HINZ
A Rockwell Automation Company

Alberta Energy Company / EnCana / Terasen
Platte Pipeline Gower Power System Upgrade

The Client:

The Platte Pipe Line Company was assembled by Marathon Ashland Pipe Line LLC and other small investors and began operation in 1952. In 1996, Alberta Energy Company (AEC) purchased the Platte Pipe Line Company on the premise that Marathon Ashland would revitalize and operate the pipeline for AEC. In 2002, Alberta Energy Company and PanCanadian merged to form EnCana, creating one of North America's leading independent oil and gas companies with an enterprise value of approximately US $35 billion. In January, 2003, Terasen Pipelines was formed as it took over operation of both the Platte Pipe Line system and Express Pipe Line system from EnCana.

Terasen Pipelines is the current operator of the Express and Platte Pipeline system. Covering a total length of 932 miles, the Platte Pipeline transports crude oil through 19 pump stations on its 20" diameter line between Casper, WY, and Wood River , IL.

The Requirement:

For the transportation of crude oil, the Platte Pipe Line was originally designed and constructed with a rated capacity of approximately 150,000 US barrels per day. In the early 1980's when the slumping oil production in Wyoming and Montana hit the oil industry hard, the Platte Pipe Line Company was forced to reduce delivery through the pipeline to a fraction of the capacity.

As demand for crude oil increased again in 1996, Alberta Energy Company purchased the Platte Pipe Line Company and began revitalizing the pipeline. Inoperative pumping stations were restored and existing operational stations were upgraded to achieve a projected throughput of approximately 180,000 US barrels per day.

Hinz was contracted to provide Electrical Engineering services and support for the revitalization effort, including new control system and electrical power system upgrades.

The Design Solution:

The pipeline reactivation work by Hinz at Gower Station located in Gower, Missouri, was implemented in two phases. Phase 1 of the project involved upgrading the existing PLC to a Modicon Quantum PLC, installing new GE Multilin SR750 Feeder Management Protective Relays, and replacing selected parts of the existing cabling. At this time, the utility company was recording severe voltage drops across their system when Unit 3 (1500 HP) and Unit 4 (1750 HP) were started. These were using direct across-the-line starters. The utility company therefore implemented severe restrictions on the times that the units could be started and run.

Phase 2 was therefore formulated and included the installation of new Soft-Starters for Units 3 and 4. It was begun under the duress that it be completed as soon as possible, and only a three-hour shutdown period for tie-in and commissioning was to be allowed. Due to the long procurement lead time given by Allen-Bradley, Hinz was asked to investigate other alternate vendors. Benshaw Controls of Listowel, Ontario, advised that they could provide the starters within five days on the premise that Hinz would assist the Benshaw engineers on site. This involved modifying and re-designing the starters as they had originally been built for another client. Platte Pipe Line Company was supportive and authorized Hinz to send an engineer to site to assist Benshaw with the modifications.

To minimize the installation time, the new Soft-Starters were placed in series with the existing starters because there were no main disconnecting breakers on the existing 2300 Volt distribution system, and the tie-in would have resulted in the shutdown of the entire station. Thus, the existing starters were to be used as a disconnecting means. To complete the installation work, Hinz coordinated with the contractor and supervised the installation of a new building inside the substation. This was necessary because the Benshaw Soft-Starters were NEMA 1 indoor rated units. The new Soft-Starters were then mounted inside the building. Finally, during the three-hour shutdown period, the new Soft-Starters were connected to the existing starter and motor feeder cables, and new Soft-Starter control circuits were tied to the existing Multilin SR750 Protective Relays.

After a number of motor starts, Hinz contacted St. Joseph Power and Lighting, the local utility company. They responded that their monitoring equipment had not recorded any unacceptable voltage drops on the line, nor had they received any complaints from other customers. This proved that the Hinz design and electrical installation work was successful.

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System Specifications:

Hinz Provided Design and Installation Support for the following:

- Design Modifications to 2300V Electrical Power Distribution System.
- Installation Support of 2300V Soft-Starters, manufactured by Benshaw Controls, Listowel, Ontario, for Unit 3 (1500 HP) and Unit 4 (1750 HP).
- Design and Installation Support of New Electrical Switchgear Building.
- Installation of New GE Multilin SR750 Feeder Management Protective Relays.
- Installation of New Modicon Quantum PLC, including Logic Programming and new cables.
- Power and Control System Design.

For further information or to contact a Hinz office near you, please check our website at:

www.hinz.com