Drillers in northern British Columbia, Canada needed a reliable, cost effective fuel gas conditioning solution. Diesel fuel is expensive, and is also costly to transport and store at such remote locations, so natural gas is used as a supplemental fuel source.

**CHALLENGE**
Processing and delivering clean fuel gas was critical to protecting equipment and to ensuring continuous operation. The fuel gas conditioning solution had to remove all $H_2S$ from the pipeline source gas and also dry the gas to ensure continuous flow to the engines during extended periods of cold weather. Drying the gas involved removing all free water, including water slugs, from the feed gas.

The equipment also needed to be easily transportable from location to location since it would be located at a drilling site for a relatively short time.

**SOLUTION**
UltraFab developed a fuel gas conditioning solution that delivered a reliable supply of sweet, dry gas as supplemental fuel for engines, compressors, boilers, and generators at the rig site. An UltraFab Flooded $H_2S$ Removal System was used to remove all $H_2S$ from the gas. Moisture removal was accomplished using two stage desiccant dryers. The vessels were sized to handle maximum gas flow and a maximum of 20 lb/MMscf of $H_2O$. A filter was installed downstream of the dryers to ensure that particulate matter did not enter the gas stream from the dehydrator contactors.

UltraFab systems reliably and cost effectively removes $H_2S$ using liquid triazine scavenger. The systems are designed to continuously treat natural gas streams by monitoring outlet $H_2S$ concentration to ensure that processed gas remains on-spec. Configurable alarms and shut down procedures were implemented and a manual $H_2S$ concentration monitor was included for observing inlet conditions, as necessary.

UltraFab systems are inherently compact and modular with all equipment contained on a single skid, including all necessary safeguards and controls. The single skid met local regulatory transportation requirements for width, height and length and was bed-loadable so cranes and pickers were not required. For this application, the system was designed to be loaded and moved with