

# ULTRAFAB™ SOLUTION MAKES HAYNESVILLE DRILLING ECONOMICAL



## SITUATION

Prolific North American shale gas plays have only become economical since the advent of horizontal drilling and completion techniques. Despite being located in conventional oil and gas regions that historically produce sweet gas (no H<sub>2</sub>S), the shale plays produce gas containing H<sub>2</sub>S in concentrations of 500 ppm or less. As a result, regulatory and safety concerns make H<sub>2</sub>S removal a mandatory component of production plans for gas producers.

The need to manage H<sub>2</sub>S has historically been the exception rather than the rule in the Haynesville gas fields of Louisiana and Texas. However, as Haynesville operators began drilling unconventional shale wells they had to scramble to find effective methods for removing H<sub>2</sub>S from the produced gas.

## CHALLENGE

Various removal methods have been technically or economically unsuccessful, and this case study reviews the experience of one operator that installed a number of modified scavenger contactors that were only moderately effective at removing H<sub>2</sub>S and exhibited very poor

efficiency. One particular installation was consuming approximately 600 gallons per day of H<sub>2</sub>S scavenger, raising concerns about the economic viability of the gas treatment solution. In this case, the operator was looking for an H<sub>2</sub>S removal solution that would consume less chemical than the scavenger contactor systems being used on wells in the area. An UltraFab H<sub>2</sub>S removal system was installed on a well with stabilized production conditions (operating conditions in table). An accurate record of chemical consumption rates and system operability was available, so a rigorous evaluation of chemical injection rates and costs could be completed and then extrapolated to different wells with different operating conditions. Capital, installation and operational expenses for the UltraFab system were also considered during the evaluation.

### STABILIZED WELL OPERATING CONDITIONS

Flow Rate: 6 MMscfd  
Pressure: 900 psig  
Temperature: 120 °F  
Inlet H<sub>2</sub>S: 250 ppm (200-300 range)

## SOLUTION

UltraFab Flooded H<sub>2</sub>S Removal Systems cost effectively treat a wide range of operating conditions, presenting an effective solution for most Haynesville wells exhibiting high initial flow rates followed by steep declines in gas volume and moderate drop in pressure.



The UltraFab system was quickly installed and after initial operation was optimized by UltraFab personnel. The majority of UltraFab piping and controls is integral to the compact, self-contained skid, so installation cost was reasonable and confined to making gas-in and gas-out connections. UltraFab units are self-regulating and automated so minimal intervention is required by the operator. This enables operations personnel to focus on field-wide management and optimization tasks rather than monitoring well-specific H<sub>2</sub>S removal challenges.

## RESULTS

After system optimization, chemical consumption was reduced to less than 200 gallons per day – approximately 30% of the previous chemical consumption rate. This equated to a savings of more than \$6,000 per day in chemical cost alone. General operational and downtime savings were also significant, but not specifically measured. Reducing this large cost component paid for the UltraFab capital investment in about a month.

## THE ULTRAFAB ADVANTAGE

UltraFab Flooded H<sub>2</sub>S Removal Systems offer operators an operationally efficient, cost effective solution. Superior UltraFab design, coupled with Nalco Champion's technical expertise and wide-ranging field experience result in greater operational efficiency and lower chemical cost.

UltraFab solutions are available in a wide range of sizes and variations, treating gas volumes ranging from a few MMscfd to several hundred MMscfd and reducing H<sub>2</sub>S concentration to virtually any outlet specification, including zero ppm. The UltraFab Flooded H<sub>2</sub>S Removal System is designed to handle the fluctuations in gas flow and H<sub>2</sub>S concentration that occur throughout the life of a well and “continuously self-optimizes” when properly installed and calibrated. The compact design also means UltraFab equipment can be moved from location to location, as necessary.

## GOALZERO

SAFETY MATTERS

The safety of our associates, customers and communities is vitally important. From the way we operate, to the products we develop, to how we partner with customers, our goal is zero: zero accidents, zero incidents and zero environmental releases.

At Nalco Champion, safety is more than a metric, it's a mindset. It's how we conduct ourselves, every day, everywhere it matters.

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