



Lignite Fuel Enhancement

Quarterly Technical Progress Report:

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Reported by:

Charles Bullinger, P.E.

Engineering Services Leader/Lignite Fuel Enhancement Project Manager

Great River Energy – Coal Creek Station

2875 Third Street SW

Underwood, North Dakota 58576-9659

Telephone: 701-442-7001

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Abstract

This 4th quarterly Technical Progress Report for the Lignite Fuel Enhancement Project summarizes activities from April 1st through June 30th of 2005. It also summarizes the subsequent purchasing activity and dryer/process construction.

Acknowledgement

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

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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 demolition, procurement of material, receiving, and construction/installation. All contractors were asked to re-estimate costs to complete Phase 1, Prototype design, construction, and demonstration. The information was used to compile an Interim Report, no-cost Phase 1 extension recommendation, and subsequent new project estimate. Forms 424 and 4600 were readied for submittal to Ms. Zysk.

EPRI completed the dryer test plan and Black & Veatch completed their instrument survey. Heyl-Patterson completed drawings for the dryer (instrument locations needed resolution). Central Machine of Minot, North Dakota fabricated the upper, freeboard section of the dryer and delivered it to the plant site. They continued work on the lower, air distribution plenum and middle, air distributor and segregation sections. ICI millwrights installed the Silo 28 outlet feeder, crusher, liewell screen, shell of the bucket elevator, and began work on the conveyors. Iron workers installed support steel for the baghouse and exhaust fan. They also removed additional generation building wall panels on the East side to allow more light into the work area and also allow heat to ventilate out. They then staged all air duct into the process area; this was completed before the dryer blocks the access. ICI electricians installed the main motor control center (MCC) for the primary process equipment. They also began running cable and cable trays between the MCC and the equipment locations. The control room was ordered, delivered, and installed.

The DOE Project Manager, Dr. Gollakota, visited the site on June 30th. Discussions involved project schedule, budget, Interim report, and new estimate. Dr. Minkara, Headwaters Energy Services project contact, also visited at the same time to meet Dr. Gollakota and discuss the marketing strategy.

Major pieces of equipment received this quarter included the Control Room, Mixing Box, air ductwork, hot air coil, and dryer freeboard section.

Headwaters Energy Incorporated also visited the plant site in May. Details of the technology were relayed and a preliminary plan devised for marketing the technology. Final plan will take place after the data starts to come in this Fall. Headwaters plans to contact all US lignite plants and all bituminous plants who have switched to PRB.

Invoices #7,#8,#9, & #10 were submitted..

Charles Bullinger gave a presentation of GRE technology at the CoalPrep conference In Lexington in May and the Air, Waste Management Association conference in Minneapolis in June. 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! Canadian and Australian companies have since contacted GRE for further information.

Problems Encountered:

Two problems were presented last quarter. The dryer and controls pricing was higher than estimates. The second involving Lehigh University continued. Presently, Lehigh and GRE lawyers are finalizing verbiage for the contract agreement and master service agreement. Dr. Levy and Mr. Bullinger had a face-to-face lunch meeting in Lexington which set the stage for the final legal language. GRE sponsored but has yet to receive all reports from Lehigh's water reduction DOE Project DE-FC26-03NT41729, "Use of Coal Drying to Reduce Water Consumed in Pulverized Coal Power Plants". Another problem this present quarter involves steel for the mezzanine floor and mixing box support above it. Drawings were issued to fabricators in April. They were re-bid because of the large disparity in bids. Barr had the drawings re-drawn because there was some confusion with them. Steel wasn't ordered until June; delivery is expected in late July.

Plans for the next reporting period:

The Dryer installation will take place in late July. Baghouse, exhaust fan, and buckets for the bucket elevator will also be installed. 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 August. The 1st tests and 1st coal to be processed should take place in early September. Completion of Phase 1 extension paperwork and compilation of an Interim Project Design Report should also complete early in the 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.