

# Creating a Smart Field with 114 Sites in Just Eight Months

## Scalable SCADA and MQTT Were Crucial to Achieving Ambitious Goals

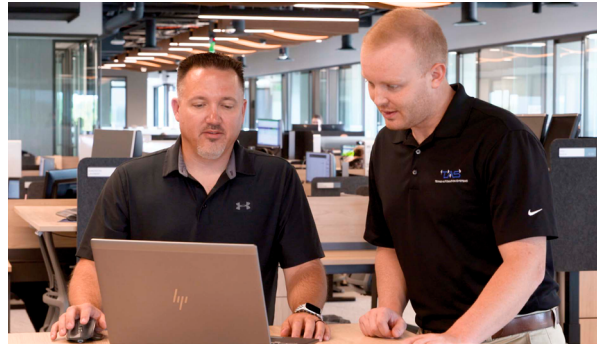
NGL Energy Partners is a diversified midstream oil & gas company that provides multiple services to producers and end users, including transportation, storage, blending, and marketing of crude oil. To improve its operational efficiency and revenue-generating capabilities, NGL embarked on an ambitious project that created a new supervisory control and data acquisition (SCADA) system for its saltwater disposal facilities. The new system connects assets in several states from field to enterprise and provides communication from site to site. The result is a smart field that includes 114 water treatment and disposal facilities, 178 pipeline tie-ins, 31 boosters, and around 1.25 million tags.

Site-to-site communication allows NGL to optimize its routing of wastewater among its locations. Each node in a sector knows the capacity at other nodes, allowing NGL to maximize usage and increase revenues. The new system has also improved NGL's operations. To create the system, NGL worked with system integrator Texas Automation Systems (TAS), a company that specializes in the design, development, and commissioning of PLC, SCADA, and industrial networking systems. TAS worked closely with NGL, Inductive Automation, and Cirrus Link Solutions to make the smart field a reality.

Cirrus Link Solutions is an industry leader providing software to connect OT data to SCADA systems and IT enterprise applications. For SCADA, NGL chose Ignition by Inductive Automation®. Ignition is an industrial application platform with numerous tools for building solutions in SCADA, human-machine interface (HMI), and the Industrial Internet of Things (IIoT).

### No Limits

NGL's solution includes MQTT publish/subscribe



NGL Energy Partners and TAS leveraged modern technologies to build a large project very quickly.

capabilities among edge devices — going beyond the usual method of edge devices publishing but not subscribing. The new SCADA system also provides scalability, flexibility, unlimited licensing, and rapid development. “The unlimited licensing model provided by Inductive Automation gives NGL peace of mind,” said Matt Jones, director of operational technology for NGL. “We were able to rapidly grow our system without constantly going back and requesting new licenses for additional tags.”

With Ignition, there are no additional costs for adding clients, screens, tags, devices, or connections. NGL is growing rapidly, and unlimited licensing makes expansion faster and easier. “Ignition has really changed the way NGL does business, from the way we operate our facilities, to importing large amounts of data into data lakes and performing analytics,” said Jones.

Faster development has also helped. “The ability to create templates inside of Ignition allowed NGL and TAS to rapidly deploy custom screens for our facilities,” said Jones. “We have over 600 different views.” Conditions change quickly in the field, so NGL appreciates the ability to make

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– Brad Byrum  
President, TAS

changes on its own. And the Ignition Perspective Module gives NGL numerous mobile capabilities. “Perspective was a huge deciding factor in NGL selecting Ignition as our SCADA system,” said Jones. “Operators in the field seeing real-time data on mobile devices has been a real game-changer for us.”

NGL now has a deeper look into its saltwater disposal operations thanks to the Ignition implementation from TAS. “When they have trucks coming in, they don’t have to reject any water, because they’re able to move that water to a facility that has capacity to take it,” said Brad Byrum, president of TAS.

### **MQTT a Crucial Piece**

The MQTT modules for Ignition, created by Cirrus Link, were especially helpful in dealing with two key issues for NGL: remote locations and limited bandwidth. “The benefits of MQTT were the low bandwidth consumption, which helped with our cellular communication, and the ability to push all the data from the edge to a centralized broker, and then share that information with anyone that wanted to subscribe to it,” said Will Baker, automation consultant with TAS.

“MQTT was critical to this project,” said Byrum. “Its ability to do publish/subscribe at the edge was extremely valuable. And its reduced bandwidth requirements enabled us to use cellular modems for almost all the communications at the edge, which would have been difficult to do using normal polling technologies.”

To help with the MQTT aspects, NGL and TAS

brought in the unique expertise of Cirrus Link Solutions. Arlen Nipper, president and CTO of Cirrus Link, co-invented MQTT with Andy Stanford-Clark. “NGL wanted to use MQTT to do some pretty disruptive stuff in their SCADA system,” said Nipper. “Not only did they want more secure, redundant, and reliable communications into the central Ignition gateway, but they also wanted to accomplish peer-to-peer communications.” Setting up the peer-to-peer required customization of Cirrus Link’s MQTT modules, but everyone worked together to produce the needed solution.

### **Fast Work**

Nipper said the Sparkplug B specification — which defines how MQTT should be used in industrial settings — saved NGL a lot of time. “With 114 sites and over a million tags, TAS couldn’t spend a lot of time configuring tags at both remote sites and the headend,” said Nipper. “So with Sparkplug, they could define the tags in the field and have those automatically published and discovered at the Ignition gateway. This gives NGL a single source of truth.”

Like Nipper, TAS’ Byrum was impressed with the speed at which the solution was created. “The most interesting aspect of this was the high degree of collaboration between Inductive Automation, Cirrus Link, and our development team to create a custom gateway that enabled pub/sub at the edge. That hadn’t been done prior to this project,” said Byrum.

Jones noted that the solution was so popular, more and more people at NGL are using it. “When we rolled out Ignition, our ops team was the first to utilize it,” said Jones. “Now our accounts team, execution team, and executives all use the platform.”

*Texas Automation Systems is based near Dallas, and provides best-in-class services in automation system design, integration, programming, and commissioning. For more information, visit [txautosys.com](http://txautosys.com).*

See the video at: <https://ia.io/ngl>