



## **Lignite Fuel Enhancement**

### **Quarterly Technical Progress Report:**

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## **Abstract**

This 5th quarterly Technical Progress Report for the Lignite Fuel Enhancement Project summarizes activities from July 1<sup>st</sup> through September 30<sup>th</sup> of 2005. It also summarizes the subsequent purchasing activity and dryer/process construction.

## **Acknowledgement**

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## **Executive Report**

### **Progress:**

The Design Team continues to conference this quarter albeit not as often. Primary focus this quarter is the continued procurement of material, receiving, and construction/installation. Phase 1 extension recommendation, and subsequent new project estimate. Forms 424 and 4600 were submitted to Ms. Zysk. The NETL technology team subsequently agreed that the increase is justified and made their recommendation to DOE HQ.

All major mechanical equipment was delivered this quarter. Three hot water in-bed coils are all that remains for delivery. Two of the five are installed above the dryer air distribution bed. The dryer, baghouse, bucket elevator, control room, exhaust fan, process ductwork, and piping have all been installed. The mezzanine level over the inlet ductwork for access to the dryer was installed. Instrumentation was delivered and locations were identified. Cable is being pulled and connections made from the Control Room to the Motor Control Center. "Emergency Stop" equipment logic conditions were discussed and finalized. The functional description was completed and reviewed with Honeywell Controls. Piping & Instrument diagrams are completed. Some electrical schematics have been delivered for equipment south of Q-line. Dry & Wet coal conveyors are not completed. The exhaust chimney was installed.

An Open House and ribbon cutting took place on August 9<sup>th</sup>. GRE project manager gave a presentation of the technology. Joe Strakey, NETL, also spoke. The Open House was attended by Governor Hovion and Senator Conrad who also spoke about Clean Coal and helped kick-off Blue Flint ethanol and a potential Liquefaction plant. The design team met the following day to discuss test plan and progress update.

Headwaters Energy Incorporated also attended the Open House. A meeting was conducted with them to begin planning for the marketing and finalize our memorandum of understanding. Headwaters still plans to contact all US lignite plants and all bituminous plants who have switched to PRB.

Major pieces of equipment received this quarter included the Dryer, Exhaust Fan, additional duct work, and control cabinets.

Invoice #11 was submitted and payment was received. Invoices #12,#13, and #14 are completed but being held pending DOE approval of additional project costs...Phase 1 extension and overrun request was submitted to the NETL this quarter. The seven month extension was granted. DOE headquarters is reviewing the recommendation to support additional project overrun.

Charles Bullinger gave a presentation of GRE technology at the Pittsburgh Coal Conference on September 14th and EPRI Program 66 Future Generation meeting in Dallas, TX Septemebr 20th. An overview of project plans was explained with emphasis made on our belief that this same technology should help those who've switched to PRB, regain their lost performance margin! EPRI has been making plans to "sunrise" a Dryer Interest Group in 2006.

**Problems Encountered:**

The issues with Lehigh University are very close to completion and agreements should be signed shortly. The two legal advisors are currently finalizing the language. Several small installation problems arose as the equipment was installed but all are or were field modified and the installation continues. Barr electrical schematics have been slowly arriving; we plan to double shift the electrician when the mechanical work is complete to improve the scheduled Start-up.

**Plans for the next reporting period:**

The Dryer system installation will complete in November: mechanical in late October and electrical to follow. ICI electricians will complete cable trays and wiring. Honeywell will deliver the control system and it will be checked out and installed. The entire process checkout should continue through November, early December. The 1<sup>st</sup> tests and 1<sup>st</sup> coal to be processed should take place in December. Phase 1 extension approval should be completed next quarter.

**Prospects for future progress:**

The prospects are quite good that all the next Quarter deliverables will be met. Equipment installation and checkout should complete and the testing protocol begun.

**Experimental Apparatus:**

Details of the dryer and system, P&ID's, schematics, and drawings contain "Limited Rights" information which cannot be disclosed at this particular time.

**Experimental & Operating Data:**

Demolition and Construction phase currently ongoing therefore no data to report at this time.

**Data Reduction:**

No data

**Hypothesis & Conclusions:**

Hypothesis remains the same. We will be able to dry lignite an increment to benefit the performance of and reduce emissions from a coal burning electric power generating station.