

LRC-VII-29
MITRE CORPOATION STUDY ON THE FEASIBILITY OF
HYBRID COAL LIQUEFACTION CONCEPT AT GREAT PLAINS

CONTRACTOR: Dakota Gasification Company

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PARTICIPATION

<u>Sponsor</u>	<u>Cost Share</u>
Dakota Gasification Company	\$60,000
ND Industrial Commission	<u>60,000</u>
Total	\$120,000

Project Schedule – 5 Months

Contract Date – 6/28/91
Start Date – 7/17/91
Completion Date – 10/91

Project Deliverables

Status Report ✓
Final Report – 11/91 ✓

OBJECTIVE / STATEMENT OF WORK

The objective was to perform a site-specific study of the hybrid coal liquefaction plant. Study parameters would be specific to the Great Plains site. The study would determine the capital cost of conversion to the hybrid plant as well as the required selling price of products to ensure reasonable degree of profitability.

STATUS

The MITRE Corporation performed techoeconomic analysis of several possible modifications of the Great Plains gasification facility. The modifications evaluated would use all or part of the synthesis gas stream to producer higher value products than the current configuration which produces methane and is marked as Substitute Natural Gas (SNG). Seven possible modifications were considered in the MITRE study. Modification SASOL 2 assumed the SASOL Fixed Fluid Bed technology to produce liquid fuels and SNG. Modification SASOL 3 was like SASOL2, except the SNG was used to generate additional synthesis gas and liquid fuels. SASOL 2 (H) 1-CTSL and SASOL3(H)1-ctsl are similar to SASOL and SASOL 3, except hydrogen is extracted from the tail gas stream and used to upgrade the Lurgi Gasification Tars and oil. Three slurry phases Fischer-Tropsch technology, are the most promising techoeconomic modifications. Coupled with the use of Clean Coal Technology funds for 50% of the required capital costs, these options are economically attractive.