

Bitter Creek Pipelines, LLC

Enhanced Web Access and Reporting with ClearSCADA



Products

- ClearSCADA SCADA Management Software

- AutoSol Enterprise Server (AES)

Communications

- Emerson ROC and ROCplus protocols
- Distributed network of licensed radios and T1 land lines



The Application

The Williston Basin is a sedimentary basin centered near Williston, North Dakota, that spans major portions of North Dakota, South Dakota, Montana and Saskatchewan. This is a resource-rich area especially in agriculture, oil and natural gas.

Bitter Creek Pipelines, LLC operates in this region with over 1,900 miles of natural gas gathering pipelines in Montana, Wyoming, Colorado, and Kansas. These pipelines interconnect with the Williston Basin Interstate Pipeline Company, Thunder Creek Gas Services LLC, Kinder Morgan Interstate Gas Transmission LLC, Cheyenne Plains Gas Pipeline Company, Southern Star Central Gas Pipeline Inc. and Omimex Canada Ltd. This complex interconnection of pipelines offers wide access to numerous U.S. and Canadian markets and results in the need for effective data management and flexible control of natural gas gathering services. Bitter Creek Pipelines, LLC (Bitter Creek) and Williston Basin Interstate Pipeline Company (WBI) are both subsidiaries of the MDU Resources Group, and as such share a common objective in this application.

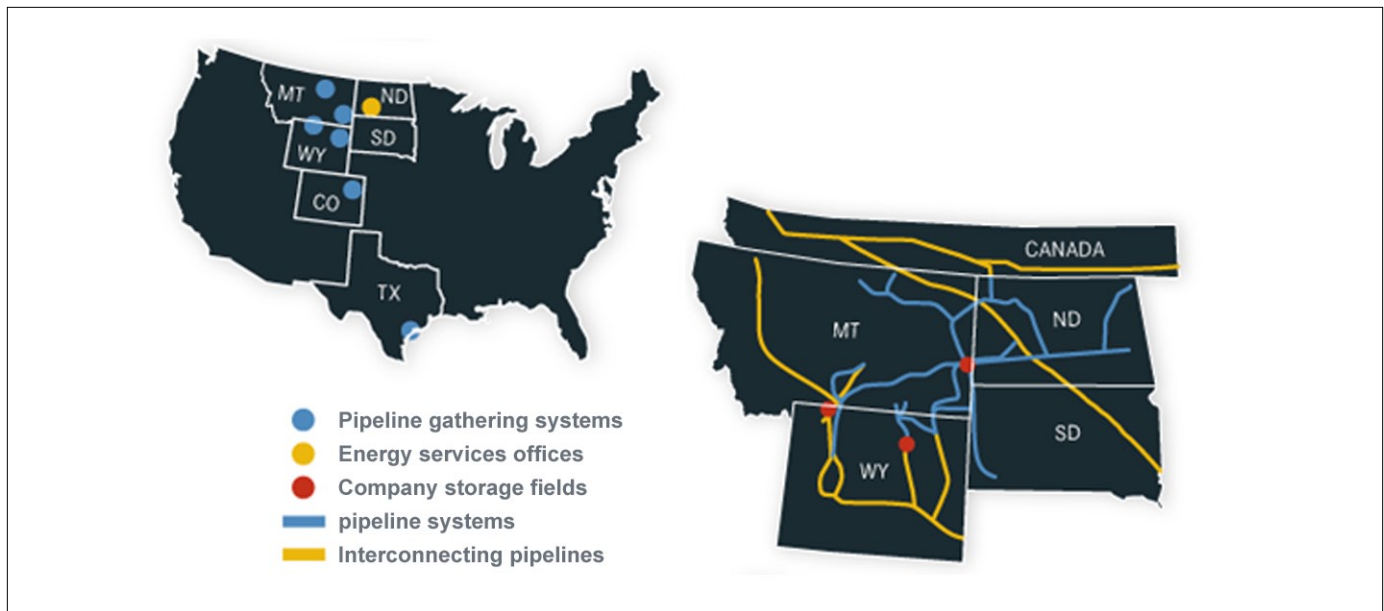


The Challenge

In 1999, a SCADA system based on Intellution's iFIX platform was designed and installed at the WBI offices in the cities of Glendive, Baker and Saco, Montana. Referred to as the Production Automation System (PAS), this system originally collected field data from roughly 700 Emerson Remote Operations Controllers (ROC) and fed the data to gas accounting software for further data integration.

