of coal pulverizers, burners for coal, gas and oil, and stokers for all types of coal, cellulose fuels and waste. The company provides a range of services for boiler and fuel burning equipment, including inspections, repairs and maintenance. It has its own construction capabilities for complete boiler erection as well as modifications and rebuilds. Riley operates a center for fuel burning research, and a manufacturing plant in Erie, PA with easy access to water, rail truck and air shipping.
Stokers	
Pulvizers	
Construction	

S&C Thermal Systems, Inc.  
3314 Highway 162  
Post Office Box 1246  
Granite City, IL 62040



Telephone: (618) 452-3000  
Telex: TWX 910-756-2352 FAX: (618) 876-0865  
Chairman: Emmanuel Merle  
President: Christian Joly  
International Sales Manager: Richard P. Kuo, Sr. Vice President  
Senior Vice President: Roland Otte

**Domestic Offices:** NEW YORK, NY: 767 Fifth Avenue, New York, NY 10153, TEL. (212) 421-1944, FAX (212) 421-1937  
**International Offices:** PARIS: TEL. 33 (1) 47-56-22-22, FAX 33 (1) 40-87-01-28

S&C Thermal Systems, Inc. is a member of the Thion Group of companies. Thion, established in 1843, is an international energy resources and services group with interests in Europe and the United States. The Company provides a full range of thermal energy services to commercial, industrial,

(Continued on next page)



**S&C Thermal Systems, Inc. (Continued)**

residential, institutional and government sectors. Major areas of business include: operation and maintenance of individual building heating and cooling plants under long-term energy service contracts; design, construction, financing and operation of district heating and cooling systems and cogeneration plants; energy audits and technical feasibility studies; energy performance contracting and third party financing; waste-to energy plants and waste recycling.

Product/Service	Designation	Description
Facilities Operations	Chauffage	24 hr. plant O&M, fuel supply retrofit, finance
Facilities Construction	District heating and cooling	Design, build, own, operate
Power Generation	Cogeneration	Design, build, own, operate
Financing and Resource Packaging		Energy plants, performance contracts.

**Savage Industries, Inc.**  
 5250 South 300 West, Suite 200  
 Salt Lake City, UT 84107



Telephone: (801) 263-9400  
 FAX: (801) 261-8766  
 Chief Executive Officer:  
 Executive V.P., Development:  
 V.P., Business Development:

Mr. Allen B. Alexander  
 Mr. David G. Wolach  
 Mr. Gerald E. Vaninetti

Savage Industries, Inc., in business since 1946, is a specialized transportation and material handling company specializing in the performance of innovative truck transportation services and loading, unloading, transloading, screening, crushing, weighing and storage systems for coal and other bulk materials. The company provides services throughout the entire bulk commodity transportation and handling infrastructure from mine to ultimate end user. The company handles over 60,000 tons of coal daily. The company has current operations in Colorado, Utah, Wyoming, California, West Virginia and South Dakota. Savage specializes in the utilization of the total transportation and handling concept.

Schmidt Associates, Inc.  
7333 Fair Oaks Road  
Cleveland, OH 44146



Schmidt associates, inc.

Telephone: (216) 439-7300

FAX: (216) 232-9939

Chief Executive Officer:

Charles M. Schmidt

International Sales Manager:

George C. Repko

International Offices:

Please contact company headquarters for further information.

Schmidt Associates, Inc. is an employee-owned professional engineering corporation comprised of dedicated, experienced engineers capable of performing a wide range of engineering and consulting services. These services include mechanical, electrical, structural, and chemical abilities, with vast experience in the industrial boiler market from studies and retrofitting of all types of existing boiler installations to the complete installation of new facilities encompassing any or all new technologies required in the industrial field today for not only technically successful operations, but also economical success as well. Schmidt Associates, Inc. has specialized in central utilities services for industrial, institutional, and governmental plants including studies, tests, application, and installation of new technologies in industry today.

Product/Service	Description
Advanced Utilization	Conducted extensive research and design work for the government on advanced coal utilization techniques for industrial boilers including coal-oil and coal-water mixtures, slagging coal combustors and fluidized bed boilers.
Architecture/Engineering	Expertise in coal utilization from conception of idea to detailed design.
Boiler Equipment	Specify appropriate equipment for clients.
Facility Construction	Detailed design of numerous coal facilities from point of coal receipt to exit of gases from stack. Conduct on-site inspection of facilities while under construction.

United Engineers & Constructors  
30 South 17th Street  
P.O. Box 8223  
Philadelphia, PA 19101

**United Engineers  
& Constructors**

A Raytheon Company

Telephone: (215) 422-4400

Telex: 83-4203 FAX: (215) 422-4648

Chief Executive Officer:

Gunnar E. Sarsten

International Sales Manager:

Thomas H. Zarges

Domestic Offices:

BOSTON, MA: 100 Summer St., Boston, MA 02110 TEL. (617) 338-6000; CHICAGO, IL: 1430 Branding Lane, Suite 125, Downers Grove, IL 60515 TEL. (708) 515-3500; DENVER, CO: 700 S. Ash St., P.O. Box 5888, Denver, CO 80217 TEL. (303) 758-1122; PITTSBURGH, PA: Penn Center East, 600 Penn Center Blvd., Pittsburgh, PA 15235 TEL. (412) 825-4400; WINSTON-SALEM, NC: 900 NCNB Plaza 1022 W. 3rd St., Winston-Salem, NC 27101 TEL. (919) 748-0431

International Offices:

ENGLAND: Badger Catalytic Ltd., C.I. Tower, St. George Square, High Street, New Malden, Surrey, KT3 4HH TEL. 1-949-0055

United Engineers & Constructors, a wholly-owned subsidiary of Raytheon Company, ranks as one of the top ten engineering, construction, and contract maintenance firms in the U.S. It was founded in 1928 and has over 5,000 employees serving a wide range of industries including power, metals, chemicals and biotechnology, electronics, aerospace, mining, petroleum and gas processing, general manufacturing and government.

(Continued on next page)

**United Engineers & Constructors (Continued)**

Product/Service	Description
Architecture/Engineering	All phases of engineering of coal-fired power generation plants including fluid bed combustion, environmental engineering, licensing, and waste management. Capabilities include feasibility studies, cost estimates, preliminary engineering, conceptual design, detailed design, and procurement.
Facility Construction	Every type of construction arrangement from direct hire to complete subcontract. We can provide all construction services including field engineering, labor relations, safety programs, quality assurance, project controls, expediting, cost management, and construction inspection.
Facility Operation	Operation and maintenance activities of fossil-fueled plants including plant life extension, modifications, retrofits, testing and startup, operator training, and energy economics.

**United Engineers & Constructors Inc.**  
**Stearns-Roger Division**  
**P. O. Box 5888**  
**Denver, CO 80217**

**United Engineers  
& Constructors**  
 A Raytheon Company

Telephone: (303) 758-1122

Telex: (303) 692-2208

Chief Executive Officer:

Gunnar Sarsten

International Sales Manager:

Lawrence J. Weber

**Domestic Offices:**

PHILADELPHIA, PA: UE&C, 30 South 17th Street, P. O. Box 8223, Philadelphia, PA 19101 TEL. (215) 422-3000; BOSTON, MA: UE&C, 100 Summer Street, Boston, MA 02110 TEL. (617) 338-6000; CHICAGO, IL: UE&C, Opus West II, 1411 Opus Place, Downers Grove, IL 60515 TEL. (312) 960-9200; WEST PALM BEACH, FL: UE&C, 7289 Garden Road, P. O. Box 15348, West Palm Beach, FL 33416 TEL. (407) 844-7900.

**International Offices:**

ENGLAND: Stearns-Catalytic International Ltd., C.I. Tower, St. George Square, High Street, New Malden, Surrey, KT3 4HH TEL. 1-949-0055.

Stearns-Roger has been serving the needs of the mining, metallurgical and inorganic chemicals industries since 1885. Today, as a Division of United Engineers & Constructors, we offer the broadest technology base of any U.S. engineering, construction, and maintenance firm. UE&C is at work around the world on more than 1,000 projects of varying size and scope. Our coal experience ranges from conceptual engineering studies to coal mining and handling facilities design; coal processing, beneficiation, and gasification projects; and construction and operation of coal conversion plants. Our engineering and construction management professionals are available to assist with projects worldwide.

Product/Service	Description
Architecture/Engineering	Complete services from conceptual studies through detailed design.
Facility Construction	Construction Management

**Welded Construction Company**  
26933 Eckel Rd.  
P.O. Box 32  
Perrysburg, OH 43551

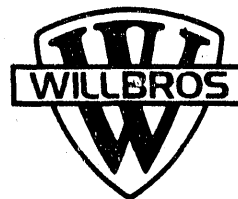
Telephone: (419) 874-3548  
Fax: (419) 874-4883  
Chief Executive Officer: R.H. Mogg  
International Sales Manager: D.W. Thorn

Welded Construction Company has been in the pipeline construction business since 1966, building oil, natural gas and other cross-country pipelines for major transmission companies. We have qualified personnel, equipment, insurance and bonding available for large construction projects.

Product/Service	Description
Facility Construction	Coal Slurry Pipeline Construction

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**Willbros USA, Inc.**  
Suite 700, 2431 East 61st Street  
Tulsa, OK 74136



Telephone: (918) 748-7000  
Telex: 79-6660 FAX: (918) 748-7087  
Chief Executive Officer: L.J. Bump

**International Offices:** REPUBLIC OF PANAMA: Edificio Torre Banco Germanico, 8th Floor, Panama 1 TEL. (507) 63-9282 TELEX 3380; NIGERIA: 256 Kofo Abayomi St., P.O. Box 1057, Victoria Island, Lagos, 614877 TELEX 21115; OMAN: P.O. Box 142, Muscat, Sultanate of Oman TEL. 590355 TELEX 5387; UNITED KINGDOM: Provincial House, 62-68 Eden Street, Kingston-upon-Thames, Surrey KT11EJ TEL. (01) 549-4471 TELEX 928172

Willbros USA, Inc. is a subsidiary of Willbros Group, Inc. which provides worldwide construction of pipelines and related facilities, onshore contract rotary drilling, maintenance of pipeline systems, dredging, transportation and pipe coating to the energy industry. Engineering and project management services are also provided to the energy industry, the U.S. Armed Forces and the telecommunications industry.

Product/Service	Description
Energy Transportation	Pipeline and facilities construction. Engineering and project management.

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**Mining Equipment:** Firms providing equipment for underground and surface mining as well as conveying, crushing, sizing, and beneficiation.

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**Adalet-PLM**  
4801 West 150th Street  
Cleveland, OH 44135

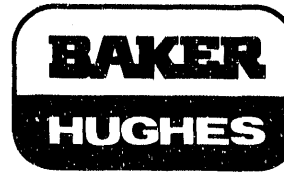
**ADALET-PLM**  
a Scott Fetzer company

**Telephone:** (216) 267-9000  
**Telex:** 98 5349 **FAX:** (216) 267-1681  
**President/Chief Executive Officer:** James W. Sutherland  
**V.P. Sales and Marketing:** Frank P. Sincaglia  
**International Sales:** Kenneth W. MacDonald

Adalet and PLM, acquisitions of Scott Fetzer Company, were consolidated as Adalet-PLM in 1977. Adalet, manufacturing cast aluminum electrical enclosures for the petrochemical industry, was founded in 1928. PLM, founded in 1951, manufactures splices, fittings, and terminations for armored, paper insulated lead and extruded dielectric cables. In 1957, PLM developed a coupler for joining trailing cables in underground and surface mines. The PLM design was the first coupler designed with a ground check interrupting circuit for safe disconnect, and the first capable of handling 500 amperes and voltages up to 7500 volts (later extended to 15000).

Product/Service	Designation	Description
Coal Mining	PLM 415 Portable Cable Couplers	PLM High Voltage Portable Cable Couplers with rigid, nonbreakable EPDM insulators for 0-15,000 volt, 500 ampere application in surface and underground mining. Quik-Thread positive 2-1/2 turn coupling collar eliminates mating problems and makes safe, fast, easy connection. Water-tight construction, corrosion resistant aluminum body, positive built-in "first make last break" ground connection, line or equipment mount types, ground check circuit contacts.
Power Generation Systems		
Mining Equipment		

**Baker Hughes Mining Tools, Inc.**  
P.O. Box 531226  
Grand Prairie, TX 75053-1226



**Mining  
Tools**

A Baker Hughes company

Telephone: (214) 988-3322  
Telex: 163152 BHMTGP UT    FAX: (214) 602-3135  
Chief Executive Officer:    Mr. John A. Alich, Jr.  
International Sales Manager:    Mr. Robert W. Thomas

**International Offices:**    UNITED KINGDOM: Stan Gasparovski, Shirley Avenue, Vale Road, Windsor, Berks SL4 5LF, England  
TEL. 44-753-831588    FAX 44-753-831571    TELEX 847504;    SOUTHWEST EUROPE AND WEST AFRICA:  
Daniel Moawad, 7 Rue du Bilaa, 64230, Lescar, France    TEL. 33-59-811397    FAX 33-59-811438;    SOUTH  
AFRICA: Kevin Engelsman, P.O. Box 8235, Elandsfontein 1406, Republic of South Africa  
TEL. 27-11-826-5182    FAX 27-11-823-1939    TELEX 960 740154;    MEXICO: Roberto Ibarra, Via Gustavo  
Baz Sur No. 40, Parque Industrial Naucalpan De Juarez, Edo. DE 53370, Mexico    TEL. 52-5-358-8195  
TELEX 1774248 EVTME;    AUSTRALIA: Allan Davies, P.O. Box 308, Hamilton Central, Qld. 4007, Australia  
TEL. 61-7-268-4044    FAX 61-7-268-4251    TELEX 790-41266

Baker Hughes Mining Tools is the world leader in reducing total drilled cost through higher penetration rates and longer time on bottom. Rotablast® Tri-Cone® blasthole bits and big-hole boring tools cover every type of mining drilling operation, including blast holes, exploration, water wells, shaft drilling, and raise boring. Strategically located throughout the world, sales technicians and engineers work closely with customers to provide the best solutions to specific drilling problems by tailoring tools and services to local applications. The company has two manufacturing and engineering facilities, including the 85,000 sq ft world headquarters near Dallas, Texas.

Product/Service	Description
Special Coal System	Rotablast® Tri-Cone® bits are a premium-quality product for the mining industry, providing lower total drilled cost through higher penetration and longer time on bottom. Available as tungsten carbide insert or steel-tooth bits, models range in size from 2-15/16 to 17-1/2; special sizes and applications are available on request.
Big Hole Tools	The company is the leader in both raise-boring and shaft drilling for very large diameter holes. Cutters and heads are available for the full range of diameters and rock types commonly mined today. Product developments include three new raise-boring cutters that can be arranged for either 2 in. or 1 in. kerf spacing, all on the same head.

**Black Gem Coal Company**  
P.O. Box 931  
Cincinnati, OH 45239-0931

**BLACKGEM**

Telephone: (513) 931-1426  
Chief Executive Officer:    H.M. Vonderheide  
International Sales Director:    H.M. Vonderheide

Black Gem Coal Company has been in existence since 1976. Product line consists of steam, stoker, and metallurgical coals available from U.S.A. coal areas of southern West Virginia, southwest Virginia, southeastern Kentucky, and eastern Tennessee.

**Product/Service**

Coal Mining, transportation by truck, rail, U.S.A. river system to ports for export. Coal brokers/finders/sales. Mining equipment both deep and surface (as commonly utilized in U.S.A. coal mines).

**The Bowdil Company**  
**2030 Industrial Place, SE**  
**P.O. Box 20470**  
**Canton, OH 44701-0470**



**Telephone:** (216) 456-7176  
**WATS:** (800) 356-8663 **FAX:** (216) 456-4625  
**Chief Executive Officer:** C.M. (Bill) Shafer  
**President:** James S. Bowman  
**International Sales Manager:** Thomas G. Vignos

**International Offices:** Please contact company headquarters for further information

Established in 1924, the Bowdil Company enjoys a well earned reputation for high quality mining equipment, mining components, custom machining, heat treating, and metal fabrication. In 1988, Bowdil acquired the Universal Cutting Machine line of The Goodman Corporation. Accordingly, we have become the spare parts source for Goodman Universal Cutting users around the world. Other mining equipment includes cutter chains for any type cutting machine, cutter bars, cutter bar head assemblies, sprockets and bits. Our machining and metal fabrication capabilities embrace a wide range of applications. Heat treating includes both in-atmosphere and vacuum systems depending upon customer requirements.

Product/Service	Designation	Description
Bowdil Cutting Machine	BOW-2500	Roth rugged and stable, this unit is available in any voltage. Easy for the driver to operate and the maintenance crew to service. Spare parts promptly available.
Bowdil Cutter Chains	BOW-40	Drop forge construction not only eliminates hooking and stalling but provides greater work safety and reduces machine stress. Types available are all lug, lug/link, and all lug wraplock. Designed to use either pyramidal or roto type bit (pick). Trimmer chains available to fit all continuous boring machines, makes and models.
Bowdil Cutter Bar	BOW-281/282	Designed and fabricated for the rugged use it will be subjected to. Wearing strips are high carbon-high chrome. Available in lengths 6'-0" through 17'-0" or designed to operators specifications.
Roller Bearing Cutter Head	BCW-30	Lowers noise level, saves energy and reduces maintenance and downtime. Used in conjunction with a Bowdil special alloy sprocket, heat checking causing metal fatigue is reduced.
Sprockets	BOW-14	Sprockets are available in clutch, spline and keyed styles - single or double tooth arrangement. Will manufacture to customers specifications.
Bits (Picks)	BOW-1-85,1-86	1-85 Pyramidal (flat) is designed, constructed and heat treated to obtain a strong and rigid shank. 1-86 rotates while in use to equalize wear and expand time between changes. Both types are carbide tipped. Will manufacture other types to customers specifications.
Machining and Metal Fabrication	BOW-MMF	With the latest machinery, we are a complete source for precision machining and fabrication. Duplication of matching parts or reproduction from customers drawings result in identical pieces.
Heat Treating	BOW-HT	State of the art vacuum furnace allows us to meet the customers most exacting needs. Ferrous and non-ferrous materials can be processed in any one of 15 furnaces. The most advanced materials can be safely modified.

**Bucyrus-Erie Company**  
**1100 Milwaukee Avenue**  
**P.O. Box 500**  
**South Milwaukee, WI 53172**



**Telephone:** (414) 768-4000  
**Telex:** 3797350 BUCYRUS SMIL **FAX:** (414) 768-4474  
**Chief Executive Officer:** Mr. William B. Winter  
**International Sales Manager:** Mr. Ronald W. Archer

**Domestic Offices:** MEMPHIS, TN: 3057 Tranquility Drive, P.O. Box 161236, Memphis, TN 38186-3880; GILLETTE, WY: Highway 14 North, P.O. Box 1479, Gillette, WY 82716; PHOENIX, AZ: 2501 University Drive, P.O. Box 61030, Phoenix, AZ 85082-1030

**International Offices:** AFRICA: Bucyrus-Africa Pty Ltd., 415 Wrench Road, P.O. Box 482, Isando 1600, R.S.A.; AUSTRALIA: Bucyrus-Australia Pty Ltd., 9th Floor, G.W.A. House, 10 Market Street, Brisbane, QLD 4000, Australia TEL. 61-7-229-9316 FAX 61-7-229-8165; 2529 Strathmore Road, Muswellbrook, NSW 2333, Australia TEL. 61-65-434-633 FAX 61-65-425-350; 99 Kew Street, Welshpool, WA 6106, Australia TEL. 61-9-361-7365 FAX 61-9-362-2652; BRAZIL: Bucyrus Brasil Ltd., Avenida Professor Magalhaes Penido, 439, Bairro Aeroporto, Belo Horizonte, MG, Brasil TEL. 55-31-441-2399 FAX 55-31-441-0345; CANADA: Bucyrus-Erie Company of Canada Ltd., 1310 8th Street, Nisko, Alberta T0C 2G0, Canada TEL. 403-955-7771 FAX 403-955-2145; 453 Noel Street, Sept-Iles, Quebec G4R 1M1, Canada TEL. 418-962-7078 FAX 418-962-6128; CHILE: Bucyrus-Chile Ltd., Avda 11 de Septiembre 2155, Coyancura 2241 Of. 61, Providencia, Santiago, Chile TEL. 56-2-232-2785 FAX 56-2-232-6234; ENGLAND: Bucyrus-Europe Ltd., Becor House, Green Lane, Lincoln LN6 7DL, England TEL. 56-83-242410 FAX 56-83-241993

Bucyrus-Erie Company is a world leader in the manufacture of surface mining equipment. Founded in 1880 and located in South Milwaukee, Wisconsin, this privately owned company has over the years manufactured dredges, railroad cranes, water-well drills, ordnance equipment, all types of construction machinery, and surface mining equipment. Today, guided by an experienced and progressive management team, Bucyrus-Erie is devoted solely to the mining industry with a complete line of Electric Mining Shovels (9-58cm), Rotary Blasthole Drills (152-445mm), and Walking Draglines (7-175cm). With a worldwide network of sales, manufacturing, spare parts, and service facilities, Bucyrus-Erie is well organized to support the international mining community in over 130 countries throughout the world.

Product/Service	Description
Electric Mining Shovels	Model Numbers: 195BI (12.2 cm), 290BII (15.3cm), 295BII (20.6cm), 395BII (31.3cm), and the 495B (40.5cm). Features include AC static variable frequency control drive systems (ACUTROL), state-of-the-art mechanical designs, diesel/electric applications, and the FASTFIL dipper.
Rotary Blasthole Drills	Model Numbers: 45R (36,288kg), 47R (40,842kg), 49R (45,360kg), 60R (56,700kg), 61R (58,968kg), 65R (70,308kg), 67R (72,576kg). Features include counter rotating crawlers, chainless pulldown, angle drilling, automatic drilling, and one-man operation.
Walking Draglines	Model Numbers: 680W (19.9cm), 1260W (30.6cm), 1300W (35.9cm), 1370W (51.2cm), 1570W (61.2cm), 1570WS (70.3cm), 1670W (76.5cm), 2570W (107.1cm), 3270W (148.1cm). Features include modular designs, AC static drives (ACUTROL), pressurized tubular structures, standardized drive components, and the High Production System Bucket (H.P.S.).



**Cummins Engine Company, Inc.**  
**Box 3005**  
**Columbus, IN 47202-3005**



**Telephone:** (812) 377-5000  
**Telex:** 217410 CUMMINS CMB A   **FAX:** (812) 377-3334  
**V.P. Worldwide Industrial Markets:**   **Mark A. Levett**  
**Worldwide Mining Manager:**   **Bruce D. Smalley**  
**General Manager-Worldwide**  
**Industrial Markets:**   **Fred T. Venhoff**

**Domestic Offices:**   **DOWNERS GROVE, IL TEL. (708) 852-6604; SHELTON, CT TEL. (203) 925-0446; MARIETTA, GA TEL. (404) 423-1108; ENGLEWOOD, CO TEL. (303) 773-2866; SAN RAMON, CA TEL. (415) 831-9900; IRVING, TX TEL. (214) 580-7745; OAKVILLE, ONTARIO, CANADA TEL. (415) 842-8070; BURNABY, BRITISH COLUMBIA, CANADA TEL. (604) 299-9361**

**International Offices:**   **CUMMINS AMERICAS, INC. - HIALEAH, FL TEL. (305) 621-4451; CUMMINS AUSTRALIA PTY. LTD. - MELBOURNE, AUSTRALIA TEL. (61-3) 765-3222; CUMMINS EUROPE - BAD HOMBURG, GERMANY TEL. (49-6172) 1294-0; CUMMINS ENGINE CO., LTD. - NEW MALDEN, ENGLAND TEL. (44-1) 949-6171**

Cummins Engine Company, Inc., based in Columbus, IN, designs and manufactures in-line and V-type diesel engines ranging from 41 to 2000 horsepower, as well as related components and power systems. The company was founded in 1919 in Columbus, which remains the site of its corporate headquarters and largest engine manufacturing facility. In addition to North America, Cummins has operations in the United Kingdom, India, Mexico, Canada, Brazil, South Korea, China, Zimbabwe and Turkey. In 1989, Cummins reported net sales of \$3.5 billion and employed 25,100 people worldwide.

Product/Service	Description
Diesel Engines, In-line and V-type, 41-2000 Horsepower	Coal transport, facilities construction, mining equipment, power generation, and transport equipment.

**EIMCO Coal Machinery Incorporated**  
**P.O. Box 992**  
**2030 Pleasant Valley Road**  
**Fairmont, WV 26554**

**EIMCO**  
**A Tampella Tamrock Company**

**Telephone:** (304) 363-7700  
**Telex:** 62895344   **FAX:** (304) 363-1141  
**President:**   **Larry Marteney**  
**Vice President:**   **Danny Coppinger**

The rich mining heritage of EIMCO Coal Machinery has been derived from a series of acquisitions, including some well-known mining companies in the U.S.A.: National Mine Service Greensburg, FMC, Galis and Elkhorn and WV Mining.

(Continued on next page)

**EIMCO Coal Machinery Incorporated (Continued)**

<b>Product/Service</b>	<b>Description</b>
Drum (Ripper) Miners	Crawler driven mining machines which extract ore from the mining face. - 2460/2480 Seams from .76m to 2.4m - 2810 Seams 1m to 3.2m - 3612 Seams 1.21m to 3.8m
Boring Machines	Two and four-rotor crawler driven mining machines used for extraction in primarily Trona, Potash, and Salt. Variety of machines available with cutting heights and widths from 2.4m X 4.2m to 2.4m X 7.8m.
Shuttle Cars	Rubber tired haulage vehicles which transport the mined ore from the face to the section belt. - 48C - Mid to High Seam with Frame Heights from .91m to 1.4m
Roof Bolters	Rubber tired, single and dual head roof bolting machines. Seams from 762mm to 3.0m.
Battery and Diesel Scoops/ Shield Haulers	Rubber tired radio controlled vehicles used for clean-up, supply, and long-shield hauling. Seams from 762 mm and above.
Rail	Locomotives - 3.6 tons to 17 tons, T.G. from 610mm to 1,219mm Personnel Carriers - Battery, Trolley, or Combination Rail Vehicles. Up to 24 man capacity.

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**ESCO Corporation**  
**World Headquarters**  
**2141 N.W. 25th Avenue**  
**Portland, OR 97210**



**Telephone:** (503) 228-2141  
**Telex:** 360590 **FAX:** (503) 778-6360  
**Chief Executive Officer:** Nick Collins  
**International Sales Manager:** Jim Songer

**International Offices:** MEXICO: Guadalajara; BRAZIL: Sao Paulo; FRANCE: Saint Priest; SINGAPORE

ESCO Corporation is a world leader in steel technology, providing innovative products and alloys for the coal mining industry. ESCO was founded in 1913 as Electric Steel Foundry Company in Portland Oregon. ESCO continues to pioneer technology advances in metallurgy, design and manufacture. ESCO's innovative products and unique casting capabilities have earned a world-wide reputation for excellence. ESCO has manufacturing operations in the United States, Canada and Europe. A global marketing partnership called ESCONET has licensees throughout the world who are qualified manufacture's of ESCO alloys and products within their own markets.

<b>Product/Service</b>	<b>Description</b>
Mining Equipment	High-performance buckets, tooth systems and ground engaging tools resist impact and abrasion in general purpose as well as the most severe applications. Shovel Dippers and dragline buckets, plus rigging and accessories are available for all types and sizes of machines. ESCO also produces dozer- and scraper-mounted rippers, cutting edges and endbits, plus replaceable wearparts for crushers.

**Everlasting Valve Company**  
**108 Somogyi Court**  
**South Plainfield, NJ 07080**



**Telephone:** (201) 769-0700

**FAX:** (201) 769-8697

**Chief Executive Officer:**

Mr. Robert L. Bunting

**International Sales Manager:**

Mr. Robert L. Bunting

**International Offices:**

ENGLAND: Armstrong International, Huddersfield, England TEL. 011 (484) 682760  
 FAX 011 (484) 686318; GERMANY: Armstrong Machine Works, Aachen, Germany, TEL. 0114924125781  
 FAX 0114924138248; AUSTRALIA: Armstrong Steam Control, Punchbowl, N.S.W. 2196, Australia TEL.  
 011612750-3822 FAX 0116127581264; SOUTH AFRICA: Everlasting Valve Co. Ltd., Edenvale, Republic of  
 South Africa TEL. 01127118233447 FAX 01127118233243

Everlasting Valve Co. is a Division of Armstrong International. It was founded in 1906, initiating its valve activity by supplying valves for steam locomotives. In more recent years, as a result of extremely successful testing under DOE's state-of-the-art Lockhopper Valve Testing and Development Project, the valve has become a standard for lockhoppers and slurry services in coal gasification and coal conversion facilities. Successful applications including Texaco's Cool Water Project, Lurgi's Sasol I, II, and III, ANG, Fru-Con's H-Coal, General Electric, etc., etc.

Product/Service	Description
Rotating Disc Valves	A metal to metal rotating disc valve designed specifically for difficult dry or wet slurries, coal, coke, vitrified ash services traditionally found in state-of-the-art coal gasification projects. Seat and disc material of Stellite or Ceramics, operating components in stainless or equal, bodies of steel, stainless on high alloys or appropriate to pressures and temperatures. Available through class 2500 and 24" size. Actuation can be accomplished by pneumatic or hydraulic actuators.

**FMC Corporation**  
**Conveyor Equipment Division**  
**P.O. Box 1370**  
**Tupelo, MS 38802**



**Telephone:** (601) 869-5711

**Telex:** 53-888 **FAX:** (601) 869-7557

**Division Manager:**

E.L. Doty

**International Sales Manager:**

James E. Allen

The Conveyor Equipment Division of FMC Corporation has provided over a century of service to the coal industry. The company's Link-Belt products are known around the world as the standard for quality. Belt conveyors idlers, underground structure, terminal groups, and accessories are made especially for the coal mining industry. We provide a product you can count on through our domestic and international distributor network.

Product/Service	Description
Above Ground Idlers	FMC offers a complete line of Link-Belt Idlers. CEMA B,C,D,E,E+ ratings. Standard belt widths from 18-72 inches. Precision boring and welding insures product quality meets customer requirements for durability.
Underground Belt Conveying Equipment	FMC supplies a complete line of equipment for underground belt conveyors including drive terminals, tail pieces, tail loading sections, discharge sections, wire rope idlers, rigid frame idlers, and intermediate structure. Structure provided in belt widths up to 60 inches.

The Gates Rubber Company  
Export Division  
990 So. Broadway  
P.O. Box 5887  
Denver, CO 80217



The world's most trusted name  
in belts and hose.

Telephone: (303) 744-1911  
Telex: MCI 6837035 FAX: (303) 744-4000  
Chief Executive Officer: L. G. Estenfelder, President, International Division  
International Sales Manager: Ed Heath, Director, Export Operations

International Offices: AUSTRALIA: Melbourne, FAX 61-37-940690; BELGIUM: Erembodegem, FAX 32-53-773486; BRAZIL: Sao Paulo, FAX 55-11-933158; CANADA: Ontario, FAX 519-759-4567; ENGLAND: St. Neots, FAX 44-480-215048; HONG KONG, FAX 852-5-8104289; JAPAN: Tokyo, FAX 81-3-4780623; MEXICO: Tlalnepanita, FAX 52-905-361-1813; SCOTLAND: Dumfries, FAX 44-387-68937; SINGAPORE: FAX 65-8613727; SPAIN: Barcelona, FAX 34-3-3712425; GERMANY: Aachen, FAX 49-241-5108249

The 78-year-old Gates Rubber Company is the world's largest manufacturer of belt and hose products for industrial and automotive applications. Based in Denver, Colorado U.S.A., Gates operates 37 manufacturing plants in 16 countries. Other operations for the privately owned company include seven distribution centers, 11 marketing offices and three joint venture companies. Gates rubber products are marketed in some 117 countries. With sales of over \$1 billion, Gates 13,000 employees manufacture and market power transmission belts, hose, hydraulic hose and couplings, and molded rubber products to both the original equipment and replacement market segments.

Product/Service	Designation	Description
Hydraulic Hose	Coal Power	High pressure hydraulic hose used on longwall mining and roof-support systems. Accepts petroleum-based or water emulsion fluid. Meets DIN, NCB and USMSHA requirements.
Power Transmission Belt	Poly Chain GT	High horsepower, energy efficient, polyurethane, synchronous belt. Designed to replace chain and gear drives. Resists abrasion, oil and stretching.

General Physics Corporation  
6700 Alexander Bell Drive  
Columbia, MD 21046



**GENERAL PHYSICS  
CORPORATION**

Telephone: (301) 290-2300  
Telex: 7108622878 FAX: (301) 290-2600  
Vice President Fossil Services: Herman P. Stone II  
International Sales Manager: David Huckeba

Domestic Offices: LOCKPORT, NY: 111 Main Street, Lockport, NY 14094; SCHENECTADY, NY: 426 Franklin Street, Schenectady, NY 12305  
International Offices: SINGAPORE: Robert Young, Director/GP Asia, Pte, Ltd., 80 Marine Parade Road, #11-01 Parkway Parade, Singapore 1544, TEL. 65-3453633, FAX 65-3457938

General Physics Corporation is a mature and established company that provides diverse technical services to industries and government. General Physics employs over 1,600 people and had over \$134 million in annual sales in 1989. We are a high-technology company organized to respond to individual client needs. General Physics has a well-qualified staff of former power plant supervisors, managers, and operators. They understand the problems and concerns of the coal industry. We have developed a methodology that has been proven effective in solving plant problems. The key to our performance has been enthusiasm, imagination, and performance.

(Continued on next page)

**General Physics Corporation (Continued)**

<b>Product/Service</b>	<b>Description</b>
Operations Support Services	The services available in operations support include: Audits of Coal Sampling Equipment and Sample Preparation; Combustion Technology Improvement Programs; Coal Handling System Descriptions; Coal Handling Operating Procedures; Alarm/Abnormal Response Procedures; Start Up Procedures and Support; Coal Handler Qualification Programs; Operations Audit; Human Factors Assessments; and Thermal Performance Monitors.
Training Services	We are also involved in all aspects of training plant personnel with particular emphasis on developing training programs based upon specific client needs. These include: Training Program Needs Analysis; Coal Handler Training Program Design and Development; Development of Classroom, Self-Taught, Laboratory, In-Plant, Simulator and On-the-Job Training Programs for Coal Handling Systems; Preparing Training Materials; Conducting Training Programs; Developing Operations and Maintenance Qualification and Requalification Programs; Administration Materials; Coal Handling Systems Training; Advanced Operator Training (Combustion Efficiency); and Simulator Training.
Maintenance Services	General Physics has been involved in providing maintenance services since 1971. These maintenance support and maintenance training services include: Preventive/Corrective Maintenance Procedures; Coal Unloaders; Stacker Reclaimers; Crushers; Conveyor Belts; Coal Silos; Feeders; Other Equipment; Mechanical Maintenance Training of Coal Equipment; Electrical Maintenance Training of Coal Equipment; Instrument Maintenance Training of Coal Equipment; Technical Repair Specifications; Maintenance Planning Support; Outage Management and Support; Diagnostic Testing and Inspection; Preventive Maintenance Programs; Reliability Centered Maintenance Programs; Maintenance Audits; Preventive Maintenance Procedures; Inspection and Repair Procedures; and Spare Parts Program.

**Goodman Equipment Corporation**  
 5430 West 70th Place  
 Bedford Park, IL 60638



**Telephone:** (708) 496-1188  
**Telex:** 6871228 **FAX:** (708) 496-3939  
**Chief Executive Officer:** Calvin A. Campbell, Jr.  
**International Sales Manager:** Silvio M. Martino

**International Offices:** CANADA: Goodman Mfg. Co. of Canada Ltd., Sudbury, TEL. 705-560-4300; ARGENTINA: Daniel G. Cormick SA, TEL. 140-1508; BOLIVIA: Sociedad Comercial Mara Ltd TEL. 2-354506; BRAZIL: Nordberg Industrial Ltd TEL. 31-621-1200; CHILE: MSA de Chile Ltd TEL. 225-5377; FRANCE: Auray Engineering TEL. 48740366; INDIA: General Mktg & Manufacturing Co. TEL. 0211-449170; ITALY: CO.AM.CO.SRL TEL. 968-1537; JAPAN: C. T. Takahaski & Co. Ltd TEL. 281-2831; KOREA: Woodward & Dickerson Far East Ltd TEL. 777-9551; MEXICO: MSA de Mexico S.A. de C.V. TEL. 576-6444; PERU: MSA de Peru, S.A. TEL. 354065; PHILIPPINES: Marsman & Co., Inc. TEL. 889731; SOUTH AFRICA: (Tunneling) Robert Hudson South Africa Pty Ltd. TEL. 915-2410/13; TURKEY: Polar Mining & Industrial Corp TEL. 41-176520; ENGLAND: Cariboo Plant Services, Ltd. TEL. 269-552; YUGOSLAVIA: Interkomerc Kontinental TEL. 11-340301; NICARAGUA: Casa Commercial McGregor TEL. 2-66151; NEW ZEALAND: A.R. Harris Co., Ltd TEL. 3-48809

A century ago, Herbert Goodman began manufacturing underground mining locomotives in Chicago's famed back of the yards neighborhood. Today, Goodman Equipment Corporation continues as one of the world's premier suppliers of mining locomotives and parts. Locomotives from 1.5 to 50 tons transport extracted materials, people and supplies. They are used in 22 different countries throughout the world in the production of platinum, gold, silver, copper, lead, zinc, tin, coal and uranium. There are Goodman locomotives hauling iron at smelters. They even carry tourists at Disneyland and at Chicago's famed Museum of Science and Industry Coal Mine Exhibit. Goodman serves the underground coal and metals mining industries from its Chicago facility and additional warehouses in Waynesburg, Pennsylvania and Sudbury, Ontario. Mining agents represent Goodman throughout the world.

(Continued on next page)

**Goodman Equipment Corporation (Continued)**

<b>Product/Service</b>	<b>Description</b>
Transportation Equipment	Goodman manufactures a broad line of powered rail equipment for underground coal and hard rock mines. Prime movers are either diesel or electric, battery or trolley or combination battery and trolley powered. Standard models, personnel carriers from 4 to 16 passengers, locomotives from 2 to 35 tons. Goodman also works closely with clients to develop customized specifications for this equipment.
Tunneling	Goodman manufactures a broad line of locomotives for the tunneling industry. Electric or diesel powered. The electric locomotives can be either trolley or battery or a combination trolley and battery powered. Product ranges from 2 tons through 35 tons. Goodman also manufactures the Conway Mucking Machine for muck loading.

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**Hanco International**  
**Division of the Hannon Company**  
**1605 Waynesburg Drive SE**  
**Canton, OH 44707**

**Telephone:** (216) 456-4728

**FAX:** (216) 456-3323

**President:** Timothy F. Hannon

<b>Product/Service</b>	<b>Designation</b>	<b>Description</b>
Mining Equipment	Screen Heaters	Eliminates blinding of screen cloth on vibrating screen.

**Harnischfeger Corporation**  
**Mining Equipment Division**  
**Box 310**  
**Milwaukee, WI 53201**



**Telephone:** (414) 671-4400  
**Telex:** 026724 **FAX:** (414) 671-7604  
**President/Chief Executive Officer:** C. P. Cousland  
**International Sales Manager:** W.S. Butler, Vice President

**Domestic Offices:** CASPER, WY: Les Sennebogen, 1935 North Loop Avenue, Casper, WY 82601, Mailing Address: P.O. Box 296, Casper, WY 82602 TEL. (307) 237-1574 FAX (307) 235-7907; HIBBING, MN: Tony Wilkoski, 3621 15th Avenue East, P.O. Box 158-A, Hibbing, MN 55746 TEL. (218) 262-3837 FAX (218) 262-6323; CLOSTER, NJ: Jim Mahoney, 32 Hickory Lane, Closter, NJ 07624 TEL. (201) 768-5356; DENVER, CO: Tom Egan, 2801 Youngfield, #311, Golden, CO 80401 TEL. (303) 232-0338 FAX (303) 238-6107; LEXINGTON, KY: Mike Hammer, 2525 Harrodsburg Rd., #235, Lexington, KY 40504 TEL. (606) 223-4845 FAX (606) 223-2018; PHOENIX, AZ: Ed Sullivan/Tom Beyer, 112 W. Iron Ave., Mesa, AZ 85210, Mailing Address: P.O. Box 20865, Phoenix, AZ 85036 TEL. (602) 834-7656 FAX (602) 834-7807; PITTSBURGH, PA: Carl Magnusson/Henry Erkelenz, 100 Sainte Claire Plaza, 1121 Boyce Road, Pittsburgh, PA 15241 TEL. (412) 941-3200 FAX (412) 941-2340

**International Offices:** CANADA: Don Stack, Harnischfeger Corporation of Canada TEL. (604) 271-5115 FAX (604) 271-6242; AUSTRALIA: Ian Scrimshaw, Harnischfeger of Australia Pty. Ltd. TEL. (61-7) 240-4600 FAX (61-7) 391-5103; BRASIL: J. Ronco/H. Fartura, Harnischfeger do Brasil TEL. (55-11) 289-0855 FAX (55-11) 2881823; GERMANY: T. Sheehan, Harnischfeger GmbH TEL. (49-69) 6668177 FAX (49-69) 6668116; JAPAN: R. Foss, Harnischfeger Corp. of Japan, Ltd. TEL. (81-3) 204-1998 FAX (81-3) 204-3593 TELEX 2222694 Hamj; PERU: Sales, Parts & Service, Harnischfeger International Corp. TEL. (51-14) 406541 FAX (51-14) 401196; ENGLAND: Ian Grant, Harnischfeger International Corp. TEL. (44-296) 89911 FAX (44-296) 87123 TELEX 838811-Brooke; MEXICO: Mario del Rincon, Harnischfeger International Corp. TEL. (905) 525-6331; SINGAPORE: Parts Depot, Harnischfeger Far East Private Ltd. TEL. (65) 861-2633 FAX (65) 861-5843; SOUTH AFRICA: Sales, Parts, Service, Harnischfeger South Africa (Pty) Ltd. TEL. (27-11) 865-4654 FAX (27-11) 864-4406 TELEX 4-21381 SA

Harnischfeger is the world's largest supplier of electric mining shovels to major open pit mining operations for copper, gold, iron, ore, coal, lead, zinc, bauxite and other materials. P&H electric shovels can be delivered from the Harnischfeger factory in Milwaukee, or from its licensee, Kobe Steel Limited in Japan. It also is a leading supplier of large walking draglines and crawler draglines; hydraulic mining shovels, and a broad line of heavy-duty DC electric motors and controls. Worldwide product support through approximately 20 parts and service depots in major mining centers.

Product/Service	Description
Electric Mining Shovels	In capacities from 7 to 85 yards (5.3 to 65 cubic meters). Used in open pit mines, quarries in the digging and loading of such minerals as coal, copper, gold, iron ore, zinc, uranium, asbestos, stone, and clay. Larger models feature P&H Electrotorque® control systems, planetary propel and swing, and P&H Mine Matched quick-filling dippers.
Hydraulic Mining Excavators	In capacities from 10 to 20 cubic yards (7.7 to 15.3 cubic meters) for mining gold, copper, phosphate, coal, stone, clay, bauxite and asbestos; and for construction projects involving large-scale excavation. Featuring P&H undercarriage similar to electric mining shovels and large walk-inside machinery house.
P&H Page Walking Draglines	From 8 to 80 cubic yards (6.1 to 61.2 <sup>3</sup> ) -- with high strength booms up to 350 feet length (107m) and reliable Page walking shoe propel system. A complete line of P&H Page dragline buckets and accessory hardware is available for any digging application. Primarily used in coal, phosphate and bauxite mines.
Crawler-Mounted Draglines	Electric or diesel-electric -- in capacities from 11 to 20 cubic yards (8.4 to 15.3 cubic meters) primarily for surface mining of coal, but also for other mining or earth-moving applications. Available with booms up to 200 ft. (61m) length and P & H digging buckets.
P&H Heavy-Duty DC Motors	From 5 to 2000 hp -- built for electric excavator and steel mill service with special design features for dynamic speed changes and reversing capability. Complete line of control systems available to match industrial application requirements.

**Harris Group Inc.**  
P.O. Box 3855  
Seattle, WA 98124



**Harris Group Inc.**

**Telephone:** (206) 382-7410  
**Telex:** 15-2917 **FAX:** (206) 382-9645  
**Chief Executive Officer:** Robert M. Harris, Chairman and CEO  
**International Sales Manager:** John D. Logsdon

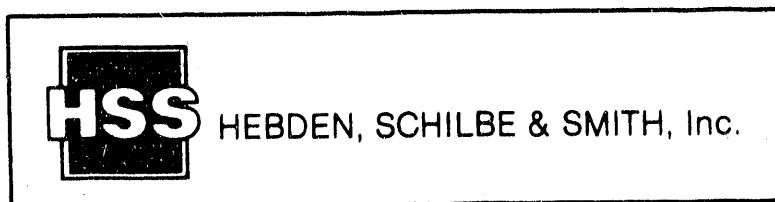
**Domestic Offices:** PORTLAND, OR: 1750 N.W. Front Avenue, Portland, OR 97209 TEL. (503) 228-7200; BELLINGHAM, WA: 1111 Cornwall Avenue, Bellingham, WA 98225 TEL. (206) 734-4944; APPLETON, WI: 4321 W. College Avenue, Appleton, WI 54914 TEL. 414) 749-4600

**International Offices:** CANADA: Fourth Floor, 233 West 1st Street, North Vancouver, B.C. V7M 1B3 TEL. (604) 985-6485

Backed by more than four decades of engineering experience, Harris Group Inc. has become widely regarded as a leader in engineering design for industrial situations. Our staff of approximately 500 includes professionals in all of the major engineering disciplines. Harris Group Inc. has the capability and capacity to handle both large and small projects from the very earliest stages through to the completion of construction. We routinely provide services for, but not limited to, the steam and metallurgical coal, cogeneration, and coal transshipment industries. Areas of expertise offered in coal handling are size reduction; screening and classification; blending and sampling; storage and reclamation; unit train and ship loading/unloading; conveying and transshipment.

Product/Service	Description
Specialized Coal Handling	Harris Group Inc. staff members have accumulated many years of experience in coal handling in the United States, Canada, and Europe. Services provided include project management, planning, engineering permitting, construction management, and startup and training assistance. Typical systems provided are: export terminals complete with dock facilities; automated stacking and reclaiming; shiploading and unloading with enclosed tubular conveyor galleries; overland conveyor systems; state-of-the art transshipment facilities with totally enclosed storage and conveying; general coal handling from mine mouth to preparation plant and beyond.

**Hebden, Schilbe & Smith, Inc.**  
3025 Washington Road  
McMurray, PA 15317



**Telephone:** (412) 341-5858  
**FAX:** (412) 941-5799  
**Chief Executive Officer:** Paul F. Riederer  
**International Sales Manager:** Joe Hareza

**International Offices:** Please contact Company Headquarters for further information.

HSS is a 25 year old organization with a strong background in coal handling and processing equipment. HSS Sampling Systems are being used in the United States, South America and China by both the coal producers and coal fired utilities. Presently we've got systems operating at Consol's Baltimore Dock export facility as well as Dominion Terminal's export facility in Newport News, VA.

HSS custom designs sampling systems to retrofit existing facilities or for installation in new facilities.

(Continued on next page)



**Hebden, Schilbe & Smith, Inc. (Continued)**

Product/Service	Designation	Description
Conventional Samplers	TE or VE	HSS manufactures a full line of conventional baffle plate C-Type cutters for use in 3-Stage or 2-Stage systems. Systems are available with hydraulic or mechanical drives.
Sweep Samplers	RSDL	HSS manufactures rotary sweep samplers for each retrofit along existing conveyor stringers. These units are available with either electric motor or hydraulic motor drives.
Crushing/Sampling Module	CSS-1	HSS' "CSS" module is both an economical and compact sampling device capable of crushing, sampling and dividing the primary sample stream.

**Interstate Equipment Corporation**  
 300 Mt. Lebanon Blvd.  
 Pittsburgh, PA 15234



Telephone: (412) 563-5556  
 FAX: (412) 563-6741

Chief Executive Officer: James F. Vogel  
 International Sales Manager: Leo J. Vogel, Jr.

International Offices: INDIA: B.R. Vadera, 9-D Sagar Apt., 6 Tilak Marg, New Delhi 11001 TEL. 386-489

Since 1903, Interstate Equipment Corporation has been engaged in the design, manufacture and installation of Aerial Tramway (Ropeway) Systems for the mining industry. The company has always had a strong marketing effort directed at the coal and thermal power industries. Primarily the Aerial Tramway Systems have served the coal industry in the transport of coal from the mine to the preparation plant and in many cases the transport of the preparation plant rejects to the refuse area.

Product/Service	Description
Coal Transport	The company offers complete turnkey services of all types of Aerial Tramway Systems, including units to convey coal and mine refuse. The range of service includes feasibility studies, design, manufacturing and installation on a worldwide basis. Aerial Tramways have proven themselves over the years a low cost of transportation, particularly in rough terrain.
Facility Construction	
Transportation Equipment	
Mining Equipment	

**Jeffrey Division-Dresser Industries Inc.**  
**P. O. Box 1879**  
**Columbus, OH 43216**



**Telephone:** (614) 297-3123  
**Telex:** 4334014 **FAX:** (614) 297-3035  
**Chief Executive Officer:** D. R. Stout  
**International Sales Manager:** R. E. Hess

**Domestic Offices:** WOODRUFF, SC: Jeffrey Division, Processing Equipment Operations, P.O. Box 387, Woodruff, SC 29388  
**International Offices:** AUSTRALIA: Jeffrey Division, Dresser Australia Pty Ltd, P. O. Box 282, Toronto, N.S.W. 2283; ENGLAND: British Jeffrey Diamond Division, Dresser Europe S.A., Thornes Works, Wakefield WF2 8PT, West Yorkshire; SOUTH AFRICA: Dresser South Africa Pty Ltd, P. O. Box 14043, Wadeville 1422, tvl

Jeffrey has been producing underground mining equipment since 1876 and has pioneered development of mine locomotives, ventilation fans, continuous miners, continuous haulage systems, rubber-tired haulage vehicles, crushers, feeders and coal washing jigs. Acquisition by Dresser Industries Inc. in 1974 has strengthened Jeffrey's ability to supply high-technology equipment for coal mining, including underground extraction, haulage and support equipment, as well as coal handling and processing equipment for surface operators.

<b>Product/Service</b>	<b>Description</b>
Continuous Miners	Models 102, 1026, 1028, 1036 and 1060 continuous miners represent state-of-the-art all-electric designs for high-production-rate coal extraction in seam thicknesses ranging from 0.7m to 4.7m.
Continuous Haulage Systems	Models 94/506 and 5010 continuous haulage systems maximize productivity of continuous miners in 0.6 m to 1.5m seams.
Rubber-Tired Haulage Vehicle	Models 4110 and 4114 diesel-powered RAMCARS offer efficient cable-less transport of coal from continuous miners.
Ventilation Fans	Model 8HU fans provide primary ventilation of coal mines with output up to 650 ca m/sec.
Locomotives	Trolley, diesel and battery powered units range from 5 to 45 mt mass for underground main-line transport of coal and supplies.
Crushers	Hammer-roll- and impact-type units have capacities up to 2000mt/hr for coal sizing and processing.
Feeders	Electromagnetic and mechanical vibrating type units provide throughput up to 1800 mt/hr for coal loading and processing.
Washing Jigs	Baum-type jigs use Jeffrey-patented CONSEP 2 electronic control of coal/refuse separation.

**Jervis B. Webb Company**  
Bulk Systems Division  
Webb Drive  
Farmington Hills, MI 48331



Telephone: (313) 553-1240  
Telex: 211892 JWEBB UR FAX: (313) 553-1253  
Chief Executive Officer: Jervis C. Webb  
International Sales Manager: Gerald Dijker, Richard Baer

**Domestic Offices:** FARMINGTON HILLS, MI: Webb Drive, Farmington Hills, MI 48331 TEL. (313) 553-1000; MARIETTA, GA: Jervis B. Webb Co. of Georgia, 560 Webb Industrial Drive, NE, Marietta, GA 30062 TEL. (404) 426-3900; LOS ANGELES, CA: Jervis B. Webb Co of California, 4550 Seville Avenue, Los Angeles, CA 90058 TEL. (213) 588-8271; DENVER, CO: 7500 West Mississippi, Suite 126, Lakewood, CO 80226 TEL. (303) 935-4100; SHREVEPORT, LA: 1409 E. 70th, Suite 111, Shreveport, LA 71005 TEL. (318) 797-4418  
**International Offices:** CANADA: Jervis B. Webb Co. of Canada, Ltd., 1647 Burlington St. East, Hamilton, Ontario L8H 7M5 TEL. (416) 547-0411; 4999 St. Catherines St. West, Suite 308, Westmount, Quebec H3Z 1T3 TEL. (514) 481-8967; 2951 Highway #7 West, Concord, Ontario L4K 1W3 TEL. (416)736-1301; ENGLAND: Jervis B. Webb Company (U.K.) Ltd., Dawson Road, Mount Farm, Milton Keynes MK1 IQY TEL. 270222

The Bulk Systems Division of the Jervis B. Webb Company is based in Farmington Hills, Michigan, with sales-engineering offices located in the principal industrial areas of the United States. Bulk systems regularly designs and installs large coal-handling systems in all parts of the North American continent. Through Webb's Continental and International subsidiaries, the Bulk Systems Division gains access to installation opportunities in virtually every corner of the globe. A network of licensees in 18 foreign countries further extends Webb's marketing reach. The Jervis B. Webb Company, parent company of the Bulk Systems Division, was founded in 1919 and is engaged in the design, manufacture and installation of custom-engineered material handling systems and equipment. Its products range from the well-known overhead, chain conveyors widely used in "continuous flow", production line manufacturing and assembly applications, to automatic warehousing, wire-guided, driverless vehicles as well as large bulk materials handling systems.

Product/Service	Description
Coal Handling Systems	The Jervis B. Webb Bulk Systems Division designs and constructs complete coal handling systems from concept through construction. Included are stacker/reclaimers, ship loaders, barge unloaders and overland conveyor systems.

**John Fabick Tractor Company**  
1 Fabick Drive  
Fenton, MO 63026



Telephone: (314) 343-5900  
Telex: 044-7325 FAX: (314) 343-4910  
Chief Executive Officer: Harry P. Fabick, President  
International Sales Manager: Thomas E. Fichter, Vice President

**Domestic Offices:** MARION, IL: Fabick Machinery Company, Old Hwy East, Marion, IL 62959 TEL. (618) 997-1881, FAX (618) 997-4854; SALEM, IL: Fabick Tractor Company, U.S. Hwy 50 West, Salem, IL 62881 TEL. (618) 548-1400, FAX (618) 548-1484; SIKESTON, MO: Fabick Bros. Equipment Company, 912 S. Main Street, Sikeston, MO 63801 TEL. (314) 471-5941, FAX (314) 471-8900; JEFFERSON CITY, MO: Fabick and Company, 2009 Missouri Blvd., Jefferson City, MO 65101 TEL. (314) 636-3184, FAX (314) 634-2883

Caterpillar Dealer in business since 1917, experienced in coal mine operation including facilities for large track-type tractor service, specialized coal mine support personnel. Fabick will customize a maintenance program to meet the needs of a coal mine. Also several complementary lines of equipment

(Continued on next page)

**John Fabick Tractor Company (Continued)**

including Demag, Grove, CMI Load King and others. Marion, IL location equipped with D11 undercarriage track press, engine dynamometer, large parts inventory on hand for equipment common in coal mines. Company is experienced in economical shipment of heavy equipment and has worldwide network established for location of difficult to find pieces. Company operates under founder's philosophy: "to ever serve our customers better."

<b>Product/Service</b>	<b>Designation</b>	<b>Description</b>
Track-type tractors	D3-D11	Caterpillar Tractors, standard and custom built, variety of blades, rippers, winches, 65-770 FWHP.
Motor Graders	120-16G	Caterpillar machines with blades, scarifiers, 125-275 FWHP.
Hydraulic Excavators	204-245	Caterpillar and Demag machines in a variety of configurations and attachments. Demag machines in larger sizes than Cat (15,000 lbs to 144,000 lbs).
Scrapers	613-657	Caterpillar machines in elevating, push load, and push-pull arrangements, 11 to 44 cu.yd.
Off Highway Trucks	769-789 D25-D400	35 ton to 195 ton. Articulating dump trucks from 25 to 40 Ton.
Other Equipment		Wheel loaders, backhoe-loaders, compaction equipment, Diesel engines, electrical generators, pumps, cranes, trenchers, more.

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**J.W. Miller & Associates, Inc.**  
Miller Building  
No. 2 Hale Street  
Charleston, WV 25301



MILLER ENTERPRISES

Telephone: (304) 343-9524  
FAX: (304) 343-9530  
President:  
Vice President:  
Vice President:

Mr. James W. Miller  
Mr. David S. Miller  
Mr. Gary J. Miller

Incorporated since 1964.

**Product/Service**

Geological Exploration; Coal Mining, Underground, Surface, Auger; Coal Preparation; Coal Exploration; Coal Transportation; Port Facilities; Efficiency and Productivity Studies; Appraisals; Coal Analysis; Financing; Complete Feasibility Studies; Economic Evaluations; Market Studies; Management/Operations Research; Design Contracting; Exploration, Drilling, Preparation Plant Construction, Mine and Plant Management, Beehive Coke Oven Construction, RR Loading and Unloading

**Komatsu Dresser Company**  
**200 Tri-State International**  
**Lincolnshire, IL 60049-1422**

# Komatsu Dresser

**Company**

**Telephone:** (708) 831-6700  
**Telex:** 6714757 **FAX:** (708) 831-7203  
**Chief Executive Officer:** R.W. Ytterberg  
**Sr. VP, Marketing:** T. Hasuo  
**Vice President, Sales:** W.D. Lee  
**President (Dresser Haulpak):** A.G. Tucker

**Domestic Offices:** PEORIA, IL: Dresser Haulpak Division, 2300 N.E. Adams St., Peoria, IL 61639

Komatsu Dresser Company is solidly positioned as the No. 2 supplier of Construction and Mining Equipment in the western Hemisphere with sales over \$1.5 billion. KDC employs over 5,000 people, has over 4 million square feet of manufacturing capacity and 1.5 million square feet of service parts distribution capacity.

Product/Service	Description
Coal Mining Equipment	Komatsu Dresser Company manufactures and markets one of the world's broadest lines of Mining and Construction equipment including crawler tractors, crawler loaders, hydraulic excavators, cranes, wheel loaders, off-highway trucks, motorized scrapers, graders, compactors and cold milling equipment.

**Marathon Letourneau Company**  
**P.O. BOX 2307**  
**Longview, TX 75606**

**MARATHON LeTOURNEAU COMPANY**

**Telephone:** (214) 753-4411, (214) 236-6500  
**Telex:** 493-7115 MLADM **FAX:** (214) 236-6585  
**Chief Executive Officer:** J. Earl Beckman  
**International Sales Manager:** Richard A. Hemmelgarn

Marathon LeTourneau Company is a leading manufacturer of specialized heavy-duty, off-road, electric drive equipment used in mining, forestry and materials handling. The company also produces and fabricates high quality alloy steel plate for the industrial market. Marathon LeTourneau Company was created in 1970 when R.G. LeTourneau, Inc. became a subsidiary of Marathon Manufacturing Co. of Houston, Texas. In 1979, Marathon became a wholly-owned subsidiary of The Penn Central Company. Today, Marathon LeTourneau Company operates as a part of the Penn Central Industries Group.

Product/Service	Designation	Description
Off-Road Hauler	T-2170 T-2190 T-2200 T-2240	The T-2000 series truck line ranges from 170 to 240 ton capacity. Diesel-electric drive & solid state controls
Front-End Loader	L-800 L-1000 L-1100	Four wheel electric drive bucket sizes ranging from 15 to 22 cubic yards.

(Continued on next page)

**Marathon Letourneau Company (Continued)**

Log Stacker	4592/4 5592/4 6592/4	Three sizes of stackers ranging in size from 45 to 65 ton capacity.
Jib-Crane	JC-40	Up to 150' boom, capable of stacking logs in a 360 degree area around the column.
Straddle Hoist	SST-100	Used for rail cars and piggy-back trailer handling. Diesel-electric drive.
Straddle Hoist	SSB-100	Used for rail cars and piggy-back trailer handling. Hasanti-sway bar for better operator control.
Side Porter	2682SS	Used for rail cars and piggy-back trailer handling. Highly maneuverable for selective lifting needs.

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**Mountain States Mineral Enterprises, Inc.**  
**4370 South Fremont Avenue**  
**Tucson, AZ 85714-1629**



Telephone: (602) 792-2800  
 Telex: 510-600-7949 FAX: (602) 294-3841  
 Chief Executive Officer: Edward S. Frohling  
 International Sales Manager: Edward S. Frohling

**Domestic Offices:** ELKO, NV: 174 W. Idaho Street, Elko, Nevada 89801 TEL. (702) 753-8510, FAX (702) 753-8511

Mountain States Mineral Enterprises, Inc. (MSME) established headquarters in Tucson, AZ, USA, in 1969 to provide engineering services to the mining industry of the Southwest United States and Northern New Mexico. Today, MSME serves the entire mineral industry worldwide, specializing in the design and construction of process plants. MSME offers a complete range of services from sampling and analysis to process design, engineering, construction, start-up, and various proprietary technologies for minerals beneficiation. MSME staff members have extensive background in the design and operation of sophisticated systems and process plants for the recovery of a wide range of minerals.

Product/Service	Description
Engineering/Construction	MSME provides services that include mine planning, feasibility studies, flowsheet development, pilot plant testing, conceptual and detail engineering, procurement, construction, and start-up assistance. These services can be provided for mineral materials handling systems, plant retrofitting, revamping, and new plant design.  MSME designs and manufactures heavy media systems, the moving belt separator, and an ultrasonic device for cleaning mineral surfaces, and for making and breaking of emulsions.

**Ohmart Corporation**  
**4241 Allendorf Drive**  
**Cincinnati, OH 45209**



**Telephone:** (513) 272-0131  
**Telex:** 21-2017 OHMUSA UR **FAX:** (513) 272-0133  
**Chief Executive Officer:** Carl Gieringer  
**International Sales Manager:** Paul Holzschuher

**International Offices:** ENGLAND: Able Instruments & Controls, Ltd., Cutbush Park, Danchill, Lower Early, Reading, Berkshire RG6 4UT, England; BELGIUM: Beta SA/NV, Louvensesteenweg, 31, B-1940 Sint Stevens-Woluwe, Brussels, Belgium; ITALY: Terry Ferraris & Co., Vaile Ortes, 10, I-20139 Milan, Italy; JAPAN: Yashima Export and Import Co., Ltd., 9-1 Akasaka 3 Chome, Minato-Ku, Tokyo, Japan 107; MEXICO: Instrumentacion Tecnica Digital S.A. de C.U., 5 de Mayo 973-D Ote., Monterrey, N.L. C.P. 64000, Mexico

Ohmart is a 40 year veteran manufacturer of precision non-contact gauging equipment for the processing industries. High tech sensor designs include devices to measure on-line density or specific gravity of liquids or slurries in process pipes, liquid or bulk solids level in storage tanks or chutes and hoppers, weight of bulk solids on screw and belt conveyors, and percent or volumetric moisture content in bulk solids on moving conveyor belts. Other specialized gauge equipment is designed to measure on-line thickness or profile data as it applies to a moving web in order to allow the processor to maintain consistent quality. Primary target audience of Ohmart gauges are process instrumentation engineers on a supervisory level. Primary industries served include the chemical, petro-chemical, forestry, mining, utilities, pipeline, plastics, paper, plastics and food processing industries.

Product/Service	Designation	Description
Density Gauges	Densart™ Model 3400 Clamp-on Model 3100 Axial	SpG and mass flow indication in pipes
Level Gauges	Levelart™ Model 1000 Model 2000	Continuous level point level in tanks and vessels
Weigh Scales	Weighart™ Model 4000 Model 4100 Model 4600	Continuous weighing and/or totalizing on belt or screw conveyors
Moisture Gauges	Moistart™ 5000	Continuous moisture indication on belt conveyors
Web Profile Gauges	Webart™ 9000 Webart™ 1000	Continuous thickness measurement of web process materials

**Peabody ABC Corp.**  
P.O. Box 77  
Warsaw, IN 46580



**Telephone:** (219) 267-5166

**FAX:** (219) 267-2045

**Chief Executive Officer:**

**International Sales Manager:**

Stephen B. Rufenbarger

Robert Z. Smith

**Domestic Offices:**

GRAND JUNCTION, CO: P.O. Box 2928, Grand Junction, CO 81501 TEL. (303) 242-3904

FAX (303) 245-6113; WALLACE, ID: P.O. Box 1142, Wallace, ID 83873-1142 TEL. (208) 752-1157

FAX (208) 556-7621; WAYNESBURG, PA: P.O. Box 33, Waynesburg, PA 15370 TEL. (412) 627-8141

FAX (412) 852-1746

**International Offices:**

Please contact company headquarters for further information

Established in 1926, Peabody ABC Corp. is a leading manufacturer of mine ventilation products in the U.S. Mining products include brattice cloth (fabricated into mine curtains), flexible blower tubing, wire-reinforced exhaust tubing, fiberglass mine ventilation tubing, and vaneaxial fans.

Product/Service	Designation	Description
Ventilation Tubing	MINEVENT® MINEDUCT® RIGIDUCT®	Flexible Blower Tubing Wire-Reinforced Exhaust Tubing Filament-Wound Fiberglass Ventilation Tubing
Plastic Brattice	VENTATEX® VENTATEX® RIPSTOP	Weft Insertion Knitted Scrim between two sheets of vinyl film. Meets ASTM E-162. VENTATEX® made with a patented, highly tear-resistant Weft Insertion Knitted Scrim.
Mining Accessory	POWDER BAGS TANK COVERS TUBING REPAIR KITS	
Ventilation Fan	FLOLINE™ FAN	Vaneaxial fan for mine and tunnel ventilation.

**Pennsylvania Crusher Corporation**  
600 Abbot Drive  
P.O. Box 100  
Broomall, PA 19008-0100



**Telephone:** (215) 544-7200

**Telex:** 83-1451 **FAX:** (215) 543-0190

**Chief Executive Officer:**

**International Sales Manager:**

John D. Whalen

Leo F. Doyer, Jr.

**International Offices:**

Please contact company headquarters for further information

Pennsylvania Crusher Corporation (PCC) has designed and built crushers since 1904 and has originated many crusher designs and innovations which have been adopted by the entire industry. PCC crushers are used for such applications as coal, limestone, ores, chemicals, solid waste, glass cullet, and aluminum scrap. PCC designs and manufactures units that are ideal for reducing the fuels and sorbents used in many fluidized bed combustion systems. It has a 70,000 square foot manufacturing plant located in Cuyahoga Falls, Ohio.

(Continued on next page)



**Pennsylvania Crusher Corporation (Continued)**

**Product/Service**

Manufacturer of "Pennsylvania" Crushers, Bradford Breakers, Hammermills, Fluid Bed Crushers, Single Roll Crushers, Non-Reversible Impactors, Reversible and Twin Rotor Impactors, Ring Type Granulators, Jaw Crushers, Scrap Aluminum Shredders, and Industrial Waste Shredders

**Precision Samplers, Inc.**  
 3322 Pennsylvania Avenue  
 Charleston, WV 25302



Telephone: (304) 343-5173  
 FAX: (304) 343-6426  
 Chief Executive Officer:  
 Marketing Manager:

Mr. Israel Broome  
 Ms. Mia Broome

Precision Samplers, Inc. manufactures a complete line of mechanical coal sampling systems with over 50 systems in operation throughout the United States and Canada. PSI designs, fabricates, and installs custom-designed, state-of-the-art auger sampling systems for stationary coals, trucks, railcars, conventional cross-stream belt samplers, and rotary sweep samplers. PSI sampling systems incorporate the latest advances in automation, reducing manpower requirements and providing immediate cost saving benefits. PSI's parent company is Standard Laboratories, Inc., a major network for coal sampling and analyses.

Product/Service	Description
Truck-Mounted Augers	With optional portable processing station including crusher, mechanical sub-sampler, and reject handling when required.
Trailer-Mounted Auger Systems	Complete sample reduction and reject handling; easily transportable.
Stationary Auger Systems	With complete turnkey installation. Can be integrated with truck scales. All PSI sampling systems meet ASTM standards.
Mechanical Sub-Sampler	For splitting of coal received either by manual insertion or directly from a crusher for laboratory applications or as a final cutter for a mechanical sampling system.
Cross-Stream Belt Samplers	Conventional electromechanical and hydraulic driven baffle plate cross stream cutters for location at belt heads.
Rotary Sweep Sampler	Ideal for new construction or retrofit. Compact, easily installed. Unique mechanism enable PSI Rotary Sweep Sampler to most closely approximate stop belt sampling.

**REICHdrill, Inc.**  
**P.O. Box 361**  
**Philipsburg, PA 16866**



**Telephone:** (814) 342-5500  
**Telex:** 857223 REICHdrill **FAX:** (814) 342-1135  
**President:** Robert F. Valli  
**International Sales Manager:** Robert F. Valli

At REICHdrill, we build our drilling rigs with two basic criteria in mind: an unyielding commitment to quality and an undivided attention to customer satisfaction. Every REICHdrill is designed and manufactured to meet the most rigid of quality control standards. Yet, each rig we make is custom made to the particular specifications of the individual customer. As a result, our products are as varied as the customers we serve. REICHdrill customers have come to appreciate the low operating cost, superior construction, rugged dependability and long lasting value of all REICHdrill models.

