

FY97-XXIV-69
TECHNICAL AND ECONOMIC FEASIBILITY STUDY FOR UTILIZATION OF
NORTH DAKOTA LIGNITE BOTTOM ASH

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PARTICIPANTS

<u>Sponsor</u>	<u>Cost Share</u>
Cooperative Power	\$10,000
ND Industrial Commission	<u>\$10,000</u>
Total Project Cost	\$20,000

Project Schedule – 8 Months

Contract Date – 8/26/96
Start Date – 8/26/96
Completion Date – 5/1/97

Project Deliverables

Status Report - 1/2/97 ✓
Draft Final Report - 4/15/97 ✓
Final Report - 11/18/97 ✓

OBJECTIVE / STATEMENT OF WORK

The purpose of this project is to determine the technical and economic feasibility of using North Dakota lignite bottom ash in common application state- and region-wide. The project will focus on the bottom ash produced at the Coal Creek Station. The program involves collecting technical information regarding markets and matching the North Dakota lignite ash byproduct to the market specifications. Also, the program will evaluate the economic factors influencing the marketability of the North Dakota lignite bottom ash.

STATUS

Potential low-technology uses for North Dakota lignite bottom ash are:

- Deicing and skid control agent for roads,
- Road subbase to stabilize subbase and for asphalt paving,
- Light-weight aggregate for use in light-weight concrete blocks and other building materials,
- Aggregate for seal or surface coats on asphaltic concrete, and
- Aggregate for flowable mixtures such as controlled low-strength materials

Information affecting marketing of lignite bottom ash was collected for the potential low-technology uses. The following conclusions were drawn for bottom ash from the Coal Creek Station:

- The bottom ash meets the specification for several types of aggregate applications.
- Leaching studies indicated no environmental threat in any of the applications.
- The North Dakota Department of Health has approved the use of Coal Creek Station bottom ash in road subbase, surface and seal coats, controlled low-strength materials, and other applications where the bottom ash is incorporated into a matrix.
- The bottom ash is economically competitive with competing materials with cost savings for the end users.