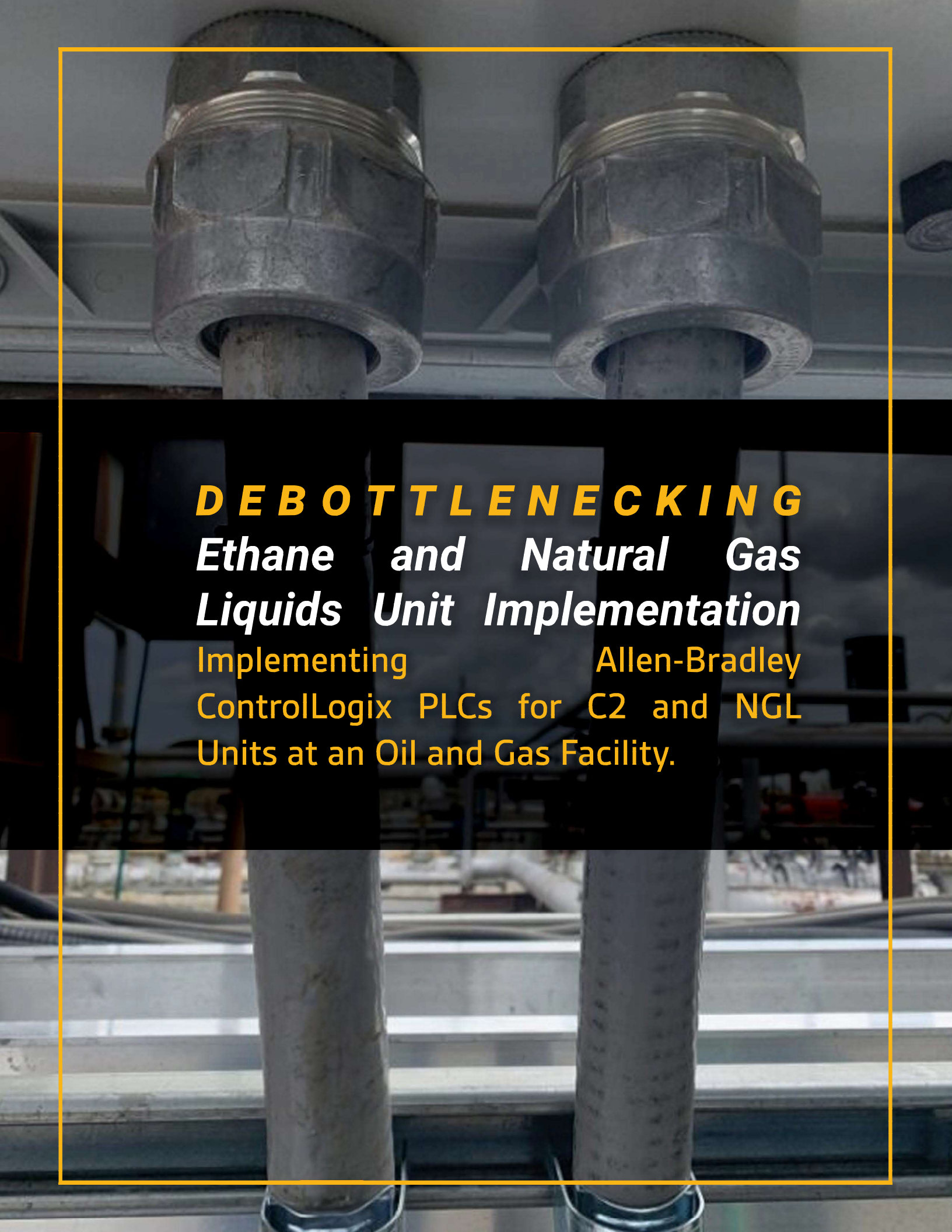


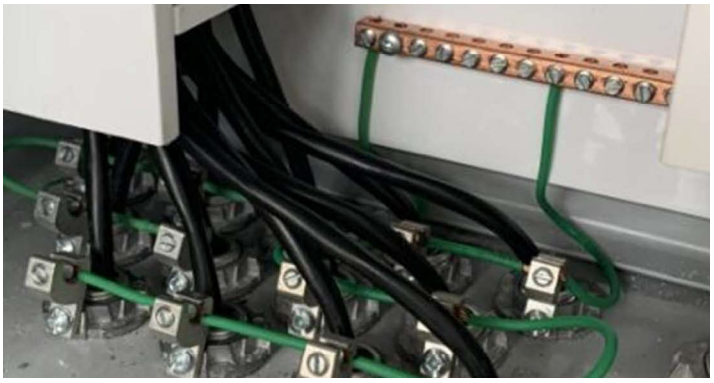
DEBOTTLENECKING

Ethane and Natural Gas Liquids Unit Implementation

Implementing Allen-Bradley ControlLogix PLCs for C2 and NGL Units at an Oil and Gas Facility.

SITUATION

The client's Ethane (C2) and Natural Gas Liquids (NGL) units underwent a Hazard and operability (HAZOP) analysis, which is used to identify areas of risk and the requirements to reduce these risks. The HAZOP revealed a severe single point of failure; both units were sharing the same PLC.



If the NGL unit was to fail, it would bring the C2 unit down with it. The C2 unit lacked an independent PLC control system to provide safe control of the unit. As well, not all the C2's I/O was kept in its own cabinet, some was overrunning the NGL cabinet, which meant the NGL unit lacked the required amount of spare I/O.

WHY INNOTECH?

Years of project history between InnoTech and the client has established trust and grown familiarity and efficiency for the InnoTech team with the client's plant. At the time, the client was preparing for their upcoming total plant shutdown, and had multiple projects being conducted by third-party companies on-the-go.