Product/Service	Designation		Description
Rotary Drilling Equip.	<u>Crawler Mounted</u>	<u>Truck Mounted</u>	Truck and Crawler Mounted Top Head Drive DTH Hammer and Rotary Blasthole Drilling Rigs. Hole Size Range form 4" to 12 1/4". Down Pressures from 30,000 lbs. to 75,000 lbs. Compressor sizes for low pressure rotary drilling range from 600 to 1500 CFM and high pressures ranging from 600 to 1050 CFM for DTH hammer applications.
	C-450-C	T-600-C	
	C-550-D	T-650-C	
	C-650-D	T-700-C	
	C-700-D	T-750-C	
	C-750-D		

**Simmons-Rand Company**  
**4201 Lee Highway**  
**Bristol, VA 24201**



**Telephone:** (703) 669-9171  
**Telex:** 557059 **FAX:** (703) 669-8699  
**Chief Executive Officer:** Mr. Bernard R. Simmons  
**International Sales Manager:** Mr. Mike R. Smith

**Domestic Offices:** Carmichaels, PA; Cedar Bluff, VA; Harlan, KY; Hueytown, AL; Indiana, PA; Marion, IL; Norton, VA; Pikeville, KY; Price, UT; Sophia, WV  
**International Offices:** ENGLAND: Ingersoll-Rand England, John Stevens, Trafford House, P.O. Box 23, Southmoor Road, Wythenshawe, Manchester, England M239LN TEL. 011-61-902-9098; HONG KONG: Ingersoll-Rand Hong Kong, Charles Young, 19th Floor Malaysia Building, 50 Gloucester Road, Hong Kong TEL. 011-852-701-83; INDIA: Ingersoll-Rand India, Rajen Khoda, Maybaker House, S.K. Ahire Marg., P.O. Box 9138, Bombay India 400025 TEL. 011-91-22-493-6765; SOUTH AFRICA: Ingersoll-Rand South Africa, Mike Lund, P.O. Box 3720, Alrde Road, 1451, South Africa TEL. 011-864-3930

Simmons-Rand was incorporated October 1, 1987, as a joint association between brothers Bernard and Jack Simmons and the Ingersoll-Rand Company. It was established with the assets of Ingersoll-Rand's mining machinery group, which was created by a merger in 1983 of S&S Corporation, Lee Norne Company, and IR's split set division. The company operates 13 facilities in eight states and serves customers from more than 12 acres of modern office, manufacturing, and service warehouse space under roof. Simmons-Rand Headquarters, Engineering Center, and Product Testing Operations are located in Washington County, Virginia. Its two manufacturing plants are located in Virginia, one at Bristol, the other at Cedar Bluff.

(Continued on next page)

**Simmons-Rand Company (Continued)**

Product/Service	Designation	Description
Continuous Miners	SR500	Miner suitable for seams 24.5" to 85"
	SR700	Miner suitable for seams 28" to 120"
	LN800	Miner suitable for seams 42.5" to 140"
Roof Bolters	TD1SL	Single arm, skid steer bolter suitable for 33" to 60" seams
	TD2AL	Twin arm, articulated steering bolter suitable for 35" to 72" seams
	TD2AM	Twin arm, articulated steering bolter suitable for 38" to 100" seams
	TD2-30	Twin arm, orbital steering bolter suitable for 37" to 78" seams
	TD2-43	Twin arm, orbital steering bolter suitable for 60" to 120" seams
Haulage Equipment	820	Battery powered coal hauler, capacity to 10 tons, seam height as low as 48"
	828	Battery powered coal hauler, capacity to 10 tons, seam height as low as 40"
	848	Battery powered coal hauler, capacity to 15 tons, seam height as low as 64"
Load-Haul-Dump Tractor	482	Battery powered scoop, seam height as low as 33"
	488	Battery powered scoop, seam height as low as 42"

**Southern Contractors Equipment, Inc.**  
 920 Medina Road  
 P.O. Box 58177  
 Medina, OH 44258



Telephone: (216) 239-2721  
 FAX: (216) 239-1624  
 Chief Executive Officer:  
 International Sales Manager:

Edward A. Taylor  
 James W. Butler

Southern Contractors Equipment, Inc. was founded in 1976 with the express purpose of providing brokerage service in the used mining, construction, and aggregate equipment market. The scope of operation has been expanded to include new crushing and screening equipment, crawler cranes and draglines, truck scales, lowboy trailers, air and hydraulic breakers and tools, and several minor lines. Our activity in the surface mining industry now includes sale of used large draglines and shovels. We welcome worldwide inquiries and strive to adequately serve our clients.

Product/Service	Designation
Cranes	RB Lincoln
Crushers	Universal Engineering Corporation
Scales	Winslow Scale Co.
Air and Hydraulic Tools	Kent Air Tool

**Stock Equipment Company**  
A Unit of General Signal Corp.  
16490 Chillicothe Road  
Chagrin Falls, OH 44022-4398



**Telephone:** (216) 543-6000

**Telex:** 196071 **FAX:** (216) 543-6678

**Chief Executive Officer:**

Mr. Joseph J. Tannehill

**International Sales Manager:**

Mr. David R. Brown

**Domestic Offices:**

LYNN HAVEN, FL: Merrick Division, 10 Arthur Drive, Lynn Haven, FL 32444, TEL. (904) 265-3611

**International Offices:**

JAPAN: Stock Japan, Ltd., 1719-1, Aza Kasashi-Mae, Ohata, Niihari-Mura, Niihari-Gun, Ibaraki Prefecture, 300-41 Japan TEL. (81)(298) 62-5162

Since its founding in 1929, Stock has become the standard of quality by which all others who produce products for the power industry have been measured. Stock has a major commitment to scientific and engineering development of electronic controls and bulk material handling technology, backed by extensive testing facilities. Stock Equipment Company serves a worldwide market with their own manufacturing facilities plus work in concert with other international companies which share their commitment to engineering excellence. The result is a broad-based engineering and manufacturing company; one that blends extensive experience with design innovation and a commitment to quality and customer satisfaction.

**Product/Service**

**Description**

Coal Feed Systems for Bunker-to-Pulverizer Fluidized Bed Boilers Stoker Applications

Stock has been the design leader in developing gravimetric feeders for pulverized feed system and for replacement of older volumetric models for better efficiency. Stock has also developed a low-pressure gravimetric feeder to meet the rapid growth of fluidized bed boiler technology. These feeders are available in varying lengths and sizes to meet the necessary applications.

Bulk Material Valves

The STOCK Bulk Material Valve is designed for material handling applications which involve harsh environments, wide temperature ranges, pressure differentials, or unusual flow characteristics. These valves have been applied successfully in thousands of worldwide installations and adapted as the industry standard.

Batching, Weighing & Conveyor Belt Scales

Stock offers a complete line of process batching, platform, and continuous weighing equipment. All stock scales are built around a universal weighing and a microprocessor-based control system which assures cost effective operation.

Continuous Coal Analyzer

The coal analyzer has been specifically designed to provide accurate information on elemental analysis in coal quality in order to sort, blend, and optimize the use of fuel being processed. The information will be provided as the coal is being processed. The Continuous Coal Analyzer successfully combines very fundamental analysis methods with high quality machine design.

**T. J. Gundlach Machine Company**  
**No. 1 Freedom Drive**  
**P.O. Box 385**  
**Belleville, IL 62222**



**Telephone:** (618) 233-7208  
**Telex:** 910-756-2081 **FAX:** (314) 436-5221  
**President:** T. F. Gundlach  
**VP/General Manager:** Michael F. Barron  
**Customer Service:** Fran Black

**Domestic Offices:** SALT LAKE CITY, UT; 3760 Highland Office Plaza, Suite 500, Salt Lake City, UT 84106, TEL. (801) 272-6211; FAX (801) 272-1632  
**International Offices:** ENGLAND: Jenkins of Retford, Trumpton Ln., Retford, Nottinghamshire N22 7AN, TEL. 777-706777; FAX 777-08141; AUSTRALIA: ANI Ruwolt, P.O. Box 327, Ipswich, Queensland 4305, TEL. 280-7222; FAX 202-1928; INDIA: Larsen & Toubro, 3B Shakespeare Sarani, Calcutta 700 071, TEL. 261-8181; FAX 291323/447587; MEXICO: LYUSA, Fuente de Piramides 182, Suite 4, Tecamachalco, Estado de Mexico, CP 53970, TEL. 294-84-69 & 294-25-09; FAX 294-45-58

T. J. Gundlach Machine Company manufactures crushing equipment, mixing equipment, and rotary & reverberatory furnaces for mining, chemicals, minerals beneficiation, and steel industries. Equipment is specifically designed to produce consistent sized product containing minimum fines and to have better control of the top size product. Offer complete in-plant test crushing and screening facilities.

Product/Service	Description
Crushers	Single-Stage (2 roll) and Two-Stage (4 roll) Roll Crushers and Cage Mill Impact Crushers for size reduction of materials, including high temperature applications. Capacities of equipment from 1 TPH to over 3,000 TPH Run-of-Mine Feed Size capabilities.

**Terra Technology Corporation**  
**3860 148th Avenue N.E.**  
**Redmond, WA 98052**



**Telephone:** (206) 883-7300  
**Telex:** 15-2070 **Fax:** (206) 882-1412  
**Chief Executive Officer:** Rick Penn  
**International Sales Manager:** Greg Hoyle

**International Offices:** Please contact company Headquarters for regional offices.

Terra Technology Corp. is a wholly owned subsidiary of Rochester Instrument Systems, Inc. TTC and RIS are members of the well known U.S. owned Marmon Group of Companies. The Marmon holding company is in Chicago, IL. TTC designs, manufactures and markets digital instruments of superior reliability and accuracy for geotechnical, geophysical and industrial applications.

Product/Service	Description
Soils and Foundations Monitoring Devices	Piezometers (pneumatic and electric); total pressure cells (pneumatic and electric); settlement (pneumatic and electric); inclinometers (digital, portable, and automatic in-place); tiltmeters (digital, portable and automatic in-place).

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**Terra Technology Corporation (Continued)**

**Seismic and Strong Motion Instrumentation** Digital Strong Motion (portable event detection, control, recording, multi-station and telemetry instruments and systems); Micro Seismic (portable, gain-ranged, event detection, control, recording, multi-station and telemetry instruments and systems); Structural Response (balanced differential arrays for rotational motion recording, response spectrum analysis instruments and software); For Safety (seismic switches for alarm and control, sophisticated seismic shutdown systems).

**Instrumentation Accelerometers** For high temperature, high shock, robotics, aerospace, industrial and vibration monitoring.

**WEMCO**  
1796 Tribute Road  
Sacramento, CA 95852



**Telephone:** (916) 929-9363  
**Telex:** 377-423 **FAX:** (916) 929-5065  
**Chief Executive Officer:** Ed deBoer  
**International Sales Manager:** William D. Sullivan

**Domestic Offices:** SACRAMENTO, CA: William Sullivan, 1796 Tribute Road, Sacramento, CA 95815; TUCSON, AZ: Paul Person, 7225 N. Oracle Road, Suite 2068, Tucson, AZ 85703; NITRO, WV: Jack Hopwood, 4200 First Avenue, Suite 206, Nitro, WV 25413

**International Offices:** ENGLAND: Jim Furman, Gladstone House, Eversley Way, Thorpe, Egham, Surrey TW20 8RY, England; CANADA: Jack McMillan, 5420 Timberlea Blvd. Mississauga, Ontario, Canada L4W 2T7; CHILE: Alfonso Espinoza, Bucarest 196, 3 Piso, Providencia - Santiago, Chile; AUSTRALIA: Granville Heeley, 14-16 Suakin Street, Pymble, New South Wales, Australia 2073; FRANCE: Gary Draper, 19 Avenue de Latre de Tassigny, 69330 Meyzieu Z.I., France; ITALY: George Robles, Via Pasubio, 2, 20067 Tribiano, Italy; SPAIN: Angle Rodriguez-Avello, Rafael Salgado, 19, Madrid, 28036, Spain; SINGAPORE: Dick Jacob, 51 Newton Road #22-06, Goldhill Plaza, Singapore 1130

WEMCO Mining Equipment is internationally known for its dependability, quality, and problem-solving capabilities. This 75 year old Company manufactures separators, classifiers, centrifuges, and flotation machines for the mining industry. As a member of the Baker-Hughes family of companies, it has representatives and service capabilities throughout the world. The name WEMCO is synonymous with large flotation cell technology, and has operating units in nearly every major installation in the Western hemisphere.

Product/Service	Description
Slurry Pumps	The WEMCO Slurry Pump was designed for moving unusually abrasive loads. This tough, long-lasting pump has high suction lift capabilities, a case and impeller design that minimizes abrasion and results in uniform wear throughout, a unique hydraulic seal that eliminates need for wear rings, and a centrifugal seal that requires no lubrication, resulting in cleaner operation and no product dilution.
Classifiers	WEMCO's Classifier continuously separates water, fine particles, and/or low gravity particles in suspension, from coarse and/or heavier particles which settle out of suspension.
Heavy Media Separators	High capacity dense media separation for coal.
Vibrating Centrifuges	A horizontal, vibratory-screen centrifugal dryer.
Fine Coal Centrifuges	A horizontal scroll/screen drier.
Leeds/Column Flotation	WEMCO Leeds Column utilizes forced-air bubbles to carry floatable solids to the surface of the cell to form a recoverable froth.

**Woodward Governor Company**  
**Engine & Turbine Controls**  
**1000 E. Drake Road**  
**P.O. Box 1519**  
**Fort Collins, CO 80522**



**Telephone:** (303) 482-5811  
**Telex:** 4-5691      **FAX:** (303) 498-3050  
**Chief Executive Officer:** Mr. Cal Covert  
**International Sales Manager:** Mr. Andy Pawlish

**Corporate Headquarters:** 501 N. Second Street, Rockford, Illinois 61125  
**International Offices:** ENGLAND: Woodward Governor (U.K.) Ltd., P.O. Box 15, Slough SL1 4DD, Telex: 848181, FAX 44 (753) 76199; JAPAN: Woodward Governor (Japan) Ltd., P.O. Box 1, Inbe-gun, Chiba-ken, 286-02, Telex: 3762-164, FAX 81 (476) 93-7939; THE NETHERLANDS: Woodward Governor Nederland B.V., P.O. Box 34, 2130AA Hoofddorp, Telex: 74508, FAX 31-2503-36529; AUSTRALIA: P.O. Box 319, Kingsgrove, NSW 2208, Telex: AA24175, FAX 61 (2) 750-6272; BRAZIL: Woodward Governor (Reguladores) Ltda., Caixa Postal - 1785, 13080 Campinas, S.P., Telex: 191844, FAX 55 (192) 42-2992

Woodward Governor Company, founded in 1870, serves the prime mover control and accessory markets. The Fort Collins, Colorado location produces turbine and engine controls for all industrial applications. In addition to the overseas branches, Woodward has more than 26 Authorized Independent Service Facilities worldwide. These support facilities and branches can provide repair, training and field service assistance. Woodward has a complete product line from standard mechanical-hydraulic governors to the latest in customized digital control systems. Listed below is just a sample of a wide range of product offerings.

Product/Service	Description
NetCon 5000 Digital Control System	A state-of-the-art controller that can be programmed to control many types of systems. The NetCon 5000 controls prime mover processes, as well as providing intelligent sequencing and system monitoring.
2301A Speed Control	Controls the speed or load of diesel or gas engines, or steam or gas turbines. The control is compatible with SPM-A synchronizers, load sensors and other power generation controls.

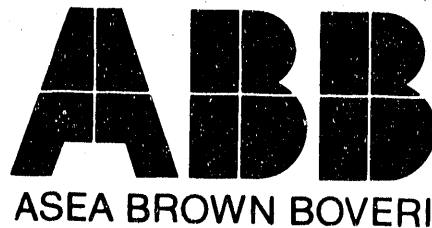
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**Power Generation Systems:**

Firms providing electrical generating systems for use in conventional steam plants, as well as gas turbine systems and combined cycle systems.

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**ABB Combustion Engineering**  
1000 Prospect Hill Road  
Windsor, CT 06095



**Telephone:** (203) 285-2602  
**Telex:** COM 67121183 **FAX:** (203) 285-4172  
**Chief Executive Officer:** Percy Barnevik  
**International Sales Manager:** Jerry W. Vargo

**International Offices:** HONG KONG: Tony C. Lao FAX 1-011-852-845-2561; INDIA: Saibal Ganguly  
FAX 1-011-91-11-684-0297

With over 75 years of experience in coal combustion, ABB Combustion Engineering is the world's leading supplier of coal-fired steam generation systems and technology. ABB-CE technology has been chosen for over 280,000 MW of coal-fired generating capacity by the world's electric utilities. ABB-CE continues to build its expertise with recent major contract awards for coal-fired boilers in Indonesia, Korea, Thailand, the People's Republic of China, Canada, and the United States.

<b>Product/Service</b>	<b>Description</b>
Coal-Fired Boilers	ABB Combustion Engineering provides efficient coal-fired boilers for power plants rated up to 1000 MW. Units can be designed for subcritical or supercritical pressure operation.



**Aptech Engineering Services, Inc.**  
 1257 Elko Drive  
 Sunnyvale, CA 94089



Telephone: (408) 745-7000  
 FAX: (408) 734-0445

Chief Executive Officer:  
 International Sales Manager:

Dr. Geoffrey R. Egan  
 Mr. Steven A. Lefton

**Domestic Offices:**

SOUTH CENTRAL OFFICE: 901 Threadneedle, Suite 100, Houston, Texas 77079 TEL. (713) 558-3200  
 FAX (713) 558-3761; EAST COAST OFFICE: 601 North Fairfax, Suite 420, Alexandria, Virginia 22314  
 TEL. (703) 683-2062 FAX (703) 683-2132

**International Offices:**

Please contact company Headquarters for further information.

APTECH works with utility and industrial clients to solve their most intractable metallurgical, mechanical, and fireside problems. Our exceptional services have been fully tested and shaken down at utility boilers across the United States.

Product/Service	Designation	Description
Increased Life and Reliability of Superheaters and Reheaters	TUBEMOD™	Dramatically increases the life and reliability of superheaters and reheaters by adjusting the tube temperature profile. Tubes operating at excessive temperatures are cooled down, thus reducing failures and increasing section lifetime.
Remaining Life Prediction System for Boiler Tubing	RUL® System	A turnkey system to nondestructively measure and calculate the remaining useful life of superheaters and reheaters.
Reduction of Slagging and Emissions from Utility Boilers	Cofiring	Special techniques and instrumentation for optimizing the cofiring of natural gas with coal without damaging the boiler tubing.

**Chas. T. Main, Inc.**  
 101 Huntington Avenue  
 Boston, MA 02199



Telephone: (617) 262-3200

Telex: 4430035/CTMAIN FAX: (617) 859-2576

Chief Executive Officer:

James T. Callahan, President

International Sales Manager:

Bahman Yamin-Afshar

**Domestic Offices:**

CHARLOTTE, NC: 4701 Hedgemore Drive, Charlotte, NC 28209 TEL. (704) 529-6246; PASADENA, CA:  
 100 West Walnut Street, Pasadena, CA 91124 TEL. (800) 352-6304

A subsidiary of The Parsons Corporation, Chas. T. Main, Inc. (MAIN), established in 1893, is a major international engineering and construction firm with over 1,300 people representing all engineering disciplines, process engineering, architecture, project management, construction management, procurement, quality assurance, and project controls functions. MAIN serves electric utilities and other energy producers; pulp and paper producers; the chemical process industry; high-technology manufacturers; the printing industry; commercial enterprises and institutions; and government agencies. Services provided range from feasibility studies, consultant services, to turnkey supply of complete operating facilities.

(Continued on next page)

**Chas. T. Main, Inc. (Continued)**

Product/Service	Description
Services to the Power Industry	Over 4,200 public and private sector clients throughout the world have been served by our specialists in Thermal Power, Industrial Power, Hydroelectrical Power, and Power Delivery. Projects have included power generation and delivery services to over 100 utilities in the United States and to clients in over 60 countries worldwide. MAIN's power generation experience includes engineering design and construction management services for over 56,000 megawatts of installed capacity, including oil-fired, combined cycle gas/turbine, hydroelectric, coal/lignite, and cogeneration. Additionally, MAIN has extensive experience with transmission lines, substations, and numerous distribution, switchyard, communication, and load management systems.

**Cogentrix, Inc.**  
**9405 Arrowpoint Boulevard**  
**Charlotte, NC 28273-8110**

**COGENTRIX**

Telephone: (704) 525-3800

FAX: (704) 529-5313

Chief Executive Officer:

George T. Lewis, Jr.

V.P. Fuels & Transportation:

B.T. Prince, Jr.

Cogentrix, Inc. develops, owns, and operates standardized coal-fired cogeneration plants. Cogentrix plants sell electricity to an electric utility and steam to an adjacent industry. Eight plants are currently operating in North Carolina and Virginia, with a combined capacity of 600 MW. One gas-fired plant is under construction in Pennsylvania and two additional coal-fired plants are in the development stages in Virginia and Puerto Rico, with a combined capacity of over 500 MW.

Product/Service	Designation	Description
Standardized Coal-Fired Cogeneration Plant	35 MW Unit	Stoker-fired technology burning 16 tons per hour of coal (12,500+ BTU/lb.) with low ash (7%-8%), low sulfur (less than 1.5%), low free moisture, high fusion, firmly structured, low swelling index (maximum 6), high volatile matter; size-modified stoker (1-1/4 x 0) with maximum of 25% minus 1/4 inch.
Standardized Coal-Fired Cogeneration Plant	55 MW Unit	Stoker-fired technology burning 24 tons per hour of coal (12,500+ BTU/lb.) with low ash (7%-8%), low sulfur (less than 1.5%), low moisture, high fusion, firmly structured, low free swelling index (maximum 6), high volatile matter; size-modified stoker (1-1/4 x 0) with maximum of 25% minus 1/4 inch.
Standardized Coal-Fired Cogeneration Plant	150 MW Unit	Pulverized coal technology burning 61 tons per hour of coal (12,300+ BTU/lb) with low ash (10% maximum) low sulfur (less than 1.5%), high grind, medium-high fusion, low moisture, size 2 x 0 with maximum 55% minus 1/4 inch, medium-high volatile matter.

**Control Components Inc.**  
 22591 Avenida Empresa  
 Rancho Santa Margarita, CA 92688



**Telephone:** (714) 858-1877  
**Telex:** 685500 **FAX:** (714) 858-1878  
**Chief Executive Officer:** Stuart Carson  
**International Sales Manager:** David Minoofar

**Domestic Offices:** HOUSTON, TX: Ronald Parker, CCI Houston, 1320 S. Creek Dr., Houston, TX 77084 TEL. (713) 492-6904, FAX (713) 492-6980, TELEX 79-2339

**International Offices:** ENGLAND: Colin Wright, CCI International Ltd., P.O. Box 216, Witton, Birmingham B6 7BA TEL. 44-21 356-4848, FAX 44-21 356-0251; SINGAPORE: S.K. Wong, Koson S. v. 7500A Beach Rd., #07-302, The Plaza, 0719 TEL. 65 296-2455, FAX 65-291-0763 Additional Offices and Representatives: Please contact company headquarters for further information.

Control Components Inc. was founded in 1961 to produce instrumentation valves for industry. CCI has long been recognized as a technological leader in the control valve segment of the valve industry for its development of the patented DRAG® velocity control valve for severe service applications in the power and process industries. In 1980, CCI also acquired the control valves of the renowned Bailey Controls Company. These valves are used primarily for boiler feedwater control, steam pressure reducing, heater level control, desuperheater water flow control and pump recirculation.

Product/Service	Designation	Description
Control Valves	CCI-DRAG® 100D Control Valve	For severe service applications - combats noise, erosion and cavitation by forcing process fluid to follow a tortuous path of right angle turns through trim, thus controlling damaging velocities.
	CCI-Bailey Utility Valves	D-10, B-30, E-40 and A1 valves for low to moderate pressure drop liquid and steam application. The flow is controlled by the annular area of the trim or the port area of the cage.

**Coppus Engineering**  
**Millbury Industrial Park**  
**Worcester, MA 01615**



**Telephone:** (508) 756-8391  
**Telex:** 200046 **FAX:** (508) 798-3853

**Chief Executive Officer:** Donald E. Hare  
**International Sales Manager:** Gordon T. Duncan, Jr.

**Domestic Offices:** WORCESTER, MA: Box 15003, Worcester, MA 01615-0003 TEL. (508) 756-8391, Blower/Burner FAX (508) 799-9531, Turbines FAX (508) 798-3131, TELEX 200046; BURLINGTON, IA: Murray Turbomachinery Corp., Div. of Coppus Eng. Corp., P.O. Box 967, 1106 Washington Street, Burlington, IA 52601 TEL. (319) 753-5431, FAX (319) 752-1616, TELEX 757325; KEWANEE, IL: Kewanee Boiler Co., Inc., 101 Franklin Street, Kewanee, IL 61443, TEL. (309) 853-3541, FAX (309) 852-0424, TELEX 404458

**International Offices:** SOUTHEAST ASIAN REGIONAL SALES: Michael Whiston, Regional Manager, 5 Pandan Valley 05-703, Singapore 2159 TEL. 011-65-468-0216, FAX 011-65-466-1568, TELEX RS26828 WISMAR; EUROPE/MIDDLE EAST/AFRICA SALES: Heinz Lauterer, Regional Manager, Coppus Engineering Corporation, Zurich Branch, P.O. Box 21, 8915 Hausen/Zurich, Switzerland TEL. 011-411-764-0975, FAX 011-411-764-1874, TELEX 827016 COPP CH

In 1909, Frans Coppus, a Dutch-born engineer, founded the company to manufacture steam turbine-driven fans. Presently, the business is headquartered in Millbury, Massachusetts, with a strong manufacturing management team and an equally strong marketing arm with a charter to focus on manufacturing and marketing a specific line of engineered products. These products are sold and serviced throughout the world, with exports exceeding 30% of sales.

Today, Coppus is: COPPUS ENGINEERING CORPORATION, manufacturers of single stage turbines, and turbine generators and portable ventilation equipment, headquartered in Millbury, MA; MURRAY TURBOMACHINERY CORPORATION, manufacturers of multi-stage turbines and turbine generators, headquartered in Burlington, IA; and KEWANEE BOILER COMPANY, Inc., manufacturers of boilers and packaged boiler-burner units, headquartered in Kewanee, IL.

Coppus' large complement of skilled factory and professional employees utilize a wide variety of computers, highly specialized equipment and machine tools, in more than 600,000 square feet of manufacturing space.

Product/Service	Designation	Description
Mechanical Drive Single Stage Turbines	RLA/RLHA	The broadest range of reliable mechanical drive single stage steam turbines from 1/2 to 2900KW.
Mechanical Drive MultiStage Turbines	K/U/R	The most cost-effective range of multistage turbines up to 11,000KW.
Steam Turbine Generator Sets		A broad range of single and multistage turbine generator sets up to 10,000KW for cogeneration and prime power.

**CRS Sirrinc Engineers, Inc.**  
**1041 East Butler Road**  
**P.O. Box 5456**  
**Greenville, SC 29607**



**Telephone:** (803) 281-3700

**FAX:** (803) 281-3712

**Chief Executive Officer:**

**International Sales Manager:**

**Bruce Wilkinson, Houston, Texas**

**Dave Syphard, Greenville, South Carolina (803/676-6000)**

**Domestic Offices:**

**Major cities in the U.S. - Contact Corporate Headquarters for further information - 713/552-2000 or 1-800-672-2777.**

CRS Sirrinc Engineers, Inc., a design/construction and consulting firm serving the power generation industry with feasibility studies, cost estimating, preliminary and detailed engineering, architectural design, permitting, construction management, turnkey contracting, start-up and plant operations management. Also provides power project development, project financing, and equity investments in projects. Much of our major success in new sales can be attributed to our strategy of improving market share in our strong markets. We've expanded into fields that combine our financial strength with our strong technical knowledge. Utility and industrial power facilities, cogeneration, environmental design and control, and risk management are all areas with which we have an impressive foundation of experience.

**Product/Service**

**Description**

Engineering Design and Construction

CRS Sirrinc Engineers, Inc. is among the top engineering design and construction firms in the United States, with affiliates in foreign countries. We have current experience in the design, construction, and retrofit of coal-fired utility and industrial power plants, including circulating fluidized combustion boilers, cogeneration units, and independent power production plants.

Alternative Services

As an alternative to conventional owner-engineer-constructor relationship, Sirrinc offers equity participation in selected projects through its CRSS Capital affiliate. Inquiries regarding particular project structuring opportunities are invited.

**Cummins Engine Company, Inc.**  
**Box 3005**  
**Columbus, IN 47202-3005**



**Telephone:** (812) 377-5000

**Telex:** 217410 CUMMINS CMB A

**V.P. Worldwide Industrial Markets:**

**Worldwide Mining Manager:**

**General Manager-Worldwide**

**Industrial Markets:**

**FAX:** (812) 377-3334

**Mark A. Levett**

**Bruce D. Smalley**

**Fred T. Venhoff**

**Domestic Offices:**

**DOWNERS GROVE, IL TEL. (708) 852-6604; SHELTON, CT TEL. (203) 925-0446; MARIETTA, GA TEL. (404) 423-1108; ENGLEWOOD, CO TEL. (303) 773-2866; SAN RAMON, CA TEL. (415) 831-9900; IRVING, TX TEL. (214) 580-7745; OAKVILLE, ONTARIO, CANADA TEL. (415) 842-8070; BURNABY, BRITISH COLUMBIA, CANADA TEL. (604) 299-9361**

**International Offices:**

**CUMMINS AMERICAS, INC. - HIALEAH, FL TEL. (305) 621-4451; CUMMINS AUSTRALIA PTY. LTD. - MELBOURNE, AUSTRALIA TEL. (61-3) 765-3222; CUMMINS EUROPE - BAD HOMBURG, GERMANY TEL. (49-6172) 1294-0; CUMMINS ENGINE CO., LTD. - NEW MALDEN, ENGLAND TEL. (44-1) 949-6171**

Cummins Engine Company, Inc., based in Columbus, IN, designs and manufactures in-line and V-type diesel engines ranging from 41 to 2000 horsepower, as well as related components and power systems. The company was founded in 1919 in Columbus, which remains the site of its corporate

(Continued on next page)

**Cummins Engine Company, Inc. (Continued)**

headquarters and largest engine manufacturing facility. In addition to North America, Cummins has operations in the United Kingdom, India, Mexico, Canada, Brazil, South Korea, China, Zimbabwe and Turkey. In 1989, Cummins reported net sales of \$3.5 billion and employed 25,100 people worldwide.

Product/Service	Description
Diesel Engines, In-line and V-type, 41-2000 Horsepower	Coal transport, facilities construction, mining equipment, power generation, and transport equipment.

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**Electric Power Research Institute**  
3412 Hillview Avenue  
P.O. Box 10412  
Palo Alto, CA 94303



Telephone: (415) 855-2000  
Telex: 910-373-1163 EPRI PLA FAX: (415) 855-2954  
Chief Executive Officer: Richard E. Balzhiser  
International Sales Manager: Jay Kopelman

International Offices: Please contact EPRI headquarters for further information.

The Electric Power Research Institute (EPRI) manages a program of collaborative research and development on behalf of the U.S. electric utility industry and its customers. Funded through voluntary contributions by some 660 member utilities, EPRI's work covers a broad range of technologies related to the generation, delivery, and use of electricity.

Product/Service	Description
Development of new efficient applications of electricity	Selected key products, among dozens, include a warm air heat storage furnace, an optimal controller for cool storage, an advanced variable speed heat pump, an arc furnace dust treatment process, an electric van, probabilistic and scenario forecasting guidebooks, residential customer preference models, a demand-side planning workstation, a commercial unitary dual-fuel heat pump, and a storage heat pump water heater.
Development of cost-effective and safe technologies that address environmental issues	Selected key products include probabilistic seismic hazard methodology, a concrete silo spent fuel storage demonstration, an erosion/corrosion prediction and analysis computer code, a method for reducing the rate of radiation buildup on piping, a health risk assessment of SO <sub>x</sub> and disposal or possible reuse of large volumes of coal ash.
Development of cost-effective ways to use existing power plants while preparing for future electricity needs	Selected key products include guidelines for converting baseload fossil plants to cycling, on-line monitoring for critical plant equipment, an analytical model for predicting coolant activity, fossil plant nondestructive evaluation guidelines, the Coal Quality Impact Model, atmospheric fluidized-bed combustion demonstrations, and combustion and integrated gasification combined cycle demonstrations.
Development and demonstration of efficient, reliable and safe electricity delivery systems	Selected key products include a transmission line workstation, improved tree trimming equipment, Flexible AC Transmission Systems (FACTS), substation automation, and advanced power transformers.

**EnCoal**  
 105 East 4th Street  
 Cincinnati, OH 45202



Telephone: (513) 621-3733  
 FAX: (513) 621-3734  
 Chief Executive Officer:  
 International Sales Manager:

L. Robert Folan  
 Alan Tweedale

Domestic Offices: HOT SPRINGS, VA: P.O. Box 826, Hot Springs, VA 24445 TEL. (703) 839-5111  
 International Offices: ENGLAND: 213 Upper Richmond Road West, London, SW14 8QT England TEL. 011-44-81-878-8355

EnCoal was founded in 1985 as the U.S. partnership between L. Robert Folan and Alan Tweedale. Tweedale has led the British Coal Board's research into clean coal burning technology since World War II. In the 1980's, he took this technology private with Energy Supplies, Ltd., which is very active today throughout the United Kingdom. EnCoal brings this technology into the United States market featuring small fluidized beds. EnCoal's first project will be to rebuild the power plant of The Homestead Hotel in Hot Springs, Virginia with a clean burning, coal fired cogeneration plant.

Product/Service	Description
EnCoal designs, builds, finances, and operates small steam driven power plants.	EnCoal contracts with customers to reduce their energy costs by utilizing clean combustion technology to produce steam that in turn produces electricity, process steam, heating, and air conditioning. EnCoal's technology complies with the proposed Clean Air Act of 1990, and is predicated on bottom line savings to the customer through a long term contract with EnCoal.

**ESCO Corporation**  
 World Headquarters  
 2141 N.W. 25th Avenue  
 Portland, OR 97210



Telephone: (503) 228-2141  
 Telex: 360590 FAX: (503) 778-6360  
 Chief Executive Officer: Nick Collins  
 International Sales Manager: Jim Songer

International Offices: MEXICO: Guadalajara; BRAZIL: Sao Paulo; FRANCE: Saint Priest; SINGAPORE

ESCO Corporation is a world leader in steel technology, providing innovative products and alloys for the coal mining industry. ESCO was founded in 1913 as Electric Steel Foundry Company in Portland Oregon. ESCO continues to pioneer technology advances in metallurgy, design and manufacture. ESCO's innovative products and unique casting capabilities have earned a world-wide reputation for excellence. ESCO has manufacturing operations in the United States, Canada and Europe. A global marketing partnership called ESCONET has licensees throughout the world who are qualified manufacture's of ESCO alloys and products within their own markets.

Product/Service	Description
Mining Equipment	High-performance buckets, tooth systems and ground engaging tools resist impact and abrasion in general purpose as well as the most severe applications. Shovel Dippers and dragline buckets, plus rigging and accessories are available for all types and sizes of machines. ESCO also produces dozer- and scraper-mounted rippers, cutting edges and endbits, plus replaceable wearparts for crushers.

**Fluor Daniel**  
3333 Michelson Drive  
Irvine, CA 92730

**FLUOR DANIEL**



Telephone: (714) 975-7100

Telex: 68-1441 FAX: (714) 975-5271/6549

Chief Executive Officer:

Vincent L. Komely

International Sales Manager:

Gerald M. Glenn

**Domestic Offices:**

CHICAGO, IL: TEL (312) 368-3500, GREENVILLE, SC: TEL. (803) 298-2500, HOUSTON, TX: TEL. (713) 263-1000; PHILADELPHIA, PA: TEL. (609) 985-1101; REDWOOD CITY, CA: TEL. (415) 595-6000; RICHMOND, VA: A.T. Massey Coal Company, Inc., TEL. (804) 788-1800; CHARLOTTE, NC: Duke/Fluor Daniel, TEL. (704) 357-3271

**International Offices:**

SAUDIA ARABIA: Fluor Arabia, Dhahran TEL. (966) 3-857-8577; AUSTRALIA: Fluor Daniel Australia, Melbourne TEL. (61) 03-520-4444; CANADA: Fluor Daniel Canada, Calgary TEL. (010) 403-259-1110; THE NETHERLANDS: Fluor Daniel BV Netherlands, Haarlem TEL. (31) 23-33-90-20; GERMANY: Fluor Daniel GmbH, Dusseldorf TEL. (49) 211-4551-1; ENGLAND: Fluor Daniel, Ltd., London TEL. 44-1-222-7717

Fluor Daniel provides a full range of engineering, construction and related services through over 50 offices worldwide. These services include feasibility studies, conceptual design, project management, engineering, procurement, construction, technical services, project financing, consulting, environmental services, maintenance and plant operations. Our affiliate, AT Massey Coal Company, produces both high quality low-sulfur coal and metallurgical coal and ranks among the 10 largest coal marketers in the United States. Massey sells produced coal and markets coal for independent producers. Fluor Daniel, in partnership with Duke Power, designs and constructs or modernizes coal-fired power plants and performs operations and maintenance.

Product/Service	Description
Power Generation System	Fluor Daniel provides design engineering, procurement and construction of integrated coal gasification power generation systems as a part of our work with combustion turbine technology. Duke/Fluor Daniel has engineered or constructed over 75 conventional fossil fuel generating stations ranging from 5 to 1980Mw and provided maintenance and operating services in over 150 units.
Advanced Utilization (CCT)	Fluor Daniel offers engineering, procurement, construction and consulting support to Clean Coal Technology projects. We have performed over 105 coal gasification studies and participated in 14 major projects including Sasol, the world's largest coal gasification facility, on which Fluor Daniel performed engineering, procurement and construction.
Engineering/Procurement/Construction	Fluor Daniel engineering, procurement and construction experience includes coal mines, coal handling and transport facilities, and plants for utilities and other coal consumers.

**General Electric Power Generation**  
One River Road  
Schenectady, NY 12345



**GE Power Generation**

Telephone: (518) 385-2941

FAX: (518) 385-7570

VP & General Manager:

David C. Genever-Watling, Power Generation

VP & General Manager:

Delbert L. Williamson, Industrial & Power Systems Sales

General Manager:

John Patterson, Turbine Technology

VP, Customer Service Dept.:

G.R. Cote

With more than 12,000 steam and gas turbines operating worldwide, GE's Power Generation business is the world's leading manufacturer and supplier of power generation systems. Major product and service offerings, which are consistently rated as the most reliable by third party agencies such as the North America Reliability Council, are as follows.

(Continued on next page)



## General Electric Power Generation (Continued)

Product/Service	Description
Steam Turbines	Small steam turbines (10-25 MW) are used by industrial companies for self-generation and in waste-to-energy plants. Medium steam turbine generators, up to 250 MW, are used by industrial companies, for large cogeneration projects or by smaller utilities for baseload requirements. Large steam turbine-generators (up to 1,360 MW) are sold to electric utilities for power generation. Marine steam turbines are used by the U.S. Navy and merchant marine fleets or for shipboard propulsion systems. GE also manufactures high-precision gears for land and marine applications. More than 3,000 GE mechanical drive steam turbines and nearly 5,000 steam turbines are in operation worldwide.
Gas Turbines	Gas turbines have traditionally served the pipeline, process, offshore platform and industrial markets. But, today, more than 2,400 of these units are used in peaking, mid-range, and baseload application for electric utility and large industrial cogeneration applications. More than 4,600 gas turbines are in operation in 87 different countries. Heavy duty gas turbines are available with outputs up to 150 MW in the 60 HZ market and up to 212 MW in the 50 HZ market.
STAG Combined-Cycle Systems	GE blends the best of both gas and steam turbine technology in its STAG™, combined-cycle systems. Instead of wasting the heat exhaust from a gas turbine, it is collected in a heat recovery steam generator to allow additional power to be produced from a steam turbine from the same fuel. GE has more than 100 combined-cycle plants in the world, far more than any other manufacturer, including the world's largest and most advanced combined-cycle plant (2,000 MW) in Japan which has been operating at an average of 48.5% fuel efficiency since startup in 1986. GE's new advanced gas turbines (the MS7001F and the MS9001F for 60 and 50 HZ markets) along with improved GE reheated steam turbines will result in record setting fuel efficiencies over 50% LHV.
Centrifugal Compressors	Marketed to pipeline and process industries. GE compressor designs have established a reputation for reliability in some of the world's most demanding environments. In fact, over 1,300 compressors are operating in over 60 countries.
Turnkey Power Plants	GE has provided engineering and design services to industrial and utilities customers and project developers all over the world since 1990. Project programs include design and engineering, site preparation, construction and installation, startup and testing, plant operation, maintenance, and training. GE has completed nearly 500 power plant projects.

**Indeck Energy Services, Inc.**  
1111 South Willis Avenue  
Wheeling, IL 60090



Telephone: (312) 520-3212  
Telex: 28-3544 FAX: (312) 520-9883  
Chief Executive Officer: Michael P. Polsky  
International Sales Manager: Lawrence J. Kostrzewa

**International Offices:** Please contact headquarters for further information.

Indeck is an experienced developer, owner, operator and maintainer of cogeneration and power generation plants using coal, natural gas, oil and waste fuels. Together with Indeck Power Equipment Company, North America's largest renter and leaser of emergency boilers, the company has been serving industrial and utility steam, power and water treatment needs since 1960. Indeck's broad range of experience includes over 750 MW of generating capacity either operating, under construction or under contract in the U.S. and Canada, with international expansions underway in the U.K. and elsewhere.

(Continued on next page)

**Indeck Energy Services, Inc. (Continued)**

Product/Service	Description
Project Development	Indeck will perform all activities from project conception to construction, including cycle design and analysis, siting, engineering, permitting, power and steam sales contracting, fuel supply acquisition and debt and equity financing.
Project Operation	For projects owned in whole or in part by Indeck, Indeck will hire and train operating staff, prepare and follow operating and maintenance budgets, operate the project at optimum economic efficiency and schedule and carry out overhauls and repairs.

**MicroFuel Corporation**  
 1205 State Street  
 Ely, IA 52227



Telephone: (319) 848-7111  
 FAX: (319) 848-7101  
 Chief Executive Officer:  
 International Sales Manager:

Mr. John C. Welling  
 Mr. John C. Welling

Domestic Offices:  
 International Offices:

CHARLOTTE, NC: 4450 Town & Country Drive, Charlotte, NC 28226  
 Please contact company headquarters for information.

The power industry has long recognized the economic and environmental benefits of firing micronized coal to replace the use of oil and gas. The primary constraint has been the energy input required for the micronization of the fuel. MicroFuel Corporation has developed a centrifugal-pneumatic (CP) micronizer which provides micronized coal (80% < 44 microns) with an energy input of only 20% > conventional coal pulverizers. The MicroFuel micronizer is applicable to any process requiring direct firing by either oil, gas, or pulverized coal, as well as micronization for coal beneficiation. The MicroFuel CP micronizer also processes a wide variety of other products such as limestone, sodium bicarbonate, and other materials used as reagents and sorbents in air quality control systems. The micronization of sorbents greatly improves their utilization in most processes. The markets for the MicroFuel CP micronizer are replacement of natural gas and oil for any direct-fired application, chemical and sorbent preparation for air quality control systems, and specialty products and chemicals requiring very fine consistent particle sizing.

Product/Service	Designation	Description
MicroFuel Micronizer	Coal	The CP micronizer produces micronized coal with a consistent particle size distribution of 100% < 177 microns, 80% < 44 microns with an average particle size of 20 microns at an energy consumption level of 25 KW/ton. The micronized coal is suitable for direct firing in most applications utilizing oil or natural gas.
MicroFuel Micronizer	Special Products	The CP micronizer is also capable of micronizing many products such as limestone, sodium bicarbonate, and other chemicals. Energy requirements and product fineness vary depending on the application and product. A full-scale demonstration unit is available at the home office to evaluate product applicability and design parameters.

**Parsons Brinckerhoff Quade & Douglas, Inc.**  
**One Penn Plaza**  
**New York, NY 10119**

**Parsons**  
**Brinckerhoff** **100**  
**YEARS**

**Telephone:** (212) 465-5000  
**Telex:** WU 12-5441, RCA 232117 **FAX:** (212) 465-5096 (USA)  
(212) 465-5028 (Int'l)

**Chief Executive Officer:** James L. Lammie  
**International Sales Manager:** Robert Prieto

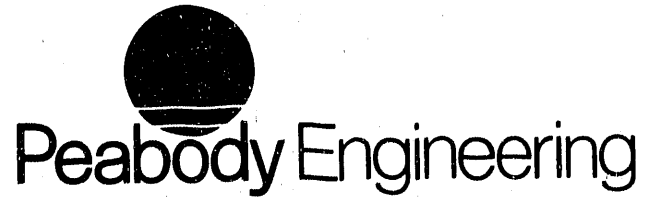
**Domestic Offices:** Over 50 offices in the U.S. and abroad. **SAN FRANCISCO, CA:** Mining Division Headquarters, 303 Second Street, Suite 700 North, San Francisco, CA 94107-1317 TEL. (415) 243-4600 FAX (415) 243-9501; **DENVER, CO:** Mining Division Branch Office, 1331 Seventeenth Street, Suite 400, Denver, CO 80202 TEL. (303) 297-0900 FAX (303) 297-0607; **HOUSTON, TX:** PB/KBB Subsidiary, 11767 Katy Freeway, Suite 810, Houston, TX 77079 TEL. (713) 496-5590 FAX (713) 496-5658

**International Offices:** AUSTRALIA; EGYPT; HONG KONG, JAPAN; JORDAN PAKISTAN; REPUBLIC OF CHINA; SINGAPORE, TURKEY; UNITED KINGDOM. For phone numbers in Pacific Rim countries and U.K. office, contact Hong Kong Office TEL. (852) 844-7488; for Middle East offices and Pakistan TEL. 44-81-332-2740

Parsons Brinckerhoff is a 105-year-old multidisciplinary consulting engineering, planning, architecture and construction management firm providing services to public and private clients throughout the world. Preeminent in the planning and design of transportation systems and facilities, the firm is also a leader in the design and engineering of diverse underground structures and systems; tunnels for transit systems and water resources systems; nuclear waste repositories; storage of petroleum resources, natural gas, and compressed air in caverns and wells. It specializes in mine planning and design that incorporates geotechnical and environmental engineering, and project and construction management. Mine services range from technical and environmental audit to complete feasibility study, mine planning and design, and detailed design of shafts and hoists.

Product/Service	Description
Design Engineering	Underground and surface mines; mine drainage treatment; mine cleaning; clean-up of hydrocarbons; mine surface facilities; preparation plant; land reclamation; railroad loading/unloading; and tidewater/river/lake/dock facilities.  The Energy Systems Group of Parsons Brinckerhoff has specialized expertise in the design of cogeneration plants; waste-to-energy and waste incineration facilities; hydroelectric facilities; industrial utility systems; heat transfer; electrical power generation and distribution systems, and fluidized bed and gas/compressed air storage systems.
Consulting Services	Geological exploration; underground and surface mines; feasibility studies; port facilities; townsite planning; efficiency/productivity studies; economic evaluations.

**Peabody Engineering Corp.**  
39 Maple Tree Avenue  
Stamford, CT 06906



**Telephone:** (203) 327-7000  
**Telex:** 96-5911 PEABODY ENG STD **FAX:** (203) 978-1358  
**Chief Executive Officer:** Mr. Frank E. Lammes  
**International Sales Manager:** Mr. Harold Althen

**International Offices:** CANADA: John Leonard, Peabody Engineering Canada, 530 Otto Road, Unit #14, Mississauga, Ontario L5T 2L5 TEL. (416) 795-1550 FAX (416) 795-1030; MEXICO: Jerry Schermer, Ingenieria Peabody, Lope de Vega 117-4 Piso, Mexico DFN 11560 TEL. (525) 254-3099 FAX (525) 254-6364

Peabody Engineering products are used worldwide to satisfy combustion requirements at utilities and industrial plants. Products include several types of burners, ignitors, flame detectors, burner management systems, and specialized combustion equipment such as air heaters. Peabody coal burners and coal preparation equipment are used in a variety of applications. With more than 70 years of combustion experience, Peabody is qualified to handle individual combustion requirements.

Product/Service	Description
Coal Burners	Peabody scroll-type tertiary solid fuel burners efficiently fire pulverized coal with low unburned carbon and particulate emissions. Burners are designed for three separate, controllable combustion air streams, have the capability of firing supplementary fuels - oil or gas - separately or simultaneously, and are available in capacities from 10-million Btu/hr and up.
Ignitors	A complete range of ignition equipment is available including electric, gas-electric, and oil-electric models.
Flame Scanners	A family of flame scanning equipment is available to sense the presence and condition of coal flames. Scanners include ultraviolet and infrared models plus the new SmartScan™ microcomputer controlled flame scanner.
Burner Management	Complete systems are available to supervise all the steps for safe combustion including burner start-up, operation, and shut-down.
Pulverizers	Coal pulverizers handle all grades for a variety of fineness, offer full control of the grinding atmosphere, and provide thorough disintegration and homogenization of pulverized material.

**Quad Three Group, Inc.**  
**37 North Washington Street**  
**Wilkes-Barre, PA 18701**



**Telephone:** (717) 829-4200  
**FAX:** (717) 829-0302  
**Chief Executive Officer:**

John L. Churnetski, P.E.

Quad Three Group, Inc. is located in Northeastern Pennsylvania in the center of a major anthracite coal region. We are a full service architectural and engineering firm consisting of 85 professionals and providing such services as land use planning, space utilization studies, building and building systems designs, utility systems engineering, bridge and roadway design, surveying and environmental assessment, management and remediation design.

The company has substantial experience in the design of coal handling system and coal combustion projects for steam generation and steam/electric power projects, serving district heat applications and cogeneration systems.

The firm uses state-of-the-art CADD systems for all work and is a leader in the A/E industry in computer applications in design and drafting. All architectural and engineering disciplines necessary for the projects undertaken are represented on staff.

**S&C Thermal Systems, Inc.**  
**3314 Highway 162**  
**Post Office Box 1246**  
**Granite City, IL 62040**



**Telephone:** (618) 452-3000  
**Telex:** TWX 910-756-2352 **FAX:** (618) 876-0865  
**Chairman:** Emmanuel Merle  
**President:** Christian Joly  
**International Sales Manager:** Richard P. Kuo, Sr. Vice President  
**Senior Vice President:** Roland Otte

**Domestic Offices:** NEW YORK, NY: 767 Fifth Avenue, New York, NY 10153, TEL. (212) 421-1944, FAX (212) 421-1937  
**International Offices:** PARIS: TEL. 33 (1) 47-56-22-22, FAX 33 (1) 40-87-01-28

S&C Thermal Systems, Inc. is a member of the Thion Group of companies. Thion, established in 1843, is an international energy resources and services group with interests in Europe and the United States. The Company provides a full range of thermal energy services to commercial, industrial, residential, institutional and government sectors. Major areas of business include: operation and maintenance of individual building heating and cooling plants under long-term energy service contracts; design, construction, financing and operation of district heating and cooling systems and cogeneration plants; energy audits and technical feasibility studies; energy performance contracting and third party financing; waste-to energy plants and waste recycling.

Product/Service	Designation	Description
Facilities Operations	Chauffage	24 hr. plant O&M, fuel supply retrofits, finance
Facilities Construction	District heating and cooling	Design, build, own, operate
Power Generation	Cogeneration	Design, build, own, operate
Financing and Resource Packaging		Energy plants, performance contracts.

**SSR Engineers, Inc.**  
2234 Lewis Avenue  
P.O. Box 20876  
Billings, MT 59104

**SSR ENGINEERS, inc.**

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Telephone: (406) 656-8100

FAX: (406) 652-2758

Chief Executive Officer:

J.R. Rush, P.E.

International Sales Manager:

W.F. (Bill) Hart, P.E.

SSR Engineers, Inc. is a medium size consulting firm with 30 years of experience in power system design for substations, transmission, distribution, and utility system studies. In addition to planning and design, SSR Engineers offers a wide variety of testing and technical services. We provide a full range of power engineering services to over 50 utilities, many of which depend on SSR Engineers for all of their power engineering requirements.

Product/Service	Description
Electric Power System Design	EUH transmissions structural design and analysis; overhead/underground distribution planning and design; substation planning and protective relay design; construction management; co-generation; load management; combustion turbine/diesel generation systems; motor control centers; rate and short circuit studies.
Mechanical Design	Mechanical/electrical design for commercial and institutional buildings, high pressure steam boiler plants thermal storage, energy conservation audits, economic and feasibility studies.
Technical/testing Services	System commissioning and equipment acceptance testing for relay and control systems, large power transformers, power factor, insulation, high voltage cable.

**Steam Turbine Alternative Resources**  
116 Latourette Street  
Marion, OH 43302



Telephone: (614) 387-5535

FAX: (614) 383-2089

Chief Executive Officer:

J. P. Flaherty

International Sales Manager:

Jerry W. Johnson

Domestic Offices:

Regional Offices in U.S.A. only

The operating officers of the company are all ex-General Electric factory managers or Field Service Engineers. We manufacture turbine parts used during overhauls to increase efficiency and safety. The company is geared to quick turn around on the average of 3 weeks for all products. The quality and material will meet or exceed the OEM's. You will be pleasantly surprised with our prices. Customer references are available. Financial references are also available.

Product/Service	Description
Turbine Parts	Packing ring, gland rings, dummy rings, spill strips, spring back seal segments, springs, pins, plugs, screws, keys, rivets, studs, nuts, bolts, washers, valve stems, valve seats, valve disks, valve plugs, valve pins, valve bushings, by-pass valves, seal strips, buckets, blades, pins, erosion shields, bucket covers, gas turbine compressor blades, shroud bucket band covers, gaskets, bearings.

**Ultrasystems Engineers & Constructors, Inc.**  
**16845 Von Karman Avenue**  
**Irvine, CA 92714**



**Telephone:** (714) 863-7000  
**Telex:** 69-2356    **FAX:** (714) 852-9697  
**Chief Executive Officer:** John P. Coyle

Ultrasystems offers the complete range of services necessary to perform major engineering, procurement and construction contracts. These services include economic and feasibility studies, conceptual designs, technical development support, design reviews, project planning and management, process engineering, detail engineering design, procurement of equipment and material, plant construction, startup, performance testing and operator training activities.

<b>Product/Service</b>	<b>Description</b>
<b>Coking and Formcoke</b>	Licensing rights to the Peabody continuous coking process and formcoke process. Devolatilization of coal produces low Btu gas for above-grate combustion or heat recovery. Commercial units operating in U.S. and South Africa.
<b>Coal Gas Clean-Up</b>	Exclusive licensee of Hiperion sulfur removal process. Catalytic conversion of hydrogen sulfide, carbonyl sulfide and mercaptan from coke oven gas or coal gasification. One-step conversion of sulfurous compound to elemental sulfur. Commercial units operational in U.S. and Japan.
<b>Coal-Fired Power Plants</b>	Feasibility studies to turnkey installation. Commercial units operating in the U.S.
<b>Wastewater Clean-Up</b>	Fixed-firm anaerobic digestion of high COD wastewater. Simultaneous biogas recovery will provide energy needs to host plant.
<b>Coal Gasification</b>	Mansfield two-stage low Btu system. First gasification accomplished through traveling grate, followed by second-stage, fixed-bed gasification.

**Western Branch Diesel, Inc.**  
**3504 Shipwright Street (23703)**  
**P.O. Box 1177**  
**Portsmouth, VA 23705**



**Telephone:** (804) 484-6230  
**FAX:** (804) 484-4937  
**Chief Executive Officer:**  
**General Sales Manager:**

**Mr. Herbert A. Haneman, Jr.**  
**Mr. Charles T. Gould**

**Domestic Offices:**

**RICHMOND, VA:** 195 at Adee Rd., P.O. Box 9730, Richmond, VA 23228, TEL. (804) 550-2816, FAX (804) 550-2677; **SPRINGFIELD, VA:** 8102 Alban Road, Springfield, VA 22150, TEL. (703) 569-5650, FAX (703) 569-8647; **ROANOKE, VA:** 4546 Thirland Road, N.W., Roanoke, VA 24019, TEL. (703) 362-1608, FAX (703) 362-7183; **S. CHARLESTON, WV:** 3100 MacCorkle Avenue, SW, P.O. Box 8245, S. Charleston, WV 25303, TEL. (304) 744-1511, FAX (304) 744-3584; **STRASBURG, OH:** 301 S. Wooster, P.O. Box 167, Strasburg, OH 44680, TEL. (216) 878-5516, FAX (216) 878-7737; **LOST CREEK, KY:** 14701 Highway 15 South, Lost Creek, KY 41348, TEL. (606) 666-4981, FAX (606) 666-2474; **WINTERSVILLE, OH:** 286 Luray Dr., P.O. Box 2069, Wintersville, OH 43952, TEL. (614) 264-7121, FAX (614) 264-4712; **COEBURN, VA:** Highway 58, P.O. Box 1188, Coeburn, VA 24230, TEL. (703) 395-6906, FAX (703) 395-6909; **PORTSMOUTH, VA:** 3504 Shipwright Street (23703), P.O. Box 1177, Portsmouth, VA 23705, TEL. (804) 484-6230, FAX (804) 484-4937

Western Branch Diesel, Inc. is a franchised distributor for Detroit Diesel Corporation and the Allison Transmission Division of G.M. The company was established in 1947 and has grown to nine total branches covering all or part of five states. Full sales, parts and service capabilities are available at all locations. The company has been in the electric power generation business for over twenty years. Current facilities include the ability to provide complete engineering, manufacturing, sales, rental and service of electric generator sets from 20 KW to 1600 KW.

Product/Service	Designation	Description
Diesel Electric Generator Sets	Detroit Diesel Corp. Products	20 KW to 1600 KW ratings with automatic transfer switches and a full complement of controls are available. All units may be containerized or supplied with base fuel tanks. Sound attenuated containers are also available.



**Woodward Governor Company**  
**Engine & Turbine Controls**  
**1000 E. Drake Road**  
**P.O. Box 1519**  
**Fort Collins, CO 80522**



**Telephone:** (303) 482-5811  
**Telex:** 4-5691 **FAX:** (303) 498-3050  
**Chief Executive Officer:** Mr. Cal Covert  
**International Sales Manager:** Mr. Andy Pawlish

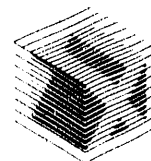
**Corporate Headquarters:** 501 N. Second Street, Rockford, Illinois 61125  
**International Offices:** ENGLAND: Woodward Governor (U.K.) Ltd., P.O. Box 15, Slough SL1 4DD, Telex: 848181, FAX 44 (753) 76199; JAPAN: Woodward Governor (Japan) Ltd., P.O. Box 1, Inba-gun, Chiba-ken, 286-02, Telex: 3762-164, FAX 81 (476) 93-7939; THE NETHERLANDS: Woodward Governor Nederland B.V., P.O. Box 34, 2130AA Hoofddorp, Telex: 74508, FAX 31-2503-36529; AUSTRALIA: P.O. Box 319, Kingsgrove, NSW 2208, Telex: AA24175, FAX 61 (2) 750-6272; BRAZIL: Woodward Governor (Reguladores) Ltda., Caixa Postal - 1785, 13080 Campinas, S.P., Telex: 191844, FAX 55 (192) 42-2992

Woodward Governor Company, founded in 1870, serves the prime mover control and accessory markets. The Fort Collins, Colorado location produces turbine and engine controls for all industrial applications. In addition to the overseas branches, Woodward has more than 26 Authorized Independent Service Facilities worldwide. These support facilities and branches can provide repair, training and field service assistance. Woodward has a complete product line from standard mechanical-hydraulic governors to the latest in customized digital control systems. Listed below is just a sample of a wide range of product offerings.

Product/Service	Description
NetCon 5000 Digital Control System	A state-of-the-art controller that can be programmed to control many types of systems. The NetCon 5000 controls prime mover processes, as well as providing intelligent sequencing and system monitoring.
2301A Speed Control	Controls the speed or load of diesel or gas engines, or steam or gas turbines. The control is compatible with SPM-A synchronizers, load sensors and other power generation controls.

**Xcel Group, Inc.**  
**675 N. Brookfield Road**  
**Brookfield, WI 53045**

**Telephone:** (414) 797-4080  
**FAX:** (414) 784-5036  
**Chief Executive Officer:** Gerald T. Petersen  
**International Sales Manager:** Paul S. Gurski



XCEL GROUP INC.

Process engineering firm with extensive background in coal technology process development to include the specification, design, construction, start-up and operation of coal processing equipment. Xcel just completed a design, supply and test NATO-funded contract awarded in international competition for an R&D gasification facility in Athens, Greece. It provided start-up problem-solving services for a U.S. coal waste gasification project. Recently, Xcel organized a consortium of manufacturing firms to pursue a regional industrial waste recycling facility. Technical support services include feasibility assessments, U.S. equipment sourcing, custom equipment design, market research and application studies and project management. Particularly knowledgeable in U.S. utility market "clean fuel" needs and combined cycle applications.

(Continued on next page)

**Xcel Group, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Technology/Evaluations	Evaluations of emerging and commercially mature technologies to include technical and economic evaluation for specific market applications.
"Clean Coal" Applications	Investigation of a specific technology or competing technologies for utility-scale or large industrial power generation applications.
Equipment Sourcing/Design	Identification of U.S.-based sources to meet specific processing needs or custom design and supply required equipment.
Project Management	Project management services to include permitting, engineering and construction.
Environmental Services	Environmental assessments, process evaluations, and designs to assure compliance to industrial discharge limits.

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**Technical Publications:**

Firms providing manuals, handbooks, and other technical literature relating to coal and coal technology.

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**American Society for Testing and Materials**  
1916 Race Street  
Philadelphia, PA 19103-1187



**Telephone:** (215) 299-5400  
**Telex:** (710) 670-1037 **FAX:** (215) 977-9679  
**Chief Executive Officer:** Joseph G. O'Grady  
**International Sales Manager:** Philip L. Lively

**Domestic Offices:** WASHINGTON, DC: 300 Metropolitan Square, 655 Fifteenth Street, N.W., Washington, DC 20005 TEL. (202) 639-4025, FAX (202) 347-6109

Organized in 1898, ASTM has grown into one of the largest voluntary standards development systems in the world. ASTM has no technical research or testing facilities; such work is done voluntarily by 32,000 technically qualified ASTM members throughout the world. From the work of 134 technical committees, ASTM publishes standard test methods, specifications, practices, guides, classifications, and terminology for materials, products, systems, and services. More than 8,000 ASTM standards are published each year in the 8-volume Annual Book of ASTM Standards. These standards and related information are used throughout the world.

<b>Product/Service:</b>	<b>Description</b>	
Committee on Coal and Coke	D-5	More than 300 members meet twice a year to develop specifications for coal and coke produced from coal; to develop methods of sampling, analysis, and testing; to develop classifications of coals on the basis of chemical and physical characteristics; to standardize terminology, and to promote research and disseminate knowledge in these fields. All interested parties are welcome to participate in these activities.
Annual Book of Standards on Gaseous Fuels; BCoal and Coke	Vol. 05.05	This volume is divided into two parts. Under the heading Coal and Coke, 60 test methods and practices establish procedures for evaluating properties of coal and coke such as dustiness, moisture content, plastic properties, and sulfur content. Also included is the Standard Classification of Coals by Rank (D 388). List Price: \$52.00; Member Price: \$46.80.

**Electric Power Research Institute**  
3412 Hillview Avenue  
P.O. Box 10412  
Palo Alto, CA 94303



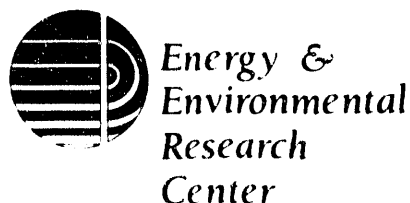
Telephone: (415) 855-2000  
Telex: 910-373-1163 EPRI PLA FAX: (415) 855-2954  
Chief Executive Officer: Richard E. Balzhiser  
International Sales Manager: Jay Kopelman

International Offices: Please contact EPRI headquarters for further information.

The Electric Power Research Institute (EPRI) manages a program of collaborative research and development on behalf of the U.S. electric utility industry and its customers. Funded through voluntary contributions by some 660 member utilities, EPRI's work covers a broad range of technologies related to the generation, delivery, and use of electricity.

Product/Service	Description
Development of new efficient applications of electricity	Selected key products, among dozens, include a warm air heat storage furnace, an optimal controller for cool storage, an advanced variable speed heat pump, an arc furnace dust treatment process, an electric van, probabilistic and scenario forecasting guidebooks, residential customer preference models, a demand-side planning workstation, a commercial unitary dual-fuel heat pump, and a storage heat pump water heater.
Development of cost-effective and safe technologies that address environmental issues	Selected key products include probabilistic seismic hazard methodology, a concrete silo spent fuel storage demonstration, an erosion/corrosion prediction and analysis computer code, a method for reducing the rate of radiation buildup on piping, a health risk assessment of SO <sub>2</sub> , and disposal or possible reuse of large volumes of coal ash.
Development of cost-effective ways to use existing power plants while preparing for future electricity needs	Selected key products include guidelines for converting baseload fossil plants to cycling, on-line monitoring for critical plant equipment, an analytical model for predicting coolant activity, fossil plant nondestructive evaluation guidelines, the Coal Quality Impact Model, atmospheric fluidized-bed combustion demonstrations, and combustion and integrated gasification combined cycle demonstrations.
Development and demonstration of efficient, reliable and safe electricity delivery systems	Selected key products include a transmission line workstation, improved tree trimming equipment, Flexible AC Transmission Systems (FACTS), substation automation, and advanced power transformers.

**Energy and Environmental Research Center**  
**Box 8213, University Station**  
**Grand Forks, ND 58202**



**Telephone:** (701) 777-5000  
**Telex:** 332537 **FAX:** (701) 777-5181

**Chief Executive Officer:** Gerald H. Groenewold  
**International Sales Manager:** Gerald H. Groenewold

**Domestic Offices:** GRAND FORKS, ND: 15 North 23rd Street, Grand Forks, ND 58203

The Energy and Environmental Research Center (EERC) at the University of North Dakota features an integrated systems approach to energy and environmental research and technology development. Originally a federal coal research facility, EERC became part of the University of North Dakota in 1983. Since that time, EERC has expanded its coal research programs to become the leading low-rank coal research facility in the world. In addition, EERC has the leading groundwater research program in this region and has major and expanding research programs in waste management, air emissions control, fluidized-bed combustion, coal-water fuels, mild gasification, liquefaction, and H<sub>2</sub> production.

Product/Service	Description
<b>Fuels and Process Chemistry                      Research Institute</b>	A major thrust of the Fuels and Process Chemistry Research Institute (FPCRI) of the Energy and Environmental Research Center is the development of new processes for more efficient production and/or utilization of fuels and chemicals. Expertise and capabilities include scientists and engineers from most technical disciplines with many years of experience in severe condition processing; flexible and reliable equipment to develop process concepts; pilot-scale equipment configurable to a variety of processing schemes needed to provide process validation for new technologies; and complete analytical support, including fully equipped laboratories and proven capabilities in development of new analytical methods.
<b>Mining and Mineral Resources                      Research Institute</b>	The mission of the Mining and Mineral Resources Research Institute (MMRRI) is to conduct and promote basic and applied research related to mining, minerals, groundwater, waste management, and energy resources; participate in the educational programs of the University of North Dakota and other universities; and provide a wide range of services to the mining, mineral, and energy resources industry, as well as to the state and nation. Current MMRRI programs include applied chemistry, environmental microbiology, energy policy, fundamental geology, groundwater and waste management, mine land reclamation, resource evaluation, and underground coal gasification.
<b>Combustion and                      Environmental Systems                      Research Institute</b>	The Combustion and Environmental Systems Research Institute (CESRI) of the Energy and Environmental Research Center performs basic research into the fundamental chemical and physical mechanisms that occur during the combustion of coal and other fuels, as well as their effects on environmental systems. The effects of fuel quality on system operation; the problems related to deposition, corrosion, and erosion; the performance of gaseous and particulate removal devices; and the efficient conversion of fuel to energy are all studied.

**Fieldston Company, Inc.**  
1920 N Street, NW  
Suite 210  
Washington, DC 20036

**The Fieldston Company, Inc.**  
1920 N Street N.W. • Suite 210 • Washington, DC 20036 • (202) 775-0240

Telephone: (202) 775-0240  
FAX: (202) 467-0768  
Chief Executive Officer: James M. Heller

Fieldston Company Inc. is a coal market and coal transportation consulting and publishing firm. The company publishes a bi-annual coal transportation reference guide, "The Fieldston Coal Transportation Manual", as well as the semi-monthly newsletter, "Coal Transportation Report". Fieldston's primary areas of consulting expertise involve analyzing coal markets, coal transportation rates and coal transportation logistics.

