

# Chemical Company Cuts Tank Farm Project Cost by 50 Percent

## RESULTS

- Installed cost savings kept the project within budget
- Provided configuration service to streamline start-up
- Utilized existing wiring to simplify installation

## APPLICATION

Upgrade tank level measurements in a tank farm

## CUSTOMER

North American Chemical Company

## CHALLENGE

The chemical company was investigating methods to upgrade tank level measurements on eight vessels in their tank farm. The existing system was aging, replacement parts had long delivery times, and technical support from the manufacturer had dwindled to the point of being non-existent. Some of the constraints on the project were that existing nozzles would have to be used because no welding on the tanks could be performed. No nozzles were available on the top of the vessels which eliminated the possibility of a top down technology such as radar. These vessels were for plant inventory and not custody transfer, so level accuracy, although important, was not an overriding issue. The scope of changes was also constrained because the budget for this project was only about \$150,000.

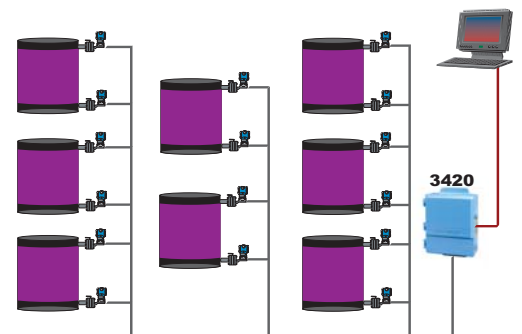
## SOLUTION

Traditional approaches were considered at the outset. The first idea was to use remote seals on DP transmitters but the capillaries would have to be quite long and there was concern that temperature effects could be excessive.

The next approach considered using two separate analog pressure transmitters at the top and bottom of the vessels. The proposal for this solution was approximately \$38,000 for hardware, additional I/O for the DCS, and DCS configuration costs. It was also determined that wiring costs dwarfed the hardware costs. It became apparent that total project costs would approach \$300,000.



*The purchase cost of this solution was higher than the traditional approach. However, the customer determined that installed cost savings would allow the project to be near the budgeted amount.*



Rosemount 3420 Fieldbus Interface Module

The last proposal combined a Rosemount 3420 Fieldbus Interface Module and 3051S FOUNDATION™ fieldbus pressure transmitters to create an electronic remote seal system. It was decided to spread the eight vessels over four fieldbus segments (two tanks on each segment). Since the existing wiring was shielded, much of the fieldbus communications could be done over the existing wiring.

With the newly available function block linking capability of the Rosemount 3420, the Arithmetic blocks in the pressure transmitters could be configured to subtract two pressures and to calculate density based on temperature using a 4th order polynomial. A Rosemount 752 Fieldbus Remote Indicator was also included on each of the segments to act as a local display for both tanks on the segment.

The tank level information is communicated back to the DCS via a single Modbus communication connection. Project services that were provided included configuration of the Modbus register mapping, configuration of the fieldbus devices and function block calculations, and operational verification.

The 3420 fieldbus solution was approximately \$60,000, significantly higher than the “traditional” approach, but the customer determined that the installed cost savings of this approach would allow the project to be brought in within the budgeted amount.



Rosemount 752 Fieldbus Remote Indicator

## RESOURCES

### Rosemount 3420

<http://www.emersonprocess.com/rosemount/products/accessories/m3420.html>

### Rosemount 3051S

<http://www.emersonprocess.com/rosemount/products/pressure/m3051s.html>

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