ENGINEERING AND CONSULTING DIVISION
POWER PRODUCTION SERVICES
WASTE COAL CFB PROJECTS
ENGINEERING SERVICES

- PROCESSING /HANDLING SYSTEM DESIGNS (FUEL AND LIMESTONE)
- PERMITTING (FUEL MINING AND ASH DISPOSAL)
- PERMIT COMPLIANCE (WATER MONITORING, REPORTING, ETC.)
- SNCR SYSTEM DESIGN
- STOCKPILE INVENTORY

115 South Market Street, Ligonier, PA 15658 • 724.238.5695 • Fax 724.238.6439 • contact@miltechenergy.com

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PROCESSING/HANDLING SYSTEM DESIGNS (FUEL AND LIMESTONE)

Miltech offers clients design services for both fuel and limestone processing systems. These design services include plant site selection, structural design, feeder systems, screening, crushing, conveyance and storage. In the area of fuel processing, Miltech's system designs services also include specific gravity processing and separation.

Miltech's fuel and limestone handling system designs include delivery system, storage, handling fuel yard layout, stockpiling, stockpile reclaiming, etc. These system designs have been successfully used at operating plants in Pennsylvania, West Virginia and Utah that handle a wide range of fuels including run of mine coal, strip mine waste, coarse coal refuse, fine coal refuse and petroleum coke.

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PERMITTING (FUEL MINING AND ASH DISPOSAL)

In 1990 Miltech worked closely with Pennsylvania Department of Environmental Protection (PADEP) in the successful development of the first Sub Chapter F permit for bituminous waste fuel recovery and boiler ash reclamation that was issued in Pennsylvania.

Since that first permit in 1990, Miltech has developed permits for over 15 waste coal recovery and/or boiler ash reclamation sites in both the bituminous and anthracite areas of Pennsylvania as well as for bituminous fuel in West Virginia.

After waste coal sites are operating Miltech routinely assists clients with regulatory compliance.

For more information see

- Permit Compliance Services
- Fuel and Limestone Sites Water Sampling and Analyses
- Low Flow and Standard Ground Water Sampling
- Coal Ash Beneficial Use Permitting

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PERMIT COMPLIANCE

Miltech offers permit compliance services including all testing, engineering, submissions, etc. needed to meet the requirements of a mining, reclamation and/or a beneficial use permit. These services include:

- Density testing and reporting
- Bonding reporting
- Water testing, statistical evaluation and reporting
- Annual volumetrics, mapping and reporting
- Coal completion reporting

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SNCR SYSTEM DESIGN

Miltech Engineers are experienced in the design and installation of SNCR (selective non-catalytic reduction) systems for the reduction of NOx (nitrogen oxides) in flue gas emissions. At one CFB waste coal burning power plant, Miltech designed an aqua ammonia SNCR system to reduce NOx emissions from 0.35 lb/mm BTU (pounds per million BTU) to 0.13 lb/mm BTU. Designs included:

- Determining aqua ammonia feed rate required to achieve the desired NOx reduction
- Selecting the pumps and piping required to transmit at the proper pressure and flow rate, aqua ammonia from an on-site storage tank to the injection sprays in the cyclones located upstream of the stack
- Sizing and providing specifications for the on-site aqua ammonia storage tank
- Sizing and designing concrete containments for the aqua ammonia storage tank, and an aqua ammonia truck unloading station
- Designing a pump skid for fabrication to support three aqua ammonia pumps (two pumps plus one spare) for a two-train system, with valves and controls to allow for the interchangeable use of the pumps
- Designing four flow meter panels for fabrication. The designs included splitting the two aqua ammonia streams into 12 streams leading to lances and spray nozzles, and for air injection into the aqua ammonia streams.
- Selecting the proper spray nozzles for injecting aqua ammonia and air into the cyclones.

In addition to designing and selecting the equipment for the aqua ammonia injection system, Miltech also assisted plant engineers and operators with selecting the location for the aqua ammonia storage tank, truck unloading station, pump skid and controls, and the flow meter panels. Once the aqua ammonia truck unloading and storage tank site was selected, Miltech prepared specifications for the demolition and removal of unused facilities at the selected location. Miltech then surveyed the site, prepared site grading plans, and prepared detailed designs for the installation of the concrete foundations and containments. Pipeline routing plans from the ammonia storage tank, to the pump skid, to the flow meter panels in the plant, and to the 12 ammonia injection lances were also prepared. A complete list of materials required for the project was provided to the client.

For the particular project, Miltech provided on-site supervision and inspection during site grading, and during installation of the concrete foundations and containments. Miltech has the capability and expertise necessary to follow through on all projects from the design phase, to the construction and installation phase, and through the startup and initial operation phases, as required by the client.

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SNCR SYSTEM DESIGN (Continued)

For additional related information see:

- Mine De-Watering System Designs
- Topographic Surveying and Mapping
- Scrubber Sludge De-Watering System Designs
- Slurry Transport System Design
- Permit Compliance

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STOCKPILE INVENTORY

Miltech's fuel stockpiling inventory services offer our clients the ability to reconcile inventories. The services include determining stockpile volume by aerial and/or ground survey methods, density determination by drilling and nuclear backscatter methods as well as stockpile sampling and analyses.

Miltech's volumetrics and density testing are done in accordance with ASTM procedures in order to ensure the maximum achievable accuracy.

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