Product/Service	Description
The Coal Transportation Manual	The Manual is a reference volume dedicated exclusively to coal transportation from the mine mouth to the end user. The publication contains data and analysis on most modes of coal transportation including railroads, river barges and ocean vessels. The Manual contains extensive information on coal transportation facilities along the inland waterways, coal-hauling railroads, export rail and barge rates, ocean freight rates, Great Lakes coal terminals and ocean shipping ports. Additional information is provided for electric utility power plant coal handling and receiving capabilities.
The Coal Transportation Report	A semi-monthly newsletter addressing issues pertinent to the coal and coal transportation industries. Areas of coverage include transportation regulation, innovations in coal transportation technologies and general coal industry issues having an impact on the nation's coal transportation infrastructure.
Coal Transportation Rate Logistics Analysis	Fieldston provides analysis and development of coal transportation rates and logistics for coal shippers, producers and brokers. Transportation rate and logistical analyses can be conducted for coal movements by all modes. These analyses can be combined with plant or port siting studies, geographic coal market evaluations or detailed logistical studies to identify the most economic method to move coal from point to point.
Coal Market Analysis	Fieldston provides detailed analyses of specific coal markets, defined geographically or by end use. These analyses include compiling information on coal prices, quality and transportation.
Coal/Transportation Contract Analysis	Fieldston provides analyses to parties negotiating coal and transportation contracts. Specific areas that are studied include initial prices or rates, contract terms, including volume, quality of service, duration and contract escalation provisions.
Transportation Equipment Evaluations	Fieldston supplies analyses of the economics of investing in transportation equipment, using financial and economic models. Among the specific services that can be provided are evaluating the economics of purchasing aluminum or steel hopper cars, private car lease and railcar maintenance agreements.

Resource Data International, Inc.  
P.O. Box 106  
Boulder, Colorado 80306



Resource Data International, Inc.

Telephone: (303) 444-7788  
FAX: (303) 444-1286  
Chief Executive Officer:  
International Sales Manager:

Ronald L. McMahan, PhD  
Stephen M. Monseu

Domestic Offices: BOULDER, CO: 1320 Pearl Street, Suite 300, Boulder CO 80302

Resource Data International, Inc., (RDI), is the authoritative data company in the energy information field. Many of the world's largest mineral energy resource companies, as well as railroads, financial institutions and electric utilities are among its client base. RDI focuses on all fuels in the energy industry -- covering all United States sources and users of energy, the transportation systems that serve them, the macro and micro economic linkages that tie them together -- as well as the macro and micro study of electric utilities: Detailed financial competitor and bulk power supply-demand analysis. The Company provides customized reports and expert consulting services, and distributes regularly published data reports to subscribers via PC, mainframe, or hard copy delivery.

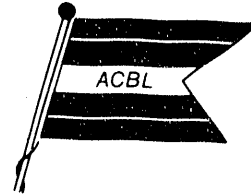
Product/Service	Description
COALDAT®	COALDAT® is a coal mine and market analysis system used by coal companies, utilities, railroads and other industries involved in the coal business. The coal chain - SUPPLY-DEMAND/TRANSACTION-DEMAND - is the basis for COALDAT's® design. COALDAT® links a fully developed base of information on all coal mines to an equally detailed base of information on all coal-burning utility plants via their monthly contract and spot transactions. COALDAT® also includes detailed market information on over 1,900 coal-fired industrial plants, as well as U.S. export and Great Lakes shipments.
FUELDAT®	FUELDAT® encompasses all of COALDAT® and goes beyond it. The System includes all U.S. utilities and their consumption, generation and supply for all fuels. It combines the depth of the COALDAT® supply-side with the all-fuels breadth of the FUELDAT® transaction, supply and demand sides.
POWERDAT®	POWERDAT® encompasses all of COALDAT® and FUELDAT® and, in general, is a database designed to analyze and monitor, on a yearly as well as monthly basis, a utility's competitive position as well as the potential markets for power sales. Monthly information on generation, fuel consumption, power sales and power purchases will be provided. In addition, the POWERDAT® system will provide, on an annual basis, detailed information concerning power contracts, financial performance, energy balances, transmission capabilities, plant production costs, monthly breakouts of peak loads and load forecasts.

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**Transport Equipment:**      Equipment used in rail and shipboard  
transport of coal.

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**American Commercial Barge Line Co.**  
1701 East Market Street  
Jeffersonville, IN 47130



**Telephone:** (812) 288-0100  
**FAX:** (812) 288-1664  
**Chief Executive Officer:**  
**International Sales Manager:**

Mr. Michael C. Hagan  
Mr. Larry W. Downey

### American Commercial Barge Line

**Domestic Offices:**

CHICAGO, IL: Paul E. Hackett, 20280 Governors Highway, Suite 205, Olympia Fields, IL 60461  
TEL. (708) 748-9246 FAX (708) 948-9295; MEMPHIS, TN: James W. Huls, P.O. Box 25, Memphis, TN  
38101 TEL. (901) 774-5499 FAX (901) 774-5719; NEW ORLEANS, LA: Robert W. Maumus, 5800 River  
Road, Harahan, LA 70183 TEL. (504) 733-7870 FAX (504) 736-1243; PITTSBURGH, PA: Wayne E.  
Christy, 1301 Grant Building, Pittsburgh, PA 15219 TEL. (412) 261-6774 FAX (412) 261-6774; ST. LOUIS,  
MO: James R. Wangler, 730 East Davis Street, St. Louis, MO 63111 TEL. (314) 544-7224  
FAX (314) 544-7277; JEFFERSONVILLE, IN: James R. Ritterskamp, 1701 East Market St., Jeffersonville, IN  
47130 TEL. (812) 288-0100 FAX (812) 288-0256

American Commercial Barge Line Company, known as ACBL, has been offering coal transportation on America's inland waterways for over 50 years. ACBL has more than 2,200 barges and 100 towboats available for loading and moving coal. In 1989, ACBL alone hauled more than 22 million tons of coal. ACBL, a subsidiary of American Commercial Lines, Inc. (ACL), is headquartered in Jeffersonville, Indiana. ACL has other subsidiaries in marine construction and repair, terminal services and marine communications.

**Product/Service**

**Description**

Marine Transportation

ACBL is a carrier of coal through the use of towboats and barges on over 9,000 miles of inland waterways. This encompasses the Ohio, Missouri, Illinois and Upper and Lower Mississippi river systems as well as the intracoastal canals. As a result of interfacing with train and truck carriers, ACBL is able to offer fast, dependable and economic service for handling, storing and hauling coal.



**Black & Veatch, Engineers - Architects**  
**8400 Ward Parkway**  
**Kansas City, MO 64114**



**Telephone:** (913) 339-2000

**Telex:** 4-2523 **FAX:** (913) 339-8711

**Chief Executive Officer:**

John H. Robinson, Managing Partner

**International Sales Manager:**

Rolf Stamm, Partner and President of Black and Veatch International

**Domestic Offices:**

33 throughout U.S.

**International Offices:**

Cairo, Egypt; Bangkok, Thailand; Sydney, NSW, Australia; New Delhi, India; Tokyo, Japan; Jakarta, Indonesia; Izmir, Turkey; London, United Kingdom.

Black & Veatch, Engineers-Architects is one of the world's leading engineering and architectural design firms. Founded in 1915, the firm is a partnership headquartered in Kansas City, Missouri, with offices in more than 40 cities around the world. Black & Veatch is directed by a managing partner and six executive partners. The firm engages in engineering, design, procurement, and field management. All major disciplines are represented. More than 50 percent of the 4,000 employees have college degrees. These include professional civil, electrical, mechanical, nuclear, chemical, sanitary, architectural, and structural engineers. Associated with them are architects, planners, economic and financial specialists, hydrologists, chemists, biologists, administrative personnel.

Product/Service	Description
Engineering Services for Fossil Power Plants	The firm engages in engineering services for the generation, transmission, and distribution of electric power; collection, treatment, and disposal of wastewater. Comprehensive licensing, permitting and environmental consultation on mining, transportation and power plant projects. Mine engineering and mine reclamation consultation.
Coal Handling Systems	Black & Veatch designs the bituminous, subbituminous, and lignite terminating and handling facilities which are integral to coal fueled power plants. These facilities include systems for unloading (ocean-going ships, barges, railcars and on/off highway trucks), storing, reclaiming, crushing and weighing of coal to annual throughput capacities in excess of 9 million tons per year. Coal procurement and transportation consultation in areas of strategic planning and contracting. Heavy-haul railroad consultation including new and rehabilitated rail lines, motive power and railcar acquisitions, and equipment maintenance facilities.
Coal Quality Analysis	The Utilization Cost Program (UCP) is a rapid evaluation tool developed by Black & Veatch that takes you from coal quality data to total busbar costs on both new and existing units. It provides the capability to determine the impact of coal quality on unit design, unit performance, capital costs, and operating costs.
Port Facilities	The complete design of dock and cargo handling facilities has been accomplished by Black & Veatch in connecting with a number of projects. These design engagements have included facilities for the unloading, storage, and loading of various fuels and general cargo as well as ancillary facilities including railroad sidings, warehousing, and bulk storage.

Cummins Engine Company, Inc.  
Box 3005  
Columbus, IN 47202-3005



Telephone: (812) 377-5000  
Telex: 217410 CUMMINS CMB A  
V.P. Worldwide Industrial Markets:  
Worldwide Mining Manager:  
General Manager-Worldwide  
Industrial Markets:

FAX: (812) 377-3334  
Mark A. Levett  
Bruce D. Smalley  
Fred T. Venhoff

Domestic Offices: DOWNERS GROVE, IL TEL. (708) 852-6604; SHELTON, CT TEL. (203) 925-0446; MARIETTA, GA TEL. (404) 423-1108; ENGLEWOOD, CO TEL. (303) 773-2866; SAN RAMON, CA TEL. (415) 831-9900; IRVING, TX TEL. (214) 580-7745; OAKVILLE, ONTARIO, CANADA TEL. (415) 842-8070; BURNABY, BRITISH COLUMBIA, CANADA TEL. (604) 299-9361

International Offices: CUMMINS AMERICAS, INC. - HIALEAH, FL TEL. (305) 621-4451; CUMMINS AUSTRALIA PTY. LTD. - MELBOURNE, AUSTRALIA TEL. (61-3) 765-3222; CUMMINS EUROPE - BAD HOMBURG, GERMANY TEL. (49-6172) 1294-0; CUMMINS ENGINE CO., LTD. - NEW MALDEN, ENGLAND TEL. (44-1) 949-6171

Cummins Engine Company, Inc., based in Columbus, IN, designs and manufactures in-line and V-type diesel engines ranging from 41 to 2000 horsepower, as well as related components and power systems. The company was founded in 1919 in Columbus, which remains the site of its corporate headquarters and largest engine manufacturing facility. In addition to North America, Cummins has operations in the United Kingdom, India, Mexico, Canada, Brazil, South Korea, China, Zimbabwe and Turkey. In 1989, Cummins reported net sales of \$3.5 billion and employed 25,100 people worldwide.

Product/Service	Description
Diesel Engines, In-line and V-type, 41-2000 Horsepower	Coal transport, facilities construction, mining equipment, power generation, and transport equipment.

Everlasting Valve Company  
108 Somogyi Court  
South Plainfield, NJ 07080

**EVERLASTING VALVE COMPANY**

Telephone: (201) 769-0700  
FAX: (201) 769-8697  
Chief Executive Officer: Mr. Robert L. Bunting  
International Sales Manager: Mr. Robert L. Bunting

International Offices: ENGLAND: Armstrong International, Huddersfield, England TEL. 011 (484) 682760 FAX 011 (484) 686318; GERMANY: Armstrong Machine Works, Aachen, Germany, TEL. 0114924125781 FAX 0114924138248; AUSTRALIA: Armstrong Steam Control, Punchbowl, N.S.W. 2196, Australia TEL. 011612750-3822 FAX 0116127581264; SOUTH AFRICA: Everlasting Valve Co. Ltd., Edenvale, Republic of South Africa TEL. 01127118233447 FAX 01127118233243

Everlasting Valve Co. is a Division of Armstrong International. It was founded in 1906, initiating its valve activity by supplying valves for steam locomotives. In more recent years, as a result of extremely successful testing under DOE's state-of-the-art Lockhopper Valve Testing and Development Project, the valve has become a standard for lockhoppers and slurry services in coal gasification and coal conversion facilities. Successful applications including Texaco's Cool Water Project, Lurgi's Sasol I, II, and III, ANG, Fru-Con's H-Coal, General Electric, etc., etc.

(Continued on next page)

**Everlasting Valve Company (Continued)**

Product/Service	Description
Rotating Disc Valves	A metal to metal rotating disc valve designed specifically for difficult dry or wet slurries, coal, coke, vitrified ash services traditionally found in state-of-the-art coal gasification projects. Seat and disc material of Stellite or Ceramics, operating components in stainless or equal, bodies of steel, stainless on high alloys or appropriate to pressures and temperatures. Available through class 2500 and 24" size. Actuation can be accomplished by pneumatic or hydraulic actuators.

**Goodman Equipment Corporation**  
 5430 West 70th Place  
 Bedford Park, IL 60638

**goodman**

GOODMAN EQUIPMENT CORPORATION

Telephone: (708) 496-1188  
 Telex: 6871228 FAX: (708) 496-3939  
 Chief Executive Officer: Calvin A. Campbell, Jr.  
 International Sales Manager: Silvio M. Martino

**International Offices:** CANADA: Goodman Mfg. Co. of Canada Ltd., Sudbury, TEL. 705-560-4300; ARGENTINA: Daniel G. Cormick SA, TEL. 140-1508; BOLIVIA: Sociedad Comercial Mara Ltd TEL. 2-354506; BRAZIL: Nordberg Industrial Ltd TEL. 31-621-1200; CHILE: MSA de Chile Ltd TEL. 225-5377; FRANCE: Auray Engineering TEL. 48740366; INDIA: General Mktg & Manufacturing Co. TEL. 0211-449170; ITALY: CO.AM.CO.SRL TEL. 968-1537; JAPAN: C. T. Takahaski & Co. Ltd TEL. 281-2831; KOREA: Woodward & Dickerson Far East Ltd TEL. 777-9551; MEXICO: MSA de Mexico S.A. de C.V. TEL. 576-6444; PERU: MSA de Peru, S.A. TEL. 354065; PHILIPPINES: Marsman & Co., Inc. TEL. 889731; SOUTH AFRICA: (Tunneling) Robert Hudson South Africa Pty Ltd. TEL. 915-2410/13; TURKEY: Polar Mining & Industrial Corp TEL. 41-176520; ENGLAND: Cariboo Plant Services, Ltd. TEL. 269-552; YUGOSLAVIA: Interkomerc Kontinental TEL. 11-340301; NICARAGUA: Casa Commercial McGregor TEL. 2-66151; NEW ZEALAND: A.R. Harris Co., Ltd TEL. 3-48809

A century ago, Herbert Goodman began manufacturing underground mining locomotives in Chicago's famed back of the yards neighborhood. Today, Goodman Equipment Corporation continues as one of the world's premier suppliers of mining locomotives and parts. Locomotives from 1.5 to 50 tons transport extracted materials, people and supplies. They are used in 22 different countries throughout the world in the production of platinum, gold, silver, copper, lead, zinc, tin, coal and uranium. There are Goodman locomotives hauling iron at smelters. They even carry tourists at Disneyland and at Chicago's famed Museum of Science and Industry Coal Mine Exhibit. Goodman serves the underground coal and metals mining industries from its Chicago facility and additional warehouses in Waynesburg, Pennsylvania and Sudbury, Ontario. Mining agents represent Goodman throughout the world.

Product/Service	Description
Transportation Equipment	Goodman manufactures a broad line of powered rail equipment for underground coal and hard rock mines. Prime movers are either diesel or electric, battery or trolley or combination battery and trolley powered. Standard models, personnel carriers from 4 to 16 passengers, locomotives from 2 to 35 tons. Goodman also works closely with clients to develop customized specifications for this equipment.
Tunneling	Goodman manufactures a broad line of locomotives for the tunneling industry. Electric or diesel powered. The electric locomotives can be either trolley or battery or a combination trolley and battery powered. Product ranges from 2 tons through 35 tons. Goodman also manufactures the Conway Mucking Machine for muck loading.

**Interstate Equipment Corporation**  
300 Mt. Lebanon Blvd.  
Pittsburgh, PA 15234



Telephone: (412) 563-5556  
FAX: (412) 563-6741  
Chief Executive Officer: James F. Vogel  
International Sales Manager: Leo J. Vogel, Jr.

International Offices: INDIA: B.R. Vadera, 9-D Sagar Apt., 6 Tilak Marg, New Delhi 11001 TEL. 386-489

Since 1903, Interstate Equipment Corporation has been engaged in the design, manufacture and installation of Aerial Tramway (Ropeway) Systems for the mining industry. The company has always had a strong marketing effort directed at the coal and thermal power industries. Primarily the Aerial Tramway Systems have served the coal industry in the transport of coal from the mine to the preparation plant and in many cases the transport of the preparation plant rejects to the refuse area.

Product/Service	Description
Coal Transport	The company offers complete turnkey services of all types of Aerial Tramway Systems, including units to convey coal and mine refuse. The range of service includes feasibility studies, design, manufacturing and installation on a worldwide basis. Aerial Tramways have proven themselves over the years a low cost of transportation, particularly in rough terrain.
Facility Construction	
Transportation Equipment	
Mining Equipment	

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**McNally Wellman Company**  
4800 Grand Avenue  
Pittsburgh, PA 15225

Telephone: (412) 269-5000  
Telex: 199211 WELL UT FAX: (412) 269-5030  
Chief Executive Officer: Raymond M. Koper

International Offices: Please contact company headquarters for further information.

McNally Wellman has enjoyed 100 years of providing a variety of services and products to the coal industry. With extensive experience in bulk material handling and storage, McNally Wellman can design and supply a turnkey system tailored to the requirements of mining operations, electric power plants, or other transportation situations. A recognized leader in coal preparation, McNally Wellman can provide efficient and reliable coal cleaning facilities incorporating the latest in cleaning technology. In addition, McNally Wellman offers a wide range of coal sizing, cleaning and dewatering equipment that has been proven dependable in the coal industry.

Product/Service	Description
Coal Preparation Plants	McNally Wellman preparation plants are designed to recover the best possible product from a seam of coal utilizing water or dense media cleaning circuits. Our "Modular" plants offer a flexible as well as economical alternative to our conventional designs.

(Continued on next page)

**McNally Wellman Company (Continued)**

**Coal Handling Systems & Equipment**

McNally Wellman provides efficient and practical handling systems to move coal effectively. Our belt conveyor systems provide the link between the mine mouth and the preparation plant or the railroad car and the barge. Equipment includes rail car and barge/ship unloading and loading devices.

**Coal Storage Systems**

McNally Wellman will design a system to satisfy any coal storage requirement. Our systems have included traveling trippers, radial stackers, stacking tubes and stacker/reclaimers. In cases where enclosed storage is required, McNally Wellman offers various types of storage systems.

**Coal Processing Equipment**

McNally Wellman features a wide variety of specialized processing equipment to size, clean, and dewater coal. Processing equipment available from McNally include roll crushers, rotary breakers, baum jigs, heavy medium vessels, water-only cyclones, automatic samplers, curved sieves, centrifugal dryers, and thermal dryers.

**O'Brien Industries, Inc.**  
**10574 Ravenna Road**  
**Twinsburg, OH 44087**



**Telephone:** (216) 487-1500  
**FAX:** (216) 425-8202  
**Chief Executive Officer:**  
**International Sales Manager:**

**K.J. Zinkan**  
**Joseph Wood**

**Domestic Offices:**

**LIVINGSTON, NJ: 95 Dorsa Avenue, Livingston, NJ 07039 TEL. (201) 992-0660 FAX (201) 992-2250**

O'Brien industries, Inc., a subsidiary of Zinkan Enterprises, Inc., was founded in 1940 and markets specialty chemicals used in mining and utilities throughout the U.S.A. and in other countries. Currently, O'Brien is looking to develop a working partner in Europe and Australia.

Product/Service	Designation	Description
Dust Control for Coal or Mineral Handling and Crushing System	DT-16	A patented polymer based product which is safe to use and is very low in cost.
Dust Control for Roadways	DT-350	A resin-based, safe to use long lasting product which provides a low cost, long term dust control solution.

# POLYKEN®

**Polyken Technologies**  
690 Canton Street  
Westwood, MA 02090-9167

Telephone: (617) 320-1000  
Telex: 174370 FAX: (617) 320-1177  
Chief Executive Officer: Frederick J. Zeitvogel  
International Sales Manager: Samuel J. Thomas

Domestic Offices: HOUSTON, TX  
International Offices: AUSTRIA; SINGAPORE; CANADA; SAUDI ARABIA. Call Primary Office for specific addresses.

Polyken Technologies is a manufacturer of pipeline coatings engineered for coal slurry pipelines, and other gas, oil, water pipeline coatings and adhesive tapes. Polyken's pipeline coatings have had 40 years of proved in-ground performance, all include coal slurry pipelines such as "Black Mesa" in the United States. Detailed information on request.

Product/Service	Description
Product 1200 (series)	For smaller diameter pipelines.
Product 1400 (series)	For general purposes, applications.
Product 1800 (series)	For enhanced protection in difficult terrain.
Product 2000 (series)	For high temperature performance.

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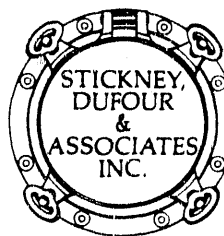
**Savage Industries, Inc.**  
5250 South 300 West, Suite 200  
Salt Lake City, UT 84107

Telephone: (801) 263-4400  
FAX: (801) 261-8766  
Chief Executive Officer: Mr. Allen B. Alexander  
Executive V.P., Development: Mr. David G. Wolach  
V.P., Business Development: Mr. Gerald E. Vaninetti



Savage Industries, Inc., in business since 1946, is a specialized transportation and material handling company specializing in the performance of innovative truck transportation services and loading, unloading, transloading, screening, crushing, weighing and storage systems for coal and other bulk materials. The company provides services throughout the entire bulk commodity transportation and handling infrastructure from mine to ultimate end user. The company handles over 60,000 tons of coal daily. The company has current operations in Colorado, Utah, Wyoming, California, West Virginia and South Dakota. Savage specializes in the utilization of the total transportation and handling concept.

**Stickney, Dufour & Associates, Inc.**  
**P.O. Box 15650**  
**New Orleans, LA 70175-5650**



100 NASHVILLE AVENUE  
 P.O. BOX 15650  
 NEW ORLEANS, LA 70175-5650 USA  
 MARINE SURVEYORS, APPRAISERS, AND CONSULTANTS

**Telephone:** (504) 891-3764

**FAX:** (504) 891-3775

**President:**

Mr. Norman J. Dufour Jr.

**Contact:**

Mr. Norman F. Laskay

**Domestic Offices:**

NEW ORLEANS, LA: 100 Nashville Avenue, New Orleans, LA 70115

**International Offices:**

Please contact above office for details

Stickney, Dufour & Assoc. Inc. is a firm of professional marine surveyors primarily engaged in hull and machinery surveys of commercial vessels. The Company was formed in 1968 as Stickney Marine Surveying, Inc., and became Stickney, Dufour & Assoc. on January 1, 1988. We provide worldwide services of marine surveyors, appraisers and consultants for hull, machinery, tows, charters, loading and securing of cargoes, valuations for lending institutions, insurance and P&I. Additionally, we are experienced in supervision of salvage and repair.

**Surveyors**

**Brief Qualifications**

Norman J. Dufour Jr.

1971 Graduate USCG Academy - Licensed 2nd Assistant (motor), 3rd Assistant (steam) - 14 years surveying experience

Norman F. Laskay

1962 Graduate Maine Maritime Academy - Licensed Deck Officer - 16 years surveying experience

J. Leo Weisgerber

Licensed Unlimited Chief Engineer - 25 years marine surveying experience

**Trinity Industries, Inc.**  
**P.O. Box 568887**  
**2525 Stemmons Freeway**  
**Dallas, TX 75356-8887**



**TRINITY INDUSTRIES, INC.**  
**Freight Car Division**

**Telephone:** (214) 631-4420

**Telex:** 62875050 **FAX:** (214) 689-0819

**Chief Executive Officer:**

W. Ray Wallace

**VP and Director Railcar Sales:**

L. Clark Wood

**VP Sales Freight Car Division:**

W.C. Newby

**International Offices:**

Please contact company headquarters for further information.

Trinity Industries is a large manufacturer of heavy metal products that has manufacturing and fabricating operations in six business segments: Railcars, Marine Products, Structural Products, pressure and non-pressure Containers, Metal Components and Leasing. Trinity is one of the nation's leading producers of railcars, parts and components. Trinity Industries also offers railcar maintenance and repair services.

**Trinity Marine Group**  
P.O. Box 3029  
14055 Industrial Seaway Road  
Gulfport, MS 39505



**TRINITY INDUSTRIES, INC.**  
Marine Group

Telephone: (601) 864-0029  
Telex: 6821246 HALMAR FAX: (601) 867-1666  
Chief Executive Officer: Mr. John Dane III  
Vice President International Sales: Mr. James G. Rivers, Jr.  
Vice President of Domestic Sales: Mr. Sid Mizell

**Shipyards:** BROWNSVILLE, PA: HBC Barge; NEW ORLEANS, LA: Equitable/Halter; MADISONVILLE, LA: Equitable Shipyard; MOSS POINT, MS: Halter Moss Point; LOCKPORT, LA: Halter Lockport; ESCATAWPA, MS: Moss Point Marine; BEAUMONT, TX: Trinity Beaumont; HARVEY, LA: Gretna Machine & Iron Works; CROWN POINT, LA: Aluminum Boats

The Trinity Marine Group consists of nine shipyards on the East and Gulf Coasts. TMG shipyards, especially HBC Barge (Ex-Hillman Barge), Equitable Shipyard and Gretna Machine & Iron Works, supply the coal transport industry with sturdy barges of all sizes and types. TMG shipyards also build high-quality, extremely maneuverable tugs and towboats to proven designs, and Integrated Tug/Barge Combinations which offer the ultimate in efficiency and performance.

Product/Service	Description
Barges	Any size/type, inland or oceangoing deck barges, hopper barges, tank barges, lash barges, seabec barges, jumbo barges, box barges, etc.
Towboats	Proven existing designs from 41' to 146'
Tugboats, oceangoing and harbor	Proven existing designs from 45' to 150'
Integrated Tug/Barge Combinations	Various patented ITB Combinations for reliable integrated towing and pushing

**Willbros USA, Inc.**  
Suite 700, 2431 East 61st Street  
Tulsa, OK 74136



Telephone: (918) 748-7000  
Telex: 79-6660 FAX: (918) 748-7087  
Chief Executive Officer: L.J. Bump

**International Offices:** REPUBLIC OF PANAMA: Edificio Torre Banco Germanico, 8th Floor, Panama 1 TEL. (507) 63-9282 TELEX 3380; NIGERIA: 256 Kofo Abayomi St., P.O. Box 1057, Victoria Island, Lagos, 614877 TELEX 21115; OMAN: P.O. Box 142, Muscat, Sultanate of Oman TEL. 590355 TELEX 5387; UNITED KINGDOM: Provincial House, 62-68 Eden Street, Kingston-upon-Thames, Surrey KT11EJ TEL. (01) 549-4471 TELEX 928172

Willbros USA, Inc. is a subsidiary of Willbros Group, Inc. which provides worldwide construction of pipelines and related facilities, onshore contract rotary drilling, maintenance of pipeline systems, dredging, transportation and pipe coating to the energy industry. Engineering and project management services are also provided to the energy industry, the U.S. Armed Forces and the telecommunications industry.

Product/Service	Description
Energy Transportation	Pipeline and facilities construction. Engineering and project management.



## IV. SUPPORT SERVICES

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**Coal Transport:** Firms providing transportation services between mine-mouth and ultimate consumer.

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**Alabama State Docks  
Port of Mobile  
P.O. Box 1588  
Mobile, AL 36633**

**Telephone:** (205) 690-6020

**Telex:** 810 741 7748 **FAX:** (205) 432-5328

**Chief Executive Officer:** John B. Dutton

**International Sales Manager:** E.G. Browning

**Domestic Offices:** BIRMINGHAM, AL: 538 Brown-Marx Bldg., Birmingham, AL 35203 TEL. (205) 251-0109; CHICAGO, IL: P.O. Box 67, Palos Park, IL 60464 TEL. (708) 361-1818; NEW YORK, NY: Marbridge Building, 1328 Broadway, Suite 559, New York, NY 10001 TEL. (212) 947-7040; KANSAS CITY, KS: (Grain Sales) 51 Corporate Woods, 5th Floor, 9393 W. 110th Street, Overland Park, KS 66210 TEL. (913) 648-6868

**International Offices:** Please contact company headquarters for further information.

The Alabama State Docks Port of Mobile is a major port on the Gulf of Mexico with regular service to all major international ports. Alabama's seaport is closer to open water than any other deepwater ports on the northern U.S. Gulf, making it hours closer to destinations in the Caribbean, Central and South America, the U.S. East Coast, Europe, the Mediterranean, and Africa than any other port. Mobile is the deepwater terminus of the Tennessee-Tombigbee Waterway which provides excellent inland transportation for barges, and is served by five major railroads and two Federal interstate highways. A total of 34 ocean-going vessels may be accommodated simultaneously at the Alabama State Docks. Major expansion programs are currently underway in the general cargo division. Mobile is a leader in coal export, forest products, and steel handling.

<b>Product/Service</b>	<b>Description</b>
Coal Export/Transport	The Alabama State Docks has modern and efficient general cargo, grain export, bulk import/export and major coal export facilities. The McDuffie Terminal Bulk Coal Export Plant is the second largest facility of its kind in the U.S., the largest on the Gulf of Mexico. With three barge unloaders having a combined capacity of 7,500 tons per hour, two rotary rail car dumpers (one a tandem unit), three stacker reclaimers, and two ship loaders, McDuffie efficiently services the largest "supercarriers" afloat. Holding space is available for more than two million tons of coal, and the facility has an annual throughput capacity of 23 million tons.

**The American Coal Sales Company**  
**29525 Chagrin Boulevard, Suite 111**  
**Pepper Pike, OH 44122**

**Telephone:** (216) 765-1240

**FAX:** (216) 765-2654

**Chief Executive Officer:**

**Vice President:**

Mr. Robert E. Murray (Pepper Pike, OH office)

Mr. Richard S. Rice (Alledonia, OH office)

**Domestic Offices:**

ALLEDONIA, OH: 56854 Pleasant Ridge Road, Alledonia, OH 43902 TEL. (614) 926-1351

FAX (614) 926-1615

American Coal Sales is a buyer and seller of coal for affiliates in Ohio, Pennsylvania and West Virginia. The company also owns and operates a harbor facility on the Ohio River at M.P. 110.8. This new facility can tranship coal truck to barge, rail to barge, barge to truck, or barge to rail. Ground storage and blending options are also available. This facility is also located on the Conrail system and can load unit trains.

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**American Commercial Barge Line Co.**  
**1701 East Market Street**  
**Jeffersonville, IN 47130**

**Telephone:** (812) 288-0100

**FAX:** (812) 288-1664

**Chief Executive Officer:**

**International Sales Manager:**

Mr. Michael C. Hagan

Mr. Larry W. Downey

**Domestic Offices:**

CHICAGO, IL: Paul E. Hackett, 20280 Governors Highway, Suite 205, Olympia Fields, IL 60461

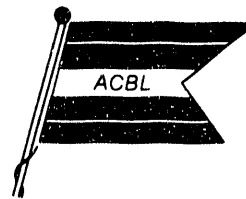
TEL. (708) 748-9246 FAX (708) 948-9295; MEMPHIS, TN: James W. Huls, P.O. Box 25, Memphis, TN

38101 TEL. (901) 774-5499 FAX (901) 774-5719, NEW ORLEANS, LA: Robert W. Maumus, 5800 River Road, Harahan, LA 70183 TEL. (504) 733-7870 FAX (504) 736-1243; PITTSBURGH, PA: Wayne E.

Christy, 1301 Grant Building, Pittsburgh, PA 15219 TEL. (412) 261-6774 FAX (412) 261-6774; ST. LOUIS, MO: James R. Wangler, 730 East Davis Street, St. Louis, MO 63111 TEL. (314) 544-7224

FAX (314) 544-7277; JEFFERSONVILLE, IN: James R. Ritterskamp, 1701 East Market St., Jeffersonville, IN

47130 TEL. (812) 288-0100 FAX (812) 288-0256



American Commercial Barge Line Company, known as ACBL, has been offering coal transportation on America's inland waterways for over 50 years. ACBL has more than 2,200 barges and 100 towboats available for loading and moving coal. In 1989, ACBL alone hauled more than 22 million tons of coal. ACBL, a subsidiary of American Commercial Lines, Inc. (ACL), is headquartered in Jeffersonville, Indiana. ACL has other subsidiaries in marine construction and repair, terminal services and marine communications.

**Product/Service**

**Description**

Marine Transportation

ACBL is a carrier of coal through the use of towboats and barges on over 9,000 miles of inland waterways. This encompasses the Ohio, Missouri, Illinois and Upper and Lower Mississippi river systems as well as the intracoastal canals. As a result of interfacing with train and truck carriers, ACBL is able to offer fast, dependable and economic service for handling, storing and hauling coal.

**Arch Mineral Corporation**  
**CityPlace One**  
**City Place Drive**  
**St. Louis, MO 63141**



**Telephone:** (314) 994-2700  
**Telex:** 5106011393 **FAX:** (314) 994-2719  
**Chief Executive Officer:** Mr. R.E. Samples  
**International Sales Manager:** Mr. E.C. Holdaway (Western U.S.)  
 Mr. P.J. Panzarino (Eastern U.S.)

Arch Mineral Corporation is a major full-service coal mining and sales company. It was formed in 1969 and has over 2,700 employees. The company currently sells in excess of 20 million tons annually of high quality steam and metallurgical coal from mines in Illinois, Kentucky, West Virginia and Wyoming. In addition, Arch owns dock facilities on various rivers. Arch Mineral has the capability of exporting coal from port facilities in: Newport News and Norfolk, VA; New Orleans, LA; Charleston, SC; Mobile, AL; and Los Angeles/Long Beach, CA

Product/Service	Description
Coal Mining Coal Exporters	High quality steam and metallurgical coal from mines in Illinois, Kentucky, West Virginia, and Wyoming available for export.

**Bessemer & Lake Erie Railroad Co.**  
**135 Jamison Lane**  
**P.O. Box 68**  
**Monroeville, PA 15146**



**Telephone:** (412) 829-3465  
**FAX:** (412) 829-6603  
**Chief Executive Officer:** Mr. Donald H. Hoffman  
**International Sales Manager:** Mr. Thomas J. Siegel

Bessemer & Lake Erie is a common carrier railroad operating in Western PA and Northeastern OH. Bessemer sources coals from on-line mines, from its railroad connections with CSX, BP, CR and PLE and from Monongahela and Ohio River origins ex-barge at Duquesne Wharf, PA. At Conneaut, OH on Lake Erie, Bessemer ground stores coals for reclaim to self-unloading lake vessels which in turn transfer to ocean-going ships in the mouth of the St. Lawrence River.

Product/Service	Description
Railroad Transportation	A substantial hopper car fleet compliments access to a variety of coal qualities.
Ground Storage/Blending	A 4 million ton ground storage capacity is stocked from rail cars and reclaimed to vessels in various blends.
Shiploading	Dual conveyor loaders dispatch 30,000 ton lake vessels in approximately 8 hours.

**Black Gem Coal Company**  
P.O. Box 931  
Cincinnati, OH 45239-0931

# BLACKGEM

Telephone: (513) 931-1426  
Chief Executive Officer: H.M. Vonderheide  
International Sales Director: H.M. Vonderheide

Black Gem Coal Company has been in existence since 1976. Product line consists of steam, stoker, and metallurgical coals available from U.S.A. coal areas of southern West Virginia, southwest Virginia, southeastern Kentucky, and eastern Tennessee.

**Product/Service**

Coal Mining, transportation by truck, rail, U.S.A. river system to ports for export. Coal brokers/finders/sales. Mining equipment both deep and surface (as commonly utilized in U.S.A. coal mines).

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**Burlington Northern Railroad**  
3700 Continental Plaza  
777 Mail Street  
Fort Worth, TX 76102



Telephone: (817) 878-2356  
Easylink: 62871208 FAX: (817) 878-1595  
Chief Executive Officer: Gerald Grinstein  
V.P., Coal Marketing: Nicholas P. Moros

Burlington Northern Railroad operates 23,476 miles of track encompassing 25 states and 2 Canadian provinces. Coal transportation represents approximately 48% of Burlington Northern Railroad's revenue ton miles.

**Product/Service**

**Description**

Coal Transport

Burlington Northern Railroad serves 36 coal mines, many among the largest producers in the world and, through interchange with other carriers, accesses additional mines for coal transportation. Most of the mines that Burlington Northern serves have huge reserves of coal below the 1.2 lb standard for sulfur dioxide emissions. In 1989, Burlington Northern transported 141 million short tons of unit train coal for 45 utility customers at over 75 different destinations in 21 states. On a typical day, Burlington Northern operates over 600 locomotives transporting over 16,000 cars in coal service, with an average round trip mileage of 1,600 miles on our system.

**Burnside Terminal**  
**Post Office Box 25**  
**Burnside, Louisiana 70738**



**Telephone:** (504) 473-0793  
**FAX:** (504) 473-9628  
**Vice President and General Manager:** Daniel F. Hales  
**Sales/Marketing Manager:** Glenn Schexnayder  
**Operation Manager:** Nelson Morgan

**International Offices:** Please contact Headquarters for further information.

Since 1957, Ormet's Burnside Bulk Marine Terminal has served the importers and exporters of dry, bulk material. The terminal is located 30 miles south of Baton Rouge at the 170-mile marker on the Mississippi River. It is one of the largest fixed deep water terminals on the Gulf Coast and serves as a transfer station between ocean-going vessels, barges, railway cars and trucks. Burnside's strategic location provides its customers easy access to business opportunities anywhere in North America and the world.

The Burnside Terminal has operated continuously, 24-hours-per-day, for more than 30 years. This commitment to industry and to more than 130 employees has built a dedicated team of professional stevedores, many with 20 to 30 years of experience.

Product/Service	Designation	Description
Stevedoring coal/coke	Import/Export	The Terminal has the ability to stevedore cargoes direct from vessel to barge, rail or barge, pad to vessel. Our 2 gantry cranes, barge/ship loader, barge fleetling area and fixed dock and midstream buoys provide the means to discharge/load vessel in a timely and efficient manner. For sales information please contact our Headquarters.

**Chicago & Illinois Midland Railway**  
**P.O. Box 139**  
**Springfield, IL 62705**



**Telephone:** (217) 788-8633  
**FAX:** (217) 788-8630  
**Chief Executive Officer:** George L. Stern  
**Sales Manager:** Michael Vetter

The C&IM Railway has operated between Peoria, Springfield, and the Taylorville coal mines for over 100 years. It has direct connections to the Burlington Northern, Chicago & Northwestern, Conrail, Illinois Central, Norfolk Southern, Southern Pacific and through the Gateway Western and Toledo Peoria & Western to the Santa Fe and CSX.

Product/Service	Description
Havana Coal Dock Category: Coal Transport	Located at mile post 120.8 on the Illinois River, this rail car to barge transfer facility is capable of handling 3,000 tons per hour, 10 million tons per year, from either gondola or hopper rail cars. 140,000 tons of ground storage is available. Belt scale.

**Chicago and North Western  
Transportation Company  
One North Western Center  
Chicago, IL 60606**



**Telephone:** (312) 559-7000

**FAX:** (312) 559-6495

**Chairman, President, and CEO:**

Mr. Robert W. Schmiede

**V.P. Sales & Marketing - Energy:**

Mr. David G. Weishaar

The Chicago and North Western is a leading railroad freight hauler in the central transcontinental corridor and a major originator of coal and grain.

**Product/Service**

**Description**

Chicago and North Western  
Transportation Company

Chicago and North Western Transportation Company operates a 6,000 mile rail network in the central United States. CNW is a major transporter of coal, grain, automobiles and intermodal double-stack containers. Western Railroad Properties, Incorporated (WRPI), CNW's coal-hauling unit, operates a 200-mile railroad in the southern Powder River Basin of Wyoming. WRPI is a leading originating carrier of low-sulfur coal from western mines to the Midwest and South.

**Consolidated Rail Corporation  
6 Penn Center Plaza  
Philadelphia, PA 19103-2959**



**Telephone:** (215) 596-2000

**FAX:** (215) 851-7448

**Chief Executive Officer:**

Mr. J. A. Hagen, Chairman,  
President, and CEO

**Assistant Vice President:**

Mr. R. W. Lynch, Coal Coke and Iron Ore

**Mgr - Coal Mktg/Sales Export:**

Mr. R. B. Schurr

**Domestic Sales Offices:**

PHILADELPHIA, PA: 1126 One Liberty Place, Philadelphia, PA; 1650 Market Street, 19103-7399

TEL. (215) 851-7480

**International Offices:**

Served from Philadelphia.

With rail lines in 14 Eastern and Midwestern states in the United States, Conrail offers direct rail transportation links between coal producing regions, shippers, and international coal buyers. The diverse characteristics of coal accessible by Conrail are well-suited to the energy needs of the world economy, providing premium energy required to generate electrical power and yielding excellent coking coals for metallurgical applications. Reserves of approximately 21 billion tons of bituminous and anthracite coal for steam and metallurgical use are located within Conrail's operating areas and are readily available for the export market. Ninety-five percent of U.S. low-sulfur anthracite coal is produced in one area of operation, Pennsylvania. Conrail is committed to the enhancement of transportation partnerships with coal producers, traders, and international coal buyers.

**Product/Service**

**Description**

Coal Transport Freight Forwarders Coal  
Exporters

Serving East Coast ports, Conrail offers a full range of routing and shipping options combined with state-of-the-art transfer, blending, and storage capabilities; along with the capability of loading up to 7,000 tons of coal per hour and up to 15 million tons per year. Conrail owns a sophisticated rail-to-water transshipment facility, Pier 124 at the Port of Philadelphia (one of the many piers served by Conrail) and has direct access to Consolidation Coal Sales Company's Terminal at the Port of Baltimore. Conrail, through its modern, high-capacity transfer operations located on Lake Erie at Ashtabula Coal Pier in Ashtabula, Ohio, is strategically positioned for export coal movement through the Great Lakes/St. Lawrence Seaway coal corridor. Also, through interchange with other railroads, Conrail can deliver to any port in the U.S.A.

**Consolidation Coal Company**  
**Consol Plaza**  
**1800 Washington Road**  
**Pittsburgh, PA 15241**



**Telephone:** (412) 831-4382  
**Telex:** 247-634 **FAX:** (412) 831-4571  
**Chief Executive Officer:** B. R. Brown  
**International Sales Manager:** Walter E. Schrage

**Domestic Offices:** NORFOLK, VA: 201 Granby Mall, Suite 216, Norfolk, VA 23510 TEL. (804) 627-6261, FAX (804) 625-5088, TELEX 240403 CONSOL NORF; BALTIMORE, MD: Consolidation Coal Sales Company Terminal, 3800 Newgate Avenue., Baltimore, MD 21224 TEL. (301) 631-7000, FAX (301) 631-7022

**International Offices:** BELGIUM: Godefroid Coal Trading and Shipping S.A., 37-41 Rue du Congress, Brussels 1000 Belgium TEL. 011-32-2-218-7220, FAX 32-2-218-6192, TELEX 846-21434

Consolidation Coal Company (Consol) operates 25 underground and surface mines in nine states and Alberta, Canada. The company is the second-largest coal producer in the United States and hold 6.1 billion tons in steam and metallurgical-grade coal reserves. More than 80 percent of Consol's annual production of more than 55 million tons of steam coal for electricity generation. Nearly 11 million tons of high-grade metallurgical coal is produced annually. Consol mines are linked to major rail routes or the inland waterway for shipment to domestic customers and to exporting points on both coasts and the Gulf of Mexico.

Product/Service	Description
Steam Coal	Consol has exported steam coal since the early 1900s. Today consol exports steam coal to eight countries from mines in northern West Virginia, southwestern Pennsylvania and eastern Kentucky. Exporting points are Consolidation Coal Sales Company's (CCSC) terminal in the Port of Baltimore or terminals in Hampton Roads, Virginia and New Orleans, Louisiana.

**CSX Transportation, Inc.**  
**550 Water Street, J842**  
**Sun Bank - 3rd Floor**  
**Jacksonville, FL 32202**



**Telephone:** (904) 359-7561  
**FAX:** (904) 359-4896  
**Chief Executive Officer:** John W. Snow  
**International Sales Manager:** Mark D. Gibson, John R. Couch

**Domestic Offices:** RICHMOND, VA: Corporate Office, One James Center, Richmond, VA 23219; JACKSONVILLE, FL: Rail Transport, 500 Water Street, Jacksonville, FL 32202

CSX Transportation, the largest unit of CSX Corporation, has been transporting coal via rail for over a century and is the largest transporter of U.S. coal. CSX's rail system is comprised of 20,000 miles of rail, 55,000 coal hoppers and has 38,000 employees. All types and grades of coal are produced within CSXT's service area. Over ninety percent of the coal exported overseas via CSXT moves in unit trains to one of six terminals served by CSX at four ports. Each of these terminals offer ground storage providing flexibility in transportation scheduling as well as other benefits. CSXT has the experience and resources to meet all transportation requirements. Innovative management works closely with coal producers and consumers to ensure that the U. S. continues to maintain its position as a cost efficient and reliable supplier to world markets.

(Continued on next page)

**CSX Transportation, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Rail Transportation	From the coal fields east of the Mississippi river to the port of Baltimore, Maryland or Newport News, Virginia or Charleston, South Carolina or Mobile, Alabama.

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**Dames & Moore**  
**Executive Headquarters**  
**911 Wilshire Boulevard, Suite 700**  
**Los Angeles, CA 90017**



**Telephone:** (213) 683-1560  
**Telex:** 15528 **FAX:** (213) 628-0015  
**Chief Executive Officer:** George D. Leal  
**Chief Operating Officer:** Henry Klehn, Jr.  
**Manager International Division:** Robert H. Winn (Denver, Colorado office)

**Domestic Offices:** 68 offices throughout the U.S., including DENVER, CO: TEL. (303) 294-9100; CINCINNATI, OH: TEL. (513) 651-3440; HOUSTON, TX: TEL. (713) 688-4541; PHILADELPHIA, PA: TEL. (215) 657-5000; TUSCALOOSA, AL: TEL. (205) 758-7007  
**International Offices:** 37 international offices and affiliates, including ENGLAND: London TEL. 44-81-891-4457; AUSTRALIA: Sydney TEL. 61-2-439-4166

Dames & Moore is a 52-year-old, diversified professional consulting organization for projects involving planning, engineering, the earth and environmental sciences, waste management, design, construction management, and permitting assistance. Among its wide range of clients are mining companies, utilities, and multinational energy corporations. The firm reports annual billings of \$250 million, and employs 3,200 professional and support staff in more than 100 offices worldwide.

<b>Product/Service</b>	<b>Description</b>
Coal Mining	Geological reconnaissance; exploratory drilling and geophysical logging; mapping of coal characteristics, reserve calculations, pre-mining and mining feasibility studies; design of mining systems; surface and underground mine layout and designs; technical and economic evaluations; restoration and reclamation of mine properties.
Technical Consultants	Specialist services in coal mine ventilation; strata control, subsidence engineering; mine fires, spontaneous combustion; methane drainage and degasification of coal seams; expert witness testimony.
Utilities	Development of fuel procurement strategy and fuel specifications; formulation and review of contracts, terms and conditions; evaluation of escalation components; identification and technical evaluation of potential suppliers in terms of reserves, coal quality, production facilities and capabilities; coal preparation and loadout facilities; negotiations on price and delivery for long-term supplies.
Coal Transport	Analysis and risk assessment of technical and economic aspects of alternative coal transportation systems, including rail, barge, ship, truck and pipelines.



**Dixie Carriers, Inc.**  
**1775 St. James Place**  
**P.O. Box 1537**  
**Houston, TX 77251**

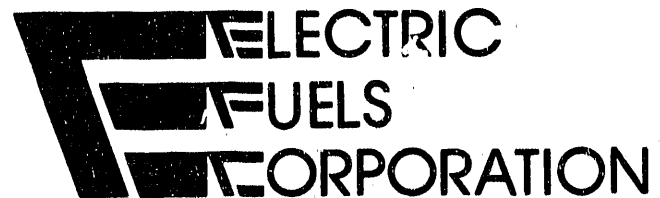


**Telephone:** (713) 622-5502  
**Telex:** 910-881-3702 **FAX:** (713) 694-2280  
**Chief Executive Officer:** Joseph H. Pyne  
**Director, Offshore Sales:** Virgil F. Gant

Dixie Carriers, Inc. operates 5 U.S. flag dry bulk ocean tug barge tows of 17,000 DWT. Vessels trade domestic U.S., Puerto Rico, Caribbean, Central and South America, carrying coal, grain, fertilizers, ore and other dry bulk commodities. Dixie Carriers, Inc. is a subsidiary of Kirby Corporation, whose stock is traded on the American Stock Exchange.

Product/Service	Designation	Description
Coal Transportation	Ocean Barging	Move dry bulk products from or to U.S., Caribbean, and Central and South American ports.

**Electric Fuels Corporation**  
**235 Third Street South**  
**P. O. Box 15208**  
**St. Petersburg, FL 33733**



**Telephone:** (813) 892-2700  
**Telex:** 514168 **FAX:** (813) 892-2702  
**Chief Executive Officer:** Richard D. Keller  
**International Sales Manager:** Robert Ramey

Electric Fuels Corporation (EFC) through its many subsidiaries is involved in coal mining, coal transportation, coal transfer facilities, fuel research in the coal area and the development of coal-based alternative fuels. Electric Fuels has developed a coal management system that has proved to be successful and highly competitive in supplying coal from mine site to the customer. This fully-integrated system is composed of five essential groups: coal, operations, marine and terminaling, alternative fuels and international marketing. The integration of these groups under Electric Fuels' management provides the necessary exposure to all phases of the coal industry.

Product/Service	Description
Advance Utilization	With access to experts in virtually every application of coal combustion, Electric Fuels can provide qualified technical know-how in the areas of ash utilization, mineral and metal recovery from ash and in ash disposal. From start to finish, Electric Fuels' customers are assured of experienced assistance with all their coal handling needs. EFC has developed services ranging from field and laboratory functions to advanced computer support.
Coal Derivatives	Electric Fuels' involvement in the development of alternative fuels is through COMCO, a leader in the manufacture of coal-oil mixture (COM), coal-water mixture (CWM) and petroleum coke-oil mixture (PETCOM). Coal-liquid mixtures are produced at COMCO's Port Sutton, Florida facility. REDICOAL, COMCO's new powdered coal product for industrial and utility use, has proved to be an economical replacement for fuel oil and natural gas.
Coal Mining	The coal group is responsible for the mining and preparation of coal from sites containing approximately 215 million tons of reserves located in the states of Virginia, West Virginia and Kentucky. Origin points have capability to load both trucks and unit trains.

(Continued on next page)

### Electric Fuels Corporation (Continued)

**Coal Transport**

Marine Equipment Management Corporation, a wholly-owned subsidiary, handles coal from all inland river origins in either single barge or unit tow lots. Standby loading is available. Covered barges are available. MEMCO also offers switching and fleetng services at various Mississippi River ports.

Dixie Fuels Limited offers handling, storing, terminaling and transporting bulk cargo by sea-going marine transportation equipment.

**Facility Operation**

International Marine Terminals is a bulk materials handling facility strategically located near the mouth of the Mississippi River. The recently expanded terminal consists of modern facilities, ground storage/blending and a coal testing laboratory operated by an independent agent.

Hatfield Terminals operates transfer facilities in Cincinnati, Ohio, on the Ohio River and near Charleston, West Virginia, on the Kanawha River.

Kentucky May Coal operate a coal transfer facility on the Big Sandy River.

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### Farrell-Cooper Mining Company

P.O. Box 1947  
6001 South Zero  
Fort Smith, Arkansas 72902



Telephone: (501) 646-4366

FAX: (501) 646-3220

Chief Executive Officer: William J. Cooper

International Sales Manager: William J. Cooper

**International Offices:** Please contact company headquarters for further information.

Farrell-Cooper Mining Company is in the business of mining, transporting and exporting bituminous coal and cannel coal for industrial fuel and domestic home heating fuel. We operate coal loading facilities on the Arkansas River (1,500 ton barges), but mainly at the Port of Corpus Christi, Texas. At Corpus Christi, we handle product for export as well as product being imported.

Product/Service	Description
Coal Exporters	Export facility is located adjacent to Port of Corpus Christi. The port's depth is 45 feet and is the deepest port on the Gulf of Mexico.
Coal Mining	Operate two surface mines in the State of Oklahoma on Low Volatile and High Volatile Bituminous Coal. Operate two surface mines in the State of Texas on a High Volatile, Low Ash Cannel Coal under the name of Farco Mining of Texas, Inc. All coal mines are equipped with coal washing facilities.
Coal Transport	All of our mines are equipped with railroad tipples in addition to major highway access.

**Goodman Equipment Corporation**  
**5430 West 70th Place**  
**Bedford Park, IL 60638**



**Telephone:** (708) 496-1188  
**Telex:** 6871228 **FAX:** (708) 496-3939  
**Chief Executive Officer:** Calvin A. Campbell, Jr.  
**International Sales Manager:** Silvio M. Martino

**International Offices:** CANADA: Goodman Mfg. Co. of Canada Ltd., Sudbury, TEL. 705-560-4300; ARGENTINA: Daniel G. Cormick SA, TEL. 140-1508; BOLIVIA: Sociedad Comercial Mara Ltd TEL. 2-354506; BRAZIL: Nordberg Industrial Ltd TEL. 31-621-1200; CHILE: MSA de Chile Ltd TEL. 225-5377; FRANCE: Auray Engineering TEL. 48740366; INDIA: General Mktg & Manufacturing Co. TEL. 0211-449170; ITALY: CO.AM.CO.SRL TEL. 968-1537; JAPAN: C. T. Takahashi & Co. Ltd TEL. 281-2831; KOREA: Woodward & Dickenson Far East Ltd TEL. 777-9551; MEXICO: MSA de Mexico S.A. de C.V. TEL. 576-6444; PERU: MSA de Peru, S.A. TEL. 354065; PHILIPPINES: Marsman & Co., Inc. TEL. 889731; SOUTH AFRICA: (Tunneling) Robert Hudson South Africa Pty Ltd. TEL. 915-2410/13; TURKEY: Polar Mining & Industrial Corp TEL. 41-176520; ENGLAND: Cariboo Plant Services, Ltd. TEL. 269-552; YUGOSLAVIA: Interkomerc Kontinental TEL. 11-340301; NICARAGUA: Casa Commercial McGregor TEL. 2-66151; NEW ZEALAND: A.R. Harris Co., Ltd TEL. 3-48809

A century ago, Herbert Goodman began manufacturing underground mining locomotives in Chicago's famed back of the yards neighborhood. Today, Goodman Equipment Corporation continues as one of the world's premier suppliers of mining locomotives and parts. Locomotives from 1.5 to 50 tons transport extracted materials, people and supplies. They are used in 22 different countries throughout the world in the production of platinum, gold, silver, copper, lead, zinc, tin, coal and uranium. There are Goodman locomotives hauling iron at smelters. They even carry tourists at Disneyland and at Chicago's famed Museum of Science and Industry Coal Mine Exhibit. Goodman serves the underground coal and metals mining industries from its Chicago facility and additional warehouses in Waynesburg, Pennsylvania and Sudbury, Ontario. Mining agents represent Goodman throughout the world.

Product/Service	Description
Transportation Equipment	Goodman manufactures a broad line of powered rail equipment for underground coal and hard rock mines. Prime movers are either diesel or electric, battery or trolley or combination battery and trolley powered. Standard models, personnel carriers from 4 to 16 passengers, locomotives from 2 to 35 tons. Goodman also works closely with clients to develop customized specifications for this equipment.
Tunneling	Goodman manufactures a broad line of locomotives for the tunneling industry. Electric or diesel powered. The electric locomotives can be either trolley or battery or a combination trolley and battery powered. Product ranges from 2 tons through 35 tons. Goodman also manufactures the Conway Mucking Machine for muck loading.

**Inter-Maritime Forwarding Co., Inc.**  
156 William Street  
New York, NY 10038



Telephone: (212) 791-1234  
Telex: 422969 FAX: (212) 791-0472

President: Mr. Martin G. Mann  
Director Sales/Marketing: Mr. San Fischel  
Director of Imports: Mr. Michael McCarthy

**Domestic Offices:** J.F.K. AIRPORT: H. Woltmann, TEL. (718) 632-0345; CHICAGO: G. Yost, TEL. (708) 529-9900; LOS ANGELES: I. Miura, TEL. (213) 641-3147; MIAMI: M. Vasquez, TEL. (305) 592-6158  
**International Offices:** UNITED KINGDOM - LONDON/MANCHESTER/BRADFORD/GLASGOW

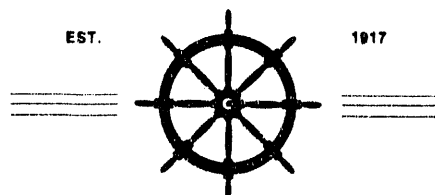
I.M.F., since 1929, can help design your total shipping plan, from port of origin to final destination. We offer daily sailings of scheduled ocean vessels to major world ports. We provide full-container service or will consolidate less-than-container loads. We offer import and export services through every U.S. international port, air or sea, on worldwide routes. IMF was the first Customs Broker in the New York region to link up with U.S. Customs Services Automated Broker Interface. Through IMF-ABI computer networking, we can obtain cargo release from U.S. Customs in minutes.

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**John S. Connor, Inc.**  
33 South Gay Street  
P. O. Box 1717  
Baltimore, MD 21203-1717

EST.

1917



Telephone: (301) 332-4880  
Telex: 170914 CONNOR UT  
6849034 CONNOR UW  
87565 CONNORBULK BAL FAX: (301) 332-4925

Chief Executive Officer: Paul F. Connor  
International Sales Manager: C. Richard Foster

**Domestic Offices:** NORFOLK, VA: 322 Monticello Arcade, P. O. Box 3910, Norfolk, VA 23514-3910 TEL. (804) 627-3910 TELEX 160106 JSCONNORNFK, FAX (804) 627-3538

**International Offices:** ENGLAND: Jonathon S. E. Turner, Heath Paddocks, Press Heath Whitechurch, Shropshire SY13 2AF TEL. 0948-3527, FAX 0948-5949, TELEX 35756 A/B TURNER G; GREECE: Captain Georgio A. Kondoulis, G. A. Kondoulis Shipping Co., Ltd., 150, Kolokotroni Street, 185 36 Piraeus TELEX 211258 ALGK GR; JAPAN: Yutaka Iono, Iono Marine Co., Ltd. 604 Catherine Yoyogi, 22-5, 2-Chome Yoyogi, Shibuya-ku, Tokyo 151 TEL. (03)378-3281, TELEX 232-5363 IONO J, FAX (03) 378-0866; ITALY: Angelo Noli, Paolo Scerni, S.P.A., 10 Piazza Portello, P. O. Box 1857, 16124 Genoa TEL. 3910 2692222 or 2267, FAX 39 102692237

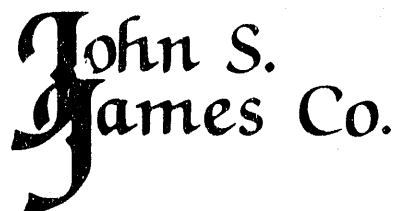
Since 1917, John S. Connor, Inc. has been representing shippers and consignees of International Commerce. During this period, the company has grown to become one of the most versatile and innovative maritime agency businesses on the U. S. East Coast. As Shipper's Agent, the company handles the majority of export coal and bulk movements through Baltimore along with providing similar services at Hampton Roads. Connor's Agency Departments maintain full service marine operations in the general husbanding of vessels both as Owner's or Charterer's Agent at Baltimore and Hampton Roads. As with all Connor operations, our main objective is to protect the principal's interests at all times.

(Continued on next page)

**John S. Connor, Inc. (Continued)**

Product/Service	Description
Coal Transport	As Shippers Agent we provide attendant outbound documentation for export cargoes along with coordination of loading to fulfill Shipper's/Master's cargo requirements. John S. Connor provides fully staffed marine departments with extensive experience in the handling of the exacting needs of vessel activities and in-port requirements both as Owner's and Charter's Agent along with representation as Shipper's Agent.
Freight Forwarders	John S. Connor correlates with the Shipper for timely movement of coal cargo to quay in accord with arrival of vessel to Port, as well as providing full export documentation services and assistance in vessel loading operations.

**John S. James Co.**  
**P.O. Box 2166 (31498)**  
**144 Drayton Street**  
**Savannah, GA 31401**



**Telephone:** (912) 232-0211  
**Telex:** 804722 **FAX:** (912) 233-2150

**Chief Executive Officer:** John Wm. James  
**Marketing and Sales Manager:** Joseph K. Ebberwein

**Domestic Offices:** JACKSONVILLE, FL: TEL. (904) 356-9646; ATLANTA, GA: TEL. (404) 762-5556; CHARLESTON, SC: TEL. (803) 554-6400; WILMINGTON, NC: (919) 343-0700; NORFOLK, VA: TEL. (804) 625-0641; CHATTANOOGA, TN; KNOXVILLE, TN: TEL. (615) 970-3367

**International Offices:** Agents worldwide. Please contact company headquarters for further information.

John S. James Co. was founded in 1941. Within our organization, we have over 100 International Customs and Forwarding Specialists serving the needs of the transportation community. The John S. James Company is committed to the continuation of providing expertise in handling Customs/Consular document preparation and cargo coordination in the International Marketplace. We have corresponding agency agreements with various companies in the states and abroad which enable us to handle shipments to and from ALL points.

Product/Service	Description
Foreign Freight Forwarder FMC #150-R	Our computerized Export Program allows us to tailor documents according to each client's individual needs. As your International Freight Forwarder, we become an extension of and a personal representative in the port/city of loading for you.
Customhouse Broker CHB #5611	John S. James is fully computerized and automated and transmits via in-house computer directly to Customs in Washington, D.C., through the A.B.I. (Automated Broker Interface) system. "We are proud to be the very FIRST Customs Brokers in the entire U.S. to be approved on the 'Cargo Release' System. Being an ABI broker enables us to expedite document processing, facilitating the movement of your cargo."
International and Domestic Air Cargo	By associating with a network of carriers, economical rates have been established to all points throughout the nation and the world. We also arrange to have packages and/or documents delivered door to door via courier at a discounted price. Further discounts are available for volume shippers.
Chartering	Our eight offices plus contacts in New York and abroad afford us first-hand knowledge of current market conditions throughout the world and allow us to expedite substantial shipments, both air freight and ocean freight.

(Continued on next page)

**John S. James Co. (Continued)**

**NVOCC (Consolidation Service)**

This fully-insured service enables us to accommodate the needs of the "less than container" load shipments. We offer a viable alternative for moving cargo at a significant cost savings on ocean freight charges while expediting delivery of their products.

**Warehousing/Distribution**

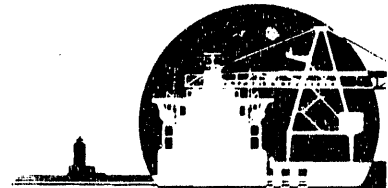
Our domestic transportation system can assist commercial development firms in the movement, warehousing and installation of their furniture, fixtures, and expendable items.

**Inland Transportation**

These services may be combined with Import or Export shipments to provide a Door-to-Door service or may be used on strictly domestic movements.

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**Kaiser International Corporation**  
250 W. 5th St., Suite 125  
San Pedro, CA 90731



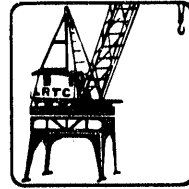
**KAISER  
INTERNATIONAL  
CORPORATION**

**Telephone:** (213) 514-2880  
**Telex:** 706746 **FAX:** (213) 514-3543  
**Chief Executive Officer:** Richard E. Holdaway  
**International Sales Manager:** James E. Holland

Kaiser International Corporation operates the Dry Bulk Facility in the Outer Harbor of the Port of Los Angeles at Berths 48-53. This facility was constructed in 1965 to handle the export of iron ore and coal to Japan. The facility has been used for extensive exports of coal, iron ore, copper concentrates, scrap steel, and petroleum coke as well as import cargoes. Kaiser International Corporation operates the facility providing diverse stevedoring services. Bulk materials are handled to or from ships, railcars, trucks or storage.

<b>Product/Service</b>	<b>Description</b>
Facility Operation	Coal is delivered to Kaiser International Corporation's facility in unit trains of up to one hundred cars which originate on the Denver Rio Grande and Western, Utah, Union Pacific, Santa Fe, and Southern Pacific Railroads from the states of Utah, Colorado, New Mexico, Arizona, and Wyoming. Import cargoes of coal have also been handled by Kaiser International Corporation.
Coal Transport	The coal loading Berths 49-50, operated by Kaiser International Corporation in the Outer Harbor of the Port of Los Angeles, have the deepest water of any coal loading berth in the United States. The facility berths have 51 Ft. (15.54M) of water depth available at Mean Lower Low Water (MLLW). Coal is unloaded from railcars by a rotary car dumper. Coal from the rotary car dumper is handled on a conveyor system that provides direct loading from railcar to ship, railcar to storage, and storage to ship. Fourteen acres of coal storage area provide 200,000 metric tons of live storage capacity. The facility has loaded and discharged coal cargoes of up to 125,000 metric tons. Coal is loaded to vessels by a conveyor feed shiploader traveling up to 680 feet along the dock and traversing in and out, allowing spout trimming of most cargoes. Machine trimming by bulldozer is available if required.

**Levin-Richmond Terminal Corporation**  
**402 Wright Avenue**  
**Richmond, CA 94804**



**LRT Corporation**

**Telephone:** (415) 232-4422  
**Telex:** 650 282 2846 MCIUW  
**Chief Executive Officer:**  
**International Sales Manager:**

**FAX:** (415) 236-0129  
**William S. Benak, President**  
**Mike McCoy, Marketing Representative**

Levin-Richmond Terminal is a privately owned dry bulk marine terminal located in the San Francisco Bay Area. Over 40 different products have been handled since 1981. In addition to coal the primary exports are petroleum coke and scrap metal. Imports include cement, clinker, bauxite, gypsum and various carbon products. Marketing services also include truck and railroad contracting and vessel chartering. Levin owns one handy size vessel, M/V "Hana Maui" and a short line railroad, Parr Terminal Railroad.

Product/Service	Description
Facility Operation	Eighty-four car coal train loads are delivered to a local switchyard. Levin's short line, the Parr Terminal Railroad receives coal directly from the Southern Pacific and the AT&SF Railroads. Coal is bottom dumped from rail cars, stockpiled, or loaded on board vessels. Stockpiles are reclaimed by front end loaders. Loading rate of a portable ship loader is 12,000 MT per day.
Coal Transport	Two berths are available to load coal. The berths have 40 ft. and 38 ft. of available water depth. The ship channel is maintained at 35 feet (MLLW) with daily tides adding an additional 6 feet of water. Vessels are limited to Panamax size. Maximum coal storage is 100,000 MT.
Coal Exporter	As a private facility, Levin-Richmond Terminal will contract with suppliers or customers to provide a commodity and full transportation services. Combined rail, loading and ocean transportation services at competitive rates can be provided.

**M.G. Maher & Company, Inc.**  
**442 Canal Street**  
**New Orleans, LA 70130**



**Telephone:** (504) 581-3320  
**Telex:** 584286 **FAX:** (504) 529-2611  
**Chief Executive Officer:** Paula L. Maher, President

**Domestic Offices:** HOUSTON, TX: Ralph Benzaquin, 1121 Walker St., Houston, TX 77002 TEL. (713) 224-8101, FAX (713) 224-4101; MOBILE, AL: Lila Davis, One St. Louis Center, Mobile, AL 36602 TEL. (205) 433-8474, FAX (205) 438-3103; SHREVEPORT, LA: Donna Hopkins, 6209 Interstate Dr., Shreveport, LA 71109 TEL. (318) 631-3956, FAX (318) 631-4102; BRENTWOOD, TN: Bobby Thompson, 783 Old Hickory Blvd. Brentwood, TN 38131 TEL. (615) 371-8438, FAX (615) 377-9712; MEMPHIS, TN: Sandra Jennings, 3035 Distributors Row, Memphis, TN 38131 TEL. (901) 345-2878, FAX (901) 345-2980; JACKSON, MS: Keith West, Terminal Bldg., Jackson Int'l Airport, Jackson, MS 39208 TEL. (601) 932-7435, FAX (601) 932-7436

M. G. Maher is one of the largest, full-service international freight forwarders and customs brokers in this part of the world. We know every in-and-out of the technical details, laws, personalities, systems, routines, and quirks associated with shipping. We are fully computerized, which serves us well in what we regard as our most important function: looking out for our clients interests.

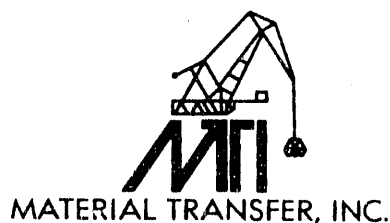
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**M.G. Maher & Company, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Coal Transport Freight Forwarders	Tracing of inland movement to seaboard, booking of advance and timely cargo space, as well as preparing and executing documents and other paperwork.

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**Material Transfer, Inc.**  
P.O. Box 56854  
New Orleans, LA 70153



Telephone: (504) 529-5461  
Telex: 161710 FAX: (504) 529-5745

Chief Executive Officer: Mr. C. S. Larsen, Jr.  
International Sales Manager: Mr. C. S. Larsen, Jr.