As the original WBI SCADA system evolved over the years, it became overloaded by a high data point count, and a demand for high speed updates. Under these conditions, the system proved difficult to maintain and operate requiring significant resources to optimize its performance to meet company requirements. In particular Bitter Creek (sister company to WBI) wanted to move towards a more web-based access to meet the needs of its varied clients, but found this to be very labor intensive to achieve on the existing system.

Deficiencies in the original system's reporting capabilities occasionally caused reports to go missing, reports that proved onerous to recover leaving company operations and customer service without necessary information. Annual system maintenance fees increased over the years with declining value to the organization. Finally, company revenue targets placed pressure on the WBI SCADA system to expand significantly over the next growth period. The WBI automation team was challenged with the task of either upgrading or replacing the system entirely.



In defining the task at hand, the WBI team set requirements for the upgrade (or new platform) to be easier to program, easier to operate and less costly to maintain. Web hosting capabilities were a priority and the ability to quickly interface data throughout the organization was a must. Additionally, the new system would interface with the company's Customer Service Group and Operations personnel. Bitter Creek wanted an easier system with greater flexibility to meet a rapidly changing market place. Ease of use and the ability to create templates were paramount in the WBI and Bitter Creek search for a solution.

Potential SCADA system candidates would need to not only provide data collection and archiving services to six field offices and approximately 2000 Emerson ROC RTUs, but also efficiently serve up this data in a variety of different ways to a variety of interested parties, each with their own set of requirements.

The Solution

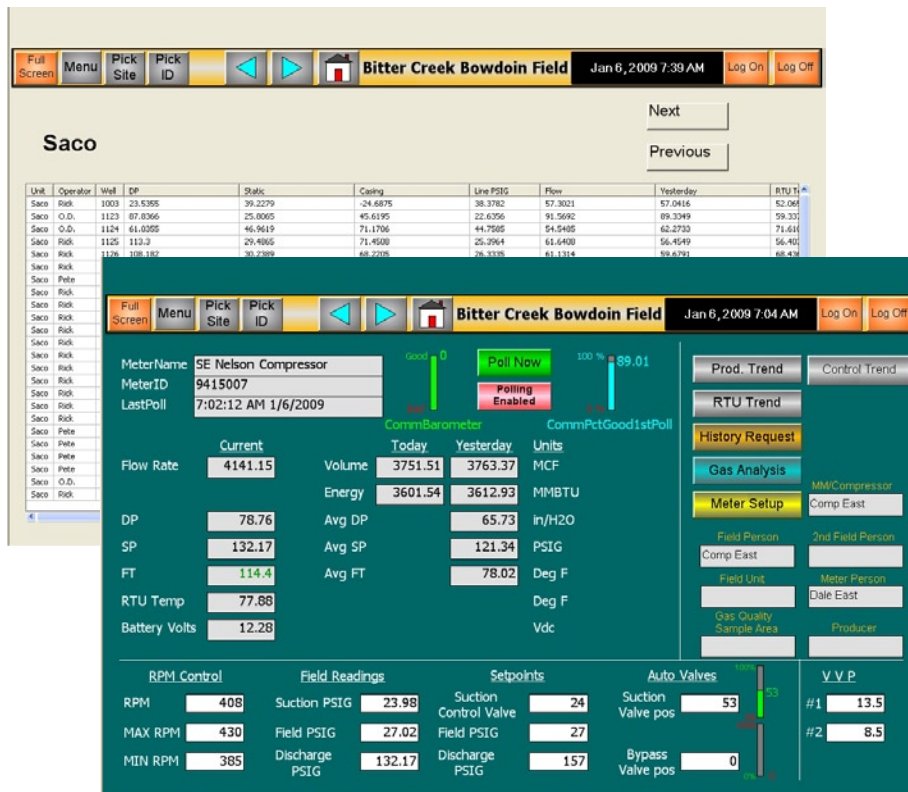
After a product demonstration and evaluation, which included connection to an embedded AutoSol Enterprise Server (AES) for all RTU communications, and a performance test of remote clients across the WAN, WBI and Bitter Creek selected ClearSCADA as the platform that met their wide range of specific requirements. With the support of Control Microsystems' representative, the Beabout Company, and the ClearSCADA team, WBI and Bitter Creek set forth to redevelop the old PAS system with ease of use and operational flexibility in mind. Implementation was staged for each of the six field offices and development was done in-house by WBI engineers.

