

FY98-XXVIII-77
**EVALUATION OF MARKET POTENTIAL FOR NORTH DAKOTA FLUE GAS
DESULFURIZATION GYPSUM**

CONTRACTOR: EN-ROCK, Incorporated

PRINCIPAL INVESTIGATOR: Mark Flaagan
Phone: (701) 277-0089
Fax: (701) 277-1603

PARTICIPANTS

<u>Sponsor</u>	<u>Cost Share</u>
Cooperative Power Association	\$23,500
ND Industrial Commission	<u>23,500</u>
Total Project Cost	\$47,000

Project Schedule – 18 Months

Contract Date – 10/14/97
Start Date – 10/14/97
Completion Date – 3/28/99

Project Deliverables

Status Report - 2/28/98 ✓
Status Report - 9/30/98 ✓
Final Report - 2/28/99 ✓

OBJECTIVE / STATEMENT OF WORK

The objective of this project is to evaluate markets for gypsum. As a part of projects FY94-XVI-54 and FY95-XX-63 gypsum was identified as potential product, which could be derived from raw flue-gas desulfurization sludge at the Coal Creek Station. Projects FY94-XVI-54 and FY95-XX-63 demonstrated potential use and technical viability of the FGC derived gypsum. The primary goal of this project is to assess the highest potential end use for the North Dakota FGD gypsum. Three principal tasks are (1) to assess all viable regional uses, (2) determine quality specifications, and (3) determine market size and most economically attractive markets.

STATUS

The following uses of unprocessed FGD material were identified:

- Waste stabilization
- Agricultural soil amendment
- Soil embankment stabilization
- Road base and subbase
- Structural fill
- Mining mortar

The following uses of synthetic FGD gypsum were identified:

- Wallboard
- Agricultural soil amendment
- Manufacture of ammonium sulfate fertilizer
- Cement production (cement clinker)
- Fabrication of unfired brick, cinder block, and masonry
- Industrial plasters
- Self-leveling floor mortar
- Oil well cements
- Foliage treatment for improved plant productivity
- Lath
- Veneer base
- Water/moisture resistant board
- Agricultural products processing

The highest potential for FGD-derived gypsum in North Dakota are:

- Wallboard
- Soil Amendment
- Foliar feeding (Agricultural application)
- Sugar beet pulp processing
- Animal feed supplement