

FY06-LIV(55)-141
”Lignite Coal Test at a Circulating Fluid Bed Facility”

Submitted by: Basin Electric Power Cooperative
Request for: \$275,000; Total Project Costs: \$550,000
Principal Investigator: Mike Paul

PARTICIPANTS

<u>Sponsor</u>	<u>Cost Share</u>
Industry	\$ 275,000
Basin Electric Power Cooperative	
Minnkota Power Cooperative	
Great Northern Power Development	
Montana Dakota Utilities	
NDIC	\$275,000
	<hr/>
Total Cost	\$550,000

Project Schedule - 7 Months

Contract Date – 12/5/05
Start Date – 12/5/05
Completion Date – 3/10/06

Project Deliverables

Contract Signed:
Quarterly Reports:
12/15/05 (✓);
2/1/06 (✓);
Final Report 3/10/06 (✓);

OBJECTIVE / STATEMENT OF WORK:

Conduct a continuous 10-day test using a vendor Circulating Fluid Bed Combustion (CFBC) and a high sodium (8% or more) to identify potential agglomeration or steam tube fouling. Identify operational and design parameters to define information needed for a full-scale CFB unit that can be used to repower an existing lignite-fired power plant.

STATUS

Through March 20, 2006

Alstom Power Inc was selected as the contractor based on its technical capabilities and location of their facility. The test objectives have been identified and will be investigated by Alstom. The testing was completed by Alstom in a series of four tests. There were no fatal flaws in the use of CFB as a lignite technology. The results of the tests will be included in the final report.

Final Report

Higher sodium (greater than 6 percent) lignite was shipped to Alstom Power Inc.’s test facility in Windsor, CT. A 230-hour test was conducted by Alstom to determine if there is a fatal flaw with the use of high sodium ND lignite in CFB combustion technology. Results indicated that the test lignite can be utilized as a CFB fuel as long as sodium concentrations in the solids inventory are controlled by the addition of inert material to flush sodium from the system. As power generation utilities continue to seek advanced methods of generating electricity from lignite, utilization of CFB technology may offer a viable option. The four participants in this testing program were Basin Electric Power Cooperative, Great Northern Power Development, Montana Dakota Utilities Co., and Minnkota Power Cooperative.