The first step was to build ClearSCADA templates for the well site and for each of the 3 types of RTUs. These 4 templates account for 99% of all sites with 2 additional templates handling special, non-standard cases. To deploy a new well site with the outgoing Intellution system was an onerous task requiring the attention of engineering. With the ClearSCADA templates, this task took just minutes and can be done by field personnel. This functional change alone represented significant cost savings to WBI and Bitter Creek.

ClearSCADA was then installed in the offices of Bitter Creek Pipelines located in Bismarck ND, Saco MT, Sheridan WY, Gillette WY, and Wray CO and the WBI field office in Baker MT. These six field offices, each with a ClearSCADA server and embedded AES server, poll a total of over 2000 Emerson ROC RTUs. While each field office is a stand-alone SCADA server, the other offices and the corporate headquarters can access all servers via a ViewX client or the web-based WebX client. Generally a WebX client is provided for casual users and a ViewX client for operations or when clustering of data from all six servers is needed.

The Results

Today the SCADA system feeds data to a web-hosted customer service site serving 30 Bitter Creek customer companies and over 120 end users. Bitter Creek customers access their operational data on a daily basis forming the primary channel of communications with their customers. All parties have come to rely on the ClearSCADA solution to deliver near-real-time critical operational data to a variety of users ranging from Field Technicians and Pumpers, to Office Engineers, Pipeline Operators, Customer Service Staff and Management.



In addition, ClearSCADA has enabled Bitter Creek Customer Service to deliver added value to their customers through automated production support. This has built a higher degree of confidence between Bitter Creek and their customers. During a recent customer survey, the new system received glowing references including “I’ve never seen this level of support from a gatherer like Bitter Creek”, and “Bitter Creek is our gatherer of Choice”. By offering flexible, web-based access to their customers, the result has helped to build Bitter Creek’s business by affording SCADA to small and mid-sized producers.

The Future

Future additions to the SCADA system are expected to include wellhead optimization, tank gauging, and more custom screens specific to its varied users and customers. Bitter Creek Pipelines continues to develop with future growth plans for all company areas, and hopes to grow the ClearSCADA system to meet this demand.

Special thanks go to:

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Specific benefits to Bitter Creek include the ease of screen editing, loading of CAD maps, addition of graphics, and the ability to instantly update with new data at near-real-time performance. ClearSCADA flexibility has given Operations the ability to deploy automated calculations such as:

- normalized reduction in lost and unaccounted for production
- line pack calculations
- compression fleet management
- compression calculations for HP per MCF

Operators are able to easily configure windows to better see trends, alarms and operations all at once allowing them to multi-task their operations. And with templates already created, operators can add new wells in minutes versus over an hour with the old system.

Several high-end users are also designing and implementing their own logic to further enhance operations in critical areas.

ClearSCADA’s version management has freed up busy company IT professionals for other key activities. The Bitter Creek/WBI IT department had these comments about the new ClearSCADA system:

- Bitter Creek/WBI IT are now able to view the actual reports accessed by both customer service personnel and the customer. This was not possible on the old system.
- ClearSCADA has immediate alarm reporting on network status, whereas the old system did not report on network status.
- ClearSCADA has reliable report generation, while on the old system reporting was a constant issue.
- ClearSCADA enables IT to create a snapshot in time of the exact data they need, whereas the old system was inflexible and unchangeable.
- If the old system missed a report, access to the missed data had to wait for the next report; while with ClearSCADA, any data can be immediately retrieved from the historical database.