The client looked to InnoTech to manage this project as this allowed InnoTech to be, to a degree, an overseer of the other projects, since many of the periphery projects depended largely on this one.

BUSINESS DRIVERS

Segregating the I/O for the unit's control systems would improve organization and functionality within the different plant units. Additionally, improving visibility on these units would decrease the health and safety risks for workers, equipment, and environment.

WHAT HAPPENED?

There were many other projects underway at the client's site, so to kick-off the project strong, InnoTech and the client devised a plan in order to keep the teams organized throughout and help the project roll out smoothly.

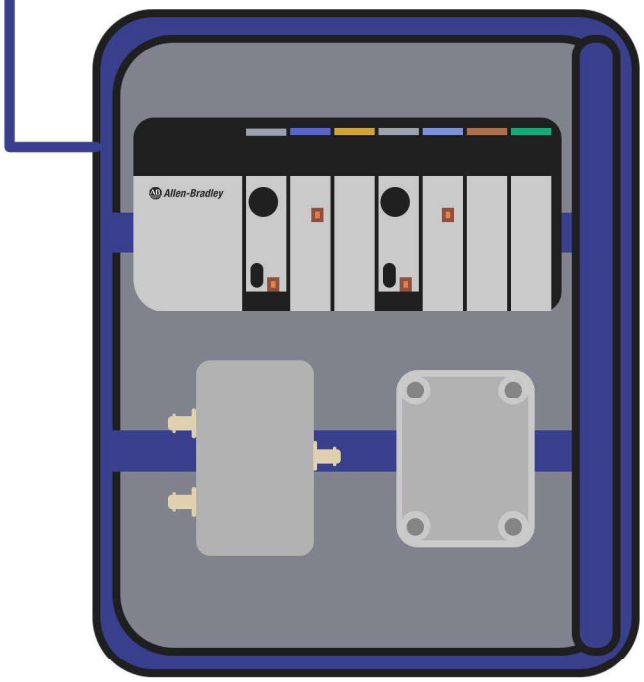
The total plant shutdown was a year away, so the team had a long runway to work on the project. Though because of the long lead time, stopping and starting was frequent throughout the course of the project, presenting a challenge in keeping scopes and schedules separate.