Domestic Offices: PORT ST. JOE, FL: P.O. Box 246, Port St. Joe, FL 32456 TEL. (904) 229-8294  
International Offices: SINGAPORE; ROTTERDAM

Material Transfer, Inc. (MTI) is a waterborne transportation provider offering ocean transportation of coal and other products as well as inland domestic transportation in the U.S. Included in its facilities is a coal transloading terminal with a capacity of 9,000,000 short tons per year located in the Gulf Coast city of Port St. Joe, Florida. Current movements there include barge to rail transloading of coal mined in the Ohio River Valley and barged by MTI down the Mississippi River; however, facilities can be provided for the transloading from barge or rail to ocean-going vessels for export. MTI can satisfy the customer's export coal transportation needs from the loading docks in the Ohio River Valley to the customer's destination at foreign ports.

<b>Product/Service</b>	<b>Description</b>
U.S. Domestic Transportation of Coal by Barge	MTI can provide for the transportation of coal by barge from the Ohio River Valley down the Mississippi River and on Gulf Intercoastal Waterway Systems. Current operations include a 14 boat, 111 barge fleet.
Transloading of Coal	MTI can transload from barge and rail to ocean-going vessels as well as barge to rail at its Port St. Joe, Florida, terminal.
Oceangoing Transportation of Coal	MTI can provide for the ocean transportation of export coal to foreign ports.



**Mobil Coal Producing Inc.**  
**Box 17772**  
**Denver, CO 80217**



**Telephone:** (303) 298-2960  
**Telex:** 910-9312633 **FAX:** (303) 298-2974  
**President:** R. G. (George) McGinn  
**International Sales Manager:** J. R. (Bob) Anderson

**International Offices:** **INDONESIA:** M. R. (Mike) Wolfhard, Mobil Oil Indonesia Inc., Post Bag 400, Jakarta 10002; Ratu Plaza 27th Floor  
 TEL. 61-21-711211, TELEX 47431 MOI/JKT, FAX 61-21-7202068

Mobil Coal Producing Inc., an established coal producer and marketer, commenced production at its Caballo Rojo Mine in Wyoming's Powder River Basin in 1982. The Mine has a current capacity of over eight million tons per year with the potential to increase its permitted target of 20 million tpy. Coal from Caballo Rojo was successfully shipped to Taiwan Power Company in 1988 through the Roberts Bank terminal in British Columbia. Mobil Coal Producing Inc. is also developing a resource in Indonesia with Nissho Iwai as joint venture partner in its P. T. Berau project. Production is planned from the Berau Mine in early 1991 to supply both the Indonesian and Pacific Rim marketplaces.

Product/Service	Description
Coal Exporters	U. S. production from the Caballo Rojo Mine is low ash, low sulfur with a heating value of 8500 BTU/lb. Deliveries can be made on either the BN or the C&NW/UP railroads. Transshipment via the Roberts Bank Terminal is proven.
Coal Mining	Low ash, low sulfur, good quality coal from Kalimantan, Indonesia is planned for early 1991 shipment.
Coal Transport	Mobil can assist end users with their transportation requirements.
Technical Services	Mobil utilized state-of-the-art computer modeling and retains highly qualified combustion experts to provide domestic and international customers technical coal utilization assistance.

**Norfolk Southern Corporation**  
**Three Commercial Place**  
**Norfolk, VA 23510-2191**



**Telephone:** (703) 985-6707 (Roanoke, VA)  
**FAX:** (703) 985-6398  
**Chief Executive Officer:** A. B. McKinnon  
**Director International Coal & Ore Traffic:** T. E. Rappold

**Domestic Offices:** **ROANOKE, VA:** 204 S. Jefferson Street, Roanoke, VA 24042-0070

Norfolk Southern (NS) is a holding company formed in 1982 with the merger of the Norfolk and Western and Southern Railways. As of July 1, 1990, NS operates 14,600 miles of track covering 21 states, primarily in the East, Southeast, and Midwest sections of the U.S. Rolling stock includes 47,350 open top coal hoppers which have an average hauling capacity of 96 tons per car and 2,049 locomotives. During 1989, coal mines located on the NS rail system loaded a record 122 million tons. Of this total, 31.4 million tons were exported through the NS Pier 6 Coal terminal located at Lamberts Point, Norfolk, VA. The mines served by NS ship high-quality, low-sulfur steam and metallurgical coal.

(Continued on next page)

**Norfolk Southern Corporation (Continued)**

Product/Service	Designation	Description
Coal Export Terminal	Pier 6	Pier 6 is 1,850 feet (564 meters) in length, has two traveling shiploaders capable of loading two ships simultaneously or these two loaders can concentrate on one ship. Combined loading rate of both loaders is 16,000 tons per hour. The pier can accommodate vessels with a beam of 175 feet (53 meters), air draft of 55.5 feet (17 meters), and can accommodate a sailing draft of 50 feet (15.24 meters).

**Oglebay Norton Company**  
**1100 Superior Ave.**  
**Cleveland, Ohio 44114**



**Telephone:** (216) 861-3300, (216) 861-8707  
**Telex:** 62836077 ONCO-CLEVE **FAX:** 216-861-2863  
**Chief Executive Officer:** Renold D. Thompson  
**International Sales Manager:** J. Douglas Loughhead

Minerals, lake transportation and manufacturing are the major areas in which Oglebay Norton serves steelmakers, utilities, chemical and glass producers, manufacturers and other basic industries. Produces Ohio No.8 Seam Coal (Steam) with daily production capabilities of 4000NT Deep Mine located on NS Railroad at St. Clairesville, Ohio. Twelve thousand contiguous acres of coal reserves located in Boone County, WV. Five seams with average quality being 12,500 BTU's and 1% sulfur. Production is scheduled for fourth quarter 1989.

Product/Service	Designation	Description
Coal Mining		
Coal Transport	Ceredo Dock	Barge loading facility located near Huntington, WV on the Ohio River. Jointly served by CSX and NS railways (unit train capable) with annual capacity of 8,000,000 tons.
Facilities Construction	Licking River Terminal Co.	Barge loading facility located near Cincinnati, Ohio. Unit train capable and served by the CSX railway. Annual capacity of 8,000,000 tons.
Facilities Operation	Columbia Transportation Division	Offers a full range of 13 lake carriers to handle bulk materials on the Great Lakes.

**Pier IX Terminal Company**  
P.O. Box 38  
Newport News, VA 23607



## Pier IX Terminal Company

**Telephone:** (804) 244-8800  
**Telex:** 901448 **FAX:** (804) 247-0287  
**President:** Charles M. Whitten  
**Director of Marketing:** C. Douglas Starrett

Pier IX Terminal, a division of Shell Coal and Terminal Company, is located on the James River in Southeast Newport News, Virginia. Since its opening in 1983, this terminal has loaded over 50 million tons of coal to over 1,100 vessels destined to all parts of the world.

In June of 1990, Pier IX commissioned a Dry Bulk Unloading System which initially handles bulk cement. This new system is capable of handling other dry bulk material; i.e., potash, salt, fertilizers, import coals, etc. Plans are to incorporate required equipment to handle self unloader vessels as well as bulk vessels to both open and covered storage.

Product/Service	Description
Coal Berth	52 ft. water depth, 80 ft. air draft, 8000nt/hr loading capacity, 1,000,000 open ground storage
Bulk Unloading Berth	43 ft. water depth; siwertel unloader - 800 TPH capacity; good potential for open and covered storage up to 250,000 tons; planned improvement to handle self unloading belt dischargers
Barge Loading Facility	near term plan to build special purpose barges loading facility and unit train storage silos
Rail Connections	CSX
Highway Connections	adjacent to I-664 with direct routes - south to Carolinas, north to Richmond and Baltimore/Washington areas, and west to Staunton, Virginia

**Port of Long Beach**  
P.O. Box 570  
Long Beach, CA 90801



**Telephone:** (213) 437-0041  
**Telex:** 656452 **FAX:** (213) 437-3231  
**Chief Executive Officer:** Steven R. Dillensbeck  
**International Sales Manager:** Tom Underhill

**Domestic Offices:** LONG BEACH, CA: 925 Harbor Plaza, Long Beach, CA 90802  
**International Offices:** Please contact domestic office for details

The Port of Long Beach, established 1911, is a Department of the City functioning through a five-member Board of Harbor Commissioners. Currently comprising over 2,800 acres, the Port has expansion plans to add an additional 1,400 acres by the year 2020. Since over 50% of its tonnage volume is comprised of bulk cargo, the Port remains committed to handling cargos of all types. As the West Coast's largest Port in total tonnage, Long Beach offers facilities capable of handling current and future coal export volume.

(Continued on next page)

### Port of Long Beach (Continued)

Product/Service	Description
Special Coal System	Coal exports move through the Pier G facility operated by Metropolitan Stevedore Company. The Port's rail yard can hold up to two unit trains. With unloading capability of 30 cars/hr. throughput of four trains per day is achievable. The terminal operates two loaders with 3,000 mt/hr and 5,000 mt/hr capability. Two berths handle panamax and cape size vessels up to about 130,000 tons. Rail service into the Port is by Santa Fe, Southern Pacific and Union Pacific Railroads.

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**Savage Industries, Inc.**  
5250 South 300 West, Suite 200  
Salt Lake City, UT 84107



Telephone: (801) 263-9400

FAX: (801) 261-8766

Chief Executive Officer:

Mr. Allen B. Alexander

Executive V.P., Development:

Mr. David G. Wolach

V.P., Business Development:

Mr. Gerald E. Vaninetti

Savage Industries, Inc., in business since 1946, is a specialized transportation and material handling company specializing in the performance of innovative truck transportation services and loading, unloading, transloading, screening, crushing, weighing and storage systems for coal and other bulk materials. The company provides services throughout the entire bulk commodity transportation and handling infrastructure from mine to ultimate end user. The company handles over 60,000 tons of coal daily. The company has current operations in Colorado, Utah, Wyoming, California, West Virginia and South Dakota. Savage specializes in the utilization of the total transportation and handling concept.

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**Shell Mining Company**  
200 North Dairy Ashford  
Houston, TX 77079

**Shell Mining Company**



Telephone: (713) 870-3120

FAX: (713) 870-3273

President:

Jack L. Mahaffey

President, Shell Coal Marketing Company:

Kenneth G. Cloninger

VP, Shell Coal Marketing Company:

Robert H. Scott

Domestic Offices:

RICHMOND, VA: 7200 Glen Forest Drive, Suite 200, Richmond, VA 23226 TEL. (804) 673-9001  
FAX (804) 673-9010

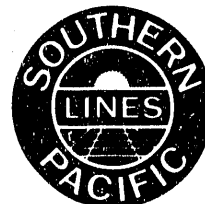
Shell Mining Company's commitment to coal began almost two decades ago with exploration and reserve acquisition activities by its parent Shell Oil Company. Shell markets all of its coal through Shell Coal Marketing Company, a division of Shell Mining Company, headquartered in Houston with its export and Eastern U.S. marketing office located in Richmond, Virginia. Shell currently produces coal through six wholly-owned subsidiary mining complexes, placing it among the top 10 producers in the United States. With reserves of more than two billion tons located throughout the U.S., Shell can meet the needs of expanding domestic and export markets will into the 21st Century.

(Continued on next page)

**Shell Mining Company (Continued)**

<b>Product/Service</b>	<b>Description</b>
Coal Mining	Shell currently produces coal through six wholly-owned subsidiary mining complexes, with reserves totalling over two billion tons. Shell owns significant coal and lignite reserves in Appalachia, the Illinois Basin, and the Powder River Basin.
Coal Exporters	Export marketing is handled by Shell Coal Marketing's Richmond office. Shell exports coal through the East Coast and the Gulf to numerous customers in Europe, South America and the Far East.
Coal Transportation	Shell operates two modern coal terminals at deepwater ports: Pier IX Terminal Company in Newport News, Virginia, which is served by the CSX, and Shipyard River Coal Terminal in Charleston, South Carolina, which is served by both the CSX and Norfolk Southern Railroads.

**Southern Pacific Transportation Company  
Coal and Minerals Group  
One Park Central  
1515 Arapahoe Street  
Denver, CO 80202**



**Telephone:** (303) 595-2311  
**Telex:** 45634 **FAX:** (303) 595-2964  
**Chief Executive Officer:** D. M. Mohan  
**International Sales Manager:** R. J. Elston, Assistant VP

**Domestic Offices:** SAN FRANCISCO, CA: One Market Plaza, San Francisco, CA 94105 TEL. (415) 541-1434  
**International Offices:** JAPAN: 423 Hibiya Park, Building, 1-8-1 Yurakucho, Chiyoda KU, Tokyo, 100 TEL. 81-3-214-3177; MEXICO: Napoles 36-401, Col. Juarez D.F. 06600 TEL. (905) 208-9931, (905) 208-9966, (905) 514-6868, FAX (905) 511-9283

On October 15, 1988, the rail networks of the Southern Pacific Transportation Company (SP) and the Denver and Rio Grande Western Railroad (DRGW) were combined into one system. These two organizations will be operated as the Southern Pacific Lines which has single-line routes and unequalled networking opportunities in transportation. In addition, the Southern Pacific directly serves more west coast United States ports than any other rail carrier. The Southern Pacific's goal is to deliver a product consistent with our customer's individual coal specifications and volume requirements. Southern Pacific serves the major coal producing areas in both Colorado and Utah which are characterized by high B.T.U., low sulphur moisture bituminous coal. Metallurgical and steam coals are available in the Colorado and Utah market area.

<b>Product/Service</b>	<b>Description</b>
Trainload Coal Service	DRGW/SP provides operating flexibility and consistent performance in order to meet customer needs.
Unit Train Service	Short and long term systems designed around used requirements utilizing both carrier supplied and shipper supplied equipment.
Multi-car Shipments	Offering tailor-made service to match the needs of lower volume coal consumers.
Single Car Increments	Dependable service provided to small receivers.

**Stinnes Coal Company, Inc.**  
750 Third Avenue  
New York, NY 10017



**Telephone:** (212) 986-1515  
**Telex:** 236767A STCC UR  
**Chief Executive Officer:** Michael T. Madden  
**International Sales Manager:** George A. McClennan  
Robert P. Yowell

**Domestic Offices:** KENTUCKY: Stinnes Coal Company, Inc., 131-27 U. S. Rt. 23, Catlettsburg, KY 41129 TEL. (606) 739-8441, FAX (606) 739-8443.

**International Offices:** WEST GERMANY: Stinnes Intercoal GmbH TEL. 2087-4940, TELEX 856095 STC D, FAX 208-494-698; WEST GERMANY: HCM Intercoal GmbH; Stinnes Intercoal GmbH TEL. 40-301-0030, TELEX 21-63-121 STI D, FAX 30-10-0340; ENGLAND: G. Harbottle & Co., Ltd. TEL. 91-281-7735, TELEX 53406 GEHAR, FAX 91-281-1884; NETHERLANDS: Stinnes Intercarbon B.V. TEL. 10-405-3111, TELEX 25155 STI, FAX 10-405-5026; SPAIN: Intercarbon Espana TEL. 1-522-7069 TELEX, 22082 STINN, FAX 1-43-19780; ITALY: Agenzia Caarbone S.R.L., TEL. 10-566773, 10-55-91606, TELEX 271392 INTRA, FAX 10-53-2871; BRAZIL: Stinnes Intercarbon do Brazil TEL. 21-223-2118 TELEX, 21-253-4342, FAX 21-253-4679; SINGAPORE: Stinnes Intercoala Pte, Ltd. TEL. 25-18755, TELEX 28921 STINCO, FAX 253-4030; AUSTRALIA: Stinnes Intercoal Australia, PTY, Ltd. TEL. 2-653-1533, FAX 2-653-2159

Stinnes Coal Company is part of a complex network, namely Stinnes Intercarbon, AG, which is subsidiary of VEBA, AG, a privately held, wholly owned German-based company which is one of the major independent coal traders in the markets of the world. Our coal trading activities are worldwide. We export coal from the Federal Republic of Germany, the German Democratic Republic, the U.S.A., Canada, Columbia, Venezuela, South Africa, Australia, Poland, the CSSR, the USSR and the People's Republic of China. We import into the Federal Republic of Germany, other European countries, North Africa, Japan, South America, Canada, the Middle and Far East. We supply coal to power stations, steel mills, foundries and other major end users. But we also furnish the industrial heating and the domestic fuel markets with whatever type of coal is required.

Product/Service	Description
Coal Exporters Coal Transport Financing Shipping	The product range we trade in includes the following categories: Steam coal, industrial coal, coking coal, anthracite, foundry coke, furnace coke, coke beans for ferro alloy producers, coke freeze, briquettes as well as household coal. Our long standing relations with our suppliers, our own trading companies at home and abroad and an efficient transportation system guarantees reliable and continuous supplies. We offer producers and suppliers a distribution network with representations in all of the world's major coal using regions. In conjunction with our affiliated companies, we can offer our own storage and transportation as well as screening and blending facilities.

Stone & Webster Engineering Corporation  
245 Summer Street  
Boston, MA 02210



Telephone: (617) 589-5111  
Telex: W.U. 94-0001 FAX: (617) 589-2156, (617) 589-8071  
Chief Executive Officer: Frank W. Ries, Chairman  
International Sales Manager: Raymond F. Rugg

**Domestic Offices:** CHERRY HILL, NJ; CHICAGO, IL; DENVER, CO; FORT LAUDERDALE, FL; HOUSTON, TX; NEW YORK, NY; SAN FRANCISCO, CA  
**International Offices:** UNITED KINGDOM: Milton Keynes; CANADA: Toronto; Stone & Webster also maintains offices in the following cities: Abu Dhabi, Dammam, Kuala Lumpur and Seoul. Please contact headquarters in Boston for further information.

Stone & Webster Engineering Corporation, which celebrated its Centennial in 1989, is one of the world's largest engineering and construction firms. Since its founding, as a two-man consultancy in Boston, the firm has planned, engineered and provided construction and construction-management services for utilities and industrial power concerns worldwide. Have designed and/or built plants with a total capacity exceeding 50 million kilowatts, the company is considered one of the world's largest and most experienced engineer-constructors of coal power facilities. Over the years, Stone & Webster has helped many domestic and international clients develop technologies that can lead to cleaner and more efficient use of coal. For instance, in the United States the company has conceptually designed integrated gasification/combine-cycle systems for new generating stations and evaluated the use of coal liquids for existing oil-fired station. Stone & Webster also worked on the first utility coal-gasification project in Brazil. Today, we continue to work with government agencies and private firms on new ways to clean and burn fossil fuels. Our development projects include fluid bed combustors, a retrofit combustor system that eliminates a variety of pollutants and a furnace injection system that removes sulfur dioxide. Listed below, are some of the areas in which Stone & Webster applies its consulting, engineering and construction expertise.

Product/Service	Description
Advanced Utilization	Coal processing systems: direct and indirect liquefaction; coal gasification combined cycle power systems; advanced power generation systems; pressurized fluidized bed technology; externally fired high temperature gas turbine combined cycle systems and direct fired dual working fluid power cycles.
Coal Industry	Coal drying technologies: surface and underground coal mining; coal handling; fuel analysis.
Coal Mining	Correlation and preliminary evaluation of data; mine planning and engineering design (surface and underground): pit planning and design; underground planning and design, production engineering, land reclamation. Drilling; blasting engineering and optimization; equipment selection and justification; budget review; reserve analysis; haulroad design; coal evacuation and loading design; auxiliary utility design: compressor systems, water piping systems; ventilation design; slope stability engineering; economic analysis; fatal flaw analysis; geological aspects: exploration methods and requirements, preliminary evaluations.
Coal Transport	Railroad construction, design and engineering; truck-shovel optimization; coal slurry technology.
Facility Construction	Silo design and engineering; conveyor systems; coal loadout facilities; crushing operations and design.

**TECO Transport & Trade Corporation**  
5405 W. Cypress Street, Suite 300  
Tampa, FL 33607



Telephone: (813) 289-4161 TWX: 810-876-0687

Telex: 808852 FAX: (813) 289-3514

President: D. Jeff Rankin  
VP, Sales and Marketing: D. Bryan Bashore

**Domestic Offices:** MID-SOUTH TOWING COMPANY: P.O. Box 790, Metropolis, Illinois 62960, TEL. (618) 524-3100  
ELECTRO-COAL TRANSFER: P.O. Box 6, Davant, Louisiana 70046, TEL. (504) 525-4181  
GULFCOAST TRANSIT COMPANY: P.O. Box 22048, Tampa, Florida 33622-2048, TEL. (813) 289-4161

**International Offices:** TECO TRANSPORT & TRADE: Attn: Mr. Ko Yoshida, Tokyo, Japan, TEL. (03) 407-0865

TECO Transport is a marine service company providing integrated water transport including vessel topping-off, storage, and transfer for coal and other bulk commodities. We operate within the Mississippi River basin system, the U.S. Gulf of Mexico and provide sea-going barge service worldwide.

Product/Service	Designation	Description
Coal Transport	Mid-South Towing Company	Operates 12 line haul river tugboats and 480 hopper barges on the Ohio and Mississippi river system.
Facilities Operations	Electro-Coal Transfer	Ocean marine transfer terminal facility south of New Orleans. Provides 4 million tons of storage area and transfer capability for 25 million TPY. Serves up to 150,000 D.W.T. cape-size vessel.
Transport Equipment	Gulfcoast Transit Company	Operates 15 dry-bulk ocean barge/tug units with cargo capacity ranging from 9,600-42,800 tons.

**TransTech Marine Company**  
771 Carroll Street, Fl. 2  
Brooklyn, NY 11215



**TransTech Marine Co.**  
Shipping Investment Counsel & Development

Telephone: (718) 857-5722

FAX: (718) 622-8373

Chief Executive Officer: Geoffrey F. Uttmark

**International Offices:** Cooperative offices in EUROPE, ASIA, AUSTRALIA, and SOUTH AMERICA. Contact company headquarters for further information.

TransTech Marine Co. provides technical ship design, economic analysis, and vessel financing services to minimize ocean transport costs of coal.

Product/Service	Description
STATS	Statistical Trade and Transport Summaries provides detailed information on volume of international coal trades and shipping rates.

(Continued on next page)



**TransTech Marine Company (Continued)**

<b>BOSCOE</b>	Bulk Ocean Shipping - Computer Optimized Economics is a comprehensive computer system for technical design development and economic analysis of constructing, financing, and operating dry bulk carriers. Compare optimized to off-the-shelf or second-hand vessels. Advantageous to coal producers, shippers, users, shipbuilders, and vessel operators.
<b>TuBa</b>	Tug-Barge is companion to BOSCOE for shorter and coastwise trades where drop/swap operation may be more economical than ships. TuBa optimizes size and number of tugs and barges for minimum system cost and produces detailed design development of seagoing barge(s).
<b>MarineLease</b>	MarineLease is a specialized computer model for structuring leveraged and non-leveraged leases of marine equipment to minimize capital costs.
<b>Prospectus Development</b>	TransTech incorporates results into a prospectus for presentation to Board of Directors, investment bankers, commercial lenders, and lessors. Company provides ongoing assistance in relationships with shipyards, finance sources, vessel operating companies and related services.
<b>Network</b>	TransTech often works as project's maritime subcontractor to larger, broader based transport system designers and planners.

**Union Pacific Railroad Company**  
 1416 Dodge Street  
 Omaha, NE 68124



**Telephone:** (402) 271-4342

**Telex:** 44-7105 **FAX:** (402) 271-3378

**Chief Executive Officer:** Michael H. Walsh, Omaha, NE  
 Henry L. Arms, Asst. Vice President-Energy, Omaha, NE

**International Sales Manager:** William E. Nock, Market Manager-West, Omaha, NE

**International Offices:** JAPAN: C. (Curt) J. Hockaday, Sales Office, Sales Office, 4th Floor, Satoh Building, 1-19-4 Hamamatsu-cho, Minato-ku, Tokyo 105 TEL. 011-81-3-578-9401, FAX 011-81-3-213-9415; TAIWAN: Shin-1 Lin, Sales Office, 10-1, Lin Shen South Road, Taipei, Republic of China TEL. 011-886-2-393-8650

Union Pacific Railroad Company is one of the United States largest and most modern transportation systems. Its vast rail network stretches across 20 states between the West Coast, the Gulf of Mexico and the Great Lakes. State-of-the-art facilities and capabilities, such as computer-monitored locomotives, a modern fleet of over 10,000 coal cars, a centralized coal train operation center and innovative pricing options provide customers first class service, rates and equipment.

<b>Product/Service</b>	<b>Description</b>
<b>Port Availability</b>	The UPRR directly serves three West Coast port facilities capable of loading ocean-going vessels. Los Angeles and Long Beach, CA can load from railcar to "cape size" vessels (140,000 tons), "panamex size (60,000 tons) or handy size (25,000 tons). Existing export coal is only consuming about 50% of available capacity. The third port served by UPRR is Stockton, CA, which loads smaller vessels.
<b>Coal Originations</b>	The UPRR has access to all of the major coal sources in Utah and Colorado currently selling to the export market through either direct access or through connecting lines. This permits the UPRR to serve the western coal fields presently supplying coal to primarily the Pacific Rim countries through the West Coast ports.

(Continued on next page)

### Union Pacific Railroad Company (Continued)

**Unit Train Service**                    The UPRR provides unit train service from the mines to the ports of Los Angeles and Long Beach, CA, maximizing efficiency in equipment utilization, as well as ensuring customer's ability to maintain effective controls on stockpiling and also direct loading to the ship. These benefits optimize efficiency throughout the "coal chain" which is shared by the port operators, coal producers and the carriers.

**Equipment**                            UPRR's solid fleet of railcars includes 10,000 four-bay, 100-ton open hopper cars from which to draw in serving the export market. Additionally, UPRR has leasing options to protect short-term requirements, if necessary, as well as agreement with connecting carriers to further enhance our capabilities in this market.

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**Union Railroad**  
135 Jamison Lane  
P.O. Box 68  
Monroeville, PA 15146



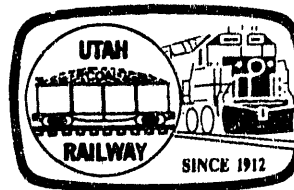
**Telephone:** (412) 829-3465  
**FAX:** (412) 829-6603  
**Chief Executive Officer:** Mr. Donald H. Hoffman  
**Vice President Marketing:** Mr. Thomas J. Siegel

Union Railroad is a common carrier switching railroad operating in Western PA. At Duquesne Wharf, PA on the Monogahela River, Union operates a barge to rail coal transfer facility. Barges arrive from Monongahela River mines, and Ohio/Kanawha River mines. Coal is transferred to rail cars which are delivered to the main line rail carriers serving Pittsburgh.

Product/Service	Description
Barge to rail coal transfer	Both a continuous bucket machine and a crane are available.
Railroad Transportation	Union connects with Bessemer & Lake Erie to export via the Great Lakes St. Lawrence Seaway route and with Conrail to export via the East Coast ports.

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**Utah Railway Company**  
970 University Club Building  
136 E. South Temple  
Salt Lake City, UT 84111



**Telephone:** (801) 521-3447  
**FAX:** (801) 521-3483  
**Chief Executive Officer:** D. Gilson  
**International Sales Manager:** John E. West, III

Utah Railway Company has been in business since 1912. It transports coal in unit-trains (80-84 cars) from producers in Utah nearly 100 miles to a connection with Union Pacific Railroad at Provo, Utah. From Provo the trainload shipments are moved to port facilities at Los Angeles and/or Long Beach, California for transloading to vessels destined Pacific Rim countries. The coal originating on Utah Railway is high BTU, low sulphur steam coal.

(Continued on next page)

**Utah Railway Company (Continued)**

Product/Service	Description
Coal Transport by Rail	Serving the following coal producers: Andalex Resources, Inc., Cyprus Plateau Mining Company, Genwal Mining Company, U. S. Fuel Company/USSRAM Exploration.

**Utility Fuels, Inc.**  
**P.O. Box 539**  
**Houston, TX 77001**



**Telephone:** (713) 888-4500  
**Telex:** 763867 **FAX:** (713) 888-4539  
**Chief Executive Officer:** F.K. Smith  
**International Sales Manager:** Lawrence J. Rogers; David D. Itz

**Domestic Offices:** HOUSTON, TX: 11 Greenway Plaza, Suite 800, Houston, TX 77046 TEL. (713) 888-4500  
**International Offices:** Please contact Houston headquarters for further information

Utility Fuels, Inc. is one of the leading coal providers in the United States, delivering over 17 million tons per year to six electric generating units. The company owns lignite reserves and mining equipment and manages the mining and procurement of coal and other minerals. The company also owns approximately 2,400 coal-carrying railcars and manages one of America's largest railroad freight agreements. UFI owns and operates materials handling systems and provides training and technical services for operators of mining, materials handling and electric generating facilities. Organized in 1973, Utility Fuels is a subsidiary of Houston Industries, an NYSE holding company with over \$10 billion in assets.

Product/Service	Description
Coal & Minerals Supply	Utility Fuels is responsible for overseeing the mining of lignite reserves and manages contracts for the procurement of coal and minerals. UFI offers mine planning and operation services.
Transportation & Equipment	The company owns and maintains railcars and manages freight agreements for the delivery of coal and minerals. UFI offers full maintenance railcar leases for hauling coal and other bulk materials.
Materials Handling	UFI owns, operates and maintains systems for unloading, storing, blending, crushing and conveying coal and lignite. The company offers design review, training, and operation services for such systems.
Operations Services	The company provides training project management and engineering services (including planning, scheduling and documentation) for operators of mining, materials handling and electric generating facilities. UFI also offers power plant equipment testing, analysis, and optimization services.

**The Valley Line Company**  
120 So. Central Avenue  
St. Louis, MO 63105



Telephone: (314) 889-0100  
Telex: 62277240 FAX: (314) 889-0172  
President: Daniel J. Marquitz  
Senior Vice-President-Marketing: David R. Campbell  
Director-Coal & Bulk Marketing: Charles Szala, Jr.

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Product/Service	Description
Coal Transportation	Movement of coal on the inland waterways of the U.S. to New Orleans, LA for export.

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**W.J. Byrnes & Co./BYrnesAIR**  
100 Rollins Road  
Millbrae, CA 94030



w. j. byrnes & co. / *byrnesair* →

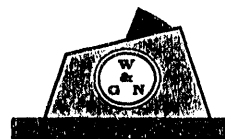
Telephone: (415) 692-1142  
Telex: 314417 FAX: (415) 692-5726  
Chief Executive Officer: Mr. John A. Leitner  
International Sales Manager: Ms. Barbro Haves

**Domestic Offices:** SAN FRANCISCO, CA: P.O. Box 280205, San Francisco, CA 94128 TEL. (415) 692-1142; PHOENIX, AZ: 2302 E. Magnolia Street, Phoenix, AZ 85034 TEL. (602) 244-1752; TUCSON, AZ: 2700 E. Bilby, Tucson, AZ 85706 TEL. (602) 889-2275; DENVER, CO: 4195 Oneida Street, Denver, CO 80216 TEL. (303) 320-5921; MILWAUKEE, WI: 4369 S. Howell Avenue, Milwaukee, WI 53207 TEL. (414) 769-7222

**International Offices:** Service provided by agents worldwide, contact headquarters for further information.

W.J. Byrnes & Co. is a full service international transportation facilitator, providing service by both ocean and air, inbound and outbound, by direct or consolidation, NVOCC service, insurance, crating, containerization, and all of the logistics to move cargo professionally. Since 1907, the firm has developed the experience to handle everything from a small emergency to a major project. Awarded in 1981 the "E" award for Excellence in Export Service by the President of the United States. There is a difference, and we are proud of it.

**Warrior & Gulf Navigation Company**  
End of Viaduct Road  
P.O. Box 397  
Chickasaw, AL 36611



**WARRIOR & GULF NAVIGATION COMPANY**

**Telephone:** (205) 452-6000

**FAX:** (205) 452-6014

**Chief Executive Officer:**

Mr. Donald H. Hoffman

**President:**

Mr. Nicholas J. Barchie, Jr.

**International Offices:**

Contact Headquarters for more information.

Warrior & Gulf Navigation Company is a contract water carrier operating principally in the State of Alabama and the Gulf Intracoastal Waterway between St. Marks, Florida, and Brownsville, Texas. Warrior & Gulf Navigation Company operates a rail to barge coal transfer facility at Birmingham, and a barge to ship, stoker coal transfer facility at Mobile. Barges are loaded in Birmingham and are transported to Mobile, Alabama, and New Orleans, Louisiana, for the export market.

<b>Product/Service</b>	<b>Description</b>
Rail to Barge Coal Transfer	Bottom dump pit and conveyor system and gantry cranes are available.
Barge Transportation	WGN operates 300 Hopper Barges used primarily in the transportation of Export Coal from Birmingham, Alabama, to Mobile, Alabama, and New Orleans, Louisiana.

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**Welded Construction Company**  
26933 Eckel Rd.  
P.O. Box 32  
Perrysburg, OH 43551

**Telephone:** (419) 874-3548

**Fax:** (419) 874-4883

**Chief Executive Officer:**

R.H. Mogg

**International Sales Manager:**

D.W. Thorn

Welded Construction Company has been in the pipeline construction business since 1966, building oil, natural gas and other cross-country pipelines for major transmission companies. We have qualified personnel, equipment, insurance and bonding available for large construction projects.

<b>Product/Service</b>	<b>Description</b>
Facility Construction	Coal Slurry Pipeline Construction

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**Facilities Operations:** Firms providing plant operation and management (O&M) services on a contract basis.

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**Acurex Corporation**  
**Environmental Systems Division**  
555 Clyde Avenue  
P.O. Box 7044  
Mountain View, CA 94039



**Telephone:** (415) 961-5700  
**Telex:** 325961 **FAX:** (415) 964-5145  
**President:** Gilbert Decker  
**International Sales Manager:** David DeLisanta

**Domestic Offices:** TRIANGLE PARK, NC: P.O. Box 13109, Research Triangle Park, NC 27709; GOLETA, CA: Santa Barbara Operations, 250 Storke Road, Suite 1, Goleta, California 93117  
**International Offices:** Please contact headquarters for information.

The Environmental Systems Division of Acurex Corporation provides a full range of fuel services to government and industry. These include combustion facility design, operation and maintenance; environmental engineering and pollution control; and emissions sampling and analysis. Through its research for federal and state agencies such as the Environmental Protection Agency, the Gas Research Institute, the Department of Energy, and the California Energy Commission, the division develops technologies for commercial application and is able to provide industry with turnkey, state-of-the-art solutions for all combustion-related environmental engineering needs.

<b>Product/Service</b>	<b>Description</b>
Advanced Utilization	Testing of solvent-refined coal; assessment of clean coal use in stationary and mobile engines; testing of coal-oil mixtures in boilers; fuel staging research; assessment of coal-oil mixtures as light-off fuel; hot gas cleaning technology for coal-fired, pressurized, fluidized bed combustors.
Architecture/Engineering	Prototype design, fabricate and install coal combustion research furnaces. Design, fabricate and install pilot coal gasifiers, and fluidized bed combustors.
Boiler Equipment	Low SO <sub>2</sub> and low NO <sub>x</sub> combustion control technology; boiler modification/engineering; test coal additive to alter flyash characteristics; co-firing of hazardous waste in boilers; perform risk assessment of controlling NO <sub>x</sub> emission from coal utility boilers.
Coal Derivatives	Clean coal use in stationary and mobile engines; demonstrate coal-oil mixture prep plant.
Facility Construction	Construction management; install coal combustion furnace; install pilot coal gasifier; supply anthracite gasifier.
Facility Operation	Operation of coal burning plants/equipment; O&M of fluidized bed combustor.

**Braun Engineering Associates, P.C.**  
299 Edison Avenue  
West Babylon, NY 11704

# **BEA** BRAUN ENGINEERING ASSOCIATES

**Telephone:** (516) 694-6509

**FAX:** (516) 694-6529

**Chief Executive Officer:**

Robert J. Braun, P.E.

**International Sales Manager:**

Robert J. Braun, P.E.

**Domestic Offices:**

MADISON, CT: 149 Durham Road, Madison, CT 06443 TEL. (203) 245-9777

Braun Engineering Associates is a fully integrated engineering firm providing mechanical and electrical power engineering services to utility and industrial clients. Project capabilities include engineering design and operations management of central heating plants, cogeneration installations, district heating and cooling systems. Our power system designs provide full spectrum services analysis with complete CAD capability. In addition to professional registration, BEA personnel hold several high Pressure Boiler Operating Engineers and Refrigeration Systems Operator Licenses and Unlimited Horsepower Diesel Licenses, and several national plant engineering operating and maintenance certificates.

<b>Product/Service</b>	<b>Description</b>
Architecture/Engineering	Steam plants, steam distribution systems, power generation, central chilled water and high temp. hot water plants, heat recovery, air pollution control, feasibility studies, electric utility interconnection, electric power cogeneration.
Facility Construction	Steam plants, steam distribution systems, power generation, central chilled water and high temp. hot water plants, heat recovery, air pollution control, feasibility studies, electric utility interconnection, electric power cogeneration.
Facility Operation	Power plant operation, operations and maintenance management, facility planning surveys, energy management.

**Brown and Root, Inc.**  
4100 Clinton Dr.  
Houston, TX 70020-6299



**Brown & Root, Inc.**

**Telephone:** (713) 676-3011

**Telex:** (713) 676-4109 **FAX:** (713) 676-4191

**Chief Executive Officer:** W.B. Pieper

**International Sales Manager:** T. Smith, III

**Domestic Offices:**

MOBILE, AL; LONG BEACH, CA; SAN RAMON, CA; WASHINGTON, DC.

**International Offices:**

ENGLAND; MEXICO; VENEZUELA; BRAZIL; AUSTRALIA; THE NETHERLANDS; NORWAY; PHILIPPINES; CHINA; EGYPT; CANADA; INDONESIA; JAPAN; SINGAPORE; MALAYSIA; SAUDI ARABIA; SCOTLAND; BAHRAIN; U.A.E.

Brown & Root and its associated companies form one of the world's largest and most diversified groups of engineering and construction companies. Brown & Root, Inc. was formed in 1914 and has been a wholly-owned subsidiary of the Halliburton Company since 1962. Our growth record is a direct reflection of the reputation we have earned as a leader in the industry, being ranked No. 1 five times and No. 2 five times by Engineering News Record. Our philosophy of work is summarized by the words: Quality, Cost and Schedule. Brown & Root offers a total range of services from preliminary studies, process selection, procurement, construction and operational maintenance and also provides management counseling and guidance in technical, financial, legal and general business matters.

(Continued on next page)

**Brown and Root, Inc. (Continued)**

Product/Service	Description
Power Plants	Complete range of services required for design and construction of power plants, including coal fired plants, combustion turbines, diesel generators, oil and gas fired plants, nuclear and cogeneration. Engineered and/or constructed in excess of 10,000 MWe of fossil fired plants.
Mining	Complete range of services required for design and construction of mining facilities including solution mining, underground, and surface mining.

**Carnot**  
 15991 Red Hill Avenue  
 Suite 110  
 Tustin, CA 92680



Telephone: (714) 259-9520  
 FAX: (714) 259-0372  
 Chief Executive Officer:  
 International Sales Manager:  
 Manager, Utilities Systems:  
 Director of Testing Services:

Barry L. McDonald  
 Mark D. McDannel  
 David O. Czerniak  
 Robert A. Finken

Carnot is a consulting and engineering organization specializing in fuels, fuels utilization, combustion and combustion-generated air pollution emissions, emissions control, emissions testing, and regulatory affairs. The organization possesses technical expertise for a variety of stationary combustion device types including utility and industrial boilers; municipal solid waste and other refuse-fueled boilers; as well as medical and hazardous waste incinerators, fluidized-bed boilers; and simple-cycle, combined-cycle, and cogeneration gas turbines and a variety of specialized process equipment.

Product/Service	Description
Emissions Control, Process Improvement	Carnot offers unbiased expertise in the selection of appropriate control technologies (many of which its people helped pioneer). Carnot's philosophy is that combustion-generated air pollutant emissions should and can be controlled using the most-effective available technique with the least impact upon unit operating flexibility and thermal performance. Carnot has experience with devices burning conventional fuels (i.e., coal, natural gas, fuel oil, etc.), as well as less-common fuels such as petroleum coke, refinery gas, wood and agricultural wastes, coal-water slurries and coal-oil mixtures, oil-water emulsions, municipal solid waste, landfill gas, and methanol. Carnot's emissions expertise covers a wide variety of species including NO <sub>x</sub> , SO <sub>x</sub> , CO, particulates of all types, metals, organics, and other toxics.
Research, Development, and Design	Carnot uses its combustion and process expertise to design investigative programs to solve many different real-world process and emissions problems. The company has conducted many successful technology demonstrations and aided in their development. Our expertise includes advanced burner and combustor design, post combustor controls, reagent injection for emissions reduction, and emissions control planning. When appropriate, Carnot designs small scale experimental simulators and laboratory investigations for novel problems.
Emissions Testing	Carnot provides a full range of in-house testing and process equipment including mobile laboratories, continuous emission monitors, and sampling methodologies for virtually any industrial pollutant of concern in liquid, solid, and gaseous streams.
Regulatory Engineering	Carnot's regulatory staff keeps abreast of domestic and international affairs and offers assistance in permitting and siting projects, especially those of a unique nature. Carnot has helped its clients meet some of the most demanding emissions regulations in the world.



**Conco Systems, Inc.**  
135 Sylvan Street  
Verona, PA 15147



**Telephone:** (800) 345-3476  
**Telex:** 866255 **FAX:** (412) 826-8255  
**Chief Executive Officer:** George Saxon, Sr.  
**International Sales Manager:** George Saxon, Jr.

**Domestic Offices:** KANSAS CITY, KS; WESTLAKE VILLAGE, CA; FORT LAUDERDALE, FL

Fully integrated firm providing absolutely the best services for proper maintenance and operation of condensers, heat exchangers, and service water systems.

Product/Service	Description
Tube Cleaning Equipment	Exclusive manufacturer of water powered tube cleaning tools for condensers and heat exchangers.
Tube Cleaning Services	Services utilizing exclusive tools.
NDT-Eddy Current Testing	Condition assessment of major cooling components.
Consulting	Preliminary opinion, root cause analysis, water treatment audits.
Failure Analysis	By nuevo laboratory techniques.
Process Modeling	Model cooling systems.

**Consolidation Coal Company**  
Consol Plaza  
1800 Washington Road  
Pittsburgh, PA 15241



**Telephone:** (412) 831-4382  
**Telex:** 247-634 **FAX:** (412) 831-4571  
**Chief Executive Officer:** B. R. Brown  
**International Sales Manager:** Walter E. Schrage

**Domestic Offices:** NORFOLK, VA: 201 Granby Mall, Suite 216, Norfolk, VA 23510 TEL. (804) 627-6261, FAX (804) 625-5088, TELEX 240403 CONSOL NORF; BALTIMORE, MD: Consolidation Coal Sales Company Terminal, 3800 Newgate Avenue., Baltimore, MD 21224 TEL. (301) 631-7000, FAX (301) 631-7022  
**International Offices:** BELGIUM: Godefroid Coal Trading and Shipping S.A., 37-41 Rue du Congress, Brussels 1000 Belgium TEL. 011-32-2-218-7220, FAX 32-2-218-6192, TELEX 846-21434

Consolidation Coal Company (Consol) operates 25 underground and surface mines in nine states and Alberta, Canada. The company is the second-largest coal producer in the United States and hold 6.1 billion tons in steam and metallurgical-grade coal reserves. More than 80 percent of Consol's annual production of more than 55 million tons of steam coal for electricity generation. Nearly 11 million tons of high-grade metallurgical coal is produced annually. Consol mines are linked to major rail routes or the inland waterway for shipment to domestic customers and to exporting points on both coasts and the Gulf of Mexico.

(Continued on next page)

**Consolidation Coal Company (Continued)**

Product/Service	Description
Steam Coal	Consol has exported steam coal since the early 1900s. Today consol exports steam coal to eight countries from mines in northern West Virginia, southwestern Pennsylvania and eastern Kentucky. Exporting points are Consolidation Coal Sales Company's (CCSC) terminal in the Port of Baltimore or terminals in Hampton Roads, Virginia and New Orleans, Louisiana.

**Dorgan Associates, Inc.**  
**5610 Medical Circle, Suite 31**  
**Madison, WI 53719-1227**



**Dorgan Associates, Inc.**  
**Consulting Engineers and Scientists**

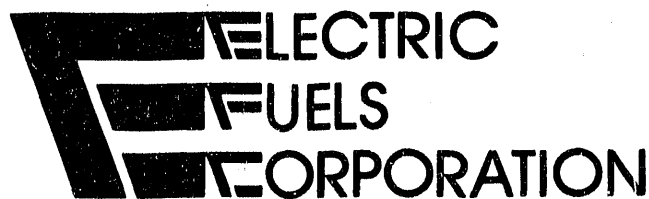
Telephone: (608) 273-0044  
 FAX: (608) 273-0614  
 Chief Executive Officer:  
 International Sales Manager:

Dr. Charles E. Dorgan, P.E., Ph.D.  
 Mr. Eric T. Truelove, P.E.

Dorgan Associates is a consulting engineering firm specializing in energy use, storage, and production technologies. Past and present customers include the Electric Power Research Institute (EPRI), major utilities throughout the United States, government agencies, engineering firms, and manufacturers. Dorgan Associates has produced the Cold Air Distribution Design Guide (EPRI EM-5730) and the Field Evaluation of Cold Air Distribution Systems guide (EPRI EM-5447). In addition, Dorgan Associates has developed and conducted courses in energy engineering, energy management, thermal storage, and HVAC. These courses have been conducted throughout the United States, Canada, Asia, and Africa.

Product/Service	Description
Advanced Utilization	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.
Architecture-Engineering (A&E)	Provide engineering consultation for energy use, storage, and production technologies.
Facility Construction	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.
Facility Operation	Perform studies and evaluations for HVAC, thermal storage, cogeneration, heat pump, and industrial process heat applications.

**Electric Fuels Corporation**  
**235 Third Street South**  
**P. O. Box 15208**  
**St. Petersburg, FL 33733**



**Telephone:** (813) 892-2700  
**Telex:** 514168 **FAX:** (813) 892-2702  
**Chief Executive Officer:** Richard D. Keller  
**International Sales Manager:** Robert Ramey

Electric Fuels Corporation (EFC) through its many subsidiaries is involved in coal mining, coal transportation, coal transfer facilities, fuel research in the coal area and the development of coal-based alternative fuels. Electric Fuels has developed a coal management system that has proved to be successful and highly competitive in supplying coal from mine site to the customer. This fully-integrated system is composed of five essential groups: coal, operations, marine and terminaling, alternative fuels and international marketing. The integration of these groups under Electric Fuels' management provides the necessary exposure to all phases of the coal industry.

<b>Product/Service</b>	<b>Description</b>
Advance Utilization	With access to experts in virtually every application of coal combustion, Electric Fuels can provide qualified technical know-how in the areas of ash utilization, mineral and metal recovery from ash and in ash disposal. From start to finish, Electric Fuels' customers are assured of experienced assistance with all their coal handling needs. EFC has developed services ranging from field and laboratory functions to advanced computer support.
Coal Derivatives	Electric Fuels' involvement in the development of alternative fuels is through COMCO, a leader in the manufacture of coal-oil mixture (COM), coal-water mixture (CWM) and petroleum coke-oil mixture (PETCOM). Coal-liquid mixtures are produced at COMCO's Port Sutton, Florida facility. REDICOAL, COMCO's new powdered coal product for industrial and utility use, has proved to be an economical replacement for fuel oil and natural gas.
Coal Mining	The coal group is responsible for the mining and preparation of coal from sites containing approximately 215 million tons of reserves located in the states of Virginia, West Virginia and Kentucky. Origin points have capability to load both trucks and unit trains.
Coal Transport	Marine Equipment Management Corporation, a wholly-owned subsidiary, handles coal from all inland river origins in either single barge or unit tow lots. Standby loading is available. Covered barges are available. MEMCO also offers switching and fleetling services at various Mississippi River ports.  Dixie Fuels Limited offers handling, storing, terminaling and transporting bulk cargo by sea-going marine transportation equipment.
Facility Operation	International Marine Terminals is a bulk materials handling facility strategically located near the mouth of the Mississippi River. The recently expanded terminal consists of modern facilities, ground storage/blending and a coal testing laboratory operated by an independent agent.  Hatfield Terminals operates transfer facilities in Cincinnati, Ohio, on the Ohio River and near Charleston, West Virginia, on the Kanawha River.  Kentucky May Coal operate a coal transfer facility on the Big Sandy River.

**EnCoal**  
 105 East 4th Street  
 Cincinnati, OH 45202



**Telephone:** (513) 621-3733  
**FAX:** (513) 621-3734  
**Chief Executive Officer:**  
**International Sales Manager:**

L. Robert Folan  
 Alan Tweedale

**Domestic Offices:** HOT SPRINGS, VA: P.O. Box 826, Hot Springs, VA 24445 TEL. (703) 839-5111  
**International Offices:** ENGLAND: 213 Upper Richmond Road West, London, SW14 8QT England TEL. 011-44-81-878-8355

EnCoal was founded in 1985 as the U.S. partnership between L. Robert Folan and Alan Tweedale. Tweedale has led the British Coal Board's research into clean coal burning technology since World War II. In the 1980's, he took this technology private with Energy Supplies, Ltd., which is very active today throughout the United Kingdom. EnCoal brings this technology into the United States market featuring small fluidized beds. EnCoal's first project will be to rebuild the power plant of The Homestead Hotel in Hot Springs, Virginia with a clean burning, coal fired cogeneration plant.

Product/Service	Description
EnCoal designs, builds, finances, and operates small steam driven power plants.	EnCoal contracts with customers to reduce their energy costs by utilizing clean combustion technology to produce steam that in turn produces electricity, process steam, heating, and air conditioning. EnCoal's technology complies with the proposed Clean Air Act of 1990, and is predicated on bottom line savings to the customer through a long term contract with EnCoal.

**Eneract Management Services, Inc.**  
 550 Bailey Avenue, #220  
 Fort Worth, TX 76107



**Telephone:** (817) 334-0053  
**FAX:** (817) 877-0958  
**Chief Executive Officer:**  
**International Sales Manager:**

Mr. Paul A. Corwin  
 Mr. Paul A. Corwin

**International Offices:** Please contact company headquarters for further information.

Eneract Management Services, Inc., provides a broad range of technical and managerial services to a diverse group of clients. Our corporate goal has always been to provide the highest levels of performance and to deliver timely, relevant, and cost-effective solutions to our clients' specific needs. Our individual consultants and project teams are capable of tapping the multidisciplinary talents within our company. We can then provide multidimensional approaches to resolving our clients' problems. Additionally, Eneract prides itself in meeting or beating all scheduled delivery dates. Our projects have ranged from a few thousand dollars to over \$1 million.

Product/Service	Designation	Description
Boiler Equipment: Portable Process Sampling Systems	LA PAK 2000	Portable state of the art analytical sampling equipment. Designed to monitor pH, specific and cation conductivity and dissolved oxygen.
On-Line Chemical Monitoring Systems	System 3000	On-line monitoring capacity for pH, specific and cation conductivity, dissolved oxygen, silica, sodium and total organic carbon.

(Continued on next page)

**Eneract Management Services, Inc. (Continued)**

**Technical Consultants:**

Performance Assessment  
Audits

Pre- or post-operational performance assessments designed to meet client or regulatory compliance.

**Facilities Operations:**

Performance Improvement  
Technology

Provides a full range of services, including preparation of system descriptions, operating procedures, training program development and implementation, and qualification programs for plant operators.

**Fluor Daniel**  
3333 Michelson Drive  
Irvine, CA 92730

**FLUOR DANIEL**



**Telephone:** (714) 975-7100

**Telex:** 68-1441 **FAX:** (714) 975-5271/6549

**Chief Executive Officer:** Vincent L. Kontny

**International Sales Manager:** Gerald M. Glenn

**Domestic Offices:**

CHICAGO, IL: TEL (312) 368-3500, GREENVILLE, SC: TEL. (803) 298-2500, HOUSTON, TX: TEL. (713) 263-1000; PHILADELPHIA, PA: TEL. (609) 985-1101; REDWOOD CITY, CA: TEL. (415) 595-6000; RICHMOND, VA: A.T. Massey Coal Company, Inc., TEL. (804) 788-1800; CHARLOTTE, NC: Duke/Fluor Daniel, TEL. (704) 357-3271

**International Offices:**

SAUDIA ARABIA: Fluor Arabia, Dhahran TEL. (966) 3-857-8577; AUSTRALIA: Fluor Daniel Australia, Melbourne TEL. (61) 03-520-4444; CANADA: Fluor Daniel Canada, Calgary TEL. (010) 403-259-1110; THE NETHERLANDS: Fluor Daniel BV Netherlands, Haarlem TEL. (31) 23-33-90-20; GERMANY: Fluor Daniel GmbH, Dusseldorf TEL. (49) 211-4551-1; ENGLAND: Fluor Daniel, Ltd., London TEL. 44-1-222-7717

Fluor Daniel provides a full range of engineering, construction and related services through over 50 offices worldwide. These services include feasibility studies, conceptual design, project management, engineering, procurement, construction, technical services, project financing, consulting, environmental services, maintenance and plant operations. Our affiliate, AT Massey Coal Company, produces both high quality low-sulfur coal and metallurgical coal and ranks among the 10 largest coal marketers in the United States. Massey sells produced coal and markets coal for independent producers. Fluor Daniel, in partnership with Duke Power, designs and constructs or modernizes coal-fired power plants and performs operations and maintenance.

Product/Service	Description
Power Generation System	Fluor Daniel provides design engineering, procurement and construction of integrated coal gasification power generation systems as a part of our work with combustion turbine technology. Duke/Fluor Daniel has engineered or constructed over 75 conventional fossil fuel generating stations ranging from 5 to 1980Mw and provided maintenance and operating services in over 150 units.
Advanced Utilization (CCT)	Fluor Daniel offers engineering, procurement, construction and consulting support to Clean Coal Technology projects. We have performed over 105 coal gasification studies and participated in 14 major projects including Sasol, the world's largest coal gasification facility, on which Fluor Daniel performed engineering, procurement and construction.
Engineering/Procurement/Construction	Fluor Daniel engineering, procurement and construction experience includes coal mines, coal handling and transport facilities, and plants for utilities and other coal consumers.

**Foster Wheeler Corporation**  
**Perryville Corporate Park**  
**Clinton, NJ 08809-4000**



**Telephone:** (201) 730-4000  
**FAX:** (201) 730-4360

**Chief Executive Officer:** Mr. L.E. Azzato  
**International Sales Manager:** Mr. B.P. Stephan; Mr. I.G. Lutes

**Domestic Offices:** ATLANTA, GA; BOSTON, MA; CHARLOTTE, NC; CHICAGO, IL; DENVER, CO; HOUSTON, TX; KANSAS CITY, MO; LOS ANGELES, CA; NEW ORLEANS, LA; NEW YORK, NY; PHILADELPHIA, PA; PITTSBURGH, PA; WASHINGTON, D.C.; AND WINTER PARK, FL

**International Offices:** AUSTRALIA: TELEX 152838 REWOP AA; CANADA: TELEX 055-60042; CHINA: TELEX 210396 REWOP CN; COLUMBIA: TELEX 396-43254 REWOP CO; ENGLAND: TELEX 851-263984; FRANCE: TELEX 842-210 782; HONG KONG: TELEX 37512 FWAL HX; ITALY: TELEX 843-310548; JAPAN: TELEX 2323192; NETHERLANDS: TELEX 844-34264; NIGERIA: TELEX 22365 FOSWLD NG; SINGAPORE: TELEX RS 39292 FWINTL; SPAIN: TELEX 83122275; contact the main office for further information.

Foster Wheeler Corporation is an engineering, manufacturing, construction, real estate development and service organization with 23 subsidiaries operating worldwide. Founded in 1927, it is currently one of the world's largest engineering and construction organizations. International activities are conducted by affiliates in England, France, Italy, Spain, and Canada. U.S. based industrial subsidiaries supply diversified engineering technologies and allied equipment.

Product/Service	Description
Advanced Utilization Architecture/Engineering Boiler Equipment Coal Derivatives Facility Construction Facility Operation Financing	Foster Wheeler Energy Corporation, a major United States subsidiary, designs, fabricates, maintains, manufactures, and constructs steam generating equipment for electric utilities and industry. This Foster Wheeler subsidiary furnishes condensers, feed water heaters, and other major auxiliary equipment for coal, oil, and gas-fired installations in the United States and abroad. Foster Wheeler's application of alternate energy sources have advanced the state of the art. Current projects involve refuse-to-energy plants, the cogeneration of industrial steam and electric power, a proprietary sludge drying process and high technology heat recovery equipment.

**Fuel Tech**  
**61 Taylor Reed Place**  
**Stamford, CT 06906**



**Telephone:** (203) 359-1320  
**FAX:** (203) 359-9317

**Chief Executive Officer:** Mr. George F. Shulof  
**International Sales Manager:** Mr. Eugene J. Capriotti

**Domestic Offices:** SANTA FE SPRINGS, CA: Mr. M. R. Mulhern, 9926 Pioneer Blvd, Santa Fe Springs, CA 90670 TEL. (213) 942-0585, FAX (213) 942-1240; SAN FRANCISCO, CA: Mr. Michael Gamburg, 750 17th Ave, Suite 102, San Francisco, CA 94121 TEL. (415) 221-6177, FAX (415) 221-6178

**International Offices:** ENGLAND: Mr. Jeremy Peter-Hoblyn, 28A Cadogan Square, London SW1X OJH. TEL. 1-581-2051, FAX 1-589-8108; WEST GERMANY: Mr. Joachim Von Bergmann, Frankfurter Strasse 33-35, Eschborn 6236 TEL. 49-6196-48613, FAX 49-6196-42012; JAPAN: Dr. H. Saito, Kitano Maru Residence, 3rd Floor, 2-3-9 Kudan Kita, Chiyoda-Ku, Tokyo 102

Fuel Tech is a dynamic high-technology company dedicated to the development and commercialization of new chemical and mechanical systems to reduce emissions and improve the efficiency of fossil-fueled combustion systems. Founded in Boston, Massachusetts in 1981, Fuel Tech provides a unique systems approach to the solution of air pollution problems for customers in the industrial, marine, petroleum and electric utility markets.

(Continued on next page)

**Fuel Tech (Continued)**

Product/Service	Description
Boiler Equipment	The NO <sub>x</sub> OUT Process is a NO <sub>x</sub> reduction technology for utility and industrial boilers which involves the injection of enhanced urea and other chemicals into the combustion gases of a boiler. NO <sub>x</sub> OUT provides significant reductions over a wide range of combustor types, temperatures, and fuels. It is easily retrofitted, requires minimum space, and is estimated to cost one-fifth that of SCR.
Facility Operation	

**General Physics Corporation**  
**6700 Alexander Bell Drive**  
**Columbia, MD 21046**



**GENERAL PHYSICS  
CORPORATION**

**Telephone:** (301) 290-2300  
**Telex:** 7108622878 **FAX:** (301) 290-2600  
**Vice President Fossil Services:** Herman P. Stone II  
**International Sales Manager:** David Huckeba

**Domestic Offices:** LOCKPORT, NY: 111 Main Street, Lockport, NY 14094; SCHENECTADY, NY: 426 Franklin Street, Schenectady, NY 12305  
**International Offices:** SINGAPORE: Robert Young, Director/GP Asia, Pte. Ltd., 80 Marine Parade Road, #11-01 Parkway Parade, Singapore 1544, TEL. 65-3453633, FAX 65-3457938

General Physics Corporation is a mature and established company that provides diverse technical services to industries and government. General Physics employs over 1,600 people and had over \$13+ million in annual sales in 1989. We are a high-technology company organized to respond to individual client needs. General Physics has a well-qualified staff of former power plant supervisors, managers, and operators. They understand the problems and concerns of the coal industry. We have developed a methodology that has been proven effective in solving plant problems. The key to our performance has been enthusiasm, imagination, and performance.

Product/Service	Description
Operations Support Services	The services available in operations support include: Audits of Coal Sampling Equipment and Sample Preparation; Combustion Technology Improvement Programs; Coal Handling System Descriptions; Coal Handling Operating Procedures; Alarm/Abnormal Response Procedures; Start Up Procedures and Support; Coal Handler Qualification Programs; Operations Audit; Human Factors Assessments; and Thermal Performance Monitors.
Training Services	We are also involved in all aspects of training plant personnel with particular emphasis on developing training programs based upon specific client needs. These include: Training Program Needs Analysis; Coal Handler Training Program Design and Development; Development of Classroom, Self-Taught, Laboratory, In-Plant, Simulator and On-the-Job Training Programs for Coal Handling Systems; Preparing Training Materials; Conducting Training Programs; Developing Operations and Maintenance Qualification and Requalification Programs; Administration Materials; Coal Handling Systems Training; Advanced Operator Training (Combustion Efficiency); and Simulator Training.
Maintenance Services	General Physics has been involved in providing maintenance services since 1971. These maintenance support and maintenance training services include: Preventive/Corrective Maintenance Procedures; Coal Unloaders; Stacker Reclaimers; Crushers; Conveyor Belts; Coal Silos; Feeders; Other Equipment; Mechanical Maintenance Training of Coal Equipment; Electrical Maintenance Training of Coal Equipment; Instrument Maintenance Training of Coal Equipment; Technical Repair Specifications; Maintenance Planning Support; Outage Management and Support; Diagnostic Testing and Inspection; Preventive Maintenance Programs; Reliability Centered Maintenance Programs; Maintenance Audits; Preventive Maintenance Procedures; Inspection and Repair Procedures; and Spare Parts Program.

**Gould Energy**  
30 Clairmont Avenue  
Thornwood, New York 10594



**Telephone:** (914) 769-7900  
**FAX:** (914) 769-7905  
**Chief Executive Officer:** Gregory Gould  
**International Sales Manager:** Vincent Furkevic

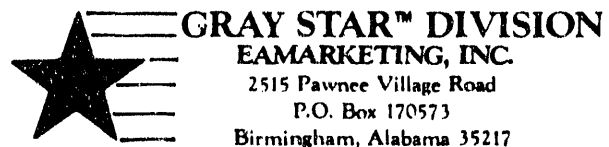
**Domestic Offices:** CRESSON, PA: Box 214, Gallitzin Road, Cresson, PA 16630 TEL. (814) 886-7400; TAMPA, FL: 505 South Falkenburg Road, Tampa, FL 33619 TEL. (813) 689-5785; GORMANIA, WV: P.O. Box 50, East, Gorman, WV 26720 TEL. (304) 693-7613; ST. LOUIS, MO: 11591 Page Service Drive, St. Louis, MO 63146 TEL. (314) 432-0414

For over eighty years, Gould has helped power utilities and coal producers answer one critical question: "Are we getting the BTUs we paid for?" Gould provides tighter asset control with its Fuel Management Information System, Electronic Auditing System and with professional, third party assessment of both coal and total system performance, including weighing, sampling and testing. Gould services are multi-disciplinary. They define quality assurance and accountability across the board. Gould gives operating managers the information they need for better control, conflict resolution, and improved performance, reduced emissions, as well as, documentation of a utility's cost effectiveness.

Product/Service	Description
Fuel Management Information System Facility Operation	A comprehensive system to manage the procurement, receipt, inventory, analysis and accounting for coal and other fuels.
Electronic Audit System Monitoring	A patented real time system of documenting the performance of material handling, sampling and weighing devices.
Technical Services	Sampling, testing, weighing and control services and consulting to give clients "Value Assurance".
Value Assurance Products	Mechanical Sample Divider, Video Training Systems, Bias Testing Software, to help the coal industry get the most value from its coal.

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**GRAY STAR™ Division**  
EAMarketing Inc.  
5010 Mayfield Rd.  
Cleveland, OH 44124



**Telephone:** (216) 291-2840  
**FAX:** (216) 291-3472  
**Chief Executive Officer:** Mr. Edmund F. Avolio  
**International Sales Manager:** Mr. Michael J. Williams

GRAY STAR™ offers design and site selection for volume metallurgical coke drying plants of 20 to 50 metric tons per hour or more.

GRAY STAR™ has been operating a Met coke drying plant in Birmingham, Alabama since 1985.

EAMarketing, the parent of GRAY STAR™ has been a broker and trader of metallurgical coke and coal since 1975.

1990 saw development of "RAPID FOAM™". This is a specially developed and designed product for use as a slag foamer in high voltage electric furnaces.

(Continued on next page)



**GRAY STAR™ Division (Continued)**

**Product/Service**

Design of volume metallurgical coke drying plants in the 20 to 50 ton per hour range. This service can include site and equipment selection.

**H.B. Zachary Company**  
**P.O. Box 21130**  
**San Antonio, TX 78221-0130**



**Telephone:** (512) 922-1213  
**Telex:** 76-7426 **FAX:** (512) 927-8060  
**Chief Executive Officer:** H. B. Zachary  
**International Sales Manager:** Robert E. Hood

**International Offices:** Please contact company Headquarters for further information.

H. B. Zachary Company is a world leader in the construction industry with over sixty-five years of building a wide variety of construction projects. Including power, process, transportation, mining/minerals (lignite, fluorspar and "frac sand"), hydraulics/water works, general industrial/manufacturing, commercial, maintenance, and pipeline. Projects have been constructed in Alaska, Bangladesh, Canada, Chile, Greece, Kwajalien, Oman, Peru, Puerto Rico, Saudia Arabia, Sinai Desert, South Africa, Spain, and Thailand. By accommodating the owner's preference of design firms the Company has good relations with many engineering firms. The company also functions as consortium manager to provide complete design, construction, financing, and maintenance responsibilities.

<b>Product/Service</b>	<b>Description</b>
Contract Mining	Topsoil requirements, hydrologic balance, disposal of excess spoil, coal or mineral recovery, mineral processing waste banks, environmental protection, pipelines, backfilling & grading, revegetation, Class I-III roads, special conditions.
Facility Construction	Loading facilities, storage and stockpile facilities, sheds, shops and other buildings, water treatment and water storage facilities, settling basins and impoundments, coal processing and other waste disposal areas, roads, railroads and other transport facilities.
Facility Operations & Maintenance	Operations plan, air pollution control plan, fish & wildlife plan, reclamation plan, diversions, protection of public parks & historic places, use of public roads.

**Harris Group Inc.**  
P.O. Box 3855  
Seattle, WA 98124



**Harris Group Inc.**

**Telephone:** (206) 382-7410  
**Telex:** 15-2917 **FAX:** (206) 382-9645  
**Chief Executive Officer:** Robert M. Harris, Chairman and CEO  
**International Sales Manager:** John D. Logsdon

**Domestic Offices:** PORTLAND, OR: 1750 N.W. Front Avenue, Portland, OR 97209 TEL. (503) 228-7200; BELLINGHAM, WA: 1111 Cornwall Avenue, Bellingham, WA 98225 TEL. (206) 734-4944; APPLETON, WI: 4321 W. College Avenue, Appleton, WI 54914 TEL. 414) 749-4600  
**International Offices:** CANADA: Fourth Floor, 233 West 1st Street, North Vancouver, B.C. V7M 1B3 TEL. (604) 985-6485

Backed by more than four decades of engineering experience, Harris Group Inc. has become widely regarded as a leader in engineering design for industrial situations. Our staff of approximately 500 includes professionals in all of the major engineering disciplines. Harris Group Inc. has the capability and capacity to handle both large and small projects from the very earliest stages through to the completion of construction. We routinely provide services for, but not limited to, the steam and metallurgical coal, cogeneration, and coal transshipment industries. Areas of expertise offered in coal handling are size reduction; screening and classification; blending and sampling; storage and reclamation; unit train and ship loading/unloading; conveying and transshipment.

Product/Service	Description
Specialized Coal Handling	Harris Group Inc. staff members have accumulated many years of experience in coal handling in the United States, Canada, and Europe. Services provided include project management, planning, engineering permitting, construction management, and startup and training assistance. Typical systems provided are: export terminals complete with dock facilities; automated stacking and reclaiming; shiploading and unloading with enclosed tubular conveyor galleries; overland conveyor systems; state-of-the art transshipment facilities with totally enclosed storage and conveying; general coal handling from mine mouth to preparation plant and beyond.

**Indeck Energy Services, Inc.**  
1111 South Willis Avenue  
Wheeling, IL 60090

**INDECK**

**Telephone:** (312) 520-3212  
**Telex:** 28-3544 **FAX:** (312) 520-9883  
**Chief Executive Officer:** Michael P. Polsky  
**International Sales Manager:** Lawrence J. Kostrzewa

**International Offices:** Please contact headquarters for further information.

Indeck is an experienced developer, owner, operator and maintainer of cogeneration and power generation plants using coal, natural gas, oil and waste fuels. Together with Indeck Power Equipment Company, North America's largest renter and leaser of emergency boilers, the company has been serving industrial and utility steam, power and water treatment needs since 1960. Indeck's broad range of experience includes over 750 MW of generating capacity either operating, under construction or under contract in the U.S. and Canada, with international expansions underway in the U.K. and elsewhere.

(Continued on next page)

**Indeck Energy Services, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Project Development	Indeck will perform all activities from project conception to construction, including cycle design and analysis, siting, engineering, permitting, power and steam sales contracting, fuel supply acquisition and debt and equity financing.
Project Operation	For projects owned in whole or in part by Indeck, Indeck will hire and train operating staff, prepare and follow operating and maintenance budgets, operate the project at optimum economic efficiency and schedule and carry out overhauls and repairs.

**J.W. Miller & Associates, Inc.**  
**Miller Building**  
**No. 2 Hale Street**  
**Charleston, WV 25301**



**MILLER ENTERPRISES**

**Telephone:** (304) 343-9524  
**FAX:** (304) 343-9530

**President:** Mr. James W. Miller  
**Vice President:** Mr. David S. Miller  
**Vice President:** Mr. Gary J. Miller

Incorporated since 1964.

