



## PROJECT DETAILS

- \$300 million topping plant
- Joint venture of Resources Group Inc. and Calumet Specialty Products Partners LP
- Designed to process 20,000 bpd of oil
- Targeted to produce 7,000 bpd of diesel fuel (294,000 gallons)
- Other products:
  - Naphtha (6,500 bpd)
  - Atmospheric bottoms (6,000 bpd)
  - Some natural gas liquids
- 100 permanent employees when operating
- Supplies diesel needs of North Dakota
- Will serve to stabilize market, reduce price volatility

## DAKOTA PRAIRIE REFINING

Principal Technology's small capacity sulfur recovery and tail gas treating units were the perfect solution for the Dakota Prairie Refining operation in southwestern North Dakota. The topping plant, located in The Baaken, is smaller than a full-scale refinery, and Principal Technology's small-capacity SRUs and TGUs address the specific needs of this type of refinery. Based on a modular platform designs that reduce installation time, the SRUs and TGUs were able to meet the tight construction deadlines imposed to complete the refinery in 20 months.

Topping plants are designed strip out easily refined components, process them and ship the remaining components to other refineries for complete processing. These smaller plants are usually located near the primary market. In this case, the Dakota Prairie plant will supply North Dakota's underserved diesel market, which is driven by increasing demand from the energy and agriculture sectors. North Dakota was importing more than half of its diesel fuel at the time this plant was built and demand is expected to increase by 50 percent by 2025.

Smaller refining operations like the Dakota Prairie Refinery play an important role in meeting regional fuel demands and are increasing in number. Principal Technology's flexible, modular equipment designs address the specific issues of small capacity sulfur recovery while providing the same results as larger systems. This makes these units an excellent solution for small capacity refiners.





## SMALL CAPACITY EXPERTISE

Principal Technology's small capacity SRUs and TGTUs apply industry best practices, combined with exclusive features to meet the customer's exact sulfur recovery requirements. The units include superior application and utilization of analyzers, instrumentation and control schemes to enhance reliability and plant operations.

Fabricating modular components in a controlled environment in an off-site production shop assures quality control and testing during the manufacturing phase. Principal Technology manufactures the SRUs and TGUs while the refinery is under construction and ships the finished units to the facility. Installing the equipment involves simply connecting the modules to the balance of plant services, commissioning and final testing, thus reducing on-site installation time from 50 to 75 percent.

**ABOUT PRINCIPAL TECHNOLOGY, INC.** *Principal Technology, based in Plano, Texas, serves the energy, petro-chemical and manufacturing markets. Its business units specialize in providing Sulfur Recovery and Environmental Systems; related Specialty Equipment; Modular Process Units; Engineering, Design and Fabrication Services; and Control System Integration. Principal Technology provides a special combination of high value engineering and design services with practical design-build capabilities to provide customers with complete project integration.*

## TAIL GAS VALVE SYSTEMS:

- Compliant with ANSI / ISA S84 Safety Instrumented System standards
- Shipp fully assembled & factory tested
- Available with exclusive Integral Temperature Sensors
- Components designed & selected specifically for SRU tail gas service
- Available with continual valve monitoring
- Available in multiple body styles to simplify retrofit installations
- Available with high-torque actuators

## SMALL CAPACITY SRUS:

- Apply best technology solution for each operation
- Account for capacity & the smaller amounts of sulfur generated
- Emphasize heat conservation & temperature management
- Feature high turndown ratios
- Accommodate fluctuations in feeds
- Sized to maintain optimum process efficiency
- Provide operator access to all components for easy operation & maintenance