This was largely due to the number of concurrent project dependencies; many of them used the same cables, terminals, and panels as this project. When one stage of the project was complete, before moving onto the next, a stage of another project would need to be completed.

Some of the third parties did not have extensive knowledge of the client's site, so there were sections delivered that were insufficient to the overall project standards. Because of InnoTech's experience and knowledge of the site, the team stepped up to rework these parts to keep all the projects moving forward.

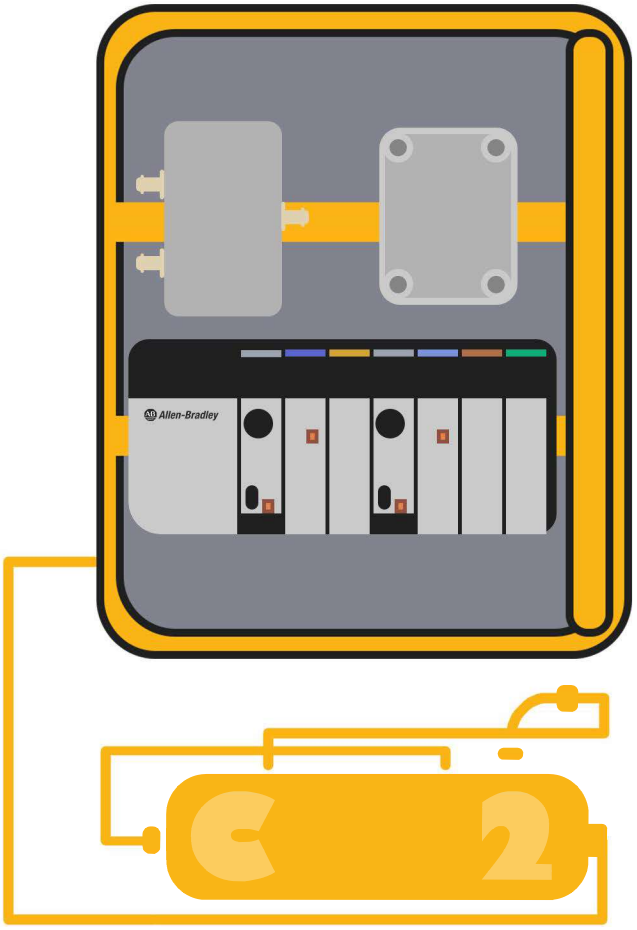
WHAT WAS ADDED?

Allen-Bradley ControlLogix PLC Remote Rack (Control/Marshalling panels)



A total of **340** devices were connected.

After implementing the devices and tying all the existing I/O to the PLC racks, the team refined and improved the standard logic and finished the project by delivering up-to-date as-builts.



Allen-Bradley ControlLogix PLC (Control/Marshalling panels)

BOTH

Junction boxes

Homerun cables

Bypasses (allows for testing without causing frequent shutoffs)

55 DCS I/O

78 PLC I/O

RESULTS

1

Reliability

By segregating the NGL and C2 units' I/O in their separate cabinets, the dependencies between the two of them is eliminated. This ensures that the failure of one will not result in the failure of the other.

2

Visibility

The remote I/O chassis in the NGL unit and the HMIs in both units allow the operators to easily oversee the system operations.

3

Organization

The isolated unit controllers make them much easier for the operators to access and work on, increasing efficiency and functionality.

4

Standardization

Now that the logic is standardized, the process will be simpler and nearly autonomous when conducting future projects.

5

Safety

By automating the instrumentation, the work environment becomes safer by adding a layer of safety protection for people and operations.

6

Expandability

The team accounted for future projects by adding enough spare I/O to last 3 to 4 years worth of projects!

Are your plant's I/O units grouped according to operational areas or are there inefficiencies that can be solved by segregating the units?

At InnoTech we want to fuel our customer's success through having a customer focus. We seek to understand client expectations for standards and implementation, and this enables our team to work efficiently and maximize value to our customers.