**Product/Service**

Geological Exploration; Coal Mining, Underground, Surface, Auger; Coal Preparation; Coal Exploration; Coal Transportation; Port Facilities; Efficiency and Productivity Studies; Appraisals; Coal Analysis; Financing; Complete Feasibility Studies; Economic Evaluations; Market Studies; Management/Operations Research; Design Contracting; Exploration, Drilling, Preparation Plant Construction, Mine and Plant Management, Beehive Coke Oven Construction, RR Loading and Unloading

**Kaiser International Corporation**  
**250 W. 5th St., Suite 125**  
**San Pedro, CA 90731**



**KAISER**  
**INTERNATIONAL**  
**CORPORATION**

**Telephone:** (213) 514-2880  
**Telex:** 706746 **FAX:** (213) 514-3543  
**Chief Executive Officer:** Richard E. Holdaway  
**International Sales Manager:** James E. Holland

Kaiser International Corporation operates the Dry Bulk Facility in the Outer Harbor of the Port of Los Angeles at Berths 48-53. This facility was constructed in 1965 to handle the export of iron ore and coal to Japan. The facility has been used for extensive exports of coal, iron ore, copper concentrates, scrap steel, and petroleum coke as well as import cargoes. Kaiser International Corporation operates the facility providing diverse stevedoring services. Bulk materials are handled to or from ships, railcars, trucks or storage.

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**Kaiser International Corporation (Continued)**

<b>Product/Service</b>	<b>Description</b>
Facility Operation	Coal is delivered to Kaiser International Corporation's facility in unit trains of up to one hundred cars which originate on the Denver Rio Grande and Western, Utah, Union Pacific, Santa Fe, and Southern Pacific Railroads from the states of Utah, Colorado, New Mexico, Arizona, and Wyoming. Import cargoes of coal have also been handled by Kaiser International Corporation.
Coal Transport	The coal loading Berths 49-50, operated by Kaiser International Corporation in the Outer Harbor of the Port of Los Angeles, have the deepest water of any coal loading berth in the United States. The facility berths have 51 Ft. (15.54M) of water depth available at Mean Lower Low Water (MLLW). Coal is unloaded from railcars by a rotary car dumper. Coal from the rotary car dumper is handled on a conveyor system that provides direct loading from railcar to ship, railcar to storage, and storage to ship. Fourteen acres of coal storage area provide 200,000 metric tons of live storage capacity. The facility has loaded and discharged coal cargoes of up to 125,000 metric tons. Coal is loaded to vessels by a conveyor feed shiploader traveling up to 680 feet along the dock and traversing in and out, allowing spout trimming of most cargoes. Machine trimming by bulldozer is available if required.

**The M.W. Kellogg Company**  
**Three Greenway Plaza**  
**Houston, TX 77046-0395**



**The M.W. Kellogg Company**

**Telephone:** (713) 960-2000  
**Telex:** 166385 MWKHOC **FAX:** (713) 960-2032  
**Chief Executive Officer:** Donald C. Vaughn, President  
**International Sales Manager:** J. Albert Stanley, Senior Vice President of Worldwide Sales

**Domestic Offices:** DARIEN, CT; WASHINGTON, D.C.  
**International Offices:** ENGLAND: M.W. Kellogg Limited, The M.W. Kellogg Building, Stadium Way, Wembley, Middlesex, HA9 OEE  
 TEL. 44-1-903-8484; BRITISH WEST INDIES: Cayman Islands; ARGENTINA: Buenos Aires; SINGAPORE;  
 PEOPLE'S REPUBLIC OF CHINA: Beijing; INDONESIA: Jakarta; MALAYSIA: Kuala Lumpur

The M.W. Kellogg Company, an international, technology-based subsidiary of Dresser Industries, Inc., is a world leader in the engineering, procurement, construction and commissioning of chemical, petrochemical, fertilizer, gas processing, refining, and computer integrated manufacturing projects. Additionally, Kellogg provides operations and maintenance capabilities. Kellogg is also on the forefront of clean fuels technology with the acquisition of the KRW coal gasification process and development of clean air technology. The company has completed more than 3,000 major projects and many smaller projects worldwide.

<b>Product/Service</b>	<b>Description</b>
Coal Gasification	Kellogg's KRW coal gasification process is capable of operating at high conversion on a wide range of coals. Feeds ranging from lignites and brown coal to high and low volatile bituminous coal have been tested in the Waltz Mill, PA pilot plant using both air and oxygen as oxidants and limestone and dolomite as in-bed sorbents for sulfur. The process can be used to produce low- or moderate-BTU gas for synthesis or for power generation. Hot gas clean-up using Zinc ferrite yields low SO <sub>x</sub> emissions, and low-BTU gas yields and low NO <sub>x</sub> in combined cycle power plants.
Pressurized Circulation Fluid Bed Combustion	Kellogg's PCFBC processes pulverized coal and limestone or dolomite in a high velocity reactor, which completely combusts the coal while yielding very low SO <sub>x</sub> and NO <sub>x</sub> emissions. The pressurized flue gas is expanded to produce power in a combined cycle mode. The sorbent is fully oxidized in the reactor, eliminating subsequent treatment of the ash and spent sorbent for disposal. The technology is a low-cost alternative for cogeneration and power applications.

(Continued on next page)

**The M.W. Kellogg Company (Continued)**

<b>Flue Gas Desulfurization</b>	Kellogg's flue desulfurization technology utilizes a limestone sorbent in a horizontal scrubber. The technology has been proven in commercial operation on large utility boilers feeding both high and low sulfur U.S. coals. The process features high sulfur removal (greater than 90%) and high calcium utilization. Magnesium or dibasic acid addition is often used to enhance the system. A special feature of the horizontal Weir scrubber is both low flue gas pressure drop and low sorbent circulation, resulting in significant operating advantages.
<b>Design, Procurement, Construction and Plant Services</b>	Kellogg offers EPC capabilities as well as operations and maintenance services on a worldwide basis.
<b>Research and Development Services</b>	Kellogg has bench-scale and pilot plant facilities for the development and testing of coal in gasification and combustion modes. Kellogg's coal lab allows the analysis of coal and ash properties. The company can also prepare design studies for a wide range of process and power applications based on the specific coal properties.

**Morrison Knudsen Corporation**  
**P.O. Box 73**  
**Boise, ID 83729**



**Telephone:** (208) 386-5000  
**Telex:** 368439 **FAX:** (208) 386-6919  
**Chief Executive Officer:**  
**Mining Group President:**  
**International Sales Manager:**

Mr. William M. Agee  
 Mr. Robert A. Tinstman  
 Mr. Robert L. Thornton (208/386-6369)  
 Mr. Steven Y. Chi (208/386-5757)  
 Mr. John J. Whalen (415/442-7361)

**Domestic Offices:** SAN FRANCISCO, CA: 180 Howard Street, San Francisco, CA 94105 FAX (415) 442-7363; CLEVELAND, OH: One Erieview Plaza, Cleveland, OH 44114 FAX (216) 523-5922; SAN ANTONIO, TX: 2446 Cee Gee Street, San Antonio, TX 78217 FAX (512) 824-5765

**International Offices:** Tokyo; Jakarta; Manila; Taipei, Bangkok, Warsaw; Cairo; Ankara; London; Rio De Janeiro; Asuncion, Santiago. Please contact company headquarters for more information.

Founded in 1912, Morrison Knudsen Corporation is one of the largest engineering, contracting and operating companies in the United States. Major markets include mining, environmental, waste management, water resources, transportation, power generation, rail systems, and manufacturing for a host of goods and services. "MK" has completed projects in more than 80 countries and backed by a worldwide labor force of 20,000 people, including 4,000 engineers, managers, administrators, and project support personnel.

<b>Product/Service</b>	<b>Description</b>
Technical Consultants	MK's Mining Group provides a full range of consulting and engineering services, including: resource evaluation, geologic modeling, baseline studies, environmental assessment, hydrologic evaluation, permitting, reclamation planning, mine planning/design, material handling, management systems, and cost estimating.
Facilities Operations	Start-up, training, technology transfer, mine management and mine operations are offered for open cast mines utilizing trucks, shovels, loaders, draglines, and bucketwheels. MK operates as a contractor, manager, or venture partner.

**MSE, Inc.**  
**P. O. Box 3767**  
**Butte, MT 59702**



**Telephone:** (406) 494-7100  
**FAX:** (406) 494-7230

**Chief Executive Officer:** Donald R. Peoples  
**International Sales Manager:** John M. Sherick

**Domestic Offices:** BUTTE, MT: Component Development and Integration Facility (CDIF), P. O. Box 3767, Butte, MT 59702 TEL. (406) 494-7100; Corporate Office, P. O. Box 4078, Butte, MT 59702 TEL. (406) 723-8213, FAX (406) 723-9377

MSE, Inc., operates the Component Development and Integration Facility (CDIF)--the largest coal-fired magnetohydrodynamic (MHD) testing facility in the world. The CDIF can also be configured to support engineering-scale development testing programs in other coal and energy technologies. MSE, Inc., provides services in process engineering, facility management and operation, plant engineering and power system design and analysis. MSE offers environmental permitting, monitoring and compliance services. MSE's EPA -- certified laboratory performs organic and inorganic analyses and offers chemical consulting and problem solving services.

<b>Product/Service</b>	<b>Description</b>
Coal Research and Development	Research and development in magnetohydrodynamics (MHD), coal handling and processing, high temperature combustion, and experimental hardware assembly and testing. Full analytical and data services are available.
Engineering Services	Facility and process design and engineering for coal and fossil fuel systems and power plants, including coal handling, pulverizing, inerting and drying, combustion, and instrumentation and control.
Facility Management and Operation	Facility management, startup, and operation to ensure reliable performance in compliance with approved procedures and safety, and environmental regulations.
Laboratory Services	EPA-certified laboratory equipped to sample and perform organic and inorganic analyses on a wide range of sample types including water, soils, coal, tailing, ores, hazardous waste, and airborne pollutants.
Environmental Services	Full range of environmental services for mining, coal processing, and power industries.

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**National Mines Corporation**  
**P.O. Box 12022**  
**333 W. Vine Street, Suite 1000**  
**Lexington, KY 40579**



**Telephone:** (606) 233-4141  
**Telex:** 213475 **FAX:** (606) 281-8757  
**President/Chief Executive Officer:** Vaughn R. Knapp  
**V.P. - Marketing & Sales:** Herman L. Mays

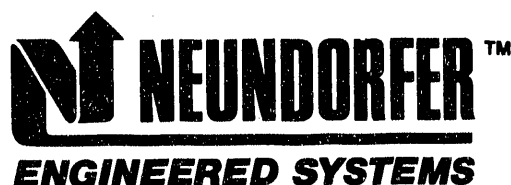
A subsidiary of National Steel Corporation, the company began coal production in the early 50's as an integrated source for cokemaking. Today, 80% of shipments are to commercial domestic and export receivers, offering various high-quality grades of metallurgical, sized (industrial), and thermal coals. Mines and preparation facilities are located in Washington Co., PA, Wyoming Co., WV, and Knott Co., KY, with site capacities of from 500,000 to 1.6 million tons per year. Unit-train loading capability at PA and KY locations. Coals are deep-mined and tend to be low-to-mid sulfur content. UMWA-affiliated and professionally staffed.

(Continued on next page)

**National Mines Corporation (Continued)**

Product/Service	Description
Coal Exporters	Knowledge of international marketplace - mainland Europe, Scandinavia, Pacific Rim, Canada, South America - port facilities, transportation, storage, handling.
Coal Mining	Full range of experience, including exploration, development, all aspects of mine and plant operation, reclamation, safety.
Facility Operation	Capable of previously enumerated aspects of management and engineering.

**Neundorfer, Incorporated**  
**4590 Hamann Parkway**  
**Willoughby, OH 44094**



**Telephone:** (216) 942-8990  
**FAX:** (216) 942-6824  
**President:**  
**Sales Manager:**

Michael Neundorfer  
Patti Ensel

Neundorfer provides products and services related to air pollution abatement, using electrostatic precipitation. Electric power generation, metals processing, rock products (cement) and paper industries are the major types of businesses served since the early 1970s. Products include system upgrades, rebuilding microprocessor controls for voltage and rapping, discharge electrodes, plate alignment systems, pneumatic and electric rappers, voltage isolation and stabilizing components, feedwater heater level controls, coal sampling devices and boiler tube deslagging systems. Services include consulting, field service, training, and performance diagnosis of electrostatic precipitator operations. Neundorfer is associated with the National Air Vibrator Company (NAVCO) of Houston, Texas, producers of pneumatic equipment.

Product/Service	Designation	Description
NAVCO Rappers EMR Rappers	R2, R3, R4 EMR 20110, EMR 20220	Pneumatic Impact Rappers, Pin Plates, Anvil Beam Sockets Magnetic Impulse Rappers
Discharge Wires Plate Alignment Hopper Evacuation MVCII MicroRap PS90	DE Electrodes Straighteners R3, PP3 Voltage Control Rapper Control Purge Stabilizer	Discharge Electrode Wires, spring & solid shroud Plate Realignment System Hopper Evacuation Systems Microprocessor-based Voltage Control System Microprocessor-based Rapper Control System Hopper-mounted lower wire frame air-purged insulating stabilizer
COAL LANTZ Mdc2000	Coal Sampler Feedwater Control	Automatically extracts sample of coal on as-burned basis Microprocessor-based or software algorithm to optimize levels of feedwater heaters

**NUS Corporation**  
910 Clopper Rd.  
Gaithersburg, MD 20877



**Telephone:** (301) 987-6543  
**Telex:** 710-828-0540 (NUWASH) **FAX:** (301) 258-8764  
**Chief Executive Officer:** Charles F. Jones  
**International Sales Manager:** Mr. John T. Stone

**Domestic Offices:** 25 Offices within the U. S.  
**International Offices:** JAPAN: Japan NUS Co., 7-1, Nishi-Shinjuku 2-Chome, Shinjuku-Ku, Tokyo 163 TEL. 81-3-343-1775; FEDERAL REPUBLIC OF GERMANY: NIS Nuklear-Ingenieur-Service GMBH, Donaustabbe 23, D-6450 Hanau-1 TEL. 49-6181-10940

Headquartered in Gaithersburg, MD, NUS Corporation is an international engineering and environmental consulting firm with more than 1900 employees. NUS provides consulting, engineering, hazardous waste management, training, and laboratory services for clients whose operations impact broad energy and environmental concerns. NUS provides complete environmental services, power plant support services, comprehensive training programs for power plant operations and maintenance personnel (Spanish, Portuguese, English) and design/engineering services.

Product/Service	Description
Facility Operation	NUS provides a broad range of consulting and field support services specially designed to enhance efficiency and cost-effective operations at fossil-fueled power generating plants and related facilities. Services involve plant operations and maintenance assistance, plant information management, personnel training, plant chemistry consulting and management consulting. Specific services include: operating, maintenance administrative and test procedure development; plant operating manual development; environmental compliance manuals; systems description development; vendor information development and revision; plant startup assistance; construction management of plant modifications and backfits; maintenance management; chemistry program review; training program design; skills instruction. NUS also provides architect/engineering services for fossil plant modification and design backfit requirements.
Facility Construction	
Architecture/Engineering	

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**Oglebay Norton Company**  
1100 Superior Ave.  
Cleveland, Ohio 44114



**Telephone:** (216) 861-3300, (216) 861-8707  
**Telex:** 62836077 ONCO-CLEVE **FAX:** 216-861-2863  
**Chief Executive Officer:** Renold D. Thompson  
**International Sales Manager:** J. Douglas Loughhead

Minerals, lake transportation and manufacturing are the major areas in which Oglebay Norton serves steelmakers, utilities, chemical and glass producers, manufacturers and other basic industries. Produces Ohio No.8 Seam Coal (Steam) with daily production capabilities of 4000NT Deep Mine located on NS Railroad at St. Clairesville, Ohio. Twelve thousand contiguous acres of coal reserves located in Boone County, WV. Five seams with average quality being 12,500 BTU's and 1% sulfur. Production is scheduled for fourth quarter 1989.

(Continued on next page)



**Oglebay Norton Company (Continued)**

Product/Service	Designation	Description
Coal Mining		
Coal Transport	Ceredo Dock	Barge loading facility located near Huntington, WV on the Ohio River. Jointly served by CSX and NS railways (unit train capable) with annual capacity of 8,000,000 tons.
Facilities Construction	Licking River Terminal Co.	Barge loading facility located near Cincinnati, Ohio. Unit train capable and served by the CSX railway. Annual capacity of 8,000,000 tons.
Facilities Operation	Columbia Transportation Division	Offers a full range of 13 lake carriers to handle bulk materials on the Great Lakes.

**Qualtec, Inc.**  
 11300 U.S. Highway 1, Suite 500  
 Palm Beach Gardens, FL 33408



Telephone: (407) 775-8300  
 FAX: (407) 775-8301  
**Chief Executive Officer:** Roger A. Eatman, President & CEO  
**International Sales Manager:** Fred Trice, Director, Special Projects  
 Bob Bartz, Director, Technical Services

QUALTEC, INC. is a subsidiary of FPL Group, Inc. (the holding company which also owns Florida Power & Light Co.). Established in 1985, QUALTEC's utility-related businesses provide specialty support services to U.S. and international electric utilities, independent power producers, and architectural/engineering firms.

Product/Service	Description
Facility Operation	Project management; cost/estimating; planning & scheduling systems; construction management; professional and technical; contract labor; power plant equipment inspection, testing, maintenance and labeling; training; procedures development; operations audits; maintenance/outages/backfit; services.
Facility Construction	

**S&C Thermal Systems, Inc.**  
3314 Highway 162  
Post Office Box 1246  
Granite City, IL 62040



Telephone: (618) 452-3000  
Telex: TWX 910-756-2352 FAX: (618) 876-0865  
Chairman: Emmanuel Merle  
President: Christian Joly  
International Sales Manager: Richard P. Kuo, Sr. Vice President  
Senior Vice President: Roland Otte

Domestic Offices: NEW YORK, NY: 767 Fifth Avenue, New York, NY 10153, TEL. (212) 421-1944, FAX (212) 421-1937  
International Offices: PARIS: TEL. 33 (1) 47-56-22-22, FAX 33 (1) 40-87-01-28

S&C Thermal Systems, Inc. is a member of the Thion Group of companies. Thion, established in 1843, is an international energy resources and services group with interests in Europe and the United States. The Company provides a full range of thermal energy services to commercial, industrial, residential, institutional and government sectors. Major areas of business include: operation and maintenance of individual building heating and cooling plants under long-term energy service contracts; design, construction, financing and operation of district heating and cooling systems and cogeneration plants; energy audits and technical feasibility studies; energy performance contracting and third party financing; waste-to energy plants and waste recycling.

Product/Service	Designation	Description
Facilities Operations	Chauffage	24 hr. plant O&M, fuel supply retrofit, finance
Facilities Construction	District heating and cooling	Design, build, own, operate
Power Generation	Cogeneration	Design, build, own, operate
Financing and Resource Packaging		Energy plants, performance contracts.

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**TECO Transport & Trade Corporation**  
5405 W. Cypress Street, Suite 300  
Tampa, FL 33607



Telephone: (813) 289-4161 TWX: 810-876-0687  
Telex: 808852 FAX: (813) 289-3514  
President: D. Jeff Rankin  
VP, Sales and Marketing: D. Bryan Bashore

Domestic Offices: MID-SOUTH TOWING COMPANY: P.O. Box 790, Metropolis, Illinois 62960, TEL. (618) 524-3100  
ELECTRO-COAL TRANSFER: P.O. Box 6, Davant, Louisiana 70046, TEL. (504) 525-4181  
GULFCOAST TRANSIT COMPANY: P.O. Box 22048, Tampa, Florida 33622-2048, TEL. (813) 289-4161  
International Offices: TECO TRANSPORT & TRADE: Attn: Mr. Ko Yoshida, Tokyo, Japan, TEL. (03) 407-0865

TECO Transport is a marine service company providing integrated water transport including vessel topping-off, storage, and transfer for coal and other bulk commodities. We operate within the Mississippi River basin system, the U.S. Gulf of Mexico and provide sea-going barge service worldwide.

(Continued on next page)

**TECO Transport & Trade Corporation (Continued)**

Product/Service	Designation	Description
Coal Transport	Mid-South Towing Company	Operates 12 line haul river tugboats and 480 hopper barges on the Ohio and Mississippi river system.
Facilities Operations	Electro-Coal Transfer	Ocean marine transfer terminal facility south of New Orleans. Provides 4 million tons of storage area and transfer capability for 25 million TPY. Serves up to 150,000 D.W.T. cape-size vessel.
Transport Equipment	Gulfcoast Transit Company	Operates 15 dry-bulk ocean barge/tug units with cargo capacity ranging from 9,600-42,800 tons.

**United Engineers & Constructors Inc.**  
**Stearns-Roger Division**  
 P. O. Box 5888  
 Denver, CO 80217

**United Engineers  
& Constructors**  
 A Raytheon Company

**Telephone:** (303) 758-1122

**Telex:** (303) 692-2208

**Chief Executive Officer:** Gunnar Sarsten

**International Sales Manager:** Lawrence J. Weber

**Domestic Offices:** PHILADELPHIA, PA: UE&C, 30 South 17th Street, P. O. Box 8223, Philadelphia, PA 19101 TEL. (215) 422-3000; BOSTON, MA: UE&C, 100 Summer Street, Boston, MA 02110 TEL. (617) 338-6000; CHICAGO, IL: UE&C, Opus West II, 1411 Opus Place, Downers Grove, IL 60515 TEL. (312) 960-9200; WEST PALM BEACH, FL: UE&C, 7289 Garden Road, P. O. Box 15348, West Palm Beach, FL 33416 TEL. (407) 844-7900.

**International Offices:** ENGLAND: Stearns-Catalytic International Ltd., C.I. Tower, St. George Square, High Street, New Malden, Surrey, KT3 4HH TEL. 1-949-0055.

Stearns-Roger has been serving the needs of the mining, metallurgical and inorganic chemicals industries since 1885. Today, as a Division of United Engineers & Constructors, we offer the broadest technology base of any U.S. engineering, construction, and maintenance firm. UE&C is at work around the world on more than 1,000 projects of varying size and scope. Our coal experience ranges from conceptual engineering studies to coal mining and handling facilities design; coal processing, beneficiation, and gasification projects; and construction and operation of coal conversion plants. Our engineering and construction management professionals are available to assist with projects worldwide.

Product/Service	Description
Architecture/Engineering	Complete services from conceptual studies through detailed design.
Facility Construction	Construction Management

**Utility Fuels, Inc.**  
**P.O. Box 539**  
**Houston, TX 77001**



**Telephone:** (713) 888-4500  
**Telex:** 763867 **FAX:** (713) 888-4539  
**Chief Executive Officer:** F.K. Smith  
**International Sales Manager:** Lawrence J. Rogers; David D. Itz

**Domestic Offices:** HOUSTON, TX: 11 Greenway Plaza, Suite 800, Houston, TX 77046 TEL. (713) 888-4500  
**International Offices:** Please contact Houston headquarters for further information

Utility Fuels, Inc. is one of the leading coal providers in the United States, delivering over 17 million tons per year to six electric generating units. The company owns lignite reserves and mining equipment and manages the mining and procurement of coal and other minerals. The company also owns approximately 2,400 coal-carrying railcars and manages one of America's largest railroad freight agreements. UFI owns and operates materials handling systems and provides training and technical services for operators of mining, materials handling and electric generating facilities. Organized in 1973, Utility Fuels is a subsidiary of Houston Industries, an NYSE holding company with over \$10 billion in assets.

<b>Product/Service</b>	<b>Description</b>
Coal & Minerals Supply	Utility Fuels is responsible for overseeing the mining of lignite reserves and manages contracts for the procurement of coal and minerals. UFI offers mine planning and operation services.
Transportation & Equipment	The company owns and maintains railcars and manages freight agreements for the delivery of coal and minerals. UFI offers full maintenance railcar leases for hauling coal and other bulk materials.
Materials Handling	UFI owns, operates and maintains systems for unloading, storing, blending, crushing and conveying coal and lignite. The company offers design review, training, and operation services for such systems.
Operations Services	The company provides training project management and engineering services (including planning, scheduling and documentation) for operators of mining, materials handling and electric generating facilities. UFI also offers power plant equipment testing, analysis, and optimization services.

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**Williams Technologies, Inc.**  
**320 South Boston, Suite 831**  
**Tulsa, OK 74103**

**Telephone:** (918) 582-5811  
**FAX:** (918) 584-0474  
**Chief Executive Officer:** David R. Williams, Jr.  
**International Sales Manager:** H.J. Brolick

**International Offices:** Please contact the company headquarters for further information.

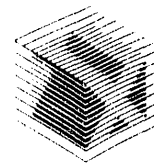
Principal business is project assessment, development, and management from initiation of concept through commercial implementation, including financial sourcing. Manages R&D partnership for oil and mineral technologies, R&D program for coal liquefaction technology and operation of Black Mesa coal slurry pipeline. Provides consulting with regard to economic feasibility or technical evaluation of energy or resource projects. Manages operating facilities and technology development for others. Special expertise in development of coal slurry pipeline projects through past worldwide experience and ongoing operations management of Black Mesa Pipeline.

(Continued on next page)

**Williams Technologies, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Coal Transport	Provides development, management, financial packaging and operation management of coal slurry pipeline systems.
Architectural/Engineering	Provides consulting services in planning and feasibility study, as well as management of design, construction, and operations for coal slurry pipeline and oil and gas pipeline systems. Provides similar services for cogeneration plants and alternative energy projects.
Coal Derivatives	Management services for coal liquefaction and deep cleaning R&D.

**Xcel Group, Inc.**  
**675 N. Brookfield Road**  
**Brookfield, WI 53045**



**XCEL GROUP INC.**

**Telephone:** (414) 797-4080  
**FAX:** (414) 784-5036  
**Chief Executive Officer:**  
**International Sales Manager:**

Gerald T. Petersen  
 Paul S. Gurski

Process engineering firm with extensive background in coal technology process development to include the specification, design, construction, start-up and operation of coal processing equipment. Xcel just completed a design, supply and test NATO-funded contract awarded in international competition for an R&D gasification facility in Athens, Greece. It provided start-up problem-solving services for a U.S. coal waste gasification project. Recently, Xcel organized a consortium of manufacturing firms to pursue a regional industrial waste recycling facility. Technical support services include feasibility assessments, U.S. equipment sourcing, custom equipment design, market research and application studies and project management. Particularly knowledgeable in U.S. utility market "clean fuel" needs and combined cycle applications.

<b>Product/Service</b>	<b>Description</b>
Technology/Evaluations	Evaluations of emerging and commercially mature technologies to include technical and economic evaluation for specific market applications.
"Clean Coal" Applications	Investigation of a specific technology or competing technologies for utility-scale or large industrial power generation applications.
Equipment Sourcing/Design	Identification of U.S.-based sources to meet specific processing needs or custom design and supply required equipment.
Project Management	Project management services to include permitting, engineering and construction.
Environmental Services	Environmental assessments, process evaluations, and designs to assure compliance to industrial discharge limits.

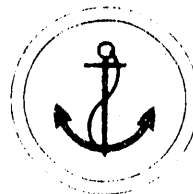
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**Freight Forwarders:**

Firms providing brokerage services in domestic and international transport.

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**Anchor International**  
P.O. Box 28387  
1703 East Joppa Road  
Baltimore, MD 21234



**Telephone:** (301) 882-6400  
**Telex:** 469145 Anchor Bal C1  
**President:** Donald K. Bollhorst  
**International Sales Manager:** George Lijeron  
**FAX:** (301) 882-2192

**Domestic Offices:** BALTIMORE, MD: U.S. Customs House, Suite 419, 40 South Gay Street, Baltimore, MD 21202 TEL. (301) 547-0340; HANOVER, MD: BWI Commerce Park, 2609 Cabover Drive, Suite 4, P.O. Box 546, Hanover, MD 21076 TEL. (301) 760-0888

Founded by the current President in 1972, Anchor International offers the full range of ocean and air freight service for importers and exporters. Anchor International is fully automated and ABI certified with EDI activation pending. IAN International, a joint venture, has been in operation at BWI Airport since 1987.

Product/Service	Description
Freight Forwarders	Our services encompass arrangement of freight forwarding and clearance from origin door to destination door including filing of U.S. Customs documentation, transportation of freight, and delivery to consignee. With our affiliates worldwide, we can assure most competitive pricing and timely completion of arrangements.

**Consolidated Rail Corporation**  
6 Penn Center Plaza  
Philadelphia, PA 19103-2959



**Telephone:** (215) 596-2000  
**FAX:** (215) 851-7448  
**Chief Executive Officer:** Mr. J. A. Hagen, Chairman, President, and CEO  
**Assistant Vice President:** Mr. R. W. Lynch, Coal Coke and Iron Ore  
**Mgr - Coal Mktg/Sales Export:** Mr. R. B. Schurr

**Domestic Sales Offices:** PHILADELPHIA, PA: 1126 One Liberty Place, Philadelphia, PA; 1650 Market Street, 19103-7399  
TEL. (215) 851-7480  
**International Offices:** Served from Philadelphia.

With rail lines in 14 Eastern and Midwestern states in the United States, Conrail offers direct rail transportation links between coal producing regions, shippers, and international coal buyers. The diverse characteristics of coal accessible by Conrail are well-suited to the energy needs of the world economy, providing premium energy required to generate electrical power and yielding excellent coking coals for metallurgical applications. Reserves of approximately 21 billion tons of bituminous and anthracite coal for steam and metallurgical use are located within Conrail's operating areas and are readily available for the export market. Ninety-five percent of U.S. low-sulfur anthracite coal is produced in one area of operation, Pennsylvania. Conrail is committed to the enhancement of transportation partnerships with coal producers, traders, and international coal buyers.

(Continued on next page)

**Consolidated Rail Corporation (Continued)**

Product/Service	Description
Coal Transport Freight Forwarders Coal Exporters	Serving East Coast ports, Conrail offers a full range of routing and shipping options combined with state-of-the-art transfer, blending, and storage capabilities; along with the capability of loading up to 7,000 tons of coal per hour and up to 15 million tons per year. Conrail owns a sophisticated rail-to-water transshipment facility, Pier 124 at the Port of Philadelphia (one of the many piers served by Conrail) and has direct access to Consolidation Coal Sales Company's Terminal at the Port of Baltimore. Conrail, through its modern, high-capacity transfer operations located on Lake Erie at Ashtabula Coal Pier in Ashtabula, Ohio, is strategically positioned for export coal movement through the Great Lakes/St. Lawrence Seaway coal corridor. Also, through interchange with other railroads, Conrail can deliver to any port in the U.S.A.

**Gunther George Schmid Associates, Inc.**  
 2839 El Presidio Street  
 Carson, CA 90810-1120



**Telephone:** (213) 609-1333  
**Telex:** 678865 **FAX:** (213) 609-1021  
**Chief Executive Officer:** G. George Schmid  
**International Sales Manager:** Robert B. Clundt

**International Offices:** HONG KONG: Jones Wong, Freight Systems, Suite 1623-5 Ocean Centre, Kowloon TEL. 852-3-739-3323;  
 TAIWAN: W.N. Chen, Freight Systems, No. 595 Min Sheng E Road, 10th Fl., Taipei TEL. 886-2-713-4693;  
 KOREA: Mr. Hyun, Shinhan Freight Systems 12 Fl. Jung Woo Bldg., CPO Box 952, Seoul TEL. 82-2-739-4731;  
 JAPAN; THAILAND: Bangkok; SINGAPORE; MALAYSIA; PHILIPPINES; INDONESIA; please contact the Carson Office for further information.

Gunther George Schmid Associates, Inc. is a privately owned company in business for some 4-5 years. It is located in the Los Angeles area minutes from the very busy Ports of Los Angeles and Long Beach and the Intermodal Container Transfer Facility (ICTF) used by the ports for intermodal cargo movements. Schmid Associates is a International Freight Forwarder and also a Non Vessel Operating Common Carrier (NVOCC).

Product/Service	Description
Freight Forwarders	International Freight Forwarder - License No. 2475 issued by the F.M.C. Provides forwarding and documentation services for cargoes destined to all parts of the world. Services are by both ocean and air. Our product is service to the customer.  Inbound NVOCC primarily from the Far East. Services include consolidation of cargo in the Far East port for shipment to the U.S. In addition, we offer competitive ocean freight rates utilizing various contracted carriers (conference and non conference). We also handle shipments from Europe and Australia.

**Inter-Maritime Forwarding Co., Inc.**  
156 William Street  
New York, NY 10038



Telephone: (212) 791-1234

Telex: 422969 FAX: (212) 791-0472

President: Mr. Martin G. Mann  
Director Sales/Marketing: Mr. San Fischel  
Director of Imports: Mr. Michael McCarthy

Domestic Offices: J.F.K. AIRPORT: H. Woltmann, TEL. (718) 632-0345; CHICAGO: G. Yost, TEL. (708) 529-9900; LOS ANGELES: I. Miura, TEL. (213) 641-3147; MIAMI: M. Vasquez, TEL. (305) 592-6158  
International Offices: UNITED KINGDOM - LONDON/MANCHESTER/BRADFORD/GLASGOW

I.M.F., since 1929, can help design your total shipping plan, from port of origin to final destination. We offer daily sailings of scheduled ocean vessels to major world ports. We provide full-container service or will consolidate less-than-container loads. We offer import and export services through every U.S. international port, air or sea, on worldwide routes. IMF was the first Customs Broker in the New York region to link up with U.S. Customs Services Automated Broker Interface. Through IMF-ABI computer networking, we can obtain cargo release from U.S. Customs in minutes.

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**International Freight Services, Inc.**  
1610 Rollins Road  
Burlingame, CA 94011



Telephone: (415) 692-1632/1635

Telex: 331444 FAX: (415) 697-4929

Chief Executive Officer: Joseph DiMaio

Product/Service	Description
Freight Forwarders	Air & Ocean Freight; Packing, Crating, Domestic Air Freight; Import & Export of General Commodities; Ship
Customhouse Brokers	Charters

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**The Irwin Brown Company**  
212 Chartres Street  
New Orleans, LA 70130

**The Irwin Brown Company**  
CUSTOMS BROKERS / INTERNATIONAL FREIGHT FORWARDERS

Telephone: (504) 586-0378

Telex: 584287 (BROWNCO NLN) FAX: (504) 525-8527

Chief Executive Officer: Sandra Brown Burstein  
International Sales Manager: Sheldon Bernstein  
Export Manager: Virginia West  
Traffic Manager: John Hyatt

The Irwin Brown Company, established at New Orleans in 1968, is a woman-owned business with over 51% of the stock held by its president, Sandra Brown Burstein. We qualify as a "socially and economically disadvantaged small business concern", able to meet the set-aside needs of prime and subcontractors for U.S. Government procurement projects. Our reputation with the U.S. Customs Service as well as with the many allied industries in international trade is of the highest standing.

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### The Irwin Brown Company (Continued)

We are a medium sized Customs Broker/International Freight Forwarder, dedicated to giving personalized service and working toward the betterment of the industry and the community. We are members of the National Customs Brokers and Forwarders Association of America, Inc., and the American Importers and Exporters Association. We are very active with our local association, The International Freight Forwarders and Customs Brokers Association of New Orleans, Inc. Our vice president, Sheldon Bernstein, is the current President of the Association.

**J. W. Hampton Jr. & Co., Inc.**  
15 Park Row  
Suite 100  
New York, NY 10038

Telephone: (212) 349-5066  
Telex: 238677 FAX: (212) 349-2734  
Chief Executive Officer: Robert C. Shoule, Jr.  
International Sales Manager: Maureen Schoule

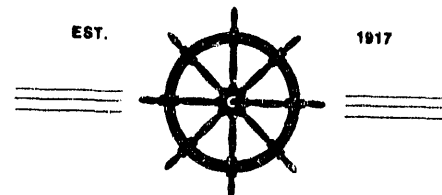
Domestic Offices: NEW YORK, NY: 161-15 Rockaway Blvd., Jamaica, NY 11434

Family run business serving the custom house brokerage and foreign freight forwarding community for 124 years.

#### Product/Service

Freight Forwarders

**John S. Connor, Inc.**  
33 South Gay Street  
P. O. Box 1717  
Baltimore, MD 21203-1717



Telephone: (301) 332-4880  
Telex: 170914 CONNOR UT  
6849034 CONNOR UW  
87565 CONNORBULK BAL FAX: (301) 332-4925

Chief Executive Officer: Paul F. Connor  
International Sales Manager: C. Richard Foster

Domestic Offices: NORFOLK, VA: 322 Monticello Arcade, P. O. Box 3910, Norfolk, VA 23514-3910 TEL. (804) 627-3910 TELEX 160106 JSCONNORNFK, FAX (804) 627-3538

International Offices: ENGLAND: Jonathon S. E. Turner, Heath Paddocks, Press Heath Witchurch, Shropshire SY13 2AF TEL. 0948-3527, FAX 0948-5949, TELEX 35756 A/B TURNER G; GREECE: Captain Georgio A. Kondoulis, G. A. Kondoulis Shipping Co., Ltd., 150, Kolokotroni Street, 185 36 Piraeus TELEX 211258 ALGK GR; JAPAN: Yutaka Iono, Iono Marine Co., Ltd. 604 Catherine Yoyogi, 22-5, 2-Chome Yoyogi, Shibuya-ku, Tokyo 151 TEL. (03)378-3281, TELEX 232-5363 IONO J, FAX (03) 378-0866; ITALY: Angelo Noli, Paolo Scerni, S.P.A., 10 Piazza Portello, P. O. Box 1857, 16124 Genoa TEL. 3910 2692222 or 2267, FAX 39 102692237

Since 1917, John S. Connor, Inc. has been representing shippers and consignees of International Commerce. During this period, the company has grown to become one of the most versatile and innovative maritime agency businesses on the U. S. East Coast. As Shipper's Agent, the company handles the

(Continued on next page)

## John S. Connor, Inc. (Continued)

majority of export coal and bulk movements through Baltimore along with providing similar services at Hampton Roads. Connor's Agency Departments maintain full service marine operations in the general husbanding of vessels both as Owner's or Charterer's Agent at Baltimore and Hampton Roads. As with all Connor operations, our main objective is to protect the principal's interests at all times.

Product/Service	Description
Coal Transport	As Shippers Agent we provide attendant outbound documentation for export cargoes along with coordination of loading to fulfill Shipper's/Master's cargo requirements. John S. Connor provides fully staffed marine departments with extensive experience in the handling of the exacting needs of vessel activities and in-port requirements both as Owner's and Charter's Agent along with representation as Shipper's Agent.
Freight Forwarders	John S. Connor correlates with the Shipper for timely movement of coal cargo to quay in accord with arrival of vessel to Port, as well as providing full export documentation services and assistance in vessel loading operations.

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John S. James Co.  
P.O. Box 2166 (31498)  
144 Drayton Street  
Savannah, GA 31401

John S.  
James Co.

Telephone: (912) 232-0211  
Telex: 804722 FAX: (912) 233-2150

Chief Executive Officer: John Wm. James  
Marketing and Sales Manager: Joseph K. Eberwein

Domestic Offices: JACKSONVILLE, FL: TEL. (904) 356-9646; ATLANTA, GA: TEL. (404) 762-5556; CHARLESTON, SC: TEL. (803) 554-6400; WILMINGTON, NC: (919) 343-0700; NORFOLK, VA: TEL. (804) 625-0641; CHATTANOOGA, TN; KNOXVILLE, TN: TEL. (615) 970-3367

International Offices: Agents worldwide. Please contact company headquarters for further information.

John S. James Co. was founded in 1941. Within our organization, we have over 100 International Customs and Forwarding Specialists serving the needs of the transportation community. The John S. James Company is committed to the continuation of providing expertise in handling Customs/Consular document preparation and cargo coordination in the International Marketplace. We have corresponding agency agreements with various companies in the states and abroad which enable us to handle shipments to and from ALL points.

Product/Service	Description
Foreign Freight Forwarder FMC #150-R	Our computerized Export Program allows us to tailor documents according to each client's individual needs. As your International Freight Forwarder, we become an extension of and a personal representative in the port/city of loading for you.
Customhouse Broker CHB #5611	John S. James is fully computerized and automated and transmits via in-house computer directly to Customs in Washington, D.C., through the A.B.I. (Automated Broker Interface) system. "We are proud to be the very FIRST Customs Brokers in the entire U.S. to be approved on the 'Cargo Release' System. Being an ABI broker enables us to expedite document processing, facilitating the movement of your cargo."
International and Domestic Air Cargo	By associating with a network of carriers, economical rates have been established to all points throughout the nation and the world. We also arrange to have packages and/or documents delivered door to door via courier at a discounted price. Further discounts are available for volume shippers.

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**John S. James Co. (Continued)**

Chartering	Our eight offices plus contacts in New York and abroad afford us first-hand knowledge of current market conditions throughout the world and allow us to expedite substantial shipments, both air freight and ocean freight.
NVOCC (Consolidation Service)	This fully-insured service enables us to accommodate the needs of the "less than container" load shipments. We offer a viable alternative for moving cargo at a significant cost savings on ocean freight charges while expediting delivery of their products.
Warehousing/Distribution	Our domestic transportation system can assist commercial development firms in the movement, warehousing and installation of their furniture, fixtures, and expendable items.
Inland Transportation	These services may be combined with Import or Export shipments to provide a Door-to-Door service or may be used on strictly domestic movements.

**M.G. Maher & Company, Inc.**  
442 Canal Street  
New Orleans, LA 70130



Telephone: (504) 581-3320  
Telex: 584286 FAX: (504) 529-2611  
Chief Executive Officer: Paula L. Maher, President

**Domestic Offices:** HOUSTON, TX: Ralph Benzaquin, 1121 Walker St., Houston, TX 77002 TEL. (713) 224-8101, FAX (713) 224-4101; MOBILE, AL: Lila Davis, One St. Louis Center, Mobile, AL 36602 TEL. (205) 433-8474, FAX (205) 438-3103; SHREVEPORT, LA: Donna Hopkins, 6209 Interstate Dr., Shreveport, LA 71109 TEL. (318) 631-3956, FAX (318) 631-4102; BRENTWOOD, TN: Bobby Thompson, 783 Old Hickory Blvd. Brentwood, TN 38131 TEL. (615) 371-8438, FAX (615) 377-9712; MEMPHIS, TN: Sandra Jennings, 3035 Distributors Row, Memphis, TN 38131 TEL. (901) 345-2878, FAX (901) 345-2980; JACKSON, MS: Keith West, Terminal Bldg., Jackson Int'l Airport, Jackson, MS 39208 TEL. (601) 932-7435, FAX (601) 932-7436

M. G. Maher is one of the largest, full-service international freight forwarders and customs brokers in this part of the world. We know every in-and-out of the technical details, laws, personalities, systems, routines, and quirks associated with shipping. We are fully computerized, which serves us well in what we regard as our most important function: looking out for our clients interests.

Product/Service	Description
Coal Transport Freight Forwarders	Tracing of inland movement to seaboard, booking of advance and timely cargo space, as well as preparing and executing documents and other paperwork.

**NEDRAC, Inc.**  
3303 Harbor Blvd.  
Ste. E-2  
Costa Mesa, CA 92626



Telephone: (714) 957-1202  
Telex: 984068 FAX: (714) 957-1261  
Chief Executive Officer: D. Carden

Product/Service	Description
Air and Ocean Forwarding	Ship and aircraft charter broker. Letter of credit negotiation and banking.
International Freight Forwarder	

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**Radix Group International**  
5510 West 102nd Street  
Los angeles, CA 90045



Telephone: (213) 338-2400  
Telex: 216408 Fax: (213) 417-5031  
Chief Executive Officer: Matthew P. Sheppard  
International Sales Manager: John Tibshirany, Vice President, Sales and Marketing

**Domestic Offices:** LOS ANGELES, CA; IRVINE, CA; DALLAS, TX; TULSA, OK; HOUSTON, TX; PHOENIX, AZ; SEATTLE, WA; SAN FRANCISCO, CA; CHICAGO, IL; ATLANTA, GA; COLUMBUS, OH; INDIANAPOLIS, IN; MINNEAPOLIS, MN; NEW YORK CITY, NY; BOSTON, MA; ALBANY, NY; HARTFORD, CT; BALTIMORE, MD; NORFOLK, VA; CHARLOTTE, NC; MIAMI, FL

**International Offices:** All principal cities world wide. Please contact company headquarters for further details.

Radix Group International is an EDI automated, full service international freight forwarder and customs broker engaged in all aspects of international transportation. Radix became a significant national firm through the merger and integration of a number of old line and prestigious firms. Presently, Radix operates twenty-two offices in nineteen cities throughout the U.S. and an extensive agent network worldwide. Staffed by over five hundred professionals, Radix offers the strength and resources of a major corporation while maintaining the high standard of personalized service which are the hallmarks of the regional firm.

Product/Service	Description
Freight Forwarding NVOCC	Expedite and coordinate both air and ocean shipments, from point of origin to final destination. Arrange consolidations, warehousing, packing, crating, distribution, inland transport, insurance, duty drawback. Prepare all documentation involved including: ocean and air bills of lading, export declarations, packing lists, certificates of origin, consular documents and bank documentation.

Seamodal Transport Corporation  
221 Main Street  
Suite 765  
San Francisco, CA 94105



**Seamodal**  
Transport Corporation

Telephone: (415) 543-7420

Telex: 910-372-8406 FAX: (415) 543-2137

President:

N.E. Vacakis

Executive Vice President:

G.L. Fischer

Marketing Manager - West Coast:

F.K. Villanueva

Marketing Manager - East Coast:

L.R. Wilson

**Domestic Offices:**

BALTIMORE MD: B.P. Hollowell, District Manager, Dunmar South, Suite 123, Dundalk Marine Terminal, Baltimore MD 21222 TEL. (301) 285-8555 FAX (301) 282-9733 TWX 910-380-9529; CHARLESTON, SC: C.J. McCarthy III, District Manager, 24 Vendue Range, Suite 107, Charleston, SC 29401 TEL. (803) 577-3742 FAX (803) 723-1113 TLX 461-3064; CHICAGO, IL: L.A. Conley, District Manager, 3158 Des Plains Avenue, (River Road) Suite 24, Des Plains, IL 60018 TEL. (708) 299-6170 FAX (708) 299-6175 TLX. 687-1474; LONG BEACH, CA: G. Kajer, Office Manager, 161 W. Victoria Street, Suite 230, Long Beach, CA 90805 TEL. (213) 604-4999 FAX (213) 604-8588 TWX. 910-341-6591; NORFOLK, VA: C.N. Byrd, District Manager, Plume Center West, Suite 520, 100 West Plume Street, Norfolk, VA 23510 TEL. (804) 625-1928 FAX (804) 625-0146 TWX: 710-881-1110; SAN FRANCISCO, CA: C.M. Roque, District Manager, 221 Main Street, Suite 765, San Francisco, CA 94105 TEL. (415) 543-7420 FAX (415) 543-2137 TWX: 910-372-8406; HAYWARD, CA: O.G. Dolojan, Manager FMS Operations, 3544 Arden Road, Hayward, CA 94545 TEL. (415) 785-5700 FAX (415) 785-7506 TWX. 910-372-2304

Seamodal Transport Corporation, incorporated in 1977, was established as a shipping firm licensed to do business as an International Freight Forwarder, Customs Broker, air freight agent, freight property broker and non-vessel operating common carrier (NVOCC). Seamodal operates facilities conveniently located in six major areas throughout the U.S. with its headquarters in San Francisco, California. The company's national coverage facilitates transport logistics to major areas worldwide.

**Product/Service**

**Description**

Freight Forwarders/Customs Broker

The company's fully automated system enables transmission of import entry data directly to U.S. Customs in Washington, D.C. The forwarding service includes preparation of all necessary export documents, ocean and inland rates analysis, booking and arranging of shipment, expertise in international letters of credit negotiation and banking, and freight consolidation for both air and ocean shipments.

**W.J. Byrnes & Co./BYrnesAIR**  
100 Rollins Road  
Millbrae, CA 94030



w. j. byrnes & co. / *byrnesair* →

Telephone: (415) 692-1142  
Telex: 314417 FAX: (415) 692-5726  
Chief Executive Officer: Mr. John A. Leitner  
International Sales Manager: Ms. Barbro Haves

**Domestic Offices:** SAN FRANCISCO, CA: P.O. Box 280205, San Francisco, CA 94128 TEL. (415) 692-1142; PHOENIX, AZ: 2302 E. Magnolia Street, Phoenix, AZ 85034 TEL. (602) 244-1752; TUCSON, AZ: 2700 E. Bilby, Tucson, AZ 85706 TEL. (602) 889-2275; DENVER, CO: 4195 Oneida Street, Denver, CO 80216 TEL. (303) 320-5921; MILWAUKEE, WI: 4369 S. Howell Avenue, Milwaukee, WI 53207 TEL. (414) 769-7222

**International Offices:** Service provided by agents worldwide, contact headquarters for further information.

W.J. Byrnes & Co. is a full service international transportation facilitator, providing service by both ocean and air, inbound and outbound, by direct or consolidation, NVOCC service, insurance, crating, containerization, and all of the logistics to move cargo professionally. Since 1907, the firm has developed the experience to handle everything from a small emergency to a major project. Awarded in 1981 the "E" award for Excellence in Export Service by the President of the United States. There is a difference, and we are proud of it.

**W.R. Zanes & Co. of LA, Inc.**  
223 Tchoupitoulas Street  
New Orleans, LA 70130



Telephone: (504) 524-1301  
Telex: 58-356 FAX: (504) 524-1309  
Chief Executive Officer: William St. John, Jr.  
International Sales Manager: David Delatte

**Domestic Offices:** GRAPEVINE, TX TEL. (817) 481-1599; HOUSTON, TX TEL. (713) 451-6991; MOBILE, AL TEL. (205) 438-1597; GALVESTON, TX TEL. (409) 763-2305

Founded in Dallas, Texas, in 1913 by Walter Revere Zanes, W.R. Zanes & Company is engaged in Cargo Logistic Activity in addition to its service to the International Trade as Customs Brokers and International Freight Forwarders. Expansion to Houston, Texas, Galveston, Texas, New Orleans, Louisiana, and Mobile, Alabama, permits Zanes to offer complete U.S. Gulf Coast coverage to it's clientele. Zanes' approach to servicing customers is to consider our operations an extension of our client's staff and to pursue their interests with the same intensity they would if they were undertaking our functions. Personalized high quality performance is what we guarantee -- and deliver.

**Product/Service**

**Description**

Freight Forwarding

Zanes provides all the necessary Trade Documentation and Controls to satisfy Government requirements both in the United States and the Importing Country, to meet contractual obligations for our clients to guarantee proper delivery of cargo, and to secure timely payment for product. As a Forwarder, Zanes can establish origin to destination transport and other related costs and secure contracts for performance. We also generally oversee the cargo move tracking as specified by our customer.

**Western Overseas Corporation**  
2801 Temple Avenue  
Long Beach, CA 90806



**Telephone:** (213) 595-0616

**Telex:** 656342      **FAX:** (213) 426-7587

**Chief Executive Officer:** Mr. Michael F. Dugan

**Executive Vice President:** Ben H. Ketchum

**Vice President, Sales:** John E. Brady

**Domestic Offices:** SEATTLE, WA: TEL. (206) 878-0700; TACOMA, WA: TEL. (206) 572-5354; PORTLAND, OR: TEL. (503) 253-8463; SAN FRANCISCO, CA: TEL. (415) 952-2955; CHICAGO, IL: TEL. (708) 766-7560; NEW YORK, NY: TEL. (718) 244-6395; HOUSTON, TX: TEL. (713) 442-1688; U.S./MEXICO BORDER: SAN YSIDRO; (619) 661-6410

**International Offices:** Please contact company Headquarters for further information.

International freight forwarders, customs brokers, NVOCC, international insurance, vessel agents, breakbulk agents, ocean and air consolidators, and drawback specialists.

Founded over a quarter of a century ago, Western Overseas Corporation is one of the United States' leading international freight forwarders and custom brokers. We provide full assistance to international shippers including import and export documentation, ocean and air freight consolidation, insurance, worldwide banking, and warehousing.

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**Sampling Services and Equipment:** Firms dedicated to assuring coal quality through independent laboratory analysis services and/or sampling equipment.

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**American Society for Testing and Materials**  
1916 Race Street  
Philadelphia, PA 19103-1187



**Telephone:** (215) 299-5400  
**Telex:** (710) 670-1037 **FAX:** (215) 977-9679  
**Chief Executive Officer:** Joseph G. O'Grady  
**International Sales Manager:** Philip L. Lively

**Domestic Offices:** WASHINGTON, DC: 300 Metropolitan Square, 655 Fifteenth Street, N.W., Washington, DC 20005 TEL. (202) 639-4025, FAX (202) 347-6109

Organized in 1898, ASTM has grown into one of the largest voluntary standards development systems in the world. ASTM has no technical research or testing facilities; such work is done voluntarily by 32,000 technically qualified ASTM members throughout the world. From the work of 134 technical committees, ASTM publishes standard test methods, specifications, practices, guides, classifications, and terminology for materials, products, systems, and services. More than 8,000 ASTM standards are published each year in the 8-volume Annual Book of ASTM Standards. These standards and related information are used throughout the world.

<b>Product/Service</b>	<b>Description</b>	
Committee on Coal and Coke	D-5	More than 300 members meet twice a year to develop specifications for coal and coke produced from coal; to develop methods of sampling, analysis, and testing; to develop classifications of coals on the basis of chemical and physical characteristics; to standardize terminology, and to promote research and disseminate knowledge in these fields. All interested parties are welcome to participate in these activities.
Annual Book of Standards on Gaseous Fuels; BCoal and Coke	Vol. 05.05	This volume is divided into two parts. Under the heading Coal and Coke, 60 test methods and practices establish procedures for evaluating properties of coal and coke such as dustiness, moisture content, plastic properties, and sulfur content. Also included is the Standard Classification of Coals by Rank (D 388). List Price: \$52.00; Member Price: \$46.80.



**Commercial Testing and Engineering Co.**  
1919 S. Highland Avenue, Suite 210-B  
Lombard, IL 60148



**Telephone:** (708) 953-9300

**Telex:** 285951 COMTECO LMB UR

**Chief Executive Officer:**

**Vice President - Controller:**

**FAX:** (708) 953-9306

Mr. R.J. Morlock, P.E.

Mr. E.J. Yauch

**Domestic Offices:**

BIRMINGHAM, AL TEL. (205) 942-3120; MOBILE, AL TEL. (205) 432-2781; KENAI, AK TEL. (907) 776-5550; LONG BEACH, CA TEL. (213) 437-6668; CRAIG, CO TEL. (303) 824-4154; DENVER, CO TEL. (303) 373-4772; GOLDEN, CO TEL. (303) 278-9521; JACKSONVILLE, FL TEL. (904) 693-0114; TAMPA, FL TEL. (813) 248-6566; SOUTH HOLLAND, IL TEL. (708) 331-2900; HENDERSON, KY TEL. (502) 827-1187; JEFF, KY TEL. (606) 439-1313; MIDDLESBORO, KY TEL. (606) 248-4205; PIKEVILLE, KY TEL. (606) 432-2511; ST. ROSE, LA TEL. (504) 467-5522; BALTIMORE, MD TEL. (301) 354-2677; CONNEAUT, OH TEL. (216) 224-2261; TOLEDO, OH TEL. (419) 698-8049; CHARLEROI, PA TEL. (412) 483-3540; NEW BETHLEHEM, PA TEL. (814) 275-4515; NORTH CHARLESTON, SC TEL. (803) 744-7240; DEER PARK, TX TEL. (713) 479-8716; PRICE, UT TEL. (801) 637-7540; NORFOLK, VA TEL. (804) 489-2216; ANMOORE, WV TEL. (304) 623-3329; CEREDO, WV TEL. (304) 453-6682; CHARLESTON, WV TEL. (304) 925-6631  
SALES OFFICE: George Dickinson, 9-2452 St. Andrew Boulevard, Lady Lake, Florida 32659  
TEL. (904) 753-2764

Commercial Testing & Engineering Co. (CT&E) is the largest independent coal testing organization in the United States, with over 40 branch laboratories and 30 separate sampling operations strategically located in principal coal mining areas, Great Lakes and tidewater ports, river loading facilities, and major consumption areas. In addition to its coal-related services, the Company performs inspection, sampling, and testing of other bulk commodities, such as chemicals, fertilizers, minerals, ferro-alloys, and bauxite. CT&E's Environmental Group performs organic and inorganic analyses, as well as bioassay studies. Founded in 1908, CT&E is a member of the International SGS Group (*Société Générale de Surveillance*), with 199 Companies located in 140 countries throughout the world.

**Product/Service**

Coal core logging and evaluation  
Coal inspection and analysis  
Coal inventory reconciliation  
Environmental testing and analysis  
Preparation plant performance tests  
Minerals testing and analysis  
Draft surveys

**Product/Service**

Coal washability studies  
Stockpile density and quality surveys  
Overburden and topsoil analysis  
Bias testing  
Fuel oil testing and analysis  
Water analysis  
Instruments for coal and coke evaluation

**CQ Inc.**  
**One Quality Center**  
**P.O. Box 280**  
**Homer City, PA 15748**



**Telephone:** (412) 479-3503  
**FAX:** (412) 479-4181  
**Chief Executive Officer:**  
**International Sales Manager:**

**Mr. Clark D. Harrison**  
**Mr. James W. Parkinson**

**International Offices:** Please contact company headquarters for further information.

CQ Inc. -- a wholly owned subsidiary of the Electric Power Research Institute -- specializes in coal cleaning, both conventional and advanced, to reduce power plant emissions, improve power plant performance, and improve the economics of generating electricity. CQ Inc. project managers have an average of 15 years of coal quality and project management experience. They have comprehensively characterized coals of all ranks, established a coal quality database, published a series of guidelines for analyzing coal, demonstrated and tested various coal cleaning equipment, developed a computer program to test sampler bias, and implemented successful technology transfer programs through videotapes and printed materials. Customers include coal-burning utilities, coal companies, equipment manufacturers, and government and private agencies.

<b>Product/Service</b>	<b>Description</b>
Technology Demonstrations	Demonstrates new coal cleaning processes and equipment at small commercial scale to speed commercialization of promising coal processing equipment.
Coal Weighing, Sampling, and Analysis Systems	Implements accurate coal weighing, sampling, and analysis systems to monitor the quality and quantity of coal inventories and fuel consumed.
Customized Coal Production	Produces customized coal, including coal-water slurries, to exacting specifications.
Coal Quality Control	Determines the extent that individual coals can be altered to reduce their sulfur content, lower impurities, and improve handling behavior.
Technology Transfer	Trains cleaning plant operators and utility staff how best to clean, sample, analyze, and weigh coal. Also produces technology transfer materials such as brochures, videotapes, and educational materials.

**Gould Energy**  
**30 Clairmont Avenue**  
**Thornwood, New York 10594**



**Telephone:** (914) 769-7900  
**FAX:** (914) 769-7905  
**Chief Executive Officer:**  
**International Sales Manager:**

**Gregory Gould**  
**Vincent Furtkevic**

**Domestic Offices:** CRESSON, PA: Box 214, Gallitzin Road, Cresson, PA 16630 TEL. (814) 886-7400; TAMPA, FL: 505 South Falkenburg Road, Tampa, FL 33619 TEL. (813) 689-5785; GORMANIA, WV: P.O. Box 50, East, Gormanian, WV 26720 TEL. (304) 693-7613; ST. LOUIS, MO: 11591 Page Service Drive, St. Louis, MO 63146 TEL. (314) 432-0414

For over eighty years, Gould has helped power utilities and coal producers answer one critical question: "Are we getting the BTUs we paid for?" Gould provides tighter asset control with its Fuel Management Information System, Electronic Auditing System and with professional, third party assessment of

(Continued on next page)

### Gould Energy (Continued)

both coal and total system performance, including weighing, sampling and testing. Gould services are multi-disciplinary. They define quality assurance and accountability across the board. Gould gives operating managers the information they need for better control, conflict resolution, and improved performance, reduced emissions, as well as, documentation of a utility's cost effectiveness.

Product/Service	Description
Fuel Management Information System Facility Operation	A comprehensive system to manage the procurement, receipt, inventory, analysis and accounting for coal and other fuels.
Electronic Audit System Monitoring	A patented real time system of documenting the performance of material handling, sampling and weighing devices.
Technical Services	Sampling, testing, weighing and control services and consulting to give clients "Value Assurance".
Value Assurance Products	Mechanical Sample Divider, Video Training Systems, Bias Testing Software, to help the coal industry get the most value from its coal.

### Huffman Laboratories, Inc. 4630 Indiana Street Golden, CO 80403

Telephone: (303) 278-4455

FAX: (303) 278-7012

President: Dr. E. W. D. Huffman, Jr.

Laboratory Manager: Kevin D. Wills

Technical Services Coordinator: Suzanne J. Zeller

Huffman Laboratories, Inc. has been providing quality analytical services since 1936. We are a full service laboratory specializing in elemental microanalysis for the chemical, research and manufacturing industries. Evaluations for CHONS, P, halides, ash, metals and BTUs are performed for a wide variety of organic and inorganic matrices. Coal analyses are routinely performed based on ASTM procedures. Other analytical services include TOC, TOX, EOX and molecular weight determinations, emission spectroscopy, atomic absorption, gas chromatography and ion chromatography.

Product/Service	Description
Coal Testing	Includes proximate & ultimate analyses, BTU, volatile matter, sulfur forms, metals and ash analysis.
Elemental Analysis	Carbon, hydrogen, oxygen, nitrogen, sulfur, phosphorous, halides, and metals on organics, inorganics, organometallics, coal, shale, petroleum, water and wastes.
Water Testing	Routine analyses following EPA, AWWA, ASTM and other methods.

**Norfolk Testing Laboratories, Inc.**  
**Division of McCreath & Son of Hampton Roads,**  
**Inc.**  
**301 West Freemason Street**  
**Norfolk, VA 23510**



**Telephone:** (804) 622-6136

**Telex:** 823 434 **FAX:** (804) 623-4688

**President:** Joseph P. Gatling, Jr.

**Lab Manager:** Joseph A. Mayer

**Sampling Supervisor:** Howard E. Ennis, II

**Technical Director:** William P. Huff

**Domestic Offices:** HARRISBURG, PA: (Head Office) Andrew S. McCreath & Son, Inc., 610 Willow Street, Harrisburg, PA 17101 TEL. (717) 238-9331; NEWPORT NEWS, VA: Sampling Associates International, 2600 Washington Avenue, Suite 420, Newport News, VA 23607 TEL. (804) 873-0366

Founded in 1913 and a member of ASTM since 1927, Norfolk Testing Laboratories is a full service, independent laboratory dedicated to the sampling and analysis needs of the coal and coke industries. In addition to servicing the Port of Hampton Roads, NTL is capable of performing manual sampling at all east coast ports, railyards, stockpiles, or mine heads. Through its subsidiary, Sampling Associates International, mechanically sampled coal can also be obtained on subplot, lot, or consignment basis and can subsequently be analyzed rapidly at the Norfolk laboratory. The laboratory is fully equipped and staffed to perform all common analyses and more specialized requests such as sole-heated oven, ASTM, IRSID and Micum Tumbler tests, Gray-King, Roga and Mineral Analysis of ash. NTL is also a participant in worldwide performance studies.

**Product/Service**

**Description**

Analysis/Preparation

Laboratory: Prox, FSI, FTA, Calorific Value, Arnu-Audibert and Ruhr Dilatometer, Gieseler, HGI, Ultimate, Mineral of Ash, Roga Gray-King, Chlorine, Fluorine, Forms of Sulfur, Koppers Test.  
Preparation Department: Total Moisture, Screen/Sieve Test, ASTM, IRSID and Micum Tumbler Tests, Sole-Heated Oven, Bulk Density, and Drop Shatter Test.

Manual Sampling

Manual sampling can be performed in all east coast ports and through affiliates in the Gulf of Mexico. Sampling at all railyards, stockpiles, and mine heads in the Appalachian region can also be arranged.

**Parr Instrument Company**  
**211 Fifty-Third Street**  
**Moline, IL 61265**



**Telephone:** (309) 762-7716

**Telex:** 270226 **FAX:** (309) 762-9453

**President:** Michael R. Steffenson

**V.P. Marketing:** W. Sherman Hamel

**International Offices:** Please contact company headquarters for further information

Since its founding more than ninety years ago, the Parr Instrument company has been engaged exclusively in the manufacture and sale of combustion bombs, calorimeters, chemical reactors, pressure vessels and related equipment developed specifically for laboratory use throughout the world. These instruments are available from scientific instrument distributors in almost all countries throughout the world. Our calorimeters meet standard test methods for coal as designated by various International Organizations, ASTM, ISO, BS, and DIN. Additional instruments for producing a proximate and sulfur analyses may be networked with the calorimeter to a computer which has Coal Lab Software for data retrieval.

Product/Service	Designation	Description
Calorimeter	1261	A self-contained oxygen bomb calorimeter with automatic microprocessor control for rapid and precise calorific tests with minimal operator attention.
Sulfur Analyzer	1760	An automatic titrimetric system for rapid sulfur determinations following combustion in a Parr Oxygen Bomb.
Proximate Analyzer	1750	A rapid data processing system which interfaces to balances and calculates the proximate analysis of coal.
Air Dry Loss Interface	1750A	A microprocessor system which collects weights from a digital balance and send them to 1750 Proximate Analyzer for incorporation into a proximate analysis report.
Computer Interface	1747	An interface designed to connect an IBM PC XT or AT compatible computer onto a Smart Link Network. Also include the software to communicate with instruments on the Smart Link.
Water Handling System	1563	A closed circuit water supply for assured repeatability and convenient calorimeter operations.

**Sampling Associates International**  
716 B Thimble Shoals Boulevard  
Newport News, VA 23606



**Telephone:** (804) 873-0366  
**Telex:** 508879 **FAX:** (804) 624-6672

**President:** Jay R. Williams, Sr.  
**International Sales Manager:** Paul M. Reagan

**International Affiliates:** AUSTRALIA: Carbon Consulting Int'l (CCI), Mr. Dennis Wood, Brisban, Queensland, TEL. (07) 229-1677;  
THE NETHERLANDS: Incolab Services B.V., Mr. Leo van Tour, TEL. (018) 60-10355; SOUTH AFRICA:  
Richlab, Mr. Mike Harris, Richmond, TEL. (011) 726-6326

Sampling Associates International (SAI) is a partnership formed by the independent testing laboratories of Hampton Roads Testing Laboratories, Inc., Norfolk Testing Laboratories, Standard Laboratories, Inc., and Tidewater Coal Inspection Bureau, Inc., who together have over 26 laboratories and over 32 offices throughout the world. This entity has been created to provide quality sampling and analytical services to the coal import/export market.

Currently SAI is operating sampling systems at the following locations: Pier 124, Philadelphia, PA; Canton Facility, Baltimore, MD; Myrtle Grove, LA; Crystal River, FL; Lambert's Point, Pier 6, Norfolk, VA; and N.N. Marine Terminal, Pier 9, Newport News, VA. SAI also manages full service Coal/Coke laboratories in Kenner/New Orleans, LA and Crystal River, FL.

Product/Service	Designation	Description
Facilities Operations	Operation and Maintenance of Mechanical Sampling Systems	Independent third party contracts for export coal facilities
Technical Consultants (Coal Quality)	Coal Testing Laboratories	Coal Testing Laboratory Services

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**Science Applications International Corporation**  
Instrumentation and Testing Division (ITD)  
3351 South Highland Drive, Suite 206  
Las Vegas, NV 89109



*An Employee-Owned Company*

**Telephone:** (702) 732-0108  
**FAX:** (702) 737-6263  
**Division Manager:** Kenneth R. Sites

**Domestic Offices:** SAN DIEGO, CA: (corporate headquarters) 10210 Campus Point Drive, San Diego, CA 92121,  
TEL. (619) 546-6000

SAIC is a diversified technical and management consulting company with a professional staff exceeding 11,000 and annual sales of over one billion dollars. Since 1975, the ITD has designed and manufactured sophisticated electronics equipment for recording and signal conditioning data associated with a wide variety of applications, including acquisition systems used by the U.S. Bureau of Mines and commercial clients in the mining, gas, and oil industries.

(Continued on next page)

Science Applications International Corporation (ITD) (Continued)

Product/Service	Designation	Description
32-Channel Microseismic Processor Recorder (MPR). An instrument used to locate stress buildup that may result in a major mine support failure.	DP-138	A rugged water-resistant portable unit designed to capture and process acoustic data from random microseismic events within an underground mine structure. It will store in a nonvolatile read/write RAM cartridge and transmit the information to a remote data terminal for further processing. It will accept up to 32 acoustic sensor signals, determine whether the incoming signals are valid microseismic events or noise, log the time of day for the first channel that is valid and the incremental time interval for all other channels that respond within an adjustable Event Window Period. In addition, the event energy produced by four predetermined channels is acquired during the (separately controllable) Energy Window Period.
Microseismic Processor Reader	DP-139	This unit will accept the RAM cartridge that is used by the DP-138 MPR to store data. Data taken from the RAM cartridge are encoded and transmitted in RS-232 serial format.
16-Channel Trigger Box	DP-140	This unit is designed to provide an interface between digitizer and microprocessor instrumentation used in the microseismic method of detecting instability and high stress zones in rock structures. It does an analysis of the data, and then generates three control signals which are fed to the microprocessor to control data ingestion from the digitizer. The signals indicate: (1) a channel (any) has been hit; (2) the event time window elapsed; and (3) that the number of hits set on Minimum Channels Responding switch has been equalled or exceeded.

