

**LMFS-94-10**  
**DEVELOPMENT OF LIGNITE NICHE MARKET OPPORTUNITIES**

**CONTRACTOR:** J.E. Sinor Consultants, Inc.

**PRINCIPAL INVESTIGATOR:** Jerry Sinor  
(303) 652-2632

**CONTRACT AMOUNT:** \$45,000

**Project Schedule - 9 Months**

Contract Date - 12/31/93

Start Date - 1/1/94

Completion Date - 3/31/95

**Project Deliverables**

Status Report - 3/1/94 ✓

Status Report - 6/1/94 ✓

Final Report -3/31/95 ✓

**OBJECTIVE / STATEMENT OF WORK**

The objective of this study is to carry out planning and marketing efforts to develop specialty products derived from lignite. This study will develop strategies for granular activated carbon, rheology control products and powdered activated carbon. The following tasks will be done:

**Granular Activated Carbon**

- Focus resources on technologies to produce granular activated carbon;
- Investigate collaborative opportunities with current technology developers; and
- Identify bench-scale characterization required to determine properties and feasibility of granular activated carbon produced from North Dakota lignite.

**Rheology Control Products**

- Investigate opportunities for testing NDL as a rheology control agent; and
- Discuss the opportunities for marketing NDL derived products with current major suppliers of rheology control agents.

**Powdered Activated Carbon**

- Identify bench-scale characterization required to determine properties and feasibility of powdered activated carbon produced from North Dakota lignite; and
- Investigate collaborative opportunities with current technology developers.

The specific objective of this study is to focus business development, marketing and technology demonstration efforts in North Dakota.

## STATUS

The contractor, J. E. Sinor, concludes that the rheology control market is not established. An important first initiative would be to develop scientific data demonstrating the use and benefit of North Dakota lignite for rheology control. The application cited in previous studies by Charles River Associates (LMFS-8) is very site specific for the Alcan Jamaica bauxite facility. The market potential is estimated to be limited to – 5,000 tons per year at a market price of \$20 per ton. Based on this information, Sinor recommends that no further effort be initiated in rheology control market studies.

In order to develop an activated carbon industry in North Dakota, significant obstacles must be overcome. First and foremost, the activated carbon industry is a mature business, with well-established and highly competitive producers. Second, the industry is evolving into a Aservice≡ orientation versus a commodity focus. Third, the industry currently has sufficient production capacity and imports are growing. Fourth, future growth rates will be highly driven by still unfinalized government regulations.

Other Commission sponsored studies have shown there are commercially viable processing technologies to convert North Dakota lignite into market acceptable activated carbons. In addition, it can be shown that the State of North Dakota can be an economically attractive location to build a new activated carbon production facility. Therefore, the business goal could be to make North Dakota the site of the next large increment of activated carbon manufacturing capacity, when the industry determines that the capacity is needed.

Sinor proposed low-profile and high-profile business plans. In the low-profile business plan the Industrial Commission of North Dakota would not take an active part in forming a new business venture. Instead, the Commission would continue to support the production, distribution and evaluation of activated carbons formed from North Dakota lignite. The Commission would focus on recruiting an existing producer to relocate or expand activated carbon production to North Dakota. The low-profile business plan is focused on existing activated carbon producers.

In contrast, the high-profile business plan accepts the challenge of developing a new entity if an existing producer does not relocate to North Dakota. In the high-profile plan, the Commission would take an active role in licensing technology, demonstration technology, raising venture funds and forming commercial operations.