



Lignite Fuel Enhancement

Quarterly Technical Progress Report:

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Lignite Fuel Enhancement

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Abstract

This 9th quarterly Technical Progress Report for the Lignite Fuel Enhancement Project summarizes activities from July 1st through September 30th of 2006. It summarizes the completion of the Prototype testing activity and initial Commercial design activity during that time period.

Acknowledgement

The authors wish to acknowledge the contributions and support provided by various project managers: Dr. Sai Gollakota (DOE), Matt Coughlin (North Engineering) Dave Rian (Barr), John Wheeldon (EPRI), Tony Armor (EPRI), Dr. Ed Levy (Lehigh), Dr. Nedad Saranac (Lehigh), and Mark Ness (GRE).

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Executive Report

Progress:

The Design Team continued conferencing this quarter, analyzing the early data, and making commercial design recommendations based on the results. One team meeting was held at Coal Creek to inspect the dryer and review the operation. By the end of September we had run nearly 200,000 tons of lignite through the dryer.

"Pairs" testing data review was completed this quarter. This is testing of Unit#2 at Coal Creek with seven Pulverizers running "wet" lignite and then that performance and emission data compared to a six "wet" and one "dry" pulverizer operation.

Coal accumulation on the outlet of the 2nd stage was alleviated by air lances however the air pressure in combination with the coal wore a hole into the distribution plate and coal accumulated in the inlet plenum. The distribution plate was repaired and the design team is reviewing modifications to the inlet air distribution that will "sweep" the ledges clean without lances.

Great River Energy and Headwaters met to discuss the Commercialization Plan this quarter. Most of that effort was suspended this quarter pending "pairs" data analysis which will be used to develop a "fact" sheet for distribution to other utilities. Work did progress however on agreements with Black & Veatch who is owners engineer for Big Stone II and Vattenfall, who is interested in incorporating the technology in their Oxy-fuel test facility.

Invoices #24 through #26 were completed and forwarded for preliminary review and final DOE approval. The Budget expended through September 30th was \$10,425,202 (budget \$10,856,518).

Charles Bullinger gave a presentation at the EPRI CoalFleet Meeting in Bismarck on August 10th and EPRI Program Committee 66, Future Generation, on September 19th. EPRI continues plans to "sunrise" a Dryer Interest Group but was deferred to early 2007 when GRE patents are projected to be finalized.

Problems Encountered:

No problems to record in the last quarter. Dryer has been running daily @ 75ton/hr without much incident.

Plans for the next reporting period:

Capacity tests will complete. Some "life" data collected as the dryer continues to run through the Fall/early Winter. Budget Period 2 is well under way and final design of the Commercial System will complete. Expect some material (heavy steel) and major components to be ordered before the end of the year. Budget Period 1 Final Report will be completed.

Prospects for future progress:

The prospects are quite good that all the next Quarter deliverables will be met.

Final design will complete and procurement for Budget Period 2 will begin by next quarters end.

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:

No "new" data to report. Data is being collected by the digital control system however no analysis has been done on it. The testing this quarter has been focused on "life" issues. An inspection will be completed this Winter to study those affects.

Data Reduction:

Nothing new to report this quarter.

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.