Science Applications International Corporation  
Physical Sciences Group  
14062 Denver West Parkway, Suite 255  
Golden, CO 80401



An Employee-Owned Company

Telephone: (303) 279-7242  
FAX: (303) 279-5525

Group Manager: Howard R. Pratt

Domestic Offices: SAN DIEGO, CA: (corporate headquarters) 10210 Campus Point Drive, San Diego, CA 92121, TEL. (619) 546-6000.

Founded in 1969 by a small group of research scientists, SAIC has grown into a large, diversified, high-technology corporation. SAIC's revenues exceed \$1 billion and the company employs over 11,000 people in more than 200 locations. A selected listing of products and services that SAIC provides to the coal industry is given below. For further information please contact Dermot Ross-Brown or Bill Thompson in the Golden office.

Product/Service	Description
Engineering Services	Areas of specialization include: resource evaluation; exploration and development; mine planning; drilling and blasting; analysis of pillar stability, ground support, and use of backfill; subsidence investigations; stability and design of excavated mine slopes, spoil piles, and waste ponds; and hydrological investigations.
Environmental Services	With over 1,200 environmental professionals the company is able to provide scientific, engineering and management skills to the solutions of a wide variety of environmental problems.

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### Science Applications International Corporation (PSG) (Continued)

Coal Processing	SAIC manufactures on-line coal analyzers to meet a variety of process control and quality control needs. These include the Model 200 Sulfur Meter, the Model 400 Ashmeter™, and the Model 600 Moisture Meter. The company is also experienced in the development and application of clean coal technologies.
Laboratory Testing Services	Laboratory services include the Rock Mechanics Laboratory which is fully equipped to perform routine and special tests on rocks and soils. Most mechanical, thermal and permeability tests can be carried out at up to 60,000 psi confining pressure, 20,000 psi pore pressure and 150°C temperature. Complex behaviors and processes can be simulated. The laboratory also designs and manufactures a wide variety of specialized test equipment.
Field Testing & Instrumentation	The company manufactures electronic equipment for monitoring high explosive tests, as well as downhole pressure probes, and microseismic monitoring systems. A full range of geotechnical field testing services is offered.
Data Acquisition & Analysis	SAIC has extensive experience in developing data acquisition systems, and providing on-line analysis of the data.

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**Spire Corporation**  
**Patriots Park**  
**Bedford, MA 01730**



**Telephone:** (617) 275-6000  
**Telex:** 951072 **FAX:** (617) 275-7470

**Chief Executive Officer:** Roger G. Little  
**SPI-WEAR™ Contact:** Mr. Peter Loges  
**Ion Implantation Contact:** Mr. Raymond Bricault

Spire offers two major technologies for coal-based systems: (1) SPI-WEAR™ for precisely measuring wear, erosion, and corrosion in mechanical systems; and (2) ion implantation treatments to enhance wear and corrosion resistance. SPI-WEAR™ is a powerful method for *in-situ* wear measurement and on-line diagnostic monitoring, which is based on radionuclides induced in wearing surfaces by energetic ion beams. Gamma rays from the activated surface are easily detected outside allowing precise measurement of surface loss from inaccessible locations. Extremely accurate, flexible, and unaffected by local conditions such as temperature or pressure, it is an ideal solution to wear measurement problems in many components of power generation systems. Extreme precision reduces testing time and allows resolution of subtle tribological phenomena such as break-in or lubricant additive depletion.

Spire is a leader in surface modification by ion implantation and other vacuum technologies for improving wear and corrosion resistance without dimensional changes. Spire is a diversified research firm with three main business areas: surface modification, electronic materials, and photovoltaics. The Ion Implantation Division employs about 45 technical personnel devoted to ion implantation, sputtering, and other ion beam processes. In-house facilities include eight mass-analyzed ion implanters, three sputtering machines, one non-mass-analyzed implanter, one PACVD system, and one ion beam enhanced deposition system. Evaporators, electron beam annealing accelerators and extensive materials characterization equipment are also available.

Product/Service	Description
SPI-WEAR™ 200 Analyzer	System for on-line diagnostic monitoring of surface loss due to wear, erosion, or corrosion. Includes: multichannel analyzer with internal HV supply, timing control, dead-time corrections, pulse shaping pre-amplifier. Controlled by PC operating in parallel using menu driven software package. Includes all cables and NaI detector.
SPI-WEAR™ Support Services	Accelerator activations, customized selection of beam parameters, depth profile calibrations, on-site technical support, data analysis.
Ion Implantation Services	Ion implantation consists of directing ions of a desired chemical species through an accelerating electric field to implant them into a target material. Ions are electrically extracted from plasma, focused by magnetic and electrostatic lenses, and accelerated to high energies. Advanced implanters use magnetic analysis to separate desired ions by their mass/charge ratio prior to implantation.



**Standard Instrumentation**  
 3322 Pennsylvania Avenue  
 Charleston, WV 25302

# STANDARD INSTRUMENTATION

Telephone: (304) 345-4727  
 Telex: 907040 FAX: (304) 343-6426  
 Chief Executive Officer: Troy F. Stallard  
 International Sales Manager: C. Ray Daniels, Jr.

Standard Instrumentation, a division of Standard Laboratories, Inc., provides coal and coke testing instruments to producers, users and research facilities around the world. Exporting for many years, SI has received 'The President's "E" Award for Exports' in 1984. Through the parent company and affiliated subsidiaries, SI is able to provide consultation, services and products for all aspects of coal quality, from sampling through preparation and laboratory testing, on to operational quality control programs. SI and its affiliates are involved in the coal, coke and steel industries on six (6) continents and have dedicated themselves to providing the highest quality products and services available.

Product/Service	Designation	Description
Coal Testing Instruments	P31 Plastometer	Fully automatic plastometer system for measurement of plastic properties of metallurgical coal by the Gieseler Plastometer method as per ASTM Standards.
	D34 Dilatometer	Fully automatic dilatometer system for measurement of expansion and contraction properties of metallurgical coal by the Audibert-Arnu method as per ISO Standards and by the Ruhr method.

**Tidewater Coal Inspection Bureau, Inc.**  
 1200 Boissevain Avenue  
 Norfolk, VA 23507



Telephone: (804) 627-0400  
 FAX: (804) 627-1118  
 President: Carlisle Wroton  
 Director of Operations: Henry W. Wroton, Jr.  
 Laboratory Director: Karol Hutchison

International Offices: Please contact company Headquarters for further information.

Established 1927. Family owned and operated. Coal sampling, inspection and analytical laboratory to determine if coal meets specifications of contracts between buyers and sellers on the eastern seaboard and Gulf Coal ports. Sampling and analysis is done in accordance with standards set by American Society of Testing and Materials (ASTM).

**Company Professional Affiliations:**

Partner in Consortium of Sampling Associates International (SAI)	National Council Independent Laboratories
Union Internationale des Laboratoires Independents	Hampton Roads Maritime Association
Hampton Roads Coal Association	

Product/Service	Description
Coal Sampling Inspection	Manual sampling available at all port facilities. Mechanical sampling available at most port facilities. Inspection, witness, and supervision of sampling and loading at all facilities.
Coal Analysis	Proximate, sulfur, FSI, heating value, dilatation, plasticity, chlorine, mineral analysis, sizing, and others available. Flame and graphite furnace AA, ICAP, and GC.
Environmental and Industrial Hygiene	Consulting and analysis available for water, air, soil, hazardous waste, noise pollution, radon, asbestos, safety and health, and hazard communication.

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**Technical Consultants:** Firms providing engineering, scientific and other technical services in any area related to coal and coal technologies.

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**AEP Energy Services, Inc.**  
**1 Riverside Plaza**  
**Columbus, Ohio 43215**



**Telephone:** (614) 223-1000  
**Telex:** 810 482 1627 **FAX:** (614) 223-1822/1823  
**Chief Executive Officer/Chairman:** W. S. White, Jr.  
**International Sales Manager:** Donald A. Dick, Vice President & Managing Director

AEP Energy Services, Inc. (AEPES) is a wholly owned subsidiary of American Electric Power Company, Inc. (AEP), one of the largest electric utility holding companies in the U.S. For more than eighty years, AEP has planned, engineered, designed and constructed the most highly integrated and interconnected system in the world. Today the AEP System consists of over 23,000 MW of generating capacity, over 2,000 miles of 765 kV transmission line and over 100,000 miles of distribution line to provide reliable power to over 2.6 million customers. AEP is one of the largest users of coal in the U.S. and we mine over 11 million tons of coal annually from our four subsidiary mining divisions. Our expertise in utility operations and mining extends from longwall mining and the largest capacity coal washing plant in the U.S. to advanced research in coal utilization. AEPES was established to offer the experience and expertise of AEP and its subsidiaries to foreign and domestic organizations, public and private companies, and government agencies.

<b>Product/Service</b>	<b>Description</b>
Architect/Engineering Services	Power plant, T&D, substation, environmental and mining engineering/consulting; advanced coal utilization technology; testing and training.

**Alabama Coal Association**  
**Vestavia Commerce Centre**  
**2090 Columbiana Road, Suite 2500**  
**Birmingham, AL 35216**



**Telephone:** (205) 822-0384  
**FAX:** (205) 822-2016  
**Chief Executive Officer:** Mr. William M. Kelce

The Alabama Coal Association was formed in 1972 by a small number of surface mining companies who recognized the need for a unified voice to cope with the modern-day issues that impact so dramatically on the mining industry. In July, 1984, ACA merged with the Alabama Mining Institute, a 75-year old consortium of underground and surface mining operators. With the merger, ACA represents firms which produce over 93 percent of all coal produced in the State of Alabama. Today, these member companies continue to work together to accomplish those things that a single company could seldom accomplish alone. ACA provides vital services to the mine operators in this State. Whether a company produces one or one million tons the member is represented by his Board of Directors and a staff with enthusiasm, dedication and professionalism. ACA is a prestigious, well-respected association that speaks effectively in your behalf. From governmental bodies to environmental organizations, the Association keeps pace with developments that affect your business.

<b>Product/Service</b>	<b>Description</b>
Consulting	ACA adheres to the following objectives: to develop and maintain productive relationships with governmental bodies and agencies and to insure accurate and timely representations of the industry's views on issues which affect it; to create a better understanding among the people of Alabama of the problems of and need for coal mining in our State; to provide opportunities for educating the Association's membership as to current trends in the industry, including new laws and regulations to which the members are subject. This is accomplished through meetings and seminars as well as publications; and to provide leadership in the industry's efforts to solve problems and create opportunities which result in a healthier, more productive coal mining industry in Alabama.
Public and Government Relations	To fully achieve these objectives, the participation of every mine operator and allied companies that service the mining industry in Alabama is essential. The combined cooperation of these two groups guarantees the industry its greatest influence.

**Applied Management Sciences**  
**A Subsidiary of The Asper System Corporation**  
**962 Wayne Avenue**  
**Suite 701**  
**Silver Spring, MD 20910**

**Applied Management Sciences, Inc.**   
 A Subsidiary of Aspen Systems Corporation

**Telephone:** (301) 585-8181  
**Telex:** 405708 **FAX:** (301) 495-8655  
**Chief Executive Officer:** Harvey Byrd  
**International Sales Manager:** Patrick M. McCarthy

**Domestic Offices:** OAKRIDGE, TN; NEWPORT NEWS, VA; CRYSTAL CITY, VA; PORTSMOUTH, NH; SAN DIEGO, CA  
**International Offices:** Please contact company headquarters for further information.

Applied Management Sciences, a private professional services research firm, was established in 1970 on the premise that leaders and managers in government and industry require timely, objective, and thorough information to make better short-term and long-term decisions. Since its founding, Applied Management Sciences has been awarded approximately 600 contracts with an aggregate value in excess of \$100 million. Over the years, Applied Management Sciences has applied state-of-the-art methodological techniques to a wide range of analytical management problems. Refinement of

(Continued on next page)

**Applied Management Sciences (Continued)**

our techniques and approaches has enabled us to offer proven, cost-effective solutions to client problems and to make valuable contributions to several fields of specialization. More recently, Applied Management Sciences has begun offering conference support for technical symposia on energy-related specialty subjects. Applied Management Sciences' field of specialization include market forecasting, marketing studies, market surveys, quality control program designs, price modeling, and management information systems.

Product/Service	Description
Marketing Research Services	Collects market data using surveys, elite interviewing, public document review. Prepares market reports on general or specific subjects related to fuel use and energy. Prepares status reports of technology usage and state-of-the-art. Evaluates technologies' potential in specific markets. Identifies markets for fuels and energy technologies. Prepares market overviews. Analyzes economic benefits of programs designed to influence customer energy usage.
Quality Control	Provides customized sample designs for fuel sampling and product quality control.
Conference Support	Creates and manages conferences, seminars and workshops on specialized energy subjects. Services include calls for papers, invitations, agendas, hotel and travel logistics, meals, audio and visual aids. Provides travel and related logistic services for technical and market exchange visits with other countries. Prepares and publishes formal proceedings. Recent international experience has been with the U.K. and U.S.S.R.
Management Information Systems	Develops specialized PC or mainframe management information systems for tracking project costs, progress, budget, and schedule. Collects and creates associated data bases. Develops information systems in a variety of commonly used software.

**Aptech Engineering Services, Inc.**  
 1257 Elko Drive  
 Sunnyvale, CA 94089



Telephone: (408) 745-7000  
 FAX: (408) 734-0445  
 Chief Executive Officer:  
 International Sales Manager:

Dr. Geoffrey R. Egan  
 Mr. Steven A. Lefton

**Domestic Offices:** SOUTH CENTRAL OFFICE: 901 Threadneedle, Suite 100, Houston, Texas 77079 TEL. (713) 558-3200 FAX (713) 558-3761; EAST COAST OFFICE: 601 North Fairfax, Suite 420, Alexandria, Virginia 22314 TEL. (703) 683-2062 FAX (703) 683-2132

**International Offices:** Please contact company Headquarters for further information.

APTECH works with utility and industrial clients to solve their most intractable metallurgical, mechanical, and fireside problems. Our exceptional services have been fully tested and shaken down at utility boilers across the United States.

Product/Service	Designation	Description
Increased Life and Reliability of Superheater and Reheaters	TUBEMOD™	Dramatically increases the life and reliability of superheaters and reheaters by adjusting the tube temperature profile. Tubes operating at excessive temperatures are cooled down, thus reducing failures and increasing section lifetime.
Remaining Life Prediction System for Boiler Tubing	RUL® System	A turnkey system to nondestructively measure and calculate the remaining useful life of superheaters and reheaters.

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**Aptech Engineering Services, Inc. (Continued)**

Reduction of Slagging  
and Emissions from  
Utility Boilers

Cofiring

Special techniques and instrumentation for optimizing the cofiring of natural gas with coal without damaging the boiler tubing.

**Arthur D. Little, Inc.**  
**Acorn Park**  
**Cambridge, Massachusetts 02140**

**Arthur D Little**

Telephone: (617) 864-5770  
Telex: 921436/921435 FAX: (617) 661-5830, 661-5831, 661-1622  
Chief Executive Officer: C.R. LaMantia  
International Sales Manager: H.A. Riker

**Domestic Offices:** CAMBRIDGE, MA; NEW YORK, NY; SAN FRANCISCO, CA; LOS ANGELES, CA; HOUSTON, TX;  
WASHINGTON, DC

**International Offices:** Offices worldwide; please contact company headquarters for further information.

Arthur D. Little, Inc., is an international management and technology consulting firm. Since 1886, Arthur D. Little has helped clients benefit from change by applying science, technology and advanced management concepts, and translating plans into action. Today, with a total staff in excess of 2500, about half of Arthur D. Little's work is in management consulting and half is in applied research in the physical and life sciences and engineering. Since the resurgence of interest in coal in the late 1960s, Arthur D. Little has been active in many aspects of the coal business -- management, mine engineering, acquisitions, coal procurement/contracting, utilization, gasification and advanced combustion research. Arthur D. Little's experience includes both metallurgical and steam coal.

Product/Service	Description
Advanced Utilization	Arthur D. Little is active in evaluating the feasibility of, and making technical recommendations on, emerging clean-coal technologies. Assignments for clients include: atmospheric, circulating, and pressurized fluidized bed combustion; integrated gasification/combined cycle, clean fuels and alternative fuels; emission control equipment.
Coal Industry	For a wide range of clients, Arthur D. Little is active in all phases of coal industry activity. Assignments include property evaluations, productivity improvement, coal preparation, transportation, contract negotiation, market assessment, pricing policy/forecasts, and strategic planning.

**Battelle**  
505 King Avenue  
Columbus, OH 43201



**Telephone:** (614) 424-6424

**Telex:** 24-5454 **FAX:** (614) 424-5263

**Chief Executive Officer:**

Dr. Douglas E. Olesen

**International Sales Manager:**

Mr. John S. Christie

**Domestic Offices:**

RICHLAND, WA: Battelle Boulevard, Richland, WA 99352 TEL. (509) 375-2121

**International Offices:**

GERMANY: Am Romerhof 35, Frankfurt Germany TEL. 49-69-79080; SWITZERLAND: 7, route de Drize, Carouge-Geneva TEL. 41-22-270270

Battelle assists industry and government in developing, commercializing, and managing technology. With a wide range of scientific and technical capabilities, Battelle solves problems, develops and improves products and processes, provides on-site technical assistance, and manages large, complex technology programs. Its 7,500 staff serve clients in more than 30 countries with other offices in many of the largest cities in the world. Battelle was founded by Ohio industrialist Gordon Battelle, who recognized that a constantly changing world can be improved through advances in technology and education.

Product/Service	Description
Coal Utilization Technologies	A multiclient effort to identify and assess new coal utilization technology is now in its ninth year of operation. There are no significant penalties for late participants.
Fluidized-Bed Technology	Extensive experiences with multisolid fluidized-bed technology is available for use in various applications including combustion, gasification, desulfurization, etc. Some uses are now available only through licenses.
New Materials	As in most applications, the performance of materials eventually becomes the primary factor limiting usage. Battelle has numerous ongoing programs to assist in problem definition and materials selection with regard to various coal utilization technologies.
Coal Beneficiation	Processes for advanced treatment of coal is an area of much current activity with substantial patent protection now being developed. Use of combined fields and application of genetic manipulation of biological agents are under study.
Emissions Control	The research area still receiving much attention is the development of improved technology for the control of emissions, including hydrothermal treatment, means to optimize cleaning plants, high temperature combustion systems, fiber filters, use of additives, improved wet-scrubbing processes, and waste utilization and disposal.
Process Optimization	One of the key aspects of any new technology is proper modeling of the system before construction and installation of the full scale system. Battelle has provided pioneering of this service in this area over the years.

**Black & Veatch, Engineers - Architects**  
**8400 Ward Parkway**  
**Kansas City, MO 64114**



**Telephone:** (913) 339-2000  
**Telex:** 4-2523 **FAX:** (913) 339-8711

**Chief Executive Officer:** John H. Robinson, Managing Partner  
**International Sales Manager:** Rolf Stamm, Partner and President of Black and Veatch International

**Domestic Offices:** 33 throughout U.S.  
**International Offices:** Cairo, Egypt; Bangkok, Thailand; Sydney, NSW, Australia; New Delhi, India; Tokyo, Japan; Ja Karta, Indonesia; Izmir, Turkey; London, United Kingdom.

Black & Veatch, Engineers-Architects is one of the world's leading engineering and architectural design firms. Founded in 1915, the firm is a partnership headquartered in Kansas City, Missouri, with offices in more than 40 cities around the world. Black & Veatch is directed by a managing partner and six executive partners. The firm engages in engineering, design, procurement, and field management. All major disciplines are represented. More than 50 percent of the 4,000 employees have college degrees. These include professional civil, electrical, mechanical, nuclear, chemical, sanitary, architectural, and structural engineers. Associated with them are architects, planners, economic and financial specialists, hydrologists, chemists, biologists, administrative personnel.

Product/Service	Description
Engineering Services for Fossil Power Plants	The firm engages in engineering services for the generation, transmission, and distribution of electric power; collection, treatment, and disposal of wastewater. Comprehensive licensing, permitting and environmental consultation on mining, transportation and power plant projects. Mine engineering and mine reclamation consultation.
Coal Handling Systems	Black & Veatch designs the bituminous, subbituminous, and lignite terminating and handling facilities which are integral to coal fueled power plants. These facilities include systems for unloading (ocean-going ships, barges, railcars and on/off highway trucks), storing, reclaiming, crushing and weighing of coal to annual throughput capacities in excess of 9 million tons per year. Coal procurement and transportation consultation in areas of strategic planning and contracting. Heavy-haul railroad consultation including new and rehabilitated rail lines, motive power and railcar acquisitions, and equipment maintenance facilities.
Coal Quality Analysis	The Utilization Cost Program (UCP) is a rapid evaluation tool developed by Black & Veatch that takes you from coal quality data to total busbar costs on both new and existing units. It provides the capability to determine the impact of coal quality on unit design, unit performance, capital costs, and operating costs.
Port Facilities	The complete design of dock and cargo handling facilities has been accomplished by Black & Veatch in connecting with a number of projects. These design engagements have included facilities for the unloading, storage, and loading of various fuels and general cargo as well as ancillary facilities including railroad sidings, warehousing, and bulk storage.

**Blakley, Buturla Consulting Engineers**  
621 South 4th Avenue  
Caldwell, ID 83605

**BLAKLEY, BUTURLA**  
CONSULTING ENGINEERS

Telephone: (208) 454-3033

FAX: (208) 459-1984

Owner/Principal Engineer: Frank J. Buturla, P.E.

Blakley, Buturla Consulting Engineers is a multi-disciplined engineering firm offering specialized engineering and technical support services to its clients. Formerly Blakley Engineers, Inc., the firm was established in 1958. Mr. Buturla, a former engineering executive with Morrison-Knudsen Corporation's mining division purchased the firm in February 1988.

Mr. Buturla has international experience in open cast coal operations, including design and start-up of major projects, including BWE, dragline and truck and shovel operations.

Product/Service	Description
Architecture Engineering	Design facilities, equipment specifications, mine design, feasibility studies, reserve confirmation.
Technical Consultants	Technical advisory services, troubleshooting, start-up recommendations, economic analysis.

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**Carnot**  
15991 Red Hill Avenue  
Suite 110  
Tustin, CA 92680



Telephone: (714) 259-9520

FAX: (714) 259-0372

Chief Executive Officer: Barry L. McDonald

International Sales Manager: Mark D. McDannel

Manager, Utilities Systems: David O. Czerniak

Director of Testing Services: Robert A. Finken

Carnot is a consulting and engineering organization specializing in fuels, fuels utilization, combustion and combustion-generated air pollution emissions, emissions control, emissions testing, and regulatory affairs. The organization possesses technical expertise for a variety of stationary combustion device types including utility and industrial boilers; municipal solid waste and other refuse-fueled boilers; as well as medical and hazardous waste incinerators, fluidized-bed boilers; and simple-cycle, combined-cycle, and cogeneration gas turbines and a variety of specialized process equipment.

Product/Service	Description
Emissions Control, Process Improvement	Carnot offers unbiased expertise in the selection of appropriate control technologies (many of which its people helped pioneer). Carnot's philosophy is that combustion-generated air pollutant emissions should and can be controlled using the most-effective available technique with the least impact upon unit operating flexibility and thermal performance. Carnot has experience with devices burning conventional fuels (i.e., coal, natural gas, fuel oil, etc.), as well as less-common fuels such as petroleum coke, refinery gas, wood and agricultural wastes, coal-water slurries and coal-oil mixtures, oil-water emulsions, municipal solid waste, landfill gas, and methanol. Carnot's emissions expertise covers a wide variety of species including NO <sub>x</sub> , SO <sub>x</sub> , CO, particulates of all types, metals, organics, and other toxics.

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**Carnot (Continued)**

**Research, Development, and Design**

Carnot uses its combustion and process expertise to design investigative programs to solve many different real-world process and emissions problems. The company has conducted many successful technology demonstrations and aided in their development. Our expertise includes advanced burner and combustor design, post combustor controls, reagent injection for emissions reduction, and emissions control planning. When appropriate, Carnot designs small scale experimental simulators and laboratory investigations for novel problems.

**Emissions Testing**

Carnot provides a full range of in-house testing and process equipment including mobile laboratories, continuous emission monitors, and sampling methodologies for virtually any industrial pollutant of concern in liquid, solid, and gaseous streams.

**Regulatory Engineering**

Carnot's regulatory staff keeps abreast of domestic and international affairs and offers assistance in permitting and siting projects, especially those of a unique nature. Carnot has helped its clients meet some of the most demanding emissions regulations in the world.

**Casazza, Schultz & Associates, Inc. (CSA)**  
 1901 North Fort Myer Drive, Suite 503  
 Arlington, VA 22209



**Telephone:** (703) 841-9644

**FAX:** (703) 841-9649

**Chief Executive Officer:**

**International Sales Manager:**

John A. Casazza, President

P. Jeffrey Palermo, Vice President

**Domestic Offices:**

CRUGERS, NY: P.O. Box 407, Crugers, NY 10521 TEL. (914) 271-8582

CSA specializes in the technical, regulatory, economic, and institutional problems of electric and gas energy systems, and is able to assist clients with local, national, and international energy issues. An important strength of the company is its ability to provide an interdisciplinary approach, integrating the technical, economic, regulatory, and management-related aspects of each job. Through this approach, CSA develops efficient, cost-effective solutions to complex problems. CSA's key personnel have had extensive international experience in Canada, South America, Europe, and Africa.

Product/Service	Description
Electric System Services	Generation and transmission planning; demand side planning and load management; and load forecasting.
Gas System Services	Rate cases; rate comparisons; cogeneration investment; and district heating and cooling.
Rate, Regulatory, and Legal Services	Transmission rates; transmission access; rate cases; and regulatory changes.
Management Services	Strategic planning; non-utility generator bid evaluation; resource allocation; non-technical impediments to utility planning and operation; cogeneration feasibility; and district heating feasibility.
Informational and Statistical Services	Power system data base specification and development; and rate data compilation and analysis for electric and gas systems.
Educational Courses	Electric System Interconnections, Coordination, Contracts and Deregulation; Transmission Systems - How They Really Work; Electric Power Systems - How They Really Work; Independent Power Resources: Bidding, Evaluation, and Contracts; An Introduction to Electric Utility Economics, Finance, and Rate Making; and Electric Power System Planning in the Real World.

CH2M Hill International Ltd.  
6060 S. Willow Drive  
P.O. Box 24548  
Denver, CO 80222



CH2M HILL  
INTERNATIONAL LTD.

Telephone: (303) 796-9001  
Telex: 4742047 CH2M PTL FAX: (303) 796-8710  
Managing Director: Howard Schirmer, Jr., PE

Domestic Offices: CH2M HILL, Inc. includes nearly 60 offices in North America  
International Offices: AUSTRALIA:\* Sydney, Australia; EGYPT: Alexandria and Cairo, Egypt; ENGLAND:\* London, England;  
TAIWAN:\* Taipei, Taiwan  
(\*To open in 1990-1991)

CH2M HILL International Ltd. is a wholly-owned subsidiary of CH2M HILL Ltd., a firm of engineers, planners, economists, and scientists with more than 25 years experience in international projects. CH2M Hill provides comprehensive planning, study, design, and construction management services for clients with interests in: industrial plants and processes, geotechnical services, solid and hazardous waste management and disposal, water supply and wastewater, water resources, irrigation, city and regional planning, economics, and program management.

Product/Service	Description
Consulting Engineering	Pre-project planning and project support services include feasibility studies and assessments; earth sciences; environmental impact studies; regional/urban/rural planning and site evaluation. Among project preparation services are detailed designs, technical appraisals, funding and procurement advice, tender documents, and bid evaluation. Additional services include construction implementation and post-construction services.
Industrial Facility Engineering	Specialized services include site environmental audits, industrial site selection, permitting and development, plus hydroelectric, thermal, solar, bio-energy, geothermal, and cogeneration systems. Industrial wastes management and control services are also provided.

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Challenge Engineering Consultants, Inc.  
101 East Vine, Fifth Floor  
Lexington, KY 40507

Telephone: (606) 233-2215  
FAX: (606) 255-9138  
Chief Executive Officer: Dean K. Hunt, Esq., P.E.  
International Sales Manager: Dean K. Hunt

Domestic Offices: PIKEVILLE, KY: 400 Scott Avenue, Pikeville, KY 41501 TEL. (606) 432-4580, FAX (606) 432-5524



Challenge Engineering Consultants, Inc. was organized in 1984 to provide industry and government clients with a nationally experienced management team and staff. Former managers of several national and local firms including D'Appolonia Consulting Engineering, United States Office of Surface Mining, and Skelly and Loy Engineering Consultants make up the professional staff of Challenge Engineering Consultants, Inc. The Challenge organization provides Engineering and Consultants services to coal, natural resources, waste management industries and government agencies. Challenge's multi-disciplinary staff includes the full range of engineers, geologists, computer scientists, and environmental specialists necessary to address most engineering and natural resources issues.

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**Challenge Engineering Consultants, Inc. (Continued)**

Product/Service	Description
Mining Engineering	Environmental studies, mine waste disposal, mine design, planning and permitting, mine fires, acid mine drainage and subsidence control.
Computer Consulting	Needs assessment, application generation and training, research for vertical markets.
Geotechnical Engineering	Geotechnical studies for underground mines, reservoir designs and mine waste embankment designs.
Abandoned Mine Land Reclamation	Design and implementation of Abandoned Mine Land (AML) reclamation plans, revegetation assessments and land reconstructions.

**Chas. T. Main, Inc.**  
 101 Huntington Avenue  
 Boston, MA 02199



Telephone: (617) 262-3200

Telex: 4430035/CTMAIN FAX: (617) 859-2576

Chief Executive Officer: James T. Callahan, President

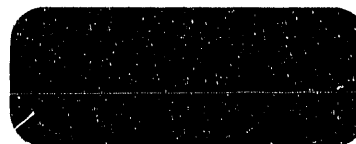
International Sales Manager: Bahman Yarrin-Afshar

Domestic Offices: CHARLOTTE, NC: 4701 Hedgemore Drive, Charlotte, NC 28209 TEL. (704) 529-6246; PASADENA, CA: 100 West Walnut Street, Pasadena, CA 91124 TEL. (800) 362-6304

A subsidiary of The Parsons Corporation, Chas. T. Main, Inc. (MAIN), established in 1893, is a major international engineering and construction firm with over 1,300 people representing all engineering disciplines, process engineering, architecture, project management, construction management, procurement, quality assurance, and project controls functions. MAIN serves electric utilities and other energy producers; pulp and paper producers; the chemical process industry; high-technology manufacturers; the printing industry; commercial enterprises and institutions; and government agencies. Services provided range from feasibility studies, consultant services, to turnkey supply of complete operating facilities.

Product/Service	Description
Services to the Power Industry	Over 4,200 public and private sector clients throughout the world have been served by our specialists in Thermal Power, Industrial Power, Hydroelectrical Power, and Power Delivery. Projects have included power generation and delivery services to over 100 utilities in the United States and to clients in over 60 countries worldwide. MAIN's power generation experience includes engineering design and construction management services for over 56,000 megawatts of installed capacity, including oil-fired, combined cycle gas/turbine, hydroelectric, coal/lignite, and cogeneration. Additionally, MAIN has extensive experience with transmission lines, substations, and numerous distribution, switchyard, communication, and load management systems.

**Chatterjee and Associates, Inc.**  
4883 Windermere Drive  
Newark, CA 94560



Telephone: (415) 796-5436  
FAX: (415) 792-0693

Chief Executive Officer: Anil K. Chatterjee  
International Sales Manager: Anil K. Chatterjee

Domestic Offices: FREMONT, CA: P&D Engineering Consultants, Inc., 4165 Sedge Street, Fremont, CA 94555  
TEL. (415) 475-1168

Chatterjee and Associates, Inc. specializes in technical and economic evaluations of conventional and non-conventional fuel conversion technologies, environmental pollution control system design, process optimization, and system analysis. C&AI has experience in working with developing countries via US-AID and United Nations projects.

Product/Service	Description
Clean Coal Process (Beneficiation)	Process design, system optimization, technical and economic evaluations.
Coal-Derived Fuel Conversion Technologies	Coal-derived fuels such as AFBC, Coal-Slurry Fuel (CSF), Coal Gasification, Liquefaction, handling, combustion, process optimization, and economic analyses.
Non-Conventional Fuel	Biomass, solid wastes, peat, lignite conversion technologies, and other indigenous fuel energy conversion technology analysis.
Technical Training and Education	Class room teaching and seminar presentation on Appropriate Fuel Energy Conversion and Conservation.
Computer Services	Engineering drawings for presentation and publication using industry standard CAD tools, desktop publishing, database and custom programming, and custom menu development using PC based computers. Can also provide application specific configurations of PC compatible computers and peripherals.

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**Coal Extraction and Utilization Research Center**  
Southern Illinois University at Carbondale  
Carbondale, IL 62901



Telephone: (618) 536-5521  
FAX: (618) 453-7346

Chief Executive Officer: John S. Mead  
International Sales Manager: David G. Arey

Domestic Offices: CARBONDALE, IL: 315 W. Grand St., Carbondale, IL 62901

The Coal Research Center at Southern Illinois University-Carbondale was established in 1974 to coordinate the coal related research activities of more than 100 faculty and 200 graduate students. Coal research at SIUC has been broad in scope, covering nearly all aspects of coal extraction, preparation, transportation, combustion, pollution control, and reclamation. The Center works closely with the Illinois Department of Energy and Natural Resources' Office of Coal Development and Marketing and its Center for Research on Sulfur in Coal. SIUC operates a unique link-trainer dragline simulator which provides hands-on experience for operators and management personnel. A file of 700 corporations with coal related interests is maintained by the Center.

(Continued on next page)

**Coal Extraction and Utilization Research Center (Continued)**

<b>Product/Service</b>	<b>Description</b>
<b>Dragline Training Program</b>	The Dragline Training Program is a comprehensive and progressive training program designed to increase dragline productivity and reduce operating costs. It provides participants with an efficient and cost effective method of increasing their knowledge about dragline operations and operator skills. Two courses are offered. The supervisor training course is tailored to supervisors, engineers, mine management, experienced dragline crews, and support personnel. The operator training course is primarily for dragline foremen and dragline crew members. Each course simulates the client's specific application of the dragline.
<b>Industrial File</b>	A PC compatible file is maintained by the Center. It list 700 corporations in the U.S. and overseas which have direct or indirect interest in coal extraction and utilization. A single page profile of coal mining and using industries listing relevant executives and interest areas is available. More detailed information can be provided for specific corporations upon request.
<b>Mining &amp; Reclamation Technical Assistance</b>	The Illinois Mining and Minerals Resources Research Institute and the National Mine Land Reclamation Center -Midwest Regional Center are located at SIUC. Technical reports concerning mining and reclamation are published. SIUC's Cooperative Wildlife Research Laboratory is world leader in technical aspects of mine land reclamation by way of wetland habitat creation.
<b>Laboratory/Testing Services</b>	A G/C Mass Spectrometer Laboratory having a Kratos MS-80 high mass, medium resolution mass spectrometer with fast magnet. There are three ionization sources: electron impact, chemical ionization, and fast atom bombardment. A Coal Testing Laboratory having the capability of performing elemental analysis, total sulfur, proximate analysis, ash fusion temperature, and Btu content. A coal grinding facility consisting of various grinders and crushers and a micronizer capable of grinding to micron size. The micronizer has on-line sampling capability which feed into a Leeds Northrop Microtrak particle size analyzer which can measure particle size down to 0.75 um. A thermo-gravimetric analysis capability centered around Perkin-Elmer TGA-7. A combustion capability centered around two instrumented fluidized bed combustors: one capability of 1,000,000 Btu/hr which can operate in either the bubbling or circulating mode and the other with a capability of about 100,000 Btu/hour.

**Coal Industry Consultants, Inc.**  
P.O. Box 3090  
Naperville, IL 60566-7090



**Telephone:** (708) 420-8830  
**FAX:** (708) 420-8894  
**Chief Executive Officer:**  
**International Sales Manager:**

Mr. Donald L. Schaible, P.E.  
Mr. Donald L. Schaible, P.E.

Established in 1985, CINCO provides highly specialized consulting services in all phases of coal exploration, mining, preparation, utilization, and marketing, including fuel supply contract analysis, property appraisals, flowsheet design, supervision of exploration programs, feasibility and reserve studies, mine design and operation analysis. CINCO's principals have executed assignments in, and are familiar with, most of the world's coal-producing nations, and have recently provided technical assistance to coal organizations in Chile, Colombia, and India. Client mix includes mining companies, electric utilities, industrial firms, steel companies, railroads, government agencies, banks, insurance companies, attorneys, developers, landowners, and investors. Total employees 7; 4 professional staff.

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### Coal Industry Consultants, Inc. (Continued)

Product/Service	Description
Consulting Services	Determination of the maximum economically recoverable reserves of a particular deposit and the optimum rate of production.
	Estimation of the optimum quality and yield of coal that can be produced from a deposit with consideration of levels of beneficiation.
	Suitability of the application of a given coal to a process in terms of utilization equipment.
	Value of a mine or a producing company based on profitability, fixed assets, and reserves.
	Develop mine plans including extraction sequence, equipment lists, and capital and operating costs.

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**Coal Support Services, Inc.**  
111 S. Parker Street, Suite 201  
Tampa, FL 33606

**COAL SUPPORT**

Mine Utility Export



**SERVICES, INC.**

(813) 254-6183

Telephone: (813) 254-6183

FAX: (813) 254-3976

Chief Executive Officer:

Frederick E. Wayand

International Sales Manager:

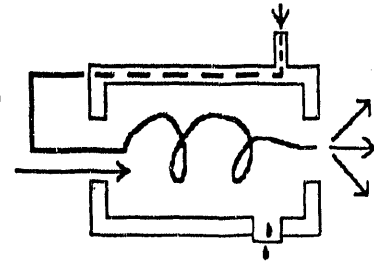
Frederick E. Wayand

The company was established to provide the industry with professional, unbiased, and confidential technical liaison services regarding domestic and export coal shipments. These services have been utilized by coal producers, utilities, and coal exporters/importers. We focus on the inland waterway system with coal movements from rail to barge, truck to barge, stockpile to barge, and subsequent transloading of this cargo.

Product/Service	Description
Auditing	Periodic inspection of the entire purchase process from mine to power plant stockpile including laboratory accountability, transfer facility inspection, and review of sampling regimes.
Export Supervision	Surveillance of cargo loadings to verify procedures in sampling, analysis, and weight determination.
Quality Assurance	Troubleshoot to ascertain causes for discrepancies in either quality or quantity of a shipment.
Training	In-house seminars regarding history of coal, loading, receiving, sampling, preparation, and analysis.

**Coal Tech Corp.**  
**P.O. Box 154**  
**Merion Station, PA 19066**

**COAL TECH CORP**  
**Merion, PA**



**Telephone:** (215) 667-0442  
**FAX:** (215) 667-6632  
**Chief Executive Officer:**  
**International Sales Manager:**

**Dr. Bert Zauderer**  
**Dr. Bert Zauderer**

**Domestic Offices:** MERION STATION, PA: 275 N. Highland Avenue, Merion Station, PA, 19066 TEL. (215) 667-0442

For the past decade, Coal Tech has developed an advanced air cooled combustor which has to-date demonstrated 80+% ash retention in the form of inert slag, 2/3 reduction of NO<sub>x</sub>, and over 80% reduction of SO<sub>2</sub> emissions. The combustor has been tested on a 20 MMBtu/hr [5040 kcal/hr] boiler since early 1987. It can economically retrofit oil/gas designed industrial and utility boilers to coal or solid waste fuels, and convert ashes with leachable heavy metals to inert slag. Coal Tech plans to market and/or license the combustor for these applications, and to continue combustor development in the areas of solid waste disposal.

Product/Service	Description
Advanced Utilization (CCT)	Coal Tech is seeking to form a joint venture with an international energy concern to demonstrate the combustor at the 100+ MMBtu/hr scale for large industrial/utility boilers with coal/solid waste fuels.
Facilities Construction/ Technical Consultants	Coal Tech will design, and fabricate test facilities using the Coal Tech combustor at the 2 to 50 MMBtu/hr scale. It can provide technical services in the slagging combustion field, as well as test a client's fuels at its 20 MMBtu/hr combustor facility.
Emission Controls & Waste Disposal System	The Coal Tech combustor is available for licensing for use in organic chemical wastes incineration for conversion of leachable ashes/solids to inert slag.

**Coal Technology Corporation**  
**103 Thomas Road**  
**Bristol, VA 24201**

**Telephone:** (703) 669-6515  
**FAX:** (703) 669-2161  
**President, Chief Executive Officer:** Richard A. Wolfe, Ph.D.

Coal Technology Corporation had its origin in 1979 as the research and development division of United Coal Company under the leadership of Dr. Wolfe. This division, which became UCC Research Corporation, was purchased by Dr. Wolfe from United Coal Company in June 1989 and at that time became Coal Technology Corporation. CTC offers a skilled staff to companies seeking to clean coal more efficiently, to recover coal fines, to dewater coal fines, to develop new uses for coal, or to provide technical assistance in process engineering and government contracting work. CTC is an entirely independent company, which has become the first to produce and market a new transportation fuel containing coal-derived liquid additives. CTC currently has 10 commercial fuel outlets in Southwestern Virginia, produces a windshield washer fluid, fuel injector cleaner, and gas treatment additive all derived from coal liquids. In addition, CTC has become recognized as the technical leader in the technology development of the mild gasification and formed coke process. CTC is currently participating in providing technical services to the construction of the first formed coke plant in Korea. All work is handled to fully protect client's proprietary rights.

(Continued on next page)

**Coal Technology Corporation (Continued)**

<b>Product/Service</b>	<b>Description</b>
Contract Research	CTC has successfully completed many research contracts for the U.S. Department of Energy, subcontracts with DOE contractors, utilities, and other companies on coal-related projects.
Technical Consulting	CTC has experts available for consultation on fine coal recovery, coal preparation, coal drying, coal gasification, coal/water mixtures, coal derived transportation fuels, formed coke, and novel concepts involving coal.

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**Conco Systems, Inc.**  
135 Sylvan Street  
Verona, PA 15147



**ESTABLISHED**  
1923

**Telephone:** (800) 345-3476  
**Telex:** 866255 **FAX:** (412) 826-8255  
**Chief Executive Officer:** George Saxon, Sr.  
**International Sales Manager:** George Saxon, Jr.

**Domestic Offices:** KANSAS CITY, KS; WESTLAKE VILLAGE, CA; FORT LAUDERDALE, FL

Fully integrated firm providing absolutely the best services for proper maintenance and operation of condensers, heat exchangers, and service water systems.

<b>Product/Service</b>	<b>Description</b>
Tube Cleaning Equipment	Exclusive manufacturer of water powered tube cleaning tools for condensers and heat exchangers.
Tube Cleaning Services	Services utilizing exclusive tools.
NDT-Eddy Current Testing	Condition assessment of major cooling components.
Consulting	Preliminary opinion, root cause analysis, water treatment audits.
Failure Analysis	By nuevo laboratory techniques.
Process Modeling	Model cooling systems.



**Consolidation Coal Company**  
Consol Plaza  
1800 Washington Road  
Pittsburgh, PA 15241



Telephone: (412) 831-4382  
Telex: 247-634 FAX: (412) 831-4571  
Chief Executive Officer: B. R. Brown  
International Sales Manager: Walter E. Schrage

**Domestic Offices:** NORFOLK, VA: 201 Granby Mall, Suite 216, Norfolk, VA 23510 TEL. (804) 627-6261, FAX (804) 625-5088, TELEX 240403 CONSOL NORF; BALTIMORE, MD: Consolidation Coal Sales Company Terminal, 3800 Newgate Avenue., Baltimore, MD 21224 TEL. (301) 631-7000, FAX (301) 631-7022

**International Offices:** BELGIUM: Godefroid Coal Trading and Shipping S.A., 37-41 Rue du Congrès, Brussels 1000 Belgium TEL. 011-32-2-218-7220, FAX 32-2-218-6192, TELEX 846-21434

Consolidation Coal Company (Consol) operates 25 underground and surface mines in nine states and Alberta, Canada. The company is the second-largest coal producer in the United States and hold 6.1 billion tons in steam and metallurgical-grade coal reserves. More than 80 percent of Consol's annual production of more than 55 million tons of steam coal for electricity generation. Nearly 11 million tons of high-grade metallurgical coal is produced annually. Consol mines are linked to major rail routes or the inland waterway for shipment to domestic customers and to exporting points on both coasts and the Gulf of Mexico.

Product/Service	Description
Steam Coal	Consol has exported steam coal since the early 1900s. Today consol exports steam coal to eight countries from mines in northern West Virginia, southwestern Pennsylvania and eastern Kentucky. Exporting points are Consolidation Coal Sales Company's (CCSC) terminal in the Port of Baltimore or terminals in Hampton Roads, Virginia and New Orleans, Louisiana.

**CQ Inc.**  
One Quality Center  
P.O. Box 280  
Homer City, PA 15748



Telephone: (412) 479-3503  
FAX: (412) 479-4181  
Chief Executive Officer: Mr. Clark D. Harrison  
International Sales Manager: Mr. James W. Parkinson

**International Offices:** Please contact company headquarters for further information.

CQ Inc. -- a wholly owned subsidiary of the Electric Power Research Institute -- specializes in coal cleaning, both conventional and advanced, to reduce power plant emissions, improve power plant performance, and improve the economics of generating electricity. CQ Inc. project managers have an average of 15 years of coal quality and project management experience. They have comprehensively characterized coals of all ranks, established a coal quality database, published a series of guidelines for analyzing coal, demonstrated and tested various coal cleaning equipment, developed a computer program to test sampler bias, and implemented successful technology transfer programs through videotapes and printed materials. Customers include coal-burning utilities, coal companies, equipment manufacturers, and government and private agencies.

(Continued on next page)

**CQ Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Technology Demonstrations	Demonstrates new coal cleaning processes and equipment at small commercial scale to speed commercialization of promising coal processing equipment.
Coal Weighing, Sampling, and Analysis Systems	Implements accurate coal weighing, sampling, and analysis systems to monitor the quality and quantity of coal inventories and fuel consumed.
Customized Coal Production	Produces customized coal, including coal-water slurries, to exacting specifications.
Coal Quality Control	Determines the extent that individual coals can be altered to reduce their sulfur content, lower impurities, and improve handling behavior.
Technology Transfer	Trains cleaning plant operators and utility staff how best to clean, sample, analyze, and weigh coal. Also produces technology transfer materials such as brochures, videotapes, and educational materials.

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**CRS Sirrinc Engineers, Inc.**  
1041 East Butler Road  
P.O. Box 5456  
Greenville, SC 29607



**Telephone:** (803) 281-3700  
**FAX:** (803) 281-3712

**Chief Executive Officer:**  
**International Sales Manager:**

Bruce Wilkinson, Houston, Texas  
Dave Syphard, Greenville, South Carolina (803/676-6000)

**Domestic Offices:**

Major cities in the U.S. - Contact Corporate Headquarters for further information - 713/552-2000 or 1-800-672-2777.

CRS Sirrinc Engineers, Inc., a design/construction and consulting firm serving the power generation industry with feasibility studies, cost estimating, preliminary and detailed engineering, architectural design, permitting, construction management, turnkey contracting, start-up and plant operations management. Also provides power project development, project financing, and equity investments in projects. Much of our major success in new sales can be attributed to our strategy of improving market share in our strong markets. We've expanded into fields that combine our financial strength with our strong technical knowledge. Utility and industrial power facilities, cogeneration, environmental design and control, and risk management are all areas with which we have an impressive foundation of experience.

<b>Product/Service</b>	<b>Description</b>
Engineering Design and Construction	CRS Sirrinc Engineers, Inc. is among the top engineering design and construction firms in the United States, with affiliates in foreign countries. We have current experience in the design, construction, and retrofit of coal-fired utility and industrial power plants, including circulating fluidized combustion boilers, cogeneration units, and independent power production plants.
Alternative Services	As an alternative to conventional owner-engineer-constructor relationship, Sirrinc offers equity participation in selected projects through its CRSS Capital affiliate. Inquiries regarding particular project structuring opportunities are invited.

**Dames & Moore**  
**Executive Headquarters**  
**911 Wilshire Boulevard, Suite 700**  
**Los Angeles, CA 90017**



**Telephone:** (213) 683-1560  
**Telex:** 15528 **FAX:** (213) 628-0015  
**Chief Executive Officer:** George D. Leal  
**Chief Operating Officer:** Henry Klehn, Jr.  
**Manager International Division:** Robert H. Winn (Denver, Colorado office)

**Domestic Offices:** 68 offices throughout the U.S., including DENVER, CO: TEL. (303) 294-9100; CINCINNATI, OH: TEL. (513) 651-3440; HOUSTON, TX: TEL. (713) 688-4541; PHILADELPHIA, PA: TEL. (215) 657-5000; TUSCALOOSA, AL: TEL. (205) 758-7007  
**International Offices:** 37 international offices and affiliates, including ENGLAND: London TEL. 44-81-891-4457; AUSTRALIA: Sydney TEL. 61-2-439-4166

Dames & Moore is a 52-year-old, diversified professional consulting organization for projects involving planning, engineering, the earth and environmental sciences, waste management, design, construction management, and permitting assistance. Among its wide range of clients are mining companies, utilities, and multinational energy corporations. The firm reports annual billings of \$250 million, and employs 3,200 professional and support staff in more than 100 offices worldwide.

Product/Service	Description
Coal Mining	Geological reconnaissance; exploratory drilling and geophysical logging; mapping of coal characteristics, reserve calculations, pre-mining and mining feasibility studies; design of mining systems; surface and underground mine layout and designs; technical and economic evaluations; restoration and reclamation of mine properties.
Technical Consultants	Specialist services in coal mine ventilation; strata control, subsidence engineering; mine fires, spontaneous combustion; methane drainage and degasification of coal seams; expert witness testimony.
Utilities	Development of fuel procurement strategy and fuel specifications; formulation and review of contracts, terms and conditions; evaluation of escalation components; identification and technical evaluation of potential suppliers in terms of reserves, coal quality, production facilities and capabilities; coal preparation and loadout facilities; negotiations on price and delivery for long-term supplies.
Coal Transport	Analysis and risk assessment of technical and economic aspects of alternative coal transportation systems, including rail, barge, ship, truck and pipelines.

**East-West Center  
Energy Program  
1777 East-West Road  
Honolulu, HI 96848**



**East-West Center**

**Telephone:** (808) 944-7555  
**Telex:** 230-989171 EWC UD    **FAX:** (808) 944-7298/7970  
**Chief Executive Officer:** Fereidun Fesharaki, Energy Program Leader  
**International Sales Manager:** Charles Johnson, Coordinator of Asia-Pacific Coal Project

The East-West Center brings together people from the U.S., Asia, and the Pacific to study and seek solutions to problems of social, economic, and cultural change. The Center conducts programs of applied research in which people of divergent cultural, political, and professional backgrounds work collaboratively on the region's critical issues. Located in Honolulu, Hawaii adjacent to the University of Hawaii at Manoa, the Center's interests extend from Iran eastward through Asia to Japan, and from Australia across the Pacific to the United States. Established in 1960 by the U.S. Congress, the East-West Center is an educational, non-profit public institution with an international Board of Governors.

<b>Product/Service</b>	<b>Description</b>
Coal Research	Research on thermal coal supply, demand, and transport in the Asia-Pacific region, process of fuel substitution and foreign exchange requirements of Asia-Pacific nations. The scope of research includes country studies of thermal coal supply and demand, regional supply and demand balance analysis, and computer modeling of international trade patterns.
Electricity Research	Research provides techno-economic analysis of electric power industry with emphasis on fuel substitution, energy trade patterns, and domestic resource development in Asia and Pacific countries.

**Eavenson, Auchmuty & Greenwald  
Airport Office Park III  
420 Rouser Road  
Coraopolis, PA 15108**

**EA&G**

**Consultants to the Mining Industry**

**Telephone:** (412) 262-5300  
**FAX:** (412) 262-5303  
**Chairman of the Board:** Edward H. Greenwald, Sr.  
**President:** Richard F. Wesner  
**Executive Vice President:** Edward H. Greenwald, Jr.

**Domestic Offices:** SHADY SPRINGS, WV: P.O. Box 147, Shady Springs, WV 25918 TEL. (304) 763-3023; DANVILLE, PA: R.D. #4, Box 279, Danville, PA 17821 TEL. (717) 275-4043

For nearly seventy years EA&G has performed consulting work concerned with the mining, transportation, and marketing of coal and other minerals. The firm's capabilities encompass both economic and technical analysis over a full spectrum of mining industry tasks and requirements. EA&G's expertise has relevancy at every stage involved in the development of a project -- from original conception through feasibility determination, design, engineering, construction, start-up, and full operation. The firm strongly believes that the economics of a project must be advanced parallel to the solutions to each project's distinct technical problems. The integration of these two inseparable factors underlies EA&G's approach to every task which it undertakes on behalf of its clients.

(Continued on next page)

**Eavenson, Auchmuty & Greenwald (Continued)**

<b>Product/Service</b>	<b>Description</b>
Architecture/Engineering (A&E) Technical Consultants	<ul style="list-style-type: none"><li>• Preliminary project engineering for surface and underground mining operations, including determination of both technical and economic feasibility;</li><li>• Marketing, including analysis of existing markets and projections of future consumption trends;</li><li>• Transportation of mineral products by rail, water, truck, conveyor, and pipeline;</li><li>• Environmental and site planning, including the intricacies of permitting, licensure, and statutory/regulatory conformance;</li><li>• Mineral preparation and beneficiation, material handling, blending, and other steps and technologies involved in materials handling and treatment;</li><li>• Business management services to optimize profitability, identify and eliminate waste of loss factors, and provide knowledgeability concerning state-of-the-art management practices elsewhere in the industry;</li><li>• Specialized services in the areas of taxation, forensics, arbitration, and related subjects impacting both planned and existing operations;</li><li>• Geological analysis, exploration, and reserve studies;</li><li>• Valuations and appraisals of reserves and facilities;</li><li>• Technology-intensive computer-assisted research and development, both "project-oriented" and with reference to existing operations.</li></ul>

**Electric Power Research Institute**  
3412 Hillview Avenue  
P.O. Box 10412  
Palo Alto, CA 94303



Telephone: (415) 855-2000  
Telex: 910-373-1163 EPRI PLA FAX: (415) 855-2954  
Chief Executive Officer: Richard E. Balzhiser  
International Sales Manager: Jay Kopelman

**International Offices:** Please contact EPRI headquarters for further information.

The Electric Power Research Institute (EPRI) manages a program of collaborative research and development on behalf of the U.S. electric utility industry and its customers. Funded through voluntary contributions by some 660 member utilities, EPRI's work covers a broad range of technologies related to the generation, delivery, and use of electricity.

(Continued on next page)

### Electric Power Research Institute (Continued)

Product/Service	Description
Development of new efficient applications of electricity	Selected key products, among dozens, include a warm air heat storage furnace, an optimal controller for cool storage, an advanced variable speed heat pump, an arc furnace dust treatment process, an electric van, probabilistic and scenario forecasting guidebooks, residential customer preference models, a demand-side planning workstation, a commercial unitary dual-fuel heat pump, and a storage heat pump water heater.
Development of cost-effective and safe technologies that address environmental issues	Selected key products include probabilistic seismic hazard methodology, a concrete silo spent fuel storage demonstration, an erosion/corrosion prediction and analysis computer code, a method for reducing the rate of radiation buildup on piping, a health risk assessment of SO <sub>2</sub> , and disposal or possible reuse of large volumes of coal ash.
Development of cost-effective ways to use existing power plants while preparing for future electricity needs	Selected key products include guidelines for converting baseload fossil plants to cycling, on-line monitoring for critical plant equipment, an analytical model for predicting coolant activity, fossil plant nondestructive evaluation guidelines, the Coal Quality Impact Model, atmospheric fluidized-bed combustion demonstrations, and combustion and integrated gasification combined cycle demonstrations.
Development and demonstration of efficient, reliable and safe electricity delivery systems	Selected key products include a transmission line workstation, improved tree trimming equipment, Flexible AC Transmission Systems (FACTS), substation automation, and advanced power transformers.

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**Ellison Consultants**  
4966 Tall Oaks Drive  
Monrovia, MD 21770-9316



Telephone: (301) 865-5302  
FAX: (301) 831-5443  
Chief Executive Officer:  
International Sales Manager:

Mr. William Ellison  
Mrs. Gerd A. Ellison

Formed in 1981, this independent consultancy specializes in assessment and commercial application of SO<sub>2</sub> and NO<sub>x</sub> control technologies and methods for management of collected wastes. The firm has extensive engineering design and technical marketing experience and background in all worldwide countries that utilize state-of-the-art technology for control of air pollution in the firing of solid fuels including municipal solid wastes. Clients include government agencies, electric utility companies, gas cleaning equipment and gypsum manufacturing companies, law firms, and technical development organizations.

Product/Service	Description
SO <sub>2</sub> Control Technology Evaluation	Consulting expertise in evaluation, selection and conceptual design of applicable emission control means
Management of Collected Gas Cleaning Wastes	Expert technical services in planning and establishment of programs for utilization or environmentally acceptable disposal of solid and liquid wastes.

**Eneract Management Services, Inc.**  
**550 Bailey Avenue, #220**  
**Fort Worth, TX 76107**

**EMS**  
**Eneract Management Services, Inc.**

**Telephone:** (817) 334-0053  
**FAX:** (817) 877-0958  
**Chief Executive Officer:** Mr. Paul A. Corwin  
**International Sales Manager:** Mr. Paul A. Corwin

**International Offices:** Please contact company headquarters for further information.

Eneract Management Services, Inc., provides a broad range of technical and managerial services to a diverse group of clients. Our corporate goal has always been to provide the highest levels of performance and to deliver timely, relevant, and cost-effective solutions to our clients' specific needs. Our individual consultants and project teams are capable of tapping the multidisciplinary talents within our company. We can then provide multidimensional approaches to resolving our clients' problems. Additionally, Eneract prides itself in meeting or beating all scheduled delivery dates. Our projects have ranged from a few thousand dollars to over \$1 million.

Product/Service	Designation	Description
Boiler Equipment:		
Portable Process Sampling Systems	LA PAK 2000	Portable state of the art analytical sampling equipment. Designed to monitor pH, specific and cation conductivity and dissolved oxygen.
On-Line Chemical Monitoring System	System 3000	On-line monitoring capacity for pH, specific and cation conductivity, dissolved oxygen, silica, sodium and total organic carbon.
Technical Consultants:		
Performance Assessment Audits		Pre- or post-operational performance assessments designed to meet client or regulatory compliance.
Facilities Operations:		
Performance Improvement Technology		Provides a full range of services, including preparation of system descriptions, operating procedures, training program development and implementation, and qualification programs for plant operators.

**Energotechnology Corporation**  
**497 Massachusetts Avenue**  
**Cambridge, MA 02139**

**Telephone:** (617) 492-3700  
**FAX:** (617) 492-3705  
**Chief Executive Officer:** E. Stephen Miliaras  
**International Sales Manager:** Damon W. Lawrence

Energotechnology Corporation was founded in 1975 to provide consulting services in energy and power generation for industry, utilities, business and governmental agencies and to conduct research and development in energy, power generation, pollution abatement, regulatory affairs, and related areas of technology. Energotechnology's engineering staff includes senior men in the mechanical, electrical, civil/structural and chemical/environmental fields who are experienced in power plant design and in related work. Our proximity and contacts with the well-known nearby universities offer us and our clients the opportunity to utilize as consultants various experts in their respective fields should the need arise.

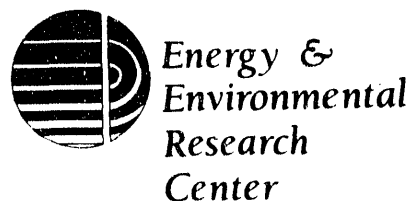
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## Energotechnology Corporation (Continued)

Product/Service	Description
Advanced Utilization	Energotechnology has developed an innovative and low cost clean coal combustion technology for power generation which combines simple coal cleaning and power cycle modifications and is retrofitable to existing older coal-fired power plants and can result in uprating while reducing emissions. The proprietary technology can also reduce the cost of new power plants.
Technical Consulting	Energotechnology has also developed innovative and low cost power generation concepts from the combustion of refuse, the conversion of oil/gas designed boilers to firing coal, and a coal-fired power plant with low cost, built-in peaking capability from coal.

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**Energy and Environmental Research Center**  
Box 8213, University Station  
Grand Forks, ND 58202



Telephone: (701) 777-5000

Telex: 332537 FAX: (701) 777-5181

Chief Executive Officer: Gerald H. Groenewold

International Sales Manager: Gerald H. Groenewold

Domestic Offices: GRAND FORKS, ND: 15 North 23rd Street, Grand Forks, ND 58203

The Energy and Environmental Research Center (EERC) at the University of North Dakota features an integrated systems approach to energy and environmental research and technology development. Originally a federal coal research facility, EERC became part of the University of North Dakota in 1983. Since that time, EERC has expanded its coal research programs to become the leading low-rank coal research facility in the world. In addition, EERC has the leading groundwater research program in this region and has major and expanding research programs in waste management, air emissions control, fluidized-bed combustion, coal-water fuels, mild gasification, liquefaction, and H<sub>2</sub> production.

Product/Service	Description
Fuels and Process Chemistry Research Institute	A major thrust of the Fuels and Process Chemistry Research Institute (FPCRI) of the Energy and Environmental Research Center is the development of new processes for more efficient production and/or utilization of fuels and chemicals. Expertise and capabilities include scientists and engineers from most technical disciplines with many years of experience in severe condition processing; flexible and reliable equipment to develop process concepts; pilot-scale equipment configurable to a variety of processing schemes needed to provide process validation for new technologies; and complete analytical support, including fully equipped laboratories and proven capabilities in development of new analytical methods.
Mining and Mineral Resources Research Institute	The mission of the Mining and Mineral Resources Research Institute (MMRRI) is to conduct and promote basic and applied research related to mining, minerals, groundwater, waste management, and energy resources; participate in the educational programs of the University of North Dakota and other universities; and provide a wide range of services to the mining, mineral, and energy resources industry, as well as to the state and nation. Current MMRRI programs include applied chemistry, environmental microbiology, energy policy, fundamental geology, groundwater and waste management, mine land reclamation, resource evaluation, and underground coal gasification.
Combustion and Environmental Systems Research Institute	The Combustion and Environmental Systems Research Institute (CESRI) of the Energy and Environmental Research Center performs basic research into the fundamental chemical and physical mechanisms that occur during the combustion of coal and other fuels, as well as their effects on environmental systems. The effects of fuel quality on system operation; the problems related to deposition, corrosion, and erosion; the performance of gaseous and particulate removal devices; and the efficient conversion of fuel to energy are all studied.



**Energy and Environmental Research Corporation**  
18 Mason  
Irvine, CA 92718

Energy and  
Environmental  
Research Corporation

Telephone: (714) 859-8851  
Telex: 181787 FAX: (714) 859-3194  
Chief Executive Officer: Thomas J. Tyson  
International Sales Manager: Glenn England

**Domestic Offices:** ORRVILLE, OH: 1645 N. Main, Orrville, OH 44667 TEL. (216) 682-4007, FAX (216) 684-2110; DURHAM, NC: 3622 Lyckan Parkway, Durham, NC 27707 TEL. (919) 489-1726, FAX (919) 493-5670; WHITEHOUSE, NJ: P.O. Box 189, Whitehouse, NJ 0888 TEL. (201) 589-1726, FAX (201) 534-9018  
**International Offices:** Please contact company headquarters for further information.

EER specializes in combustion and air pollution control for coal. This includes the development and application of advanced combustion systems and emission control equipment. EER also specializes in the turning and optimization of combustion equipment. This includes burner balancing, sootblower optimization and other techniques to produce optimum thermal performance and minimum emissions. EER has experience with all fossil fuels including coal, oil and gas. EER also has experience in the incineration of waste materials including hazardous waste, municipal solid waste and medical waste. Annual sales are approximately \$9,000,000. Employees number about 100, mostly engineers with advanced degrees.

Product/Service	Description
Coal Quality Evaluation	Comparative evaluations of alternate coals including analysis and test burns.
Emissions Compliance	Evaluations of alternate strategies for meeting NO <sub>x</sub> , SO <sub>2</sub> and particulate emission regulations at minimum total cost.
Performance Optimiziation	Tuning coal combustion systems for maximum efficiency, minimum emissions and minimum total cost.
SO <sub>2</sub> Control Systems	Several SO <sub>2</sub> control processes including in furnace and duct sorbent injection systems.
NO <sub>x</sub> Control Systems	Several NO <sub>x</sub> control processes including reburning, ammonia injection, flue gas recirculation, low NO <sub>x</sub> burners and several new technologies under development.

**Energy International Corporation**  
135 William Pitt Way  
Pittsburgh, PA 15238

Telephone: (412) 826-5350  
Telex: 5106019265 (U-PARC UQ) FAX: (412) 826-5378  
President: Dr. Alan H. Singleton  
VP, Business Development: Mr. Robert A. Bebout

Energy International Corporation (EI) was formed to develop, license, and market new technologies and services for the advanced utilization of coal, special coal processing services, and the conversion of gas to premium liquid fuels. EI provides these services worldwide, including resource evaluation and selection, environmental impact evaluation, market assessments and project development. These services are available from project inception through operational startup and can involve intermediate and final products.

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### Energy International Corporation (Continued)

Product/Service	Description
Advanced Utilization	EI provides special Mineral Processing Services for grinding, washability studies, and testing of coals.
Power Generation Fuel (Underground Coal Gasification)	EI's Underground Coal Gasification technology can supply a range of gas products for industrial fuel use, electrical power generation, or synthesis gas to produce transportation fuels, fertilizers, and plastics from uneconomically minable coal resources.
Coal Derived Products (Coal Water Slurry Fuels)	EI develops and supplies specialized Coal Water Fuel slurries containing from 55% to 65% coal solids which can replace heavy fuel oil for electric power generation and for industrial boilers.
Technical Consultants	EI provides resource assessments, coal evaluations, technology transfer, process design, and project management services.

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**The ERM Group**  
855 Springdale Drive  
Exton, PA 19341



Telephone: (800) 544-3117

Telex: 49600537 FAX: (215) 524-7335

Founder:

Paul H. Woodruff

International Sales Manager:

Amir Metry

**Domestic Offices:**

VANCOUVER, BC, CANADA TEL. (604) 684-4434; COLUMBUS, OH TEL. (614) 433-7900; BOSTON, MA TEL. (617) 742-8228; WOODBURY, NY TEL. (516) 921-4300; BELLEVUE, WA TEL. (206) 827-9440; DEERFIELD, IL TEL. (708) 940-7200; ENGLEWOOD, CO TEL. (303) 741-5050; TAMPA, FL TEL. (813) 622-8727; BRENTWOOD, TN TEL. (615) 373-3350; HOUSTON, TX TEL. (713) 496-9600; WALNUT CREEK, CA TEL. (415) 946-0455

**International Offices:**

CONSETT, ENGLAND: Northern Environmental Consultants, Ltd. TEL. (011-44-207) 507254; LONDON, ENGLAND: Environmental Resources, Ltd. TEL. (011-44-71) 486-1211; Four Elements, Ltd. TEL. (011-44-71) 233-1088; NORTHAMPTON, ENGLAND: Environmental Resources, Ltd. TEL. (011-44) 604-791551; MADRAS, INDIA: Environmental Resources Management (India), Pvt. Ltd. TEL. (011-91-44) 45-0773-45-0425; MILANO ITALY: Produzione Ambiente Risorse, P.A.R.s.r.l. TEL. (011-39-2) 659-9437; SCHWALBACH, GERMANY: ERL-Deutschland GmbH TEL. (011-49) 6196-84741; TSINSHATSUI, KOWLOON: ERL (Asia) Ltd. TEL. (011-85-2) 72-20292

The ERM Group is an organization of more than 1200 employees working from more than 60 offices to provide exceptional environmental consulting, construction management, analytical laboratory, and information and data management services to a wide range of private and public sector clients. The ERM Group is a technically oriented consulting organization with in-depth experience in these areas: site remediation; hydrogeology; hazardous/solid waste management; management consulting; engineering services; underground tank management; environmental science; air pollution control; computer services; construction management; and health, safety, and toxicology.

Product/Service	Description
Permitting and Siting	Finding optimum locations for facilities, preparing necessary permits, and negotiating permit specifications with agencies.
Emissions Controls	Estimating and sampling emissions, modeling pollutant transport and dispersion, determining real risk to receptors, designing emissions control strategies and systems to protect receptors and comply with regulations.
Environmental Planning	Preparing environmental management strategies for all aspects of operations.
Waste Handling	Designing systems to collect, and developing plans to landfill coal ash.

**Exxon Coal and Minerals Company**  
P.O. Box 1314  
Houston, TX 77251-1314



Telephone: (713) 973-5333  
Telex: 762171 EXXON ECM HOU    FAX: (713) 978-5618  
President: R. P. Larkins  
Vice President Marketing: R. J. Doyle  
Marketing Manager Domestic Coal: T. B. Brister  
Marketing Manager International Coal: E. W. Markowski

Exxon Coal and Minerals Company, a division of Exxon Corporation, markets coal produced from mining operations located in New South Wales Australia, Columbia South America, and Illinois and Wyoming U.S.A. During 1989, these operations produced over 45 million short tons of coal, of which over 18 million short tons were sold outside the United States. Exxon Coal USA, Inc., an affiliate of Exxon Coal and Minerals Company, was the sixth largest United States coal producer.

