

## Northern Border Pipeline Compressor Stations - United States

### PROJECT OVERVIEW

The entire design and construction of the project took place over an 18 month period during 1990 and 1991. Because of the project's size, Gulf assigned a full-time project team comprised of key personnel experienced in each



relevant discipline. To ensure maximum efficiency and control, the team was grouped in a dedicated office area in Gulf's Houston headquarters.

In carrying out the project, Gulf obtained quotations and handled purchasing and expediting for all the materials

**G**ulf Interstate Engineering played an essential role in a major expansion of compressor capacity for an 822 mile, 42-inch pipeline bringing Canadian gas into the U.S. The Northern Border Pipeline project involved five grass-roots compressor stations utilizing 20,000 HP Cooper/Rolls Royce turbines to develop a total operating horsepower of 100,000.

Stretching across the northern U.S. with compressor station sites in Montana, North Dakota, South Dakota and Minnesota, the expansion of this pipeline added 500 MMCFD capacity to the system at a total installed cost of \$158 million.

Gulf's project team provided the complete design, procurement, commissioning, and start-up for the project, handling everything from civil foundation work to electrical controls and piping.

involved with compressor station installation, including shop inspection of all vendors who supplied materials.

### DESIGN AND PROCUREMENT

Gulf implemented a detailed design and procurement effort that helped streamline work

for all the facilities, reducing costs and expediting the design and construction process. The project utilized a common operational and control philosophy to simplify the drawing process and ensure standardization between all of the stations.

An approved vendor list was established prior to the requisition process. This process utilized a single requisition format for each material/equipment category that combined requirements for all five stations.

For each of the five stations, Gulf experts prepared specifications and obtained quotations for station site surveys, soil testing, percolation testing and laboratory testing of soil samples

### CONSTRUCTION MANAGEMENT

The project team developed estimates for design and construction costs, prepared bid and construction documentation packages, provided cost estimates for FERC approval and developed a detailed



design package comprised of bid and construction drawings.

Gulf also played a key role in the construction phase of the Northern Border project. Gulf field services personnel handled various aspects of the compressor station construction inspection. Field service teams managed the commissioning process, ensuring that metering, safety and other facility systems met operating criteria. Gulf's start-up teams provided commissioning services and supplied detailed operations manuals and documentation.





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