Product/Service	Description
Coal Mining/Coal Marketing	Exxon Coal USA, Inc. has two operating divisions within the United States. The domestic operations are The Carter Mining Company and Monterey Coal Company. The Carter Mining Company is an Eastern Powder River Basin coal producer which operates two surface mines in the Gillette, Wyoming, area that produced over 23.5 million short tons in 1989. The Monterey Coal Company is an Illinois Basin coal producer which operates two underground mines in Illinois and produced over 4.7 million short tons in 1989. Coal quality specifications are available upon request.
Technical Support	Mining operations and marketing are supported by a coal research laboratory, and related facilities, with full time research personnel at Exxon Research and Engineering Company in Baytown, Texas. Combustion furnace and state of the art technical facilities are available along with research personnel to analyze optimum, cost saving coal use for our customers. Technical service personnel visit on site with power plant staff for problem analysis.

**Fieldston Company, Inc.**  
1920 N Street, NW  
Suite 210  
Washington, DC 20036



Telephone: (202) 775-0240  
FAX: (202) 467-0768  
Chief Executive Officer: James M. Heller

Fieldston Company Inc. is a coal market and coal transportation consulting and publishing firm. The company publishes a bi-annual coal transportation reference guide, "The Fieldston Coal Transportation Manual", as well as the semi-monthly newsletter, "Coal Transportation Report". Fieldston's primary areas of consulting expertise involve analyzing coal markets, coal transportation rates and coal transportation logistics.

(Continued on next page)

**Fieldston Company, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
The Coal Transportation Manual	The Manual is a reference volume dedicated exclusively to coal transportation from the mine mouth to the end user. The publication contains data and analysis on most modes of coal transportation including railroads, river barges and ocean vessels. The Manual contains extensive information on coal transportation facilities along the inland waterways, coal-hauling railroads, export rail and barge rates, ocean freight rates, Great Lakes coal terminals and ocean shipping ports. Additional information is provided for electric utility power plant coal handling and receiving capabilities.
The Coal Transportation Report	A semi-monthly newsletter addressing issues pertinent to the coal and coal transportation industries. Areas of coverage include transportation regulation, innovations in coal transportation technologies and general coal industry issues having an impact on the nation's coal transportation infrastructure.
Coal Transportation Rate Logistics Analysis	Fieldston provides analysis and development of coal transportation rates and logistics for coal shippers, producers and brokers. Transportation rate and logistical analyses can be conducted for coal movements by all modes. These analyses can be combined with plant or port siting studies, geographic coal market evaluations or detailed logistical studies to identify the most economic method to move coal from point to point.
Coal Market Analysis	Fieldston provides detailed analyses of specific coal markets, defined geographically or by end use. These analyses include compiling information on coal prices, quality and transportation.
Coal/Transportation Contract Analysis	Fieldston provides analyses to parties negotiating coal and transportation contracts. Specific areas that are studied include initial prices or rates, contract terms, including volume, quality of service, duration and contract escalation provisions.
Transportation Equipment Evaluations	Fieldston supplies analyses of the economics of investing in transportation equipment, using financial and economic models. Among the specific services that can be provided are evaluating the economics of purchasing aluminum or steel hopper cars, private car lease and railcar maintenance agreements.

**Fluor Daniel**  
3333 Michelson Drive  
Irvine, CA 92730

**FLUOR DANIEL**



Telephone: (714) 975-7100

Telex: 68-1441 FAX: (714) 975-5271/6549

Chief Executive Officer:

Vincent L. Kontny

International Sales Manager:

Gerald M. Glenn

**Domestic Offices:**

CHICAGO, IL: TEL (312) 368-3500, GREENVILLE, SC: TEL. (803) 298-2500, HOUSTON, TX: TEL. (713) 263-1000; PHILADELPHIA, PA: TEL. (609) 985-1101; REDWOOD CITY, CA: TEL. (415) 595-6000; RICHMOND, VA: A.T. Massey Coal Company, Inc., TEL. (804) 788-1800; CHARLOTTE, NC: Duke/Fluor Daniel, TEL. (704) 357-3271

**International Offices:**

SAUDIA ARABIA: Fluor Arabia, Dhahran TEL. (966) 3-857-8577; AUSTRALIA: Fluor Daniel Australia, Melbourne TEL. (61) 03-520-4444; CANADA: Fluor Daniel Canada, Calgary TEL. (010) 403-259-1110; THE NETHERLANDS: Fluor Daniel BV Netherlands, Haarlem TEL. (31) 23-33-90-20; GERMANY: Fluor Daniel GmbH, Dusseldorf TEL. (49) 211-4551-1; ENGLAND: Fluor Daniel, Ltd., London TEL. 44-1-222-7717

Fluor Daniel provides a full range of engineering, construction and related services through over 50 offices worldwide. These services include feasibility studies, conceptual design, project management, engineering, procurement, construction, technical services, project financing, consulting, environmental services, maintenance and plant operations. Our affiliate, AT Massey Coal Company, produces both high quality low-sulfur coal and metallurgical coal and ranks among the 10 largest coal marketers in the United States. Massey sells produced coal and markets coal for independent producers. Fluor Daniel, in partnership with Duke Power, designs and constructs or modernizes coal-fired power plants and performs operations and maintenance.

(Continued on next page)

**Fluor Daniel (Continued)**

Product/Service	Description
Power Generation System	Fluor Daniel provides design engineering, procurement and construction of integrated coal gasification power generation systems as a part of our work with combustion turbine technology. Duke/Fluor Daniel has engineered or constructed over 75 conventional fossil fuel generating stations ranging from 5 to 1980Mw and provided maintenance and operating services in over 150 units.
Advanced Utilization (CCT)	Fluor Daniel offers engineering, procurement, construction and consulting support to Clean Coal Technology projects. We have performed over 105 coal gasification studies and participated in 14 major projects including Sasol, the world's largest coal gasification facility, on which Fluor Daniel performed engineering, procurement and construction.
Engineering/Procurement/Construction	Fluor Daniel engineering, procurement and construction experience includes coal mines, coal handling and transport facilities, and plants for utilities and other coal consumers.

**GAI Consultants**  
**570 Beatty Road**  
**Monroeville, PA 15146**



Telephone: (412) 856-6400  
 FAX: (412) 856-4970  
**Chief Executive Officer:**  
**International Sales Manager:**

Dr. Anthony M. DiGioia, Jr.  
 Dr. Anthony M. DiGioia, Jr.

**Domestic Offices:** CHARLESTON, WV: 4715-C MacCorkle Avenue SE, Charleston, WV 25304 TEL. (304) 925-7730, FAX (304) 925-7776; ORLANDO, FL: 1833 Edgewater Drive, Orlando, FL 32804 TEL. (407) 423-8398, FAX (407) 843-1070; RALEIGH, NC: 401 Glenwood Avenue, Raleigh, NC 27603 TEL. (919) 828-0801, FAX (407) 833-2784; MT. LAUREL, NJ: 300 Birchfield Drive, Suite 301, Mt. Laurel, NJ 08054 TEL. (609) 273-6585, FAX (609) 273-0050

**International Offices:** Please contact Monroeville office for further information.

GAI Consultants professional staff of 390 engineers, geologists, scientists, environmental specialists, planners, economists, and technical and administrative personnel provides a comprehensive range of quality planning, study, and design services in civil, environmental, geotechnical, and structural engineering; energy; mining (including pre-blasting and pre-mining surveys); soil science and agronomy; water resources; industrial/hazardous waste management; transportation; site development; and construction monitoring.

Product/Service	Description
Mine Planning and Design	Full design and planning services for new or expanding mines include drilling, geophysical testing, feasibility studies, mine layouts, permitting, and selection of mining methods and mine access. GAI also provides assistance in planning and siting auxiliary mine facilities and beneficiation and coal gasification facilities.
Waste Disposal and Land Reclamation	Waste disposal and land reclamation services range from overall engineering design and materials handling procedures to environmental studies, and ground-water investigations. GAI provides services for dry refuse disposal areas and slurry impoundments; treatment of acid mine drainage; design of waste disposal dams and ponds; and regrading, revegetation, and reclamation planning.
Environmental and Subsidence Engineering	Environmental services include pollution abatement, reclamation planning, environmental impact statements, waste disposal and permitting studies, ground-water monitoring, and acid mine drainage studies. Subsidence-related services include subsidence plans, mine and surface stabilization, prediction of subsidence and ground movement, subsidence investigation and control plans, and design of subsidence-resistant structures.

**GeoResearch, Inc.**  
2815 Montana Avenue  
Billings, MT 59101



**Telephone:** (406) 248-6771  
**FAX:** (406) 248-6770  
**Chief Executive Officer:** Douglas Richardson, Ph.D.  
**International Sales Manager:** Douglas Richardson, Ph.D.

**International Offices:** Please contact company headquarters for further information.

GeoResearch, Inc., provides comprehensive environmental consulting services to coal mining, coal processing, and coal burning industries. GeoResearch is an experienced multidisciplinary firm, with staff including expert hydrogeologists, meteorologists, air quality specialists, analytical chemists, environmental engineers, and computer programmers. GeoResearch has extensive experience in issues pertaining to acid rain. GeoResearch is currently conducting a two year study in conjunction with the Government of Italy to assess the occurrence and potential for acid rain there. GeoResearch also offers Global Positioning Satellite (GPS) survey services integrated with computer based Geographic Information Systems (GIS) to produce surveys, maps, and to effectively manage geographic data of all types.

Product/Service	Description
Air Quality Services	Monitoring system design and computer dispersion modeling of all relevant parameters including: meteorology, SO <sub>2</sub> , NO <sub>x</sub> , O <sub>3</sub> , H <sub>2</sub> S, odor, total and respirable particulates, etc. Acid rain studies. Source apportionment.
Water/Ground Water Services	Hydrogeologic analysis, aquifer testing, ground water monitoring, water supply, mine dewatering, mine drainage, water quality, hydrochemistry, flow measurements, aquifer remediation.
Computer Mapping Services	State-of-the-art computer based survey and mapping capabilities utilizing Global Positioning Satellite technology integrated with ARC/INFO GIS software. Positional and topographic tolerances to $\pm 2$ cm.

**Gilbert/Commonwealth, Inc.**  
P.O. Box 1498  
Reading PA 19603-1498



**Gilbert/Commonwealth**

ENGINEERS/CONSULTANTS Reading, PA

**Telephone:** (215) 775-2600  
**Telex:** 836-431 **FAX:** (215) 775-2670  
**Chief Executive Officer:** Charles D. Williams  
**International Sales Manager:** Peter A. Hededus

**International Offices:** ZIMBABWE: Peter Cochrane, Gilbert (Zimbabwe) Ltd., 3rd Floor, Zambia House, Corner Julius Nyerere & Union Ave., Harare TEL. 263-4 791108, TELEX 6125 BICON ZW; ENGLAND: Keith Millard, Gilbert Associates (Europe) Ltd., Fraser House, London Road, Twickenham, Middlesex, TW1-3ST TEL. 44 81 891-4383, TELEX 266-951 GILBT G; ENGLAND: R. Bruce Wilson, Halcrow Gilbert Associates, Ltd., Burderop Park, Swindon, Wiltshire SN4 0QD TEL. 44 79 381-4756 TELEX 44844 HALWIL G; AUSTRALIA: Peter Browne, CMPS Pty Limited, 200 Mary Street, Brisbane, Queensland 4000 TEL. 61 7 233-1611 TELEX AA41539; EGYPT: Vincent W. Condath, Jr., Gilbert Associates (Middle East) SAE, 12 Sebaweeh el Masri Street, Nasr City, Cairo TEL. 20 2 601-123 TELEX 21157 GAMEL; SAUDIA ARABIA: Gilbert-ACES, c/o Arabian Consulting Engineering Services (ACES), P.O. Box 146, Riyadh TEL. 966 1 464-3538 TELEX 400763 ACES SJ

Gilbert/Commonwealth (G/C) provides consulting engineering and allied capabilities to a wide variety of industrial, utility, and governmental clients around the world. Our extensive experience with fossil fuels and fossil fueled power plants encompasses the full range of consulting engineering services, including feasibility studies, engineering analyses, trade-off studies, independent engineers reports, conceptual and final design, cost estimates,

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**Gilbert/Commonwealth, Inc. (Continued)**

planning and scheduling, specifications, quality assurance, construction management, and startup and test. Gilbert/Commonwealth's commitment to and experience with advanced energy technologies is well known, with many assignments for industry and government agencies, including the design and operation of the High Sulphur Center for the Electric Power Research Institute. Further, G/C's engineering and applications experience with acid rain and greenhouse effect problems has put the company at the leading edge of research on these important issues. Gilbert/Commonwealth has been the prime contractor on several Department of Energy advanced energy projects which focused on technologies such as duct injection, fluidized bed combustion, gas stream clean-up, and magnetohydrodynamics. G/C is one of the operators of DOE's Pittsburgh Energy Technology Center and is the A/E services contractor for DOE's Morgantown Energy Technology Center, both of which are coal research facilities.

Product/Service	Description
Architecture/Engineering	Complete consulting engineering services, including feasibility studies, engineering analyses, trade-off studies, independent engineers reports, conceptual and final design, cost estimates, planning and scheduling, specifications, quality assurance, construction management, startup and test.

**Gould Energy**  
 30 Clairmont Avenue  
 Thornwood, New York 10594



Telephone: (914) 769-7900  
 FAX: (914) 769-7905  
 Chief Executive Officer:  
 International Sales Manager:

Gregory Gould  
 Vincent Furkevic

**Domestic Offices:** CRESSON, PA: Box 214, Gallitzin Road, Cresson, PA 16630 TEL. (814) 886-7400; TAMPA, FL: 505 South Falkenburg Road, Tampa, FL 33619 TEL. (813) 689-5785; GORMANIA, WV: P.O. Box 50, East, Gormanian, WV 26720 TEL. (304) 693-7613; ST. LOUIS, MO: 11591 Page Service Drive, St. Louis, MO 63146 TEL. (314) 432-0414

For over eighty years, Gould has helped power utilities and coal producers answer one critical question: "Are we getting the BTUs we paid for?" Gould provides tighter asset control with its Fuel Management Information System, Electronic Auditing System and with professional, third party assessment of both coal and total system performance, including weighing, sampling and testing. Gould services are multi-disciplinary. They define quality assurance and accountability across the board. Gould gives operating managers the information they need for better control, conflict resolution, and improved performance, reduced emissions, as well as, documentation of a utility's cost effectiveness.

Product/Service	Description
Fuel Management Information System Facility Operation	A comprehensive system to manage the procurement, receipt, inventory, analysis and accounting for coal and other fuels.
Electronic Audit System Monitoring	A patented real time system of documenting the performance of material handling, sampling and weighing devices.
Technical Services	Sampling, testing, weighing and control services and consulting to give clients "Value Assurance".
Value Assurance Products	Mechanical Sample Divider, Video Training Systems, Bias Testing Software, to help the coal industry get the most value from its coal.

**GRAY STAR™ Division  
EAMarketing Inc.  
5010 Mayfield Rd.  
Cleveland, OH 44124**



**GRAY STAR™ DIVISION  
EAMARKETING, INC.**

**Telephone:** (216) 291-2840  
**FAX:** (216) 291-3422  
**Chief Executive Officer:**  
**International Sales Manager:**

**Mr. Edmund F. Avolio  
Mr. Michael J. Williams**

GRAY STAR™ offers design and site selection for volume metallurgical coke drying plants of 20 to 50 metric tons per hour or more.

GRAY STAR™ has been operating a Met coke drying plant in Birmingham, Alabama since 1985.

EAMarketing, the parent of GRAY STAR™ has been a broker and trader of metallurgical coke and coal since 1975.

1990 saw development of "RAPID FOAM™". This is a specially developed and designed product for use as a slag foamer in high voltage electric furnaces.

**Product/Service**

Design of volume metallurgical coke drying plants in the 20 to 50 ton per hour range. This service can include site and equipment selection.

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**HDR, Inc.  
8404 Indian Hills Drive  
Omaha, NE 68114-4049**



**Telephone:** (402) 399-1000  
**FAX:** (402) 399-1238

**Chairman, HDR, Inc.:**  
**Chief Operating Officer, HDR, Inc.:**  
**President, HDR Engineering, Inc.:**  
**Director, National Power and  
Energy Programs:**

**Jean Tietz  
Francis Jelensperger  
Richard R. Bell  
Robert P. Knudsen**

**Domestic Offices:**

Alexandria, VA; Anchorage, AK; Austin, TX; Charlotte, NC; Chicago, IL; Dallas, TX; Denver, CO; Fresno, CA; Greensboro, NC; Irvine, CA; Kansas City, KS; Minneapolis, MN; Omaha, NE; Phoenix, AZ; Pittsburgh, PA; Portland, OR; Sacramento, CA; Seattle, WA; Spokane, WA; Tampa, FL; Virginia Beach, VA; and White Plains, NY

HDR, Inc. is a nationally recognized, full-service corporation in engineering and architectural design, and facilities management. HDR, Inc. is the holding company for three operating companies: HDR Engineering, Inc., Henningson, Durham & Richardson, Inc., and HDR FM, Inc.

HDR was founded in 1917 in Omaha, Nebraska. Today, the corporation has 22 offices nationwide and employs more than 1,250 people, including nearly 850 engineers, architects, and other professionals. HDR was bought in 1983 by the French company, Bouygues, S.A., one of the largest design/build companies in the world.

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**HDR, Inc. (Continued)**

**Product/Service Description**

Architecture/Engineering (A&E)	HDR Engineering provides full-service waste/energy, water/wastewater, and transportation engineering services. Henningson, Durham & Richardson specializes in architectural design of health care, justice, and corporate facilities. HDR FM, Inc. offers integrated facilities management services.
Power Generation Systems	HDR Engineering provides full professional engineering services for power generation systems, including cogeneration plants, power plant rehabilitation systems, retrofitting, hydropower, district heating and cooling, transmission and distribution, alternative fuels utilization and fluidized bed combustion. We are experienced in the utilization of such fuels as solid waste, coal, oil, wood waste, black liquor, industrial and wastewater sludges, methane gas, digester gas, and others.
Utilities	HDR Engineering's work for utilities includes projects for more than 100 energy utilities in 20 states, as well as water and wastewater clients throughout the United States.
Emissions Control and Waste Disposal Systems	Our firm designs state-of-the-art facilities which satisfy all Clean Air Act requirements. HDR Engineering is recognized as an industry leader in providing engineering services for solid waste collection and disposal systems.
Technical Consultants	HDR provides complete technical consultation in all areas related to waste management and energy recovery, water and wastewater projects, environmental issues, transportation systems and bridges; health care, justice, and corporate facilities; and facilities management.

**Huffman Laboratories, Inc.  
4630 Indiana Street  
Golden, CO 80403**

Telephone: (303) 278-4455

FAX: (303) 278-7012

President:

Dr. E. W. D. Huffman, Jr.

Laboratory Manager

Kevin D. Wills

Technical Services Coordinator:

Suzanne J. Zeller

Huffman Laboratories, Inc. has been providing quality analytical services since 1936. We are a full service laboratory specializing in elemental microanalysis for the chemical, research and manufacturing industries. Evaluations for CHONS, P, halides, ash, metals and BTUs are performed for a wide variety of organic and inorganic matrices. Coal analyses are routinely performed based on ASTM procedures. Other analytical services include TOC, TOX, EOX and molecular weight determinations, emission spectroscopy, atomic absorption, gas chromatography and ion chromatography.

Product/Service	Description
Coal Testing	Includes proximate & ultimate analyses, BTU, volatile matter, sulfur forms, metals and ash analysis.
Elemental Analysis	Carbon, hydrogen, oxygen, nitrogen, sulfur, phosphorous, halides, and metals on organics, inorganics, organometallics, coal, shale, petroleum, water and wastes.
Water Testing	Routine analyses following EPA, AWWA, ASTM and other methods.

**Indeck Energy Services, Inc.**  
1111 South Willis Avenue  
Wheeling, IL 60090

# INDECK

Telephone: (312) 520-3212  
Telex: 28-3544 FAX: (312) 520-9883  
Chief Executive Officer: Michael P. Polsky  
International Sales Manager: Lawrence J. Kostrzewa

**International Offices:** Please contact headquarters for further information.

Indeck is an experienced developer, owner, operator and maintainer of cogeneration and power generation plants using coal, natural gas, oil and waste fuels. Together with Indeck Power Equipment Company, North America's largest renter and leaser of emergency boilers, the company has been serving industrial and utility steam, power and water treatment needs since 1960. Indeck's broad range of experience includes over 750 MW of generating capacity either operating, under construction or under contract in the U.S. and Canada, with international expansions underway in the U.K. and elsewhere.

Product/Service	Description
Project Development	Indeck will perform all activities from project conception to construction, including cycle design and analysis, siting, engineering, permitting, power and steam sales contracting, fuel supply acquisition and debt and equity financing.
Project Operation	For projects owned in whole or in part by Indeck, Indeck will hire and train operating staff, prepare and follow operating and maintenance budgets, operate the project at optimum economic efficiency and schedule and carry out overhauls and repairs.

**J.W. Miller & Associates, Inc.**  
Miller Building  
No. 2 Hale Street  
Charleston, WV 25301



MILLER ENTERPRISES

Telephone: (304) 343-9524  
FAX: (304) 343-9530  
President: Mr. James W. Miller  
Vice President: Mr. David S. Miller  
Vice President: Mr. Gary J. Miller

Incorporated since 1964.

**Product/Service**

Geological Exploration; Coal Mining, Underground, Surface, Auger; Coal Preparation; Coal Exploration; Coal Transportation; Port Facilities; Efficiency and Productivity Studies; Appraisals; Coal Analysis; Financing; Complete Feasibility Studies; Economic Evaluations; Market Studies; Management/Operations Research; Design Contracting; Exploration, Drilling, Preparation Plant Construction, Mine and Plant Management, Beehive Coke Oven Construction, RR Loading and Unloading

**John T. Boyd Company**  
400 Oliver Building  
535 Smithfield Street  
Pittsburgh, PA 15222-2384

**JOHN T. BOYD COMPANY**



**MINING AND  
GEOLOGICAL  
ENGINEERS**

**Telephone:** (412) 562-1770

**FAX:** (412) 562-1953

**Chief Executive Officer:**

James W. Boyd

**International Sales Manager:**

Bradley Charles Lewis

**Domestic Offices:**

DENVER, CO: Suite 1028, Lincoln Tower Building, Denver, CO 80245 TEL. (303) 861-4339

FAX (303) 861-4379

John T. Boyd Company (BOYD) is one of the largest independent engineering consulting firms in the United States exclusively serving the world's coal and mineral industries. We have provided mining engineering, environmental and financial consultation services to a diverse worldwide client base for more than 45 years. Our continued success is a result of providing consistent and reliable service and finding practical and economical solutions to clients' unique problems. We are proud of the level of commitment we extend to clients. Our reports are accepted by major financial institutions and government agencies in fulfillment of their requirements. BOYD is prepared to meet the needs of the vital, demanding, and constantly changing coal and mineral industries.

**Product/Service**

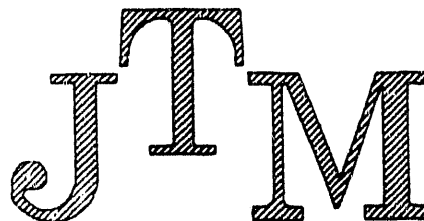
**Description**

Architecture/Engineering

BOYD manages and supervises geological and exploration programs; develops mine plans and performs mine and preparation plant feasibility studies; designs material handling systems; performs geotechnical and rock mechanic studies; obtains mining permits; certifies quality and quantity of reserves; prepares environmental impact statements; evaluates fuel economics; develops forecasts of costs, production, and financial returns; appraises and evaluates mining properties, plants, and equipment; provides expert witness testimony and litigation support; analyzes fuel supplies and haulage and transportation methods; assists in contract negotiations; and identifies and forecasts markets.

Technical Consulting

**JTM Industries, Inc.**  
1000 Cobb Place Boulevard  
Building 400  
Kennesaw, GA 30144



**Telephone:** (404) 424-1900

**FAX:** (404) 424-9290

**Chief Executive Officer:**

Mr. Bill G. Fletcher

**Executive Vice President:**

Mr. Dennis L. Kinder

**Domestic Offices:**

HOUSTON, TX: 4800 Sugar Grove Boulevard, #410, Stafford, TX 77477 TEL. (713) 240-4082;

ALLENTOWN, PA: 420 W. Emmaus Avenue, Allentown, AP 18103 TEL. (215) 797-7674; DAYTON, OH:

240 W. Elmwood Drive, Suite 2011, Dayton, OH 45459 TEL. (513) 435-3194; RICHMOND, VA: 1202

Bellwood Road, Richmond, VA 23237 TEL. (804) 271-7887

JTM Industries, Inc., a wholly-owned subsidiary of USPCI and Union Pacific Corporation, is a full-service by-product management company headquartered in Marietta, Georgia. JTM provides by-product management programs to the generators of combustion and mineral processing by-products by: (1) developing and implementing proprietary processes which generate higher market value products from coal combustion residue; and

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**JTM Industries, Inc. (Continued)**

(2) developing proprietary processes to accommodate reuse and/or disposal of more highly regulated non-hazardous ash streams. JTM has three divisions, each concentrating in a specific area of by-product management while drawing upon the expertise available throughout the corporation.

<b>Product/Service</b>	<b>Description</b>
Ash Management Division	AMD markets coal combustion by-products such as fly ash, bottom ash and fly ash lightweight aggregate throughout the U.S. These markets include concrete and concrete products, highway projects, structural fills, soil stabilization, chemical fixation and grouting. AMD maintains a fully-equipped R&D laboratory in Houston, Texas.
Mineral By-Products Division	MBD develops and markets products derived from by-products of cement and lime production. These products include Gypcem <sup>®</sup> , Multical <sup>®</sup> , Peanut Maker <sup>®</sup> and Pozzalime <sup>®</sup> . Pozzalime <sup>®</sup> is used at industrial and commercial waste treatment sites as a drying agent and soil amendment on construction projects. Gypcem <sup>®</sup> is used to control the set in portland cement. FilterEze™, a relatively new product, is used as a sludge conditioner.
Operations Division	The Operations Division, created January 1, 1989, manages the disposal of combustion by-products in an environmentally acceptable manner. Realizing that proper disposal techniques constitute a major portion of most by-product management programs and are becoming increasingly complicated and expensive, JTM organized this division to totally concentrate its efforts in this area.
Municipal Services Corporation	MSC is involved in the utilization and disposal of municipal solid waste ash and is currently involved in research and development of products from MSW ash in JTM's pilot plant located in Taylorsville, Georgia, to develop new technology. JTM considers this activity one of its greatest potential growth areas. MSC is developing a MSW ash landfill in Sawyer, North Dakota.
KBK Enterprises, Inc.	KBK is the engineering subsidiary company of JTM. KBK is an engineering group which provides services to utilities, cogenerators, municipalities, real estate developers and manufacturers. KBK provides internal engineering support to JTM and USPCI and offers its unique consulting services on an independent basis in: ash management, landfill design and permitting, environmental site assessment, ash handling equipment design, material processing plant design, construction management and real estate development.
Melitech, Inc.	Melitech, Inc. is a subsidiary of JTM that specializes in marketing pulverized fuel ash (PFA) into nonconventional PFA markets. In addition, it provides specialty chemicals to the carpet industry in the United States and Canada. Present nonconventional PFA markets include SB latex filler, asphalt roofing shingle filler, roofing granules and asphaltic concrete extender. Technical service is provided in the chemical products and non-conventional PFA markets.

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Lane Engineering, Inc.  
11739 Chanticleer Drive  
Pensacola, FL 32507

**LANE  
ENGINEERING, INC.**

Telephone: (904) 492-3050  
Chief Executive Officer: John W. Lane

<b>Product/Service</b>	<b>Description</b>
Architecture/Engineering	Professional engineering services.

**Mobil Coal Producing Inc.**  
**Box 17772**  
**Denver, CO 80217**



**Telephone:** (303) 298-2960  
**Telex:** 910-9312633 **FAX:** (303) 298-2974  
**President:** R. G. (George) McGinn  
**International Sales Manager:** J. R. (Bob) Anderson

**International Offices:** INDONESIA: M. R. (Mike) Wolfhard, Mobil Oil Indonesia Inc., Post Bag 400, Jakarta 10002; Ratu Plaza 27th Floor  
 TEL. 61-21-711211, TELEX 47431 MOI/JKT, FAX 61-21-7202068

Mobil Coal Producing Inc., an established coal producer and marketer, commenced production at its Caballo Rojo Mine in Wyoming's Powder River Basin in 1982. The Mine has a current capacity of over eight million tons per year with the potential to increase its permitted target of 20 million tpy. Coal from Caballo Rojo was successfully shipped to Taiwan Power Company in 1988 through the Roberts Bank terminal in British Columbia. Mobil Coal Producing Inc. is also developing a resource in Indonesia with Nissho Iwai as joint venture partner in its P. T. Berau project. Production is planned from the Berau Mine in early 1991 to supply both the Indonesian and Pacific Rim marketplaces.

Product/Service	Description
Coal Exporters	U. S. production from the Caballo Rojo Mine is low ash, low sulfur with a heating value of 8500 BTU/lb. Deliveries can be made on either the BN or the C&NW/UP railroads. Transshipment via the Roberts Bank Terminal is proven.
Coal Mining	Low ash, low sulfur, good quality coal from Kalimantan, Indonesia is planned for early 1991 shipment.
Coal Transport	Mobil can assist end users with their transportation requirements.
Technical Services	Mobil utilized state-of-the-art computer modeling and retains highly qualified combustion experts to provide domestic and international customers technical coal utilization assistance.

**Molecular Technology Corporation (MOTEC)**  
**P.O. Box 6298**  
**1401 Timken Place, S.W.**  
**Canton, OH 44706**



**Telephone:** (216) 452-3383  
**FAX:** (216) 452-7337  
**Chief Executive Officer:** Michael P. May  
**International Sales Manager:** Michael P. May

Molecular Technology Corporation (MOTEC) is an Ohio-based corporation which performs chemical research and development via a unique technology, which it has termed "Catalysis Prediction." Catalysis Prediction is a predictive method of conducting a catalyst search based on fundamental principles. Through the use of this technology, a catalyst search can be accomplished in the most expedient and cost-effective manner with the certainty of results. MOTEC enters into contractual arrangements to apply this technology to an area of interest. Since research and development is performed essentially at cost, commercially viable projects conclude with a negotiable license or sale of the process.

Product/Service	Description
Catalytic Flue Gas Treatment	The prediction of catalysts for use in systems to remove harmful effluents (NO <sub>x</sub> , SO <sub>x</sub> , etc.) from flue gas.

**Morrison Knudsen Corporation**  
P.O. Box 73  
Boise, ID 83729



**Telephone:** (208) 386-5000  
**Telex:** 368439 **FAX:** (208) 386-6919  
**Chief Executive Officer:** Mr. William M. Agee  
**Mining Group President:** Mr. Robert A. Tinstman  
**International Sales Manager:** Mr. Robert L. Thornton (208/386-6369)  
Mr. Steven Y. Chi (208/386-5757)  
Mr. John J. Whalen (415/442-7361)

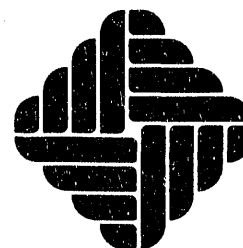
**Domestic Offices:** SAN FRANCISCO, CA: 180 Howard Street, San Francisco, CA 94105 FAX (415) 442-7363; CLEVELAND, OH: One Erieview Plaza, Cleveland, OH 44114 FAX (216) 523-5922; SAN ANTONIO, TX: 2446 Cee Gee Street, San Antonio, TX 78217 FAX (512) 824-5765  
**International Offices:** Tokyo; Jakarta; Manila; Taipei, Bangkok, Warsaw; Cairo; Ankara; London; Rio De Janeiro; Asuncion, Santiago. Please contact company headquarters for more information.

Founded in 1912, Morrison Knudsen Corporation is one of the largest engineering, contracting and operating companies in the United States. Major markets include mining, environmental, waste management, water resources, transportation, power generation, rail systems, and manufacturing for a host of goods and services. "MK" has completed projects in more than 80 countries and backed by a worldwide labor force of 20,000 people, including 4,000 engineers, managers, administrators, and project support personnel.

Product/Service	Description
Technical Consultants	MK's Mining Group provides a full range of consulting and engineering services, including: resource evaluation, geologic modeling, baseline studies, environmental assessment, hydrologic evaluation, permitting, reclamation planning, mine planning/design, material handling, management systems, and cost estimating.
Facilities Operations	Start-up, training, technology transfer, mine management and mine operations are offered for open cast mines utilizing trucks, shovels, loaders, draglines, and bucketwheels. MK operates as a contractor, manager, or venture partner.

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**Mountain States Mineral Enterprises, Inc.**  
4370 South Fremont Avenue  
Tucson, AZ 85714-1629



**Telephone:** (602) 792-2800  
**Telex:** 510-600-7949 **FAX:** (602) 294-3841  
**Chief Executive Officer:** Edward S. Frohling  
**International Sales Manager:** Edward S. Frohling

**Domestic Offices:** ELKO, NV: 174 W. Idaho Street, Elko, Nevada 89801 TEL. (702) 753-8510, FAX (702) 753-8511

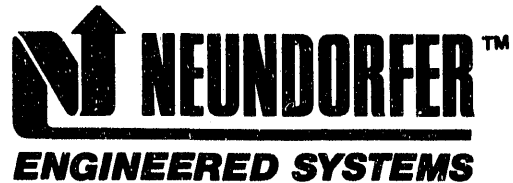
Mountain States Mineral Enterprises, Inc. (MSME) established headquarters in Tucson, AZ, USA, in 1969 to provide engineering services to the mining industry of the Southwest United States and Northern New Mexico. Today, MSME serves the entire mineral industry worldwide, specializing in the design and construction of process plants. MSME offers a complete range of services from sampling and analysis to process design, engineering, construction, start-up, and various proprietary technologies for minerals beneficiation. MSME staff members have extensive background in the design and operation of sophisticated systems and process plants for the recovery of a wide range of minerals.

(Continued on next page)

**Mountain States Mineral Enterprises, Inc. (Continued)**

Product/Service	Description
Engineering/Construction	MSME provides services that include mine planning, feasibility studies, flowsheet development, pilot plant testing, conceptual and detail engineering, procurement, construction, and start-up assistance. These services can be provided for mineral materials handling systems, plant retrofitting, revamping, and new plant design.  MSME designs and manufactures heavy media systems, the moving belt separator, and an ultrasonic device for cleaning mineral surfaces, and for making and breaking of emulsions.

**Neundorfer, Incorporated**  
**4590 Hamann Parkway**  
**Willoughby, OH 44094**



**Telephone:** (216) 942-8990  
**FAX:** (216) 942-6824  
**President:**  
**Sale Manager:**

Michael Neundorfer  
 Patti Ensel

Neundorfer provides products and services related to air pollution abatement, using electrostatic precipitation. Electric power generation, metals processing, rock products (cement) and paper industries are the major types of businesses served since the early 1970s. Products include system upgrades, rebuilding microprocessor controls for voltage and rapping, discharge electrodes, plate alignment systems, pneumatic and electric rappers, voltage isolation and stabilizing components, feedwater heater level controls, coal sampling devices and boiler tube deslagging systems. Services include consulting, field service, training, and performance diagnosis of electrostatic precipitator operations. Neundorfer is associated with the National Air Vibrator Company (NAVCO) of Houston, Texas, producers of pneumatic equipment.

Product/Service	Designation	Description
NAVCO Rappers EMR Rappers	R2, R3, R4 EMR 20110, EMR 20220	Pneumatic Impact Rappers, Pin Plates, Anvil Beam Sockets Magnetic Impulse Rappers
Discharge Wires Plate Alignment Hopper Evacuation MVCII MicroRap PS90	DE Electrodes Straighteners R3, PP3 Voltage Control Rapper Control Purge Stabilizer	Discharge Electrode Wires, spring & solid shroud Plate Realignment System Hopper Evacuation Systems Microprocessor-based Voltage Control System Microprocessor-based Rapper Control System Hopper-mounted lower wire frame air-purged insulating stabilizer
COAL LANTZ Mdc2000	Coal Sampler Feedwater Control	Automatically extracts sample of coal on as-burned basis Microprocessor-based or software algorithm to optimize levels of feedwater heaters

**The North Dakota Lignite Council**  
P.O. Box 2277  
Bismarck, ND 58502



**Telephone:** (701) 258-7117  
**FAX:** (701) 258-2755  
**President:**  
**Director of Communications:**

John W. Dwyer  
Patrick Miller

The North Dakota Lignite Council provides public relations and governmental affairs services for North Dakota's lignite industry. The Council can respond to requests for a list of lignite producers in the state, as well as current status of R&D efforts to develop lignite-specific technology.

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**PAR Enterprises, Inc.**  
12601 Clifton Hunt Lane  
Clifton, VA 22024



**Telephone:** (703) 818-9274  
**Chief Executive Officer:**  
**International Sales Manager:**

Wilfred J. Rebello, Ph.D.  
Wilfred J. Rebello, Ph.D.

**International Offices:** Please contact company headquarters for further information

PAR Enterprises, Inc. (PAR) is a small minority owned and operated engineering firm.. The company was formed to provide responsive and cost-effective Planning, Analytical and Research services to executives, scientists and engineers in government and industry. PAR's staff of professionals is particularly experienced with development and application of advanced energy conservation and coal technologies. The staff is also well versed in the development of economic and environmental assessments, energy management systems and energy information systems.

**Product/Service**

**Description**

Advanced utilization

The research & development services offered include coal preparation, coal gasification, coal combustion, power generation, heat engines, fuel cells, MHD systems, gas stream cleanup, alternate fuels, air pollution control and environmental impacts. In industrial energy utilization, R&D activities have included waste heat recovery systems, such as, heat exchangers, heat pumps and cogeneration systems and manufacturing process efficiency/productivity improvements using the disciplines of thermodynamics, heat transfer, fluid flow and combustion.



**Parsons Brinckerhoff Quade & Douglas, Inc.**  
One Penn Plaza  
New York, NY 10119

**Parsons  
Brinckerhoff** 100  
YEARS

Telephone: (212) 465-5000  
Telex: WU 12-5441, RCA 232117 FAX: (212) 465-5096 (USA)  
(212) 465-5028 (Int'l)

Chief Executive Officer: James L. Lammie  
International Sales Manager: Robert Prieto

**Domestic Offices:** Over 50 offices in the U.S. and abroad. SAN FRANCISCO, CA: Mining Division Headquarters, 303 Second Street, Suite 700 North, San Francisco, CA 94107-1317 TEL. (415) 243-4600 FAX (415) 243-9501; DENVER, CO: Mining Division Branch Office, 1331 Seventeenth Street, Suite 400, Denver, CO 80202 TEL. (303) 297-0900 FAX (303) 297-0607; HOUSTON, TX: PB/KBB Subsidiary, 11767 Katy Freeway, Suite 810, Houston, TX 77079 TEL. (713) 496-5590 FAX (713) 496-5658

**International Offices:** AUSTRALIA; EGYPT; HONG KONG, JAPAN; JORDAN PAKISTAN; REPUBLIC OF CHINA; SINGAPORE, TURKEY; UNITED KINGDOM. For phone numbers in Pacific Rim countries and U.K. office, contact Hong Kong Office TEL. (852) 844-7488; for Middle East offices and Pakistan TEL. 44-81-332-2740

Parsons Brinckerhoff is a 105-year-old multidisciplinary consulting engineering, planning, architecture and construction management firm providing services to public and private clients throughout the world. Preeminent in the planning and design of transportation systems and facilities, the firm is also a leader in the design and engineering of diverse underground structures and systems; tunnels for transit systems and water resources systems; nuclear waste repositories; storage of petroleum resources, natural gas, and compressed air in caverns and wells. It specializes in mine planning and design that incorporates geotechnical and environmental engineering, and project and construction management. Mine services range from technical and environmental audit to complete feasibility study, mine planning and design, and detailed design of shafts and hoists.

Product/Service	Description
Design Engineering	Underground and surface mines; mine drainage treatment; mine cleaning; clean-up of hydrocarbons; mine surface facilities; preparation plant; land reclamation; railroad loading/unloading; and tidewater/river/lake/dock facilities.  The Energy Systems Group of Parsons Brinckerhoff has specialized expertise in the design of cogeneration plants; waste-to-energy and waste incineration facilities; hydroelectric facilities; industrial utility systems; heat transfer; electrical power generation and distribution systems, and fluidized bed and gas/compressed air storage systems.
Consulting Services	Geological exploration; underground and surface mines; feasibility studies; port facilities; townsite planning; efficiency/productivity studies; economic evaluations.

**PCT Technical Services, Inc.**  
101 North Main Street  
Greensburg, PA 15601

## **PCT TECHNICAL SVCES.**

**Telephone:** (412) 834-7555

**FAX:** (412) 837-9241

**Chief Executive Officer:**

Mr. Joseph Ciarimboli

**International Sales Manager:**

Mr. Joseph Ciarimboli

**International Offices:**

Please contact company headquarters for further information

PCT Technical Services, Inc. services the coal and coke industry with technical, economic, market study investigations, and environmental impact studies regarding special situations as to utilization of coal and cokemaking facilities. Contracts have included the authoring of the book: "World Coke Dynamics," considered the most comprehensive treatise of worldwide cokemaking; novel uses of obsolete conventional coke production facilities to convert municipal solid wastes to energy; new applications of waste refuse bituminous coal in fluidized bed furnaces to generate power without coal beneficiation; novel techniques of reclamation involving vegetating directly onto coal surfaces avoiding the costly application of top soils.

Product/Service	Designation	Description
Technical Consulting	PCT Tech Services	PCT Tech Services, Inc. is an organization of experts in coal and coke matters that performs special situation studies to develop new systems technology for problems in coal utilization and reclamation matters. The expertise includes unique capabilities in coke production determining new uses for old coke batteries such as with the pyrolysis of municipal solid wastes.

**Process Technology, Inc.**  
1122 Calumet Avenue  
Calumet, MI 49913



**Telephone:** (906) 337-0020

**FAX:** (906) 337-0023

**Chief Executive Officer:**

Mel J. Laurila

**International Sales Manager:**

Mel J. Laurila

PTI was incorporated in early 1986 to assist the coal industry in improving preparation plant efficiency and control. The PTI coal slurry ash monitor and our preparation plant simulation software are currently employed in both on-line and off-line control schemes. Our staff of engineers come from mining, processing, chemical, electrical, and mechanical engineering disciplines. Such diversity has brought success in development of new coal processing technologies (R&D Division), development of Nuclear on-line slurry analyzers (Process Control Division) user friendly simulation software and plant automation and control projects. Our special consulting services have also been used in market studies and for providing expert testimony in litigation.

(Continued on next page)

**Process Technology, Inc. (Continued)**

Product/Service	Description
PTI Ash Monitor	Nuclear, in-plant, automated slurry ash and solids analyzer.
PTI Simulate	Prep plant simulation Software w/flowsheet Generation, data entry Customization and optimization modules in a user-friendly environment.
Advanced Coal Cleaning Technology Development	Development of new coal cleaning technologies, pyritic sulfur removal, and super clean coals.

**Qualtec, Inc.**  
**11300 U.S. Highway 1, Suite 500**  
**Palm Beach Gardens, FL 33408**



**Telephone:** (407) 775-8300

**FAX:** (407) 775-8301

**Chief Executive Officer:** Roger A. Eatman, President & CEO  
**International Sales Manager:** Fred Trice, Director, Special Projects  
 Bob Bartz, Director, Technical Services

QUALTEC, INC. is a subsidiary of FPL Group, Inc. (the holding company which also owns Florida Power & Light Co.). Established in 1985, QUALTEC's utility-related businesses provide specialty support services to U.S. and international electric utilities, independent power producers, and architecture/engineering firms.

Product/Service	Description
Facility Operation	Project management; cost/estimating; planning & scheduling systems; construction management; professional and technical; contract labor; power plant equipment inspection, testing, maintenance and labeling; training; procedures development; operations audits; maintenance/outages/backfit; services.
Facility Construction	

**Radian Corporation**  
P.O. Box 201088  
Austin, TX 78720-1088

# **RADIAN**

## **CORPORATION**

Telephone: (512) 454-4797  
Telex: RCA #269263 RAD UR FAX: (512) 454-7129  
Chief Executive Officer: Dr. Donald M. Carlton  
International Sales Manager: Mr. R. Murray Wells

**Domestic Offices:** DENVER, CO: TEL. (303) 292-0800; HOUSTON, TX: TEL. (713) 785-9225; EL SEGUNDO, CA: TEL. (203) 640-0045; IRVINE, CA: TEL. (714) 261-8611; MILWAUKEE, WI: TEL. (414) 643-2850; RESEARCH TRIANGLE PARK, NC: TEL. (919) 541-9100; ROCHESTER, NY: TEL. (716) 292-1870; SACRAMENTO, CA: TEL. (916) 362-5332; CONCORD, CA: (San Francisco Bay Area) TEL. (415) 686-2174; SEATTLE, WA: TEL. (206) 233-9676; HERNDON, VA: (Washington, DC) TEL. (703) 834-1500.  
**International Offices:** LONDON: 3rd Floor, Block B, Duke's Court, Duke Street, Woking, Surrey GU215BH, 011-44-483-729307; TAIPEI, TAIWAN: 3FL-4, No. 392, Tun Hua S. Road, 011-886-(2)781-6161.

Radian Corporation, established in 1969, provides technical services to industry and government, both domestically and worldwide. The company's primary areas of business in the environmental area include: environmental management services, engineering and design services, and analytical chemical services. A principal player in wet scrubbing technology, the company has remained in the forefront of technology designed to permit the use of coal while meeting all applicable environmental requirements. Services provided by over 1600 people at Radian Corporation include analyzing available options for the use of coal, including conceptual designs and preliminary cost estimates, assisting the client in their discussions with vendors and A&Es, and providing performance testing after start-up. Radian supplies a full array of analytical chemical services from its four full-service laboratories, as well as the design and operation of bench- and pilot-scale projects.

Radian is a company of The Hartford Steam Boiler Inspection and Insurance Company.

Product/Service	Description
Technical Consultants	A principal player in wet scrubbing technology, Radian has remained in the forefront of technology designed to permit the use of coal while meeting all applicable environmental requirements. Services provided by over 1600 people at Radian Corporation include analyzing available options for the use of coal, including conceptual designs and preliminary cost estimates, assisting the client in selecting the most attractive technology, working with the client in their discussions with vendors and A&Es, and providing performance testing after start-up. Radian also supplies a full array of analytical chemical services, as well as the design and operation of bench- and pilot-scale projects.

**Resource Data International, Inc.**  
P.O. Box 106  
Boulder, Colorado 80306



**Resource Data International, Inc.**

Telephone: (303) 444-7788  
FAX: (303) 444-1286  
Chief Executive Officer: Ronald L. McMahan, PhD  
International Sales Manager: Stephen M. Monseu

**Domestic Offices:** BOULDER, CO: 1320 Pearl Street, Suite 300, Boulder CO 80302

Resource Data International, Inc., (RDI), is the authoritative data company in the energy information field. Many of the world's largest mineral energy resource companies, as well as railroads, financial institutions and electric utilities are among its client base. RDI focuses on all fuels in the energy industry -- covering all United States sources and users of energy, the transportation systems that serve them, the macro and micro economic linkages that tie them together -- as well as the macro and micro study of electric utilities: Detailed financial competitor and bulk power supply-demand analysis. The Company provides customized reports and expert consulting services, and distributes regularly published data reports to subscribers via PC, mainframe, or hard copy delivery.

(Continued on next page)

**Resource Data International, Inc. (Continued)**

Product/Service	Description
COALDAT <sup>®</sup>	COALDAT <sup>®</sup> is a coal mine and market analysis system used by coal companies, utilities, railroads and other industries involved in the coal business. The coal chain - SUPPLY-DEMAND/TRANSACTION-DEMAND - is the basis for COALDAT's <sup>®</sup> design. COALDAT <sup>®</sup> links a fully developed base of information on all coal mines to an equally detailed base of information on all coal-burning utility plants via their monthly contract and spot transactions. COALDAT <sup>®</sup> also includes detailed market information on over 1,900 coal-fired industrial plants, as well as U.S. export and Great Lakes shipments.
FUELDAT <sup>®</sup>	FUELDAT <sup>®</sup> encompasses all of COALDAT <sup>®</sup> and goes beyond it. The System includes all U.S. utilities and their consumption, generation and supply for all fuels. It combines the depth of the COALDAT <sup>®</sup> supply-side with the all-fuels breadth of the FUELDAT <sup>®</sup> transaction, supply and demand sides.
POWERDAT <sup>®</sup>	POWERDAT <sup>®</sup> encompasses all of COALDAT <sup>®</sup> and FUELDAT <sup>®</sup> and, in general, is a database designed to analyze and monitor, on a yearly as well as monthly basis, a utility's competitive position as well as the potential markets for power sales. Monthly information on generation, fuel consumption, power sales and power purchases will be provided. In addition, the POWERDAT <sup>®</sup> system will provide, on an annual basis, detailed information concerning power contracts, financial performance, energy balances, transmission capabilities, plant production costs, monthly breakouts of peak loads and load forecasts.

**Resource Technical Services, Inc.**  
**4690 W. Bancroft Street**  
**Toledo, OH 43615**



**RESOURCE TECHNICAL SERVICES, INC.**

Telephone: (419) 535-5743; (800) 551-7206

FAX: (419) 535-5602

Chief Executive Officer:

Mr. Roger A. Felthous

International Sales Manager:

Mr. James A. McCrary

Domestic Offices:

MORGAN HILL, CA: P.O. Box 295, Morgan Hill, CA 95037, TEL. (408) 778-2476; YALESVILLE, CT: P.O. Box 4549, Yalesville, CT 06492, TEL. (203) 269-4458.

RTS, founded in 1981, provides consulting services to a broad base of clients including nuclear and non-nuclear utilities, waste water management facilities and thermal plants in the areas of training, operations, engineering, environmental compliance, instrumentation and control, QA/QC and predictive maintenance. Services may be provided in the form of supplemental personnel or as projects having pre-established work products, timing or fees.

Product/Service	Description
Training Program Development	RTS specializes in client-specific technical program development, instruction, evaluation and consulting. Deliverables have included training manuals, self-study sheets, multi-image and video programs, and computer managed technical math courseware. RTS brings engineers, technicians and instruction specialists with extensive experience to every engineering and training project.

**S&C Thermal Systems, Inc.**  
3314 Highway 162  
Post Office Box 1246  
Granite City, IL 62040



Telephone: (618) 452-3000  
Telex: TWX 910-756-2352 FAX: (618) 876-0865  
Chairman: Emmanuel Merle  
President: Christian Joly  
International Sales Manager: Richard P. Kuo, Sr. Vice President  
Senior Vice President: Roland Otte

Domestic Offices: NEW YORK, NY: 767 Fifth Avenue, New York, NY 10153, TEL. (212) 421-1944, FAX (212) 421-1937  
International Offices: PARIS: TEL. 33 (1) 47-56-22-22, FAX 33 (1) 40-87-01-28

S&C Thermal Systems, Inc. is a member of the Thion Group of companies. Thion, established in 1843, is an international energy resources and services group with interests in Europe and the United States. The Company provides a full range of thermal energy services to commercial, industrial, residential, institutional and government sectors. Major areas of business include: operation and maintenance of individual building heating and cooling plants under long-term energy service contracts; design, construction, financing and operation of district heating and cooling systems and cogeneration plants; energy audits and technical feasibility studies; energy performance contracting and third party financing; waste-to energy plants and waste recycling.

Product/Service	Designation	Description
Facilities Operations	Chauffage	24 hr. plant O&M, fuel supply retrofit, finance
Facilities Construction	District heating and cooling	Design, build, own, operate
Power Generation	Cogeneration	Design, build, own, operate
Financing and Resource Packaging		Energy plants, performance contracts.

**Savage Industries, Inc.**  
5250 South 300 West, Suite 200  
Salt Lake City, UT 84107



Telephone: (801) 263-9400  
FAX: (801) 261-8766  
Chief Executive Officer: Mr. Aller B. Alexander  
Executive V.P., Development: Mr. David G. Wolach  
V.P., Business Development: Mr. Gerald E. Vaninetti

Savage Industries, Inc., in business since 1946, is a specialized transportation and material handling company specializing in the performance of innovative truck transportation services and loading, unloading, transloading, screening, crushing, weighing and storage systems for coal and other bulk materials. The company provides services throughout the entire bulk commodity transportation and handling infrastructure from mine to ultimate end user. The company handles over 60,000 tons of coal daily. The company has current operations in Colorado, Utah, Wyoming, California, West Virginia and South Dakota. Savage specializes in the utilization of the total transportation and handling concept.

Science Applications International Corporation  
 Instrumentation and Testing Division (ITD)  
 3351 South Highland Drive, Suite 206  
 Las Vegas, NV 89109



An Employee-Owned Company

Telephone: (702) 732-0108  
 FAX: (702) 737-6263  
 Division Manager:

Kenneth R. Sites

Domestic Offices:

SAN DIEGO, CA: (corporate headquarters) 10210 Campus Point Drive, San Diego, CA 92121,  
 TEL. (619) 546-6000

SAIC is a diversified technical and management consulting company with a professional staff exceeding 11,000 and annual sales of over one billion dollars. Since 1975, the ITD has designed and manufactured sophisticated electronics equipment for recording and signal conditioning data associated with a wide variety of applications, including acquisition systems used by the U.S. Bureau of Mines and commercial clients in the mining, gas, and oil industries.

Product/Service	Designation	Description
32-Channel Microseismic Processor Recorder (MPR). An instrument used to locate stress buildup that may result in a major mine support failure.	DP-138	A rugged water-resistant portable unit designed to capture and process acoustic data from random microseismic events within an underground mine structure. It will store in a nonvolatile read/write RAM cartridge and transmit the information to a remote data terminal for further processing. It will accept up to 32 acoustic sensor signals, determine whether the incoming signals are valid microseismic events or noise, log the time of day for the first channel that is valid and the incremental time interval for all other channels that respond within an adjustable Event Window Period. In addition, the event energy produced by four predetermined channels is acquired during the (separately controllable) Energy Window Period.
Microseismic Processor Reader	DP-139	This unit will accept the RAM cartridge that is used by the DP-138 MPR to store data. Data taken from the RAM cartridge are encoded and transmitted in RS-232 serial format.
16-Channel Trigger Box	DP-140	This unit is designed to provide an interface between digitizer and microprocessor instrumentation used in the microseismic method of detecting instability and high stress zones in rock structures. It does an analysis of the data, and then generates three control signals which are fed to the microprocessor to control data ingestion from the digitizer. The signals indicate: (1) a channel (any) has been hit; (2) the event time window elapsed; and (3) that the number of hits set on Minimum Channels Responding switch has been equalled or exceeded.

Science Applications International Corporation  
Physical Sciences Group  
14062 Denver West Parkway, Suite 255  
Golden, CO 80401



An Employee-Owned Company

Telephone: (303) 279-7242

FAX: (303) 279-5525

Group Manager: Howard R. Pratt

Domestic Offices: SAN DIEGO, CA: (corporate headquarters) 10210 Campus Point Drive, San Diego, CA 92121, TEL. (619) 546-6000.

Founded in 1969 by a small group of research scientists, SAIC has grown into a large, diversified, high-technology corporation. SAIC's revenues exceed \$1 billion and the company employs over 11,000 people in more than 200 location. A selected listing of products and services that SAIC provides to the coal industry is given below. For further information please contact Dermot Ross-Brown or Bill Thompson in the Golden office.

Product/Service	Description
Engineering Services	Areas of specialization include: resource evaluation; exploration and development; mine planning; drilling and blasting; analysis of pillar stability, ground support, and use of backfill; subsidence investigations; stability and design of excavated mine slopes, spoil piles, and waste pond; and hydrological investigations.
Environmental Services	With over 1,200 environmental professionals the company is able to provide scientific, engineering and management skills to the solutions of a wide variety of environmental problems.
Coal Processing	SAIC manufactures on-line coal analyzers to meet a variety of process control and quality control needs. These include the Model 200 Sulfur Meter, the Model 400 Ashmeter™, and the Model 600 Moisture Meter. The company is also experienced in the development and application of clean coal technologies.
Laboratory Testing Services	Laboratory services include the Rock Mechanics Laboratory which is fully equipped to perform routine and special tests on rocks and soils. Most mechanical, thermal and permeability tests can be carried out at up to 60,000 psi confining pressure, 20,000 psi pore pressure and 150°C temperature. Complex behaviors and processes can be simulated. The laboratory also designs and manufactures a wide variety of specialized test equipment.
Field Testing & Instrumentation	The company manufactures electronic equipment for monitoring high explosive tests, as well as downhole pressure probes, and microseismic monitoring systems. A full range of geotechnical field testing services is offered.
Data Acquisition & Analysis	SAIC has extensive experience in developing data acquisition systems, and providing on-line analysis of the data.



**SFA Pacific, Inc.**  
 444 Castro Street, Suite 920  
 Mountain View, CA 94041



**SFA Pacific, Inc.**  
 Engineers

Telephone: (415) 969-8876  
 Telex: 269336 FAX: (415) 969-1317  
 Chief Executive Officer: Ronald L. Dickenson  
 International Sales Manager: Dale R. Simbeck

SFA Pacific, Inc., provides the following services in advanced utilization of coal and other fossil fuels: conceptual process engineering, technology evaluation, market analysis, economic and financial analysis, and technology venture development. Established in 1980, SFA Pacific, Inc. is an employee-owned consulting engineering firm with no business ties to the development of specific technologies. The company staff is made up of professionals with strong industrial backgrounds in the technology, economics, and market analysis of fuels, chemicals, and power generation.

Product/Service	Description
Power Generation	SFA, Inc. provides expert services in technologies and markets for fossil power generation. This includes conventional and developmental technologies for utility, industrial, and commercial applications.
Coal Gasification	SFA Pacific, Inc. provides broad expertise in all areas of analysis and evaluation for coal gasification applications and markets.
Advanced Combustion	SFA Pacific, Inc. provides expert consulting in a variety of coal combustion, slagging combustion and advanced pulverized combustion.

**SGI International**  
 3366 North Torrey Pines Court  
 Suite 220  
 La Jolla, CA 92037



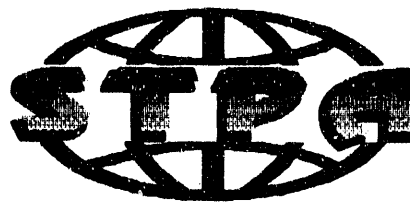
**SGI INTERNATIONAL**

Telephone: (619) 452-0841  
 FAX: (619) 452-9953  
 Chief Executive Officer: William M. Owens  
 Principal Point of Contact: Ernest P. Esztergar

SGI's primary business niche is coal conversion, coal cleaning, and coal upgrading process technologies. Main activities include commercialization and licensing; project development of large-scale process plants (resource evaluation, plant siting, and development of financing); and research and development through all phases.

Product/Service	Designation	Description
Coal Conversion Technologies	LFC-1	Coal upgrading with hydrocarbon liquid and gas production (demonstration and commercialization).
	LFC-2	Coal desulfurization with hydrocarbon liquid and gas production (pilot).
	LFC-3	Carbon production with hydrocarbon liquid and gas production (pilot).
	LFC-4	Coal upgrading with water and CO <sub>2</sub> recovery (applied research, bench scale).
Applied Research	N/A	Coal-derived products for non-fuel use; computerized process control; and computer software process modeling software development.

**Sheppard T. Powell Associates**  
1915 Aliceanna Street  
Baltimore, MD 21231



Telephone: (301) 327-3500

FAX: (301) 327-7506

Chief Executive Officer: John W. Siegmund

Sheppard T. Powell Associates has been furnishing consulting services in the field of water treatment and corrosion control for over sixty-five years. We are strictly a consulting services organization that neither manufactures nor markets chemicals and equipment used in water treatment. Our position of independence and objectivity in the practice of water treatment consultation is widely known in the utility and private industry. Independent consultants to users of water and steam for over 65 years; steam and water cycle audits; corrosion assessment and control; startup and chemical cleaning assistance; chemical and metallurgical services - high purity water analyses; training; emergency "in plant" support; water/waste treatment and management; environmental investigations and permitting assistance; and water resources selection and evaluation.

Product/Service	Description
Technical Consultants	Consulting services relating to review of boiler water, steam cycle and cooling water chemistries, inspection of equipment, troubleshooting and recommendations for optimizing operations.
Utilities	Consulting services include "in plant" inspections and studies designed to define problem areas and offer recommendations to correct and optimize water related operations of all types, including coal pile drainage wastewater treatment.

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**Slurry Systems, Inc.**  
P.O. Box 772  
Athens, OH 45701

Telephone: (614) 593-1500

Chief Executive Officer: Dr. Robert L. Savage

Specializing in chemical process development as applied to coal technology. Laboratory, pilot plant and commercial plant experience.

Product/Service	Description
Carbon Black from Coal	Carbon black containing less than one percent ash can be produced from coal without any further processing to remove ash. Synthesis gas (32% carbon monoxide and 50% hydrogen) and a low-volatile, porous char are produced concurrently with the carbon black.
Sulfur Removal from Coal	Ethanol can be used to remove 80 to 95% of both organic and inorganic sulfur from coal. The sulfur is removed as gaseous hydrogen sulfide which can be converted to sulfuric acid or elemental sulfur. Other reaction by-products can be recycled or converted to marketable organic chemicals. There are no waste products to dispose of.
Coal-Oil and Coal-Oil-Water Slurries	Low-sulfur and/or low-sulfur, low-ash coal slurries provide an environmentally acceptable replacement fuel for oil or gas fired boilers.

## **SSR** ENGINEERS, inc.

**SSR Engineers, Inc.**  
2234 Lewis Avenue  
P.O. Box 20876  
Billings, MT 59104

**Telephone:** (406) 656-8100  
**FAX:** (406) 652-2758  
**Chief Executive Officer:** J.R. Rush, P.E.  
**International Sales Manager:** W.F. (Bill) Hart, P.E.

SSR Engineers, Inc. is a medium size consulting firm with 30 years of experience in power system design for substations, transmission, distribution, and utility system studies. In addition to planning and design, SSR Engineers offers a wide variety of testing and technical services. We provide a full range of power engineering services to over 50 utilities, many of which depend on SSR Engineers for all of their power engineering requirements.

<b>Product/Service</b>	<b>Description</b>
Electric Power System Design	EUH transmissions structural design and analysis; overhead/underground distribution planning and design; substation planning and protective relay design; construction management; co-generation; load management; combustion turbine/diesel generation systems; motor control centers; rate and short circuit studies.
Mechanical Design	Mechanical/electrical design for commercial and institutional buildings, high pressure steam boiler plants thermal storage, energy conservation audits, economic and feasibility studies.
Technical/testing Services	System commissioning and equipment acceptance testing for relay and control systems, large power transformers, power factor, insulation, high voltage cable.

**Stone & Webster Management Consultants**  
One Penn Plaza - 250 W. 34th St.  
New York, NY 10119

 **Stone & Webster**

**Telephone:** (212) 290-7000  
**Telex:** W.U. 12-8291, RCA 276507 **FAX:** (212) 290-7094  
**Chief Executive Officer:** Frank L. Bradley, Jr.  
**International Sales Manager:** James W. Galambas

**Domestic Offices:** DENVER, CO: 5500 S. Quebec Street, Englewood, CO: 80111-1914 TEL. (303) 741-7900, TELEX 45-4401 (W.U.), 289251 (RCA), FAX (303) 741-7935; HOUSTON, TX: 330 Barker Cypress Road, Houston, TX 77094 TEL.(713) 492-4000, TELEX 275546 (RCA), FAX (713) 492-4484; BOSTON, MA: 245 Summer Street, Boston, MA 02210 TEL. (617) 589-5111, TELEX 94-0001 94-0977 (W.U.), FAX (617) 589-2156

Stone & Webster Management Consultants supports utilities, coal companies and others such as financial institutions and cogeneration/independent power producers with their operation in the challenging marketplace of today. Services are offered in the areas of: market analysis-competition and pricing, economics and feasibility studies, coal supply and demand, infrastructure review, coal contract review, coal procurement strategy and coal selection economic analysis.

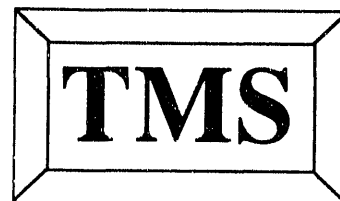
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### Stone & Webster Management Consultants (Continued)

Product/Service	Description
Technical Consulting	<p>The company has an outstanding understanding of domestic and international coal markets. Services can be provided in the areas of market assessment for supply and demand and competitive economics.</p> <p>Evaluate economics of alternative modes of coal transportation.</p> <p>We have the computerized capability for evaluating the life cycle busbar cost of electricity for powerplants burning all ranges of fuel from peat to anthracite coal.</p>

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**Technology & Management Services, Inc.**  
20201 Century Boulevard  
Germantown, MD 20874



Telephone: (301) 353-0102  
FAX: (301) 353-0514  
Chief Executive Officer:  
International Sales Manager:

Roy A. Wujkowski  
Roger W.A. LeGassie, Vice President  
Jaqueline Boucher, Partner, CO<H>ERENCE, s.c.

**Domestic Offices:**

MCLEAN, VA: 6845 Elm Street, Ste. 709, McLean, VA 22101 TEL. (703) 448-1081  
FAX (703) 448-1230

**International Office:**

BELGIUM: CO<H>ERENCE, s.c., avenue des bouleaux, 10, B-5870 Mont St. Guibert, Belgium  
TEL. 010/45 40 39 FAX 010/45 40 48

Technology & Management Services, Inc. (TMS) is a corporation with over 13 years of high technology, project management, and environmental expertise, with particular emphasis on fossil energy. The technical staff is comprised of engineers, scientists, and managers with major industrial, state, and federal government experience. TMS is involved in overseas technology transfer of fossil energy technology and has provided services in this area to the U.S. Department of Energy (DOE) and major domestic and foreign corporations and utilities. TMS brings sophisticated management skills to financial analysis and decisionmaking support to major energy projects. The TMS staff is skilled in many areas of energy conservation systems, environmental impact analysis, waste disposal systems and major project financing.

Product/Service	Description
Technical Consultants	<p>Over a 13-year period, TMS has served as a technology and management services consultant to major U.S. State and Federal Government agencies and domestic and foreign corporations and utilities. Many of these services have centered on coal technology, including project management and financial analysis of major energy projects and utility markets. In addition, through a privileged linkage, TMS can provide state-of-the-art network analysis and optimization as it applies to electrical and gas market dynamics.</p>

**TransTech Marine Company**  
771 Carroll Street, Fl. 2  
Brooklyn, NY 11215



**TransTech Marine Co.**  
Shipping Investment Counsel & Development

Telephone: (718) 857-5722

FAX: (718) 622-8373

Chief Executive Officer: Geoffrey F. Uttmark

International Offices: Cooperative offices in EUROPE, ASIA, AUSTRALIA, and SOUTH AMERICA. Contact company headquarters for further information.

TransTech Marine Co. provides technical ship design, economic analysis, and vessel financing services to minimize ocean transport costs of coal.

Product/Service	Description
STATS	Statistical Trade and Transport Summaries provides detailed information on volume of international coal trades and shipping rates.
BOSCOE	Bulk Ocean Shipping - Computer Optimized Economics is a comprehensive computer system for technical design development and economic analysis of constructing, financing, and operating dry bulk carriers. Compare optimized to off-the-shelf or second-hand vessels. Advantageous to coal producers, shippers, users, shipbuilders, and vessel operators.
TuBa	Tug-Barge is companion to BOSCOE for shorter and coastwise trades where drop/swap operation may be more economical than ships. TuBa optimizes size and number of tugs and barges for minimum system cost and produces detailed design development of seagoing barge(s).
MarineLease	MarineLease is a specialized computer model for structuring leveraged and non-leveraged leases of marine equipment to minimize capital costs.
Prospectus Development	TransTech incorporates results into a prospectus for presentation to Board of Directors, investment bankers, commercial lenders, and lessors. Company provides ongoing assistance in relationships with shipyards, finance sources, vessel operating companies and related services.
Network	TransTech often works as project's maritime subcontractor to larger, broader based transport system designers and planners.

**Vernex Research Corporation**  
P.O. Box 1263  
Hampton Bays, NY 11946

## Vernex Research Corporation

ADVANCING COAL SCIENCE & TECHNOLOGY

Telephone: (516) 728-1304

Chief Executive Officer:

William Slegeir, PhD

International Sales:

Renee Slegeir

Domestic Offices:

Please contact company Headquarters for further information

Vernex Research Corporation was founded in 1988, to enhance and market unique, proprietary software for coal selection and utilization initially conceived by Slegeir Associates. Vernex Research Corporation continues a leadership position in evaluating the impact of mineral matter and ash chemistry on fusibilities and boiler slagging tendencies. Vernex's lead product, PC-compatible software called CALAFT, augments and enhances the conventional ASTM ash fusion temperature (AFT) test, overcoming significant deficiencies in applying AFTs to boiler performance. CALAFT predicts AFTs from chemical composition. The software avoids inadequacies of the conventional test, offering coal suppliers and users an unprecedented level of power in assessing boiler fusibilities and slagging tendencies. Vernex has also compiled ash viscosity software and pioneered novel mineral matter/ash characterization techniques.

Product/Service	Description
AFT Software	Vernex has developed software that predicts AFTs from ash ultimate analyses for coals and coal blends. May be used to estimate effects of additives and differences between boiler and lab ash. Provides estimation of the reliability and sensitivity of each predicted AFT. Works interactively or processes files of data; results can be imported into spreadsheet program.
Viscosity Software	Vernex has developed software that allows the estimation of ash viscosity from the composition of the ash or coal mineral matter.
Ash Analysis	Vernex has pioneered novel approaches for the characterization of ash and mineral matter, emphasizing the impact of compositional variability of fusibility parameters. Approaches emphasize microcharacterization, using synchrotron radiation for optimal spatial resolution.

**Western Research Institute**  
365 N. 9th  
P.O. Box 3395  
University Station  
Laramie, WY 82071



Telephone: (307) 721-2011

FAX: (307) 721-2345

Chief Executive Officer:

Dr. James G. Speight

International Sales Manager:

Mr. Clifford R. Porter

The Western Research Institute (WRI) conducts research on energy, coal processing and upgrading, the environment, synfuels, surface and in-situ hazardous waste treatment, and asphalt. Specific programs include coal mild gasification and coal drying using an inclined fluidized bed. WRI employs approximately 140 technical and support staff and has an annual budget of over \$9.5 million.

(Continued on next page)

**Western Research Institute (Continued)**

Product/Service	Designation	Description
Inclined Fluidized Bed Reactors	IFB	The inclined fluidized bed reactors have been developed and patented by Western Research Institute. They have been used in coal mild gasification and coal drying programs at WRI.
Coal Mild Gasification Process		The coal mild gasification process involves heating coal to moderate temperatures at atmospheric pressure. The process produces char, pitch, oil, and gas which can be used for various industrial purposes.
Coal Drying Process		The coal drying process uses an inclined fluidized bed to produce stable, dry (nearly 0% moisture) briquettes from high-moisture (nearly 30%), sub-bituminous Wyoming and Alaskan coals, without addition of a binder. The low sulfur, dry, stable briquette is a high quality fuel of about 11,900 Btu/lb.
Underground Coal Gasification	UCG	Western Research Institute possesses the capabilities to evaluate UCG feasibility for a particular resource at a specific geologic location, and to manage and execute laboratory and field investigations. WRI's abilities include the entire spectrum of energy development from conception to pre-commercial field testing.

**Williams Technologies, Inc.**  
**320 South Boston, Suite 831**  
**Tulsa, OK 74103**

**Telephone:** (918) 582-5811

**FAX:** (918) 584-0474

**Chief Executive Officer:**

David R. Williams, Jr.

**International Sales Manager:**

H.J. Brolick

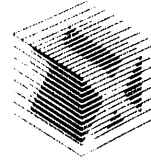
**International Offices:**

Please contact the company headquarters for further information.

Principal business is project assessment, development, and management from initiation of concept through commercial implementation, including financial sourcing. Manages R&D partnership for oil and mineral technologies, R&D program for coal liquefaction technology and operation of Black Mesa coal slurry pipeline. Provides consulting with regard to economic feasibility or technical evaluation of energy or resource projects. Manages operating facilities and technology development for others. Special expertise in development of coal slurry pipeline projects through past worldwide experience and ongoing operations management of Black Mesa Pipeline.

Product/Service	Description
Coal Transport	Provides development, management, financial packaging and operation management of coal slurry pipeline systems.
Architectural/Engineering	Provides consulting services in planning and feasibility study, as well as management of design, construction, and operations for coal slurry pipeline and oil and gas pipeline systems. Provides similar services for cogeneration plants and alternative energy projects.
Coal Derivatives	Management services for coal liquefaction and deep cleaning R&D.

**Xcel Group, Inc.**  
**675 N. Brookfield Road**  
**Brookfield, WI 53045**



**XCEL GROUP INC.**

**Telephone:** (414) 797-4080  
**FAX:** (414) 784-5036  
**Chief Executive Officer:**  
**International Sales Manager:**

**Gerald T. Petersen**  
**Paul S. Gurski**

Process engineering firm with extensive background in coal technology process development to include the specification, design, construction, start-up and operation of coal processing equipment. Xcel just completed a design, supply and test NATO-funded contract awarded in international competition for an R&D gasification facility in Athens, Greece. It provided start-up problem-solving services for a U.S. coal waste gasification project. Recently, Xcel organized a consortium of manufacturing firms to pursue a regional industrial waste recycling facility. Technical support services include feasibility assessments, U.S. equipment sourcing, custom equipment design, market research and application studies and project management. Particularly knowledgeable in U.S. utility market "clean fuel" needs and combined cycle applications.

<b>Product/Service</b>	<b>Description</b>
Technology/Evaluations	Evaluations of emerging and commercially mature technologies to include technical and economic evaluation for specific market applications.
"Clean Coal" Applications	Investigation of a specific technology or competing technologies for utility-scale or large industrial power generation applications.
Equipment Sourcing/Design	Identification of U.S.-based sources to meet specific processing needs or custom design and supply required equipment.
Project Management	Project management services to include permitting, engineering and construction.
Environmental Services	Environmental assessments, process evaluations, and designs to assure compliance to industrial discharge limits.



# V. FINANCING AND RESOURCE PACKAGING

Bechtel Enterprises, Inc.  
Fifty Beale Street  
San Francisco, Ca 94105-1895



Telephone: (415) 768-6745  
Telex: 184907 BECHTEL SFA      FAX: (415) 768-1416 or 2154  
President:                              Mr. John W. Weiser  
International Development:      Mr. Philip J. Luks

**Domestic Offices:**                      GAITHERSBURG, MD: Ronald L. Lillejord, 15740 Shady Grove Road, Gaithersburg, MD 20877-1454  
TEL. (301) 258-3766      FAX (301) 258-7616

**International Offices:**              ENGLAND: Charles W.G. Allen, 245 Hammersmith Road, London, W6, 8DP; TEL. (44-81) 846-5951,  
FAX (44-81) 846-6940; HONG KONG: Steven C. Williams, 94 Granville Road, Tsimshatsui East, Kowloon;  
TEL. (852-3) 672047      FAX (852-3) 7243429; SAUDI ARABIA: P. Lewis Davies, P.O. Box 10488, Riyadh  
11433      TEL. (966-1) 482-9051      FAX (966-1) 482-9563

As a developer and merchant banker subsidiary of Bechtel Group, Inc., one of the world's leading engineer-constructors, Bechtel Enterprises provides a full spectrum of project services to assist clients develop projects. Services include economic, financial, and technical feasibility studies; preliminary engineering; site selection and acquisition; formation of development partnerships; structuring of commercial arrangements, such as sales contracts, supply arrangements, operating arrangement, and construction contracts; arranging debt and equity financing; permitting and approvals; and startup and operations. Bechtel Enterprises has funded development efforts and taken equity positions on projects throughout the world.

Product/Service	Description
Development	Bechtel Enterprises works with developers from concept through startup and operations and can utilize Bechtel's considerable technical and engineering resources. Experience includes coal-fired power and cogeneration facilities, coal gasification, mining, marine terminals, coal slurry pipelines, and other projects.
Financing	Bechtel Enterprises has arranged over \$7 billion in project financing over the last decade from international sources, such as commercial banks, export credit agencies, international financial institutions, bilateral agencies, and other sources.
Operation	Bechtel Enterprises is experienced in starting up and managing the operations of power and other facilities.

**CH2M Hill International Ltd.**  
6060 S. Willow Drive  
P.O. Box 24548  
Denver, CO 80222



**CH2M HILL  
INTERNATIONAL LTD.**

**Telephone:** (303) 796-9001  
**Telex:** 4742047 CH2M PTL **FAX:** (303) 796-8710  
**Managing Director:** Howard Schirmer, Jr., PE

**Domestic Offices:** CH2M HILL, Inc. includes nearly 60 offices in North America  
**International Offices:** AUSTRALIA:\* Sydney, Australia; EGYPT: Alexandria and Cairo, Egypt; ENGLAND:\* London, England;  
TAIWAN:\* Taipei, Taiwan  
(\*To open in 1990-1991)

CH2M HILL International Ltd. is a wholly-owned subsidiary of CH2M HILL Ltd., a firm of engineers, planners, economists, and scientists with more than 25 years experience in international projects. CH2M Hill provides comprehensive planning, study, design, and construction management services for clients with interests in: industrial plants and processes, geotechnical services, solid and hazardous waste management and disposal, water supply and wastewater, water resources, irrigation, city and regional planning, economics, and program management.

<b>Product/Service</b>	<b>Description</b>
Consulting Engineering	Pre-project planning and project support services include feasibility studies and assessments; earth sciences; environmental impact studies; regional/urban/rural planning and site evaluation. Among project preparation services are detailed designs, technical appraisals, funding and procurement advice, tender documents, and bid evaluation. Additional services include construction implementation and post-construction services.
Industrial Facility Engineering	Specialized services include site environmental audits, industrial site selection, permitting and development, plus hydroelectric, thermal, solar, bio-energy, geothermal, and cogeneration systems. Industrial wastes management and control services are also provided.

**Citizens Fidelity Energy Company**  
Affiliate of PNC Financial Corporation  
Citizens Plaza  
Louisville, KY 40296



**Telephone:** (502) 581-4955  
**Telex:** 204280 **FAX:** (502) 581-2302  
**Chief Executive Officer:** Michael B. Vairin, President  
**International Sales Manager:** Charles Tabb Hazelrigg, Group Manager (Lexington office)

**Domestic Offices:** LEXINGTON, KY: 101 E. Vine St., Lexington, KY 40507 TEL. (606) 281-0459

Since 1977, Citizens Fidelity Energy Company has earned a reputation as an innovator in meeting the energy industry's financial needs. We provide financing for producers, brokers and vendors in the coal, petroleum, gas and mineral industries in Kentucky and the surrounding region. The Energy Company has tailored financing for reserve-based and production projects, contract miner operations and exports. We also offer stockpile and working capital financing, and we have developed an inexpensive reclamation surety program that has been copied in other states. Our staff combines financial skill with technical knowledge, enabling us to make decisions quickly in serving energy industry clients.

(Continued on next page)

**Citizens Fidelity Energy Company (Continued)**

Product/Service	Description
Financing	Acceptance financing; accounts receivable loans; acquisition assistance; cash flow lines; certificates of deposit; coal reserve financing; development loans; equipment financing; equipment leasing loans; export financing; foreign exchange trading; industrial revenue bonds; invoice or accounts receivable financing; international financing services; lease financing; leasehold improvement loans; letters of credit; lock box; mortgage loans; project financing; receivables financing; security loans - mining equipment; surface mining equipment loans; transfer agent; trust services; and underground mining equipment loans.

**CRS Sirrinc Engineers, Inc.**  
 1041 East Butler Road  
 P.O. Box 5456  
 Greenville, SC 29607



**Telephone:** (803) 281-3700  
**FAX:** (803) 281-3712  
**Chief Executive Officer:**  
**International Sales Manager:**

Bruce Wilkinson, Houston, Texas  
 Dave Syphard, Greenville, South Carolina (803/676-6000)

**Domestic Offices:** Major cities in the U.S. - Contact Corporate Headquarters for further information - 713/552-2000 or 1-800-672-2777.

CRS Sirrinc Engineers, Inc., a design/construction and consulting firm serving the power generation industry with feasibility studies, cost estimating, preliminary and detailed engineering, architectural design, permitting, construction management, turnkey contracting, start-up and plant operations management. Also provides power project development, project financing, and equity investments in projects. Much of our major success in new sales can be attributed to our strategy of improving market share in our strong markets. We've expanded into fields that combine our financial strength with our strong technical knowledge. Utility and industrial power facilities, cogeneration, environmental design and control, and risk management are all areas with which we have an impressive foundation of experience.

Product/Service	Description
Engineering Design and Construction	CRS Sirrinc Engineers, Inc. is among the top engineering design and construction firms in the United States, with affiliates in foreign countries. We have current experience in the design, construction, and retrofit of coal-fired utility and industrial power plants, including circulating fluidized combustion boilers, cogeneration units, and independent power production plants.
Alternative Services	As an alternative to conventional owner-engineer-constructor relationship, Sirrinc offers equity participation in selected projects through its CRSS Capital affiliate. Inquiries regarding particular project structuring opportunities are invited.

**EnCoal**  
105 East 4th Street  
Cincinnati, OH 45202



Telephone: (513) 621-3733  
FAX: (513) 621-3734  
Chief Executive Officer:  
International Sales Manager:

L. Robert Folan  
Alan Tweeddale

Domestic Offices:

HOT SPRINGS, VA: P.O. Box 826, Hot Springs, VA 24445 TEL. (703) 839-5111

International Offices:

ENGLAND: 213 Upper Richmond Road West, London, SW14 8QT England TEL. 011-44-81-878-8355

EnCoal was founded in 1985 as the U.S. partnership between L. Robert Folan and Alan Tweeddale. Tweeddale has led the British Coal Board's research into clean coal burning technology since World War II. In the 1980's, he took this technology private with Energy Supplies, Ltd., which is very active today throughout the United Kingdom. EnCoal brings this technology into the United States market featuring small fluidized beds. EnCoal's first project will be to rebuild the power plant of The Homestead Hotel in Hot Springs, Virginia with a clean burning, coal fired cogeneration plant.

**Product/Service**

**Description**

EnCoal designs, builds, finances, and operates small steam driven power plants.

EnCoal contracts with customers to reduce their energy costs by utilizing clean combustion technology to produce steam that in turn produces electricity, process steam, heating, and air conditioning. EnCoal's technology complies with the proposed Clean Air Act of 1990, and is predicated on bottom line savings to the customer through a long term contract with EnCoal.

**Foster Wheeler Corporation**  
Perryville Corporate Park  
Clinton, NJ 08809-4000



Telephone: (201) 730-4000  
FAX: (201) 730-4360  
Chief Executive Officer:  
International Sales Manager:

Mr. L.E. Azzato  
Mr. B.P. Stephan; Mr. I.G. Lutes

Domestic Offices:

ATLANTA, GA; BOSTON, MA; CHARLOTTE, NC; CHICAGO, IL; DENVER, CO; HOUSTON, TX; KANSAS CITY, MO; LOS ANGELES, CA; NEW ORLEANS, LA; NEW YORK, NY; PHILADELPHIA, PA; PITTSBURGH, PA; WASHINGTON, D.C.; AND WINTER PARK, FL

International Offices:

AUSTRALIA: TELEX 152838 REWOP AA; CANADA: TELEX 055-60042; CHINA: TELEX 210396 REWOP CN; COLUMBIA: TELEX 396-43254 REWOP CO; ENGLAND: TELEX 851-263984; FRANCE: TELEX 842-210 782; HONG KONG: TELEX 37512 FWAL HX; ITALY: TELEX 843-310548; JAPAN: TELEX 2323192; NETHERLANDS: TELEX 844-34264; NIGERIA: TELEX 22365 FOSWLD NG; SINGAPORE: TELEX RS 39292 FWINTL; SPAIN: TELEX 83122275; contact the main office for further information.

Foster Wheeler Corporation is an engineering, manufacturing, construction, real estate development and service organization with 23 subsidiaries operating worldwide. Founded in 1927, it is currently one of the world's largest engineering and construction organizations. International activities are conducted by affiliates in England, France, Italy, Spain, and Canada. U.S. based industrial subsidiaries supply diversified engineering technologies and allied equipment.

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**Foster Wheeler Corporation (Continued)**

Product/Service	Description
Advanced Utilization Architecture/Engineering Boiler Equipment Coal Derivatives Facility Construction Facility Operation Financing	Foster Wheeler Energy Corporation, a major United States subsidiary, designs, fabricates, maintains, manufactures, and constructs steam generating equipment for electric utilities and industry. This Foster Wheeler subsidiary furnishes condensers, feed water heaters, and other major auxiliary equipment for coal, oil, and gas-fired installations in the United States and abroad. Foster Wheeler's application of alternate energy sources have advanced the state of the art. Current projects involve refuse-to-energy plants, the cogeneration of industrial steam and electric power, a proprietary sludge drying process and high technology heat recovery equipment.

**Goodwin & Soble Attorneys at Law**  
**Suite 350**  
**1300 Nineteenth Street, N.W.**  
**Washington, DC 20036**

**GOODWIN & SOBLE**

Telephone: (202) 223-8282  
 Telex: 272691 GOSO UR FAX: (202) 223-8560

The law firm of Goodwin & Soble specializes in international and domestic corporate and commercial transactions. Located in Washington, DC, the firm has unique international expertise. Members of the firm have represented individuals, corporations, joint ventures, government-owned corporations, and foreign governments in the United States and overseas. The firm's transactional work is complemented by a sophisticated corporate, legislative, banking and regulatory practice tailored to Washington, DC. The firm has expertise in trade and customs law and in U.S. export control matters. Members of the firm have advised clients on virtually every form of commercial transaction, including international sales agreements, joint venture arrangements and countertrade and barter.

Product/Service	Description
Consultants International Law and Commercial Transactions	Provides services in a wide variety of areas, including: U.S. laws affecting international trade and business; international investments and acquisitions; joint ventures; technology transfer/licensing agreements; structuring of countertrade, barter and other special arrangements; international sales, distribution, licensing arrangements, etc.

**Indeck Energy Services, Inc.**  
**1111 South Willis Avenue**  
**Wheeling, IL 60090**



Telephone: (312) 520-3212  
 Telex: 28-3544 FAX: (312) 520-9883  
 Chief Executive Officer: Michael P. Polsky  
 International Sales Manager: Lawrence J. Kostrzewa

**International Offices:** Please contact headquarters for further information.

Indeck is an experienced developer, owner, operator and maintainer of cogeneration and power generation plants using coal, natural gas, oil and waste fuels. Together with Indeck Power Equipment Company, North America's largest renter and leaser of emergency boilers, the company has been serving industrial and utility steam, power and water treatment needs since 1960. Indeck's broad range of experience includes over 750 MW of generating capacity either operating, under construction or under contract in the U.S. and Canada, with international expansions underway in the U.K. and elsewhere.

(Continued on next page)

**Indeck Energy Services, Inc. (Continued)**

<b>Product/Service</b>	<b>Description</b>
Project Development	Indeck will perform all activities from project conception to construction, including cycle design and analysis, siting, engineering, permitting, power and steam sales contracting, fuel supply acquisition and debt and equity financing.
Project Operation	For projects owned in whole or in part by Indeck, Indeck will hire and train operating staff, prepare and follow operating and maintenance budgets, operate the project at optimum economic efficiency and schedule and carry out overhauls and repairs.

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**Indiana Corporation for Science and  
Technology**  
One North Capitol Avenue, Suite 925  
Indianapolis, IN 46204-2242



Corporation  
For  
Science  
And  
Technology

**Telephone:** (317) 635-3058

**FAX:** (317) 231-7095

**Chief Executive Officer:**

Dr. Stephen J. Gage

**International Sales Manager:**

Dr. Stephen J. Gage

**Domestic Offices:**

INDIANAPOLIS, IN: One North Capitol Ave., Suite 925, Indianapolis, IN 46204-2242, TEL. (317) 635-3058

The Indiana Corporation for Science and Technology is a private, not-for-profit corporation involved in economic development for the State of Indiana. The company provides financial support for research and development conducted by high technology businesses located in the State of Indiana. Foreign companies wishing to locate in Indiana should contact our corporation, as well as the Indiana Department of Commerce, to determine their eligibility for assistance. U.S. companies involved in the export of products who wish to locate in Indiana may also be eligible for assistance.

<b>Product/Service</b>	<b>Description</b>
Financial Assistance	Loans repayable from royalties on sales of products developed using ICST funds.

**J.W. Miller & Associates, Inc.**  
**Miller Building**  
**No. 2 Hale Street**  
**Charleston, WV 25301**



MILLER ENTERPRISES

**Telephone:** (304) 343-9524  
**FAX:** (304) 343-9530  
**President:**  
**Vice President:**  
**Vice President:**

**Mr. James W. Miller**  
**Mr. David S. Miller**  
**Mr. Gary J. Miller**

Incorporated since 1964.

**Product/Service**

Geological Exploration; Coal Mining, Underground, Surface, Auger; Coal Preparation; Coal Exploration; Coal Transportation; Port Facilities; Efficiency and Productivity Studies; Appraisals; Coal Analysis; Financing; Complete Feasibility Studies; Economic Evaluations; Market Studies; Management/Operations Research; Design Contracting; Exploration, Drilling, Preparation Plant Construction, Mine and Plant Management, Beehive Coke Oven Construction, RR Loading and Unloading

**Resource Data International, Inc.**  
**P.O. Box 106**  
**Boulder, Colorado 80306**



**Resource Data International, Inc.**

**Telephone:** (303) 444-7788  
**FAX:** (303) 444-1286  
**Chief Executive Officer:**  
**International Sales Manager:**

**Ronald L. McMahan, PhD**  
**Stephen M. Monseu**

**Domestic Offices:** BOULDER, CO: 1320 Pearl Street, Suite 300, Boulder CO 80302

Resource Data International, Inc., (RDI), is the authoritative data company in the energy information field. Many of the world's largest mineral energy resource companies, as well as railroads, financial institutions and electric utilities are among its client base. RDI focuses on all fuels in the energy industry -- covering all United States sources and users of energy, the transportation systems that serve them, the macro and micro economic linkages that tie them together -- as well as the macro and micro study of electric utilities: Detailed financial competitor and bulk power supply-demand analysis. The Company provides customized reports and expert consulting services, and distributes regularly published data reports to subscribers via PC, mainframe, or hard copy delivery.

Product/Service	Description
COALDAT®	COALDAT® is a coal mine and market analysis system used by coal companies, utilities, railroads and other industries involved in the coal business. The coal chain - SUPPLY-DEMAND/TRANSACTION-DEMAND - is the basis for COALDAT's® design. COALDAT® links a fully developed base of information on all coal mines to an equally detailed base of information on all coal-burning utility plants via their monthly contract and spot transactions. COALDAT® also includes detailed market information on over 1,900 coal-fired industrial plants, as well as U.S. export and Great Lakes shipments.
FUELDAT®	FUELDAT® encompasses all of COALDAT® and goes beyond it. The System includes all U.S. utilities and their consumption, generation and supply for all fuels. It combines the depth of the COALDAT® supply-side with the all-fuels breadth of the FUELDAT® transaction, supply and demand sides.

(Continued on next page)

**Resource Data International, Inc. (Continued)**

**POWERDAT®**

POWERDAT® encompasses all of COALDAT® and FUELDAT® and, in general, is a database designed to analyze and monitor, on a yearly as well as monthly basis, a utility's competitive position as well as the potential markets for power sales. Monthly information on generation, fuel consumption, power sales and power purchases will be provided. In addition, the POWERDAT® system will provide, on an annual basis, detailed information concerning power contracts, financial performance, energy balances, transmission capabilities, plant production costs, monthly breakouts of peak loads and load forecasts.

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**S&C Thermal Systems, Inc.**  
3314 Highway 162  
Post Office Box 1246  
Granite City, IL 62040



**Telephone:** (618) 452-3000

**Telex:** TWX 910-756-2352 **FAX:** (618) 876-0865

**Chairman:** Emmanuel Merle

**President:** Christian Joly

**International Sales Manager:** Richard P. Kuo, Sr. Vice President

**Senior Vice President:** Roland Otte

**Domestic Offices:** NEW YORK, NY: 767 Fifth Avenue, New York, NY 10153, TEL. (212) 421-1944, FAX (212) 421-1937

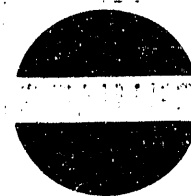
**International Offices:** PARIS: TEL. 33 (1) 47-56-22-22, FAX 33 (1) 40-87-01-28

S&C Thermal Systems, Inc. is a member of the Thion Group of companies. Thion, established in 1843, is an international energy resources and services group with interests in Europe and the United States. The Company provides a full range of thermal energy services to commercial, industrial, residential, institutional and government sectors. Major areas of business include: operation and maintenance of individual building heating and cooling plants under long-term energy service contracts; design, construction, financing and operation of district heating and cooling systems and cogeneration plants; energy audits and technical feasibility studies; energy performance contracting and third party financing; waste-to energy plants and waste recycling.

Product/Service	Designation	Description
Facilities Operations	Chauffage	24 hr. plant O&M, fuel supply retrofit, finance
Facilities Construction	District heating and cooling	Design, build, own, operate
Power Generation	Cogeneration	Design, build, own, operate
Financing and Resource Packaging		Energy plants, performance contracts.



**Stinnes Coal Company, Inc.**  
**750 Third Avenue**  
**New York, NY 10017**



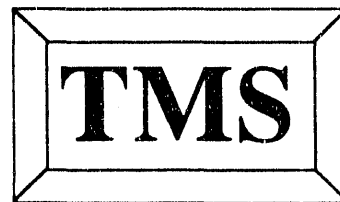
**Telephone:** (212) 986-1515  
**Telex:** 236767A STCC UR **FAX:** (212) 949-7436  
**Chief Executive Officer:** Michael T. Madden  
**International Sales Manager:** George A. McClennan  
 Robert P. Yowell

**Domestic Offices:** KENTUCKY: Stinnes Coal Company, Inc., 131-27 U. S. Rt. 23, Catlettsburg, KY 41129 TEL. (606) 739-8441, FAX (606) 739-8443.  
**International Offices:** WEST GERMANY: Stinnes Intercoal GmbH TEL. 2087-4940, TELEX 856095 STC D, FAX 208-494-698; WEST GERMANY: HCM Intercoal GmbH; Stinnes Intercoal GmbH TEL. 40-301-0030, TELEX 21-63-121 STI D, FAX 30-10-0340; ENGLAND: G. Harbottle & Co., Ltd. TEL. 91-281-7735, TELEX 53406 GEHAR, FAX 91-281-1884; NETHERLANDS: Stinnes Intercarbon B.V. TEL. 10-405-3111, TELEX 25155 STI, FAX 10-405-5026; SPAIN: Intercarbon Espana TEL. 1-522-7069 TELEX, 22082 STINN, FAX 1-43-19780; ITALY: Agenzia Caarboni S.R.L., TEL. 10-566773, 10-55-91606, TELEX 271392 INTRA, FAX 10-53-2871; BRAZIL: Stinnes Intercarbon do Brazil TEL. 21-223-2118 TELEX, 21-253-4342, FAX 21-253-4679; SINGAPORE: Stinnes Intercoala Pte, Ltd. TEL. 25-18755, TELEX 28921 STINCO, FAX 253-4030; AUSTRALIA: Stinnes Intercoal Australia, PTY, Ltd. TEL. 2-653-1533, FAX 2-653-2159

Stinnes Coal Company is part of a complex network, namely Stinnes Intercarbon, AG, which is subsidiary of VEBA, AG, a privately held, wholly owned German-based company which is one of the major independent coal traders in the markets of the world. Our coal trading activities are worldwide. We export coal from the Federal Republic of Germany, the German Democratic Republic, the U.S.A., Canada, Columbia, Venezuela, South Africa, Australia, Poland, the CSSR, the USSR and the People's Republic of China. We import into the Federal Republic of Germany, other European countries, North Africa, Japan, South America, Canada, the Middle and Far East. We supply coal to power stations, steel mills, foundries and other major end users. But we also furnish the industrial heating and the domestic fuel markets with whatever type of coal is required.

Product/Service	Description
Coal Exporters	The product range we trade in includes the following categories: Steam coal, industrial coal, coking coal, anthracite, foundry coke, furnace coke, coke beans for ferro alloy producers, coke freeze, briquettes as well as household coal. Our long standing relations with our suppliers, our own trading companies at home and abroad and an efficient transportation system guarantees reliable and continuous supplies. We offer producers and suppliers a distribution network with representations in all of the world's major coal using regions. In conjunction with our affiliated companies, we can offer our own storage and transportation as well as screening and blending facilities.
Coal Transport	
Financing	
Shipping	

**Technology & Management Services, Inc.**  
**20201 Century Boulevard**  
**Germantown, MD 20874**



**Telephone:** (301) 353-0102  
**FAX:** (301) 353-0514  
**Chief Executive Officer:** Roy A. Wujkowski  
**International Sales Manager:** Roger W.A. LeGassie,  
 Vice President  
 Jaqueline Boucher, Partner, CO<H>ERENGE, s.c.

**Domestic Offices:** MCLEAN, VA: 6245 Elm Street, Ste. 709, McLean, VA 22101 TEL. (703) 448-1081  
 FAX (703) 448-1230  
**International Office:** BELGIUM: CO<H>ERENGE, s.c., avenue des boulevaux, 10, B-5870 Mont St. Guibert, Belgium  
 TEL. 010/45 40 39 FAX 010/45 40 48

Technology & Management Services, Inc. (TMS) is a corporation with over 13 years of high technology, project management, and environmental expertise, with particular emphasis on fossil energy. The technical staff is comprised of engineers, scientists, and managers with major industrial, state, (Continued on next page)

### Technology & Management Services, Inc. (Continued)

and federal government experience. TMS is involved in overseas technology transfer of fossil energy technology and has provided services in this area to the U.S. Department of Energy (DOE) and major domestic and foreign corporations and utilities. TMS brings sophisticated management skills to financial analysis and decisionmaking support to major energy projects. The TMS staff is skilled in many areas of energy conservation systems, environmental impact analysis, waste disposal systems and major project financing.

Product/Service	Description
Financing and Resource Packaging	TMS has developed sophisticated management tools for the analysis and management of major engineering and financial projects. TMS senior staff have significant experience with foreign countries and corporations in developing and financing energy projects.

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**TransTech Marine Company**  
771 Carroll Street, Fl. 2  
Brooklyn, NY 11215



**TransTech Marine Co.**  
*Shipping Investment Counsel & Development*

Telephone: (718) 857-5722  
FAX: (718) 622-8373  
Chief Executive Officer:

Geoffrey F. Uttmark

**International Offices:**

Cooperative offices in EUROPE, ASIA, AUSTRALIA, and SOUTH AMERICA. Contact company headquarters for further information.

TransTech Marine Co. provides technical ship design, economic analysis, and vessel financing services to minimize ocean transport costs of coal.

Product/Service	Description
STATS	Statistical Trade and Transport Summaries provides detailed information on volume of international coal trades and shipping rates.
BOSCOE	Bulk Ocean Shipping - Computer Optimized Economics is a comprehensive computer system for technical design development and economic analysis of constructing, financing, and operating dry bulk carriers. Compare optimized to off-the-shelf or second-hand vessels. Advantageous to coal producers, shippers, users, shipbuilders, and vessel operators.
TuBa	Tug-Barge is companion to BOSCOE for shorter and coastwise trades where drop/swap operation may be more economical than ships. TuBa optimizes size and number of tugs and barges for minimum system cost and produces detailed design development of seagoing barge(s).
MarineLease	MarineLease is a specialized computer model for structuring leveraged and non-leveraged leases of marine equipment to minimize capital costs.
Prospectus Development	TransTech incorporates results into a prospectus for presentation to Board of Directors, investment bankers, commercial lenders, and lessors. Company provides ongoing assistance in relationships with shipyards, finance sources, vessel operating companies and related services.
Network	TransTech often works as project's maritime subcontractor to larger, broader based transport system designers and planners.

**Williams Technologies, Inc.**  
**320 South Boston, Suite 831**  
**Tulsa, OK 74103**

**Telephone:** (918) 582-5811

**FAX:** (918) 584-0474

**Chief Executive Officer:**

David R. Williams, Jr.

**International Sales Manager:**

H.J. Brolick

**International Offices:**

Please contact the company headquarters for further information.

Principal business is project assessment, development, and management from initiation of concept through commercial implementation, including financial sourcing. Manages R&D partnership for oil and mineral technologic's, R&D program for coal liquefaction technology and operation of Black Mesa coal slurry pipeline. Provides consulting with regard to economic feasibility or technical evaluation of energy or resource projects. Manages operating facilities and technology development for others. Special expertise in development of coal slurry pipeline projects through past worldwide experience and ongoing operations management of Black Mesa Pipeline.

**Product/Service**

**Description**

Coal Transport

Provides development, management, financial packaging and operation management of coal slurry pipeline systems.

Architectural/Engineering

Provides consulting services in planning and feasibility study, as well as management of design, construction, and operations for coal slurry pipeline and oil and gas pipeline systems. Provides similar services for cogeneration plants and alternative energy projects.

Coal Derivatives

Management services for coal liquefaction and deep cleaning R&D.

**APPENDICES**

**Appendix A - U.S. Associations Supporting Domestic and International Coal and Coal Technology Export Activities**

**ADVANCED UTILIZATION**

**Clean Coal Technology Coalition**  
Ben Yamagata, Executive Director  
1050 Thomas Jefferson Street, N.W.  
7th Floor  
Washington DC 20007  
(202) 342-3368

The **Clean Coal Technology Coalition** acts as the spokesman for the development and use of clean coal in industry. CCTC is oriented toward encouraging, demonstrating, deployment and widespread commercialization of clean coal technology.

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**Council on Alternative Fuels**  
Michael S. Koleda, President  
1225 Eye Street, NW, Ste. 320  
Washington, DC 20005  
(202) 898-0711

The **Council on Alternative Fuels** is made up of 25-30 companies involved in the production of synthetic fuels. Research and development and engineering companies work as associate members for the companies in their projects involving alternative fuels.

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**BOILER EQUIPMENT**

**American Boiler Manufacturers Association**  
Russell Mosher, Executive Director  
950 North Glebe Road, Ste. 160  
Arlington, VA 22203  
(703) 522-7350

The **American Boiler Manufacturers Association** is comprised of 100-125 companies which manufacture and generate steam systems. Many members are involved in the combustion of coal by these systems and in the promotion of steam through coal combustion.

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**Council of Industrial Boiler Owners**  
William Marx, President  
6035 Burke Center Pkwy, Ste. 360  
Burke, VA 22015  
(703) 250-9042

The **Council of Industrial Boiler Owners** is comprised of 50 companies owning and operating industrial steam boilers. COIBO is a trade association selling boilers to various companies, including those affiliated with the coal/coke industry.

## COAL DERIVATIVES

**American Coal Ash Association**  
Erast Boissoff, Executive Director  
1000 16th St., N.W., Ste. 507  
Washington, DC 20063  
(202) 842-7200

The American Coal Ash Association includes 100 companies which produce fly ash from coal combustion. The ACAA members are interested in the promotion of ash utilization in industry.

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**American Coke and Coal  
Chemicals Institute**  
Mark T. Engle, President  
1255 23rd St., N.W.  
Washington, DC 20037  
(202) 452-1140

The American Coke and Coal Chemicals Institute is comprised of 50-60 companies, national and international, which represent coke and metallurgical coal producers and processors of chemicals derived from petroleum tar and coal. Members are major producers of components and dedicated to the promotion of the petroleum industry.

---

## COAL EXPORTERS

**Coal Exporters Association of the  
United States**  
Moya Phelleps, Executive Director  
1130 17th St., N.W.  
Washington, DC 20036  
(202) 463-2639

The Coal Exporters Association of the United States is made up of 40 members affiliated with the National Coal Association. The CEA of the United States is a lobbyist for the promotion of coal export.

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**The Mississippi Valley Coal  
Exporter Council**  
Susan Wingfield, President  
1013 World Trade Center  
New Orleans, LA 70130  
(504) 566-1001

The Mississippi Valley Coal Exporter Council is made up of 70 member companies concerned with coal export from the Mississippi Valley. Most of MVCEC's work involves the promotion and technical marketing of United States coal overseas.

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## COAL INDUSTRY

**American Coal Foundation**  
Richard Lawson, President  
918 16th Street, N.W., Ste. 404  
Washington, DC 20006  
(202) 466-8630

The American Coal Foundation provides instructional materials to aid teachers in classrooms across the country. The ACF is also quite active nationwide conducting periodic workshops regarding the coal industry.

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**Anthracite Industry Association**  
Mazie Mahoney, Executive Director  
208 N. 3rd Street, Ste. 310  
Harrisburg, PA 17103  
(717) 233-1808

Anthracite coal producers make up the **Anthracite Industry Association**, founded in 1931. Anthracite coal is produced solely in PA and this 60-member association is dedicated to the continued use and development of this coal.

---

**Coal & Slurry Technology Association**  
Stuart Serking, Executive Director  
1156 15th Street, N.W., Ste. 525  
Washington, DC 20005  
(202) 296-1133

The **Coal & Slurry Technology Association** is the recognized representative of the coal and slurry technology industry before Congress, the Administration, and the media. **CSTA** is a non-profit organization dedicated to the advancement of technology, pipeline delivery of solids and the further development of coal and slurry technology.

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**National Coal Council**  
James McAvoy, Executive Director  
P.O. Box 17370  
Arlington, VA 22216  
(202) 527-1191

The **National Coal Council** is a privately funded, federally chartered advisory group serving the Secretary of Energy. Their work revolves around the coal industry and related coal energy issues.

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**National Coal Association**  
Richard L. Lawson, President  
1130 17th Street, N.W.  
Washington, DC 20036  
(202) 463-2625

The **National Coal Association** represents 2/3 of coal production in the U.S. They are the principal lobbying association for the coal industry in Washington, DC, covering a wide variety of coal and energy-related issues.

---

## SHIPPING

**American Bureau of Shipping**  
Richard T. Soper, President  
45 Eisenhower Drive  
Paramers, NJ 07652  
(201) 368-9100

The **American Bureau of Shipping** is comprised of 480 members certifying the soundness of offshore drilling units and other marine structures. The **American Bureau of Shipping** sets standards on construction and certification of these structures such as drilling units, containers, machinery, and equipment.

---

**The American Institute of Merchant Shipping**  
Ernest Corrado, President  
1000 16th Street, N.W., Ste. 511  
Washington, DC 20036  
(202) 775-4399

The 23 members of **American Institute of Merchant Shipping** are operators and owners of U.S. flag flying vessels, usually tankers, bulk carriers, and container ships. The institute represents members interests when dealing with international and domestic agencies concerned with shipping.

---

**The Federation of American  
Controlled Shipping**

Phillip Loree, Chairman  
50 Broadway, Suite 3400  
New York, NY 10004  
(212) 344-1483

**The Federation of American Controlled Shipping**

represents the interests of ships belonging to U.S. companies operating under the Liberian, Panamanian, and Bahamian flags. The FACS has 20 member companies involved in the industrial importing and exporting business.

---

**Shipbuilders Council of America**

John Stocker, President  
1110 Vermont Avenue, N.W.  
Washington, DC 20005  
(202) 775-9060

The Shipbuilders Council of America has 50-60 member companies involved in building and repairing ships as well as manufacturing marine equipment and supplies. Many of these companies perform contract work for the federal government involving repair and equipment.

---

**UTILITIES**

**Edison Electric Institute**

William McCollam, Jr., President  
1111 19th Street, N.W., 9th Floor  
Washington, DC 20036-3691  
(202) 778-6400

The Edison Electric Institute is comprised of 200 member companies involved in energy conservation and management. These are investor owned electric companies which work closely with and sponsor the Edison Electric Institute's Power PAC.

---

**Electric Power Research Institute**

Floyd Culler, Jr., President  
P.O. Box 10412  
Palo Alto, CA 94303  
(415) 855-2000

The Electric Power Research Institute is involved in research relating to the production, transmission, distribution, and utilization of electric power. The EPRI is comprised of over 450 electric utility companies with an annual budget of about 300 million dollars.

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**Gas Research Institute**

Stephen D. Ban, President  
1331 Pennsylvania Avenue, N.W.  
Suite 730N  
Washington, DC 20004  
(202) 662-8989

Gas Research Institute is a non-profit organization performing research for private contractors on natural gas supply. The GRI receives money from the FERC to fund projects such as extraction of gas from coal.

---

**Institute of Gas and Technology  
Research**

Dr. Bernard Lee, President  
3424 S. State Street  
Chicago, IL 60616  
(312) 567-3741

The Institute of Gas and Technology Research is an independent non-profit center for energy and environmental research and education. Their programs include the production of clean fuels and chemicals from coal and the development of modern carbonate fuel cells.

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## **COAL MINING**

### **The American Mining Congress**

John Knebel, President  
1920 N Street, N.W., Ste. 300  
Washington, DC 20036  
(202) 861-2800

The American Mining Congress is an industrial Coal and Hard Rock trade association representing over 400 member companies, including producers of metals, coal, industrial/agricultural minerals, equipment manufacturers, and financial institutions serving the mining industry.

---

### **Bituminous Coal Operators Association**

Joseph Brennen, President  
918 16th Street, N.W., Ste. 303  
Washington, DC 20006  
(202) 783-3195

The Bituminous Coal Operators Association is the representative of coal companies in collective bargaining agreements with coal workers unions. The scope of the bargaining involves the Bituminous Coal Wage Agreement specifically.

---

### **National Independent Coal Operators Association**

Louise Hunter, Executive Vice President  
P.O. Box 354  
Richland, VA 24611  
(703) 963-9011

The National Independent Coal Operators Association involves 4500-5000 small bituminous union and non-union coal mines not owned by large companies. NICOA keeps track of all laws and legislation and acts as an information network for their members.

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## **COAL TRANSPORT**

### **American Waterways Operators**

Joseph Farrell III, President  
1600 Wilson Blvd., Suite 1000  
Arlington, VA 22209  
(703) 841-9300

The American Waterways Operators are the National Trade Association for the inland and coastal barge and towing industry. The AWO members transport coal in barges overseas and domestically.

---

### **Association of American Railroads**

William Dempsey, President  
50 F Street, N.W.  
Washington, DC 20001  
(202) 635-2100

The Association of American Railroads is representative of 243 railroads serving the industries of the continental U.S. since its inception AAR has strived to keep railways a safe method of transporting materials such as coal and other industrial commodities as well as passengers.

---

### **Pipeline Contractors Association**

Hailey Roberts, Managing Director  
4100 First City Center  
1700 Pacific Avenue  
Dallas, TX 75201  
(214) 969-2700

The Pipeline Contractors Association represents pipeline contractors in the United States regarding labor agreements. Negotiations between contractors and unions are handled by the association on the contractors behalf.

---

**Western Coal Transport Association**  
Robert Lee Kessler, Executive Director  
P.O. Box 176  
Denver, CO 80201  
(303) 694-6611

The Western Coal Transport Association is an organization of actual and potential producers and consumers of western coal interested in its transportation. Interests are mainly domestic concerns and how coal is distributed to areas in need.

---

## ENGINEERING

**ASTM**  
Joseph O'Grady, President  
1916 Race Street  
Philadelphia, PA 19103  
(215) 299-5400

The ASTM Committee on Coal and Coke sets the standards for the coal and coke industry and develops the specifications for coal and coke produced from coal. The primary goal of this committee is the promotion of research and dissemination of knowledge in the coal/coke industry.

---

**Society of Mining Engineers**  
Claude Crowley, Executive Director  
P.O. Box 635002  
Littleton, CO 80162-5002  
(303) 973-9550

The Society of Mining Engineers is a technological organization for professionals in mineral industries. The Society of Mining Engineers publishes literature and conducts meetings, enhancing the mineral industry through field service to participants and the public they serve.

---

## FINANCING

**Export/Import Bank**  
Bruce Hunt, Deputy Vice President  
811 Vermont Avenue, N.W.  
Washington, DC 20571  
(202) 566-8997

The Export/Import Bank is an investment bank involved in various projects, including the development and research involving the coal industry. Many of the Export/Import Bank's projects involve the lending of funds to further pursue development overseas.

---

**InterAmerican Development Bank**  
Don Giampoli, Chief, Energy Division  
1300 New York Avenue, N.W.  
Washington, DC 20433  
(202) 623-2016

The InterAmerican Development Bank finances coal projects in South and Central America and the Caribbean, Brazil, and Mexico. The IADB also funds studies in qualities of minerals extracted and development of new sites.

---

**Overseas Private Investment Corporation**  
Fred M. Zeder, President  
1615 M Street, N.W.  
Washington, DC 20527  
(202) 457-7061

The Overseas Private Investment Corporation is a self-sustaining agency whose purpose is to promote economic growth in developing countries by encouraging U.S. private sector investment. OPIC has two major programs to assist U.S. investors: political-risk insurance and financing (both direct loans and loan guarantees).

---

**World Bank**

Anthony A. Churchill  
Director, Industry and Energy  
Department  
(202) 477-1234

The World Bank acts as a major investor in international mining development. Responsible for funding many projects in developed and underdeveloped countries.

Ibrahim I. Elwan  
Manager, Private Sector Financial Operations  
CoFinancing and Financial Advisory Services  
(202) 458-0811

818 H Street, N.W.  
Washington, DC 20433

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**FREIGHT FORWARDERS**

National Customs Brokers and  
Forwarders Association of America  
John Hammon, CAE  
1 World Trade Center, Ste. 1153  
New York, NY 10048  
(212) 432-0050

The National Customs Brokers and Forwarders Association of America acts as agents for importers and exporters of minerals overseas.

---

**LABOR**

United Mine Workers of America  
Richard Trumka, President  
900 15th Street, N.W.  
Washington, DC 20005  
(202) 842-7200

The United Mine Workers of America acts as liaison between workers and labor and the government. The UMWA protects the rights and provides the political voice of the mine workers.

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**Appendix B - U.S. Department of Energy Clean Coal Technology Demonstration Projects - Active or Planned - for Funding under the Clean Coal Demonstration Program**

**CCT I PROJECTS**

**Advanced Cyclone Combustor with Integral Sulfur, Nitrogen and Ash Control**  
(Coal Technology Corporation)  
P.O. Box 1545  
Merion Station, PA 19066-0154  
Dr. Burt Zauderer  
(215) 667-0442

In this demonstration, air is mixed in standard burners attached to the outside walls of the boilers. The mixture is discharged into the boiler, heating water in the tubes producing steam. The Coal Tech. Combustor mounts on the outside wall, mixes coal sorbent and air, provides ignition and removes ash before discharging products to the boiler. 90% of the ash is retained/rejected, NO<sub>x</sub> is contained to 100 parts/million, SO<sub>x</sub> is reduced by 90%.

Location: Williamsport, PA

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**Enhancing the Use of Coals by Gas Reburning, Sorbent Injection Demonstration**  
(Energy & Environment Research Corp.)  
18 Mason  
Irvine, CA 92718  
William Bartok  
(201) 534-5833/(714) 859-8851

This project will show 3 demonstrations of gas reburning and sorbent injection and will reduce NO<sub>x</sub> emissions by 60% and SO<sub>x</sub> emissions by 50% from pre-NEPA boilers. This project will show a process and equipment easily retrofitted to about 900 U.S. utility boilers. This will make high sulfur U.S. coals more usable and reduce SO<sub>x</sub> and NO<sub>x</sub> emissions. This project will demonstrate the gas reburning sorbent injection process on three different boilers with different combustion configurations.

Locations: Lakeside, IL  
Hennepin, IL

---

**Tidd PFBC Demonstration Project**  
(Ohio Power Company)  
c/o AEP Service Corp.  
1 Riverside Plaza  
Columbus, OH 43216  
Mario Marrocco  
(614) 223-1740

Ohio Power Company's plan is designed to build and operate a 70MW pressurized fluidized-bed combustion combined-cycle powerplant. This plant is expected to demonstrate that this new coal-burning technology will permit the burning of high sulfur coal while still adhering to stringent U.S. environmental standards, thus producing electricity more economically and efficiently than is now commercially available.

Location: Brilliant, OH

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**LIMB Demonstration Project  
Extension**

(Babcock & Wilcox Company)  
Contract Research Division  
1562 Beeson Street  
P.O. Box 835  
Alliance, OH 44601-2196  
Thomas Becker  
(216) 860-2674

The objective of this plan is to demonstrate the limestone injection multistage burner process, using a variety of coals and sorbents, as a retrofit system for control of sulfur and nitrogen oxides in combustion. LIMB goals include up to 60% NO<sub>x</sub> and SO<sub>x</sub> reductions. A base sorbent and one coal will be tested using the coolside duct injection process, this is expected to demonstrate in-duct sorbent injection, to show SO<sub>x</sub> removals of up to 80%.

Location: Lorraine, OH

---

**Advanced Slagging Coal  
Combustor Utility  
Demonstration**

(TRW-Combustion Business Unit)  
One Space Park  
Building 146C  
Redondo Beach, CA 90278  
Bill Norcross  
(212) 290-6358

This project demonstrates an advanced slagging coal combustor at a scale suitable for utility application. It involves converting an existing utility boiler from oil to coal, meeting environmental standards without derating the unit. This project will extend the demonstration of a slagging coal combustor from a small to a full scale boiler demonstration, converting oil firing to coal firing using 4 combustors, controlling emissions to meet environmental standards economically and without derating the boiler.

Location: Stoney Pt., NY

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**Nucla CFB Demonstration  
Project**

(Colorado-Ute Electric  
Association, Inc.)  
P.O. Box 1149  
Montrose, CO 81402  
Donald Oberte  
(303) 249-4501

The Nucla circulating fluidized-bed program demonstrates CFB technology and evaluates its economical, environmental and operational benefits on a utility scale. 3 small, coal-fired, stoker type boilers were replaced with a CFB generator capable of driving a new 74MW generator. Steam from this generator will power 3 existing 12 MW generators. This shows that with the CFB the plant can operate normally, feeding the same power.

Location: Nucla, CO

---

**Prototype Commercial Coal/Oil  
Coproprocessing**

(Ohio Ontario Clean Fuels)  
1 Eva Road, Suite 310  
Etobicoke (Toronto)  
Ontario M9C4Z5  
Canada  
Robert H. Shannon  
(416) 620-8011

Ohio Ontario Clean Fuels, Inc. plans to build a grass-roots prototype coal/oil processing plant for the conversion of high sulfur, high nitrogen, bituminous coal and poor quality petroleum residues to clean liquid fuels. The yielded fuels will be low in sulfur, nitrogen and trace metals with a high heating value. These products can be used directly as clean burning boiler fuel or further processed to produce transportation fuels. Nitrogen and sulfur are recovered as byproducts, thus avoiding introduction into the atmosphere as harmful oxides.

Location: Warren, OH

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**Clean Coal Combustion Testing Project**

(Combustion Engineering)  
1000 Prospect Hill Road  
P.O. Box 500  
Windsor, CT 06095-0500  
Rao Gogineni  
(202) 285-2502

The Electric Power Research Institute sponsors this coal cleaning program of Combustion Engineering which would extend an ongoing coal cleaning program. Coals cleaned by advanced processes at EPRI's Coal Cleaning Test Facility would go through new combustion testing. Testing would be small scale on selected coals, at first, then fired in commercial scale boilers.

Location: Homer, PA

---

**Advanced Coal Cleaning Process Demonstration**

(Montana & Wyoming Operations  
Western Energy)  
115 N. Broadway  
P.O. Box 1899  
Billings, MT 59103  
Paul Gatzemeier, Vice President  
(406) 252-2277

Western Energy's novel cleaning process will raise heating values and lower sulfur contents of western coals. These coals contain moisture equaling as much as 25-55% of their weight, reducing heating values to 9,000 BTU's/lb. This process reduces moisture to as little as 1%, raising heating values up to 12,000 BTU's/lb. This process also reduces sulfur content dramatically.

Location: Colstrip, MT

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**Hopkins Project**

(City of Tallahassee)  
City Hall  
Tallahassee, FL 32301-1731  
B.W. Waite  
(904) 599-8511

This program demonstrates the use of a scaled up circulating fluidized-bed combustor by replacing an existing gas- and oil-fired boiler with a 250 MWe CFBC boiler. The combustor is designed to fire W. Virginia bituminous coal producing steam to drive an existing turbine generator.

Location: Tallahassee, FL

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**Coal/Water Slurry Production and Combustion Demonstration Project**

(Otisca Industries, Ltd.)  
501 Butternut Street  
Syracuse, NY 13208  
Clay Smith  
(315) 475-5543

The purpose of this plan is to show how Otisca Fuel, ultra-clean coal water slurry, is manufactured, stored and handled. The process reduces the raw particle size to effect the releases of minerals from coal, and recovering the coal via an agglomeration process employing pentane as the agglomerating agent. The process is to remove virtually all the pyritic sulfur and a large amount of mineral matter from any coal. While recovering over 95% of the input BTU's in the product coal.

Location: Syracuse, Jamesville,  
Oneida, NY

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**Circulating Fluidized Bed  
Repowering**  
(Southwestern Public Service  
Company)  
P.O. Box 1261  
Amarillo, TX 79170  
Dale Williams  
(806) 378-2728

Southwestern Public Service Company is interested in repowering an existing turbine generator. This project is intended to demonstrate the use of a scaled-up boiler in order to promote commercialization of larger CFB boilers than are presently available.

Location: Amarillo, TX

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## CCT II PROJECTS

**Innovative Coke Oven Gas  
Cleaning System for Retrofit**  
(Bethlehem Steel Corporation)  
Martin Tower  
Bethlehem, PA 18016  
Leoh Harbold,  
Manager, Environmental Control  
(215) 694-1210

Retrofitting the existing coke gas cleaning plant, consisting of 2 coke batteries, is suggested. Currently, coke oven gas (COG) from the smaller battery is recycled directly to ovens with no recovery or cleanup. COG from larger battery goes through both processes before being used as a fuel gas. COG would be cooled by a recirculating liquor with an indirect cooling tower, eliminating benzene and other emissions. Ammonia and H<sub>2</sub>S would be oxidized to SO<sub>2</sub> for input into another plant as H<sub>2</sub>S/SO<sub>2</sub> steam. This process would be used on both batteries' steam.

Location: Baltimore, MD

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**Demonstration of Coal  
Reburning for Cyclone Boiler  
NO<sub>x</sub> Control**  
(Babcock & Wilcox Company)  
1562 Beeson Street  
Alliance, OH 44601-2196  
A.S. Yagiela  
(216) 829-7716

This demonstration will show that coal can be used as a reburning fuel reducing nitrogen oxides on a coal fired cyclone boiler. Reburn technology is the sole in-furnace NO<sub>x</sub> control technology shown to be feasible for cyclone boilers. If successful, NO<sub>x</sub> could be reduced 50% with no burner efficiency decrease.

Location: Cassville, WI

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**Combustion Engineering  
Innovative Clean Coal  
Gasification Repowering Project**  
(Combustion Engineering, Inc.)  
1000 Prospect Hill Road  
P.O. Box 500  
Windsor, CT 06095-0500  
Ambrose P. Selker  
(203) 285-4164

Combustion Engineering's pressurized, airblown, entrained-flow coal gasification repowering technology is to be demonstrated on a commercial scale. The syngas is to be cleaned of sulfur and burned in a gas turbine. Heat will be recovered in a steam generator, steam from gasification and the heat recovery steam generator will be used to power a steam turbine. The demonstration, at a Generating Station in Illinois, will remove about 12 tons/day of sulfur from a daily consumption of 480 tons of high-sulfur Illinois coal, a reduction efficiency of over 99%. NO<sub>x</sub> is expected to see an 80% reduction.

Location: Springfield, IL

---

**SO<sub>2</sub> Control for Cement Kilns**  
(Passamaquoddy Technology)

U.S. Rt. 1  
P.O. Box 350  
Thomaston, ME 04861  
Dr. Garrett Morrison  
(207) 594-5555

Location: Thomaston, ME

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The Passamaquoddy Tribe intends to show off a scrubbing system for the removal of SO<sub>2</sub> from coal burning cement kilns. The "Recovery Scrubber" can reduce SO<sub>2</sub> emissions by over 90% and uses kiln waste dust as the scrubbing reagent as well as producing a recycle stream for feeding to the kiln and generates no new wastes. The demonstration will involve the Tribe's cement plant in Thomaston, ME, and will treat the entire gas stream from the cement kiln. By-product recovery (potassium based fertilizer and distilled water), will be demonstrated through a heat exchanger/evaporator.

**180 MW Demonstration of  
Advanced Tangentially-Fired  
Combustion Techniques for the  
Reduction of Nitrogen Oxide  
Emissions from Coal-Fired  
Boilers**

(Southern Company Services)  
800 Shades Creek Parkway  
Birmingham, AL 35202  
Steven Wilson  
(205) 877-7835

Location: Panama City, FL

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This plan involves 3 advanced NO<sub>x</sub> control technologies, put forth by Southern Company Services, for retrofit applications to tangential-fired, pulverized coal boilers. (1) advanced overfire air consists of deep stage high rate air injection, (2) low NO<sub>x</sub> concentric fired systems, (3) advanced tangential-fired systems. NO<sub>x</sub> reduction capabilities will be evaluated separately and then in combined operation in a logical sequence on a single boiler, NO<sub>x</sub> is expected to be reduced by 60%.

**500 MW Demonstration of  
Advanced Wall-Fired  
Combustion Techniques for the  
Reduction of Nitrogen Oxide  
Emissions from Coal-Fired  
Boilers**

(Southern Company Services, Inc.)  
800 Shades Creek Parkway  
Birmingham, AL 35202  
Steve Wilson  
(205) 877-7835

Location: Rome, GA

---

Three advanced NO<sub>x</sub> control technologies are to be demonstrated for retrofit applications to wall-fired, pulverized-coal boilers. The three technologies are Advanced OverFire Air, which consists of deep stage high rate energy injection, a second generation low NO<sub>x</sub> burner (LNB) and a combination of the two. These will eventually be combined to a single furnace, wall-fired boiler in Rome, GA.

**Phillip Sporn Plant PFBC  
Repowering Project**

(American Electric Power Service  
Corp)  
1 Riverside Drive  
Columbus, OH 43215  
James Mackowski, Vice President  
(614) 223-1900

Location: New Haven, WV

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The intent of this plan is to repower two commercially operating pulverized coal-fired electric generating units of early 1950's vintage, replacing the boilers with a single pressurized fluidized bed combustor/gas turbine module capable of generating 330MW. The objectives expected when burning high sulfur coal are high sulfur retention and low NO<sub>x</sub> emissions. This project is expected to build upon the experience gained from the Tidd PFB Demonstration Plant currently under construction under CCT I solicitation.



**100 MW Demonstration of Innovative Applications Technology for Cost Reduction to the Chiyoda Thoroughbred-121 Flue Gas Desulfurization Process on High Sulfur, Coal-Fired Burners**  
(Southern Company Services, Inc.)  
800 Shades Creek Parkway  
Birmingham, AL 35202

This project demonstrates the Chiyoda Thoroughbred-121 flue gas desulfurization process. The process uses a jet bubbling reactor combining limestone FGD reactions, forced oxidation and gypsum crystallization in one process vessel. This is a simple alternative to conventional FGD processes and more cost efficient. Innovations in further cost reduction and particulate removal will also be evaluated.

Location: Atlanta, GA

---

**4MW Demonstration of SO<sub>x</sub>-NO<sub>x</sub>-RO<sub>x</sub> Box (SNRB) Process**  
(Babcock & Wilcox)  
1562 Beeson Street  
Alliance, OH 44601  
Hank Majdeski  
(216) 829-7749

This is a post combustion flue gas cleanup demonstration involving the removal of SO<sub>2</sub>, NO<sub>x</sub>, and particulates. Ammonia and a calcium based sorbent are injected upstream of a high pressure baghouse. The sorbent reacts with SO<sub>2</sub> and is removed in the baghouse. Removal is accomplished with high temperature bags in the baghouse.

Location: Dille Bottom, OH

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**Advanced On-Site Flue Gas Desulfurization Process**  
(Pure Air c/o Air Products and Chemical, Inc.)  
P.O. Box 538  
Allentown, PA 18105  
Francis Bolinsky  
(215) 481-7440

This retrofit project is for a commercial scale advanced limestone scrubber flue gas desulfurization system. An absorber module will clean gas from four existing boilers. The system will use a high velocity, flow absorber with direct injection of pulverized limestone. The design includes a new single-loop process producing commercial gypsum, with in-situ forced oxidation performed by a rotary air sparger. A novel-waste water evaporation system that could potentially eliminate water/disposal treatment problems associated with high chloride coals with no discharge will be evaluated.

Location: Gary, IN

---

**Demonstration of Selective Catalytic Reduction (SCR) technology for Control of Nitrogen Oxide Emissions from high Sulfur, Coal-Fired Boilers**  
(Southern Company Services, Inc.)  
800 Shades Creek Parkway  
Birmingham, AL 35202  
Kerry Bowers  
(205) 870-6825

This project will demonstrate a combination of combustion modification technology and selective catalytic reduction providing the most cost effective means of reducing nitrogen oxide emissions from power plants. This will represent a technology possessing the capability to obtain 90% NO<sub>x</sub> emissions reductions for utility and industrial boilers. The technology can be potentially applicable to all types of boilers, including cyclone-fired boilers not easily retrofitted with other developing NO<sub>x</sub> control technologies.

Location: Pensacola, FL

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**Commercial Demonstration of  
WSA-SNOX Technology**  
(Combustion Engineering Inc.)  
31 Inverness Center Parkway  
P.O. Box 43030  
Birmingham, AL 35243  
William Kingston  
(205) 991-2832

WSA-SNOX technology will be demonstrated, catalytically removing SO<sub>2</sub> and NO<sub>x</sub> flue gas making a saleable by-product, concentrated sulfuric acid. Because no sorbents are used, waste by-products are not formed. Two catalytic reactors remove NO<sub>x</sub> by converting it to N<sub>2</sub> in an SCR reactor, then oxidize the SO<sub>2</sub> to SO<sub>3</sub>. SO<sub>3</sub> is hydrated then condensed as H<sub>2</sub>SO<sub>4</sub> in the WSA watertower.

Location: Niles, OH

---

**Low NO<sub>x</sub>/SO<sub>2</sub> Burner Retrofit  
for Utility Cyclone Boilers**  
(Trans Alta Resources Investment  
Corporation)  
Box 1900  
110 12th Avenue, S.W.  
Calgary, Alberta  
Canada  
W.L. Fraser  
(403) 267-7482

Trans Alta proposes show a low NO<sub>x</sub>/SO<sub>2</sub> (LNS) burner and coal pulverizer system on a 33 MW unit cyclone boiler. Two LNS burners will be retrofitted to the Babcock & Wilcox cyclone boilers and are expected to reduce NO<sub>x</sub> and SO<sub>2</sub> emissions. LSN burner is a pulverized-coal-fired entrained flow system with staged combustion. Calcium in limestone form is used to capture the sulfur. In the combustion process, coal is mostly gasified, which frees sulfur, making sulfur capture in calcium sulfur form easy. Gaseous nitrogenous species, including NO<sub>x</sub>, are converted to molecular nitrogen. Air is added to complete combustion and receive full heat release from the coal fuel.

Location: Marion, IL

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### CCT III PROJECTS

**Demonstration of Gas  
Suspension Absorption**  
(AirPol, Inc.)  
32 Henry Street  
Teterboro, NJ 07608  
Richard Rubio, Sales Manager  
(201) 288-7070

AirPol Inc. and fellow sponsors will demonstrate their advanced technique for sulfur pollutant removal from coal combustion flue gas. This "gas suspension absorption" can be retrofitted to existing industrial coal fired boilers. This system's heart lies in a vertical reaction vessel where flue gases come in contact with suspended lime, fly ash and reaction products. Lime absorbs the pollutants from the gases. While the exit gas stream, cleaned of 90% of its sulfur impurities, passes through a particulate capture device, before release into the atmosphere, most of the solids are recycled to the reaction vessel via a cyclone.

Location: W. Paducah, KY

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**Demonstration of the Liquid  
Phased Methanol Process**  
(Air Products & Chemicals)  
Allentown, PA 18195  
W.R. Brown, Manager  
(215) 481-7584

An advanced process for making methanol is demonstrated here by Air Products & Chemicals Inc. This process diverts a portion of synthesis gas, produced at a gasification plant, through "liquid phase methanol process." This process bubbles the gas through an inert liquid. An injected catalyst converts these gases to methanol which possesses great commercial value as a chemical as well as fuel.

Location: Beulah, ND

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**Healy Cogeneration Project**  
(Alaska Industrial Development  
and Export Authority)  
Anchorage, AK 99503  
W.R. Snell, Project Director  
(907) 561-8050

This new coal fired facility will produce electric power and process heat. This new plant design combines an advanced, "slagging coal combustor" and a heat recovery system to capture excess heat for use in an adjacent drying pilot facility. The capability of removing large amounts of ash is particularly suitable for burning coal with large amounts of mineral impurities. The combustor and boiler produce low NO<sub>x</sub> levels as well.

Location: Healy, Arkansas

---

**Low NO<sub>x</sub> Cell Burner**  
(Babcock & Wilcox Co.)  
Alliance, OH  
Todd Johnson, Marketing  
Specialist  
(216) 829-7355

This is a demonstration of a full scale, newly developed "low NO<sub>x</sub> cell burner." This burner is designed to cut the release of hydrogen oxide pollutants by 50% - 60% from a boiler in the 1960's. These burners provide maximization of the rate of heat loss while producing high levels of NO<sub>x</sub> emissions, totalling almost 20% of all NO<sub>x</sub> emissions in the U.S.

Location: Aberdeen, OH

---

**Confined Zone Dispersion  
Demonstration**  
(Bechtel Corporation)  
San Francisco, CA  
Jimmy Bowden  
(415) 768-5986

The "Confined Zone Dispersion" process removes sulfur and nitrogen from flue gas existing boilers. Lime slurry is injected to a new straight long duct which is carrying the flue gas to absorb sulfur. The long straight duct works best because the lime is in contact with the gas long enough to remove 50% of sulfur dioxide and convert it to non-toxic dry waste. These dry particles are then captured by the electrostatic precipitator.

Location: Indiana County, PA

---

**Direct Coal Injection  
Demonstration**  
(Bethlehem Steel Co.)  
Bethlehem, PA 18016  
Marshall Mazer, Manager, Govt.  
Programs  
(215) 694-2389

This is an advanced process of using coal directly in a steel mill blast furnace, foregoing the conversion to coke. Eliminating the coke oven reduces sulfur dioxide, hydrogen oxide and other emissions. This would make use of otherwise unacceptable coals, which aren't usable because of their poor quality for coke making.

Location: Burn Harbor, IN

---

**IGCC Process Demonstration**  
(CRSS Capital, Inc.  
TECO Power Services Corporation  
Joint Venture)  
Houston, TX 77027  
James Stewart  
(713) 552-2000

The plant involved will convert coal to fuel gas then after a cleaning stage, will burn the gas in a turbine to drive a generator. Gases in the turbine exhaust are hot enough to make steam for steam-turbine power systems. The combination of gas and steam turbines accounts for the name "combined cycle."

Location: Tallahassee, FL

---

**Alma Pressurized Circulating  
Fluidized Bed Demonstration**  
(Dairyland Power Cooperative)  
LaCrosse, WI 54602  
Richard Shimshack  
(608) 787-1422

The pressurized circulating fluid bed coal combustor linked to a combination of gas and steam turbines. Coal particles burn while floating in stream of combustion air blowing through the boiler. Limestone reacts chemically with sulfur impurities released during combustion. Pollutants are removed with the fly ash. The low combustion temperature lowers the release of NO<sub>x</sub> pollutants, pressurizing the system allows high pressure exhaust gas to drive a gas turbine.

Location: Alma, WI

---

**EnCoal Mild Gasification**  
(ENCOAL Corp.)  
Houston, TX 77252  
J.P. Frederick, Staff Mining  
Engineer  
(713) 870-3148

This is a technique producing two fuel forms, a clean solid fuel and a liquid, from coal. This is called "mild gasification," using the same principles as conventional gasification but with much less severe temperatures and pressures. This process also modifies feed coal, generating liquid and solid products while removing moisture and sulfur. Both products are expected to be suitable as fuels for power plants, the liquid form has potential to be used as a refinery feedstock for petrochemicals and transportation fuels.

Location: Gillete, WY

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**Combined Gas Reburning and  
Low NO<sub>x</sub> Burners**  
(Energy and Environmental  
Research Corp.)  
Irvine, CA 92718  
Dr. Blair Folsom, Vice President  
(714) 859-8851

This demonstration combines two NO<sub>x</sub> control processes. Gas reburning is coupled with low NO<sub>x</sub> burners in a wall fired utility boiler. Reburning involves firing natural gas above the main combustion zone, creating a slightly rich fuel zone. Nitrogen oxides are fired here and changed to harmless molecular nitrogen. Low NO<sub>x</sub> burners in the combustion zone slow NO<sub>x</sub> production by staging the burning process so the coal/air mixture can be carefully controlled.

Location: Denver, CO

---

**Advanced Sorbent Injection**  
(LIFAC N. America)  
Oakland, CA 94612  
William Stitt, President  
(415) 268-6000

By injecting limestone into the upper regions of a boiler furnace sulfur pollutants in flue gas can be reduced as much as 75%-80%. A humidification chamber installed between the preheater and electrostatic precipitator will help adjust moisture content of flue gas, obtaining optimum levels of sulfur capture. This is excellent for use in smaller boilers whose space sometimes preclude normal sorbent injection techniques.

Location: Richmond, IN

---

**NOXSO Process Demonstration**  
(MK - Ferguson Co.)  
Cleveland, OH 44114  
C.W. Hyvonen, Vice President  
(216) 523-5691

This is a scaled up version of a flue gas cleaning system that regenerates sulfur and nitrogen-absorbing chemicals creating no waste. A solid sorbent is used to catch both SO<sub>2</sub> and NO<sub>x</sub>. The sulfur is recoverable either as acid or in elemental form, both are marketable. Nitrogen oxides are recycled to the boiler and converted to molecular nitrogen and oxygen.

Location: Niles, OH

---

**Integrated Dry NO<sub>x</sub>/SO<sub>2</sub>  
Emission Control System  
Demonstration**  
(Public Service Co. of Colorado)  
Denver, CO 80207  
George Green, Manager-Electric  
Operation Services  
(303) 329-1948

This demonstration utilizes a combination of techniques to reduce sulfur dioxide and nitrogen oxide emissions. Low NO<sub>x</sub> burners will replace existing burners. Air ports will be added to furnace walls so combustion air is redirected creating a low NO<sub>x</sub>, fuel rich combustion area. These special burners and "overfire air" zone is expected to reduce NO<sub>x</sub> by 70%. This is the initial test of a low NO<sub>x</sub> burner on a down-fired pulverized coal boiler. To further enhance NO<sub>x</sub> removal, urea will be injected into the flue gases leaving the combustion zone.

Location: Denver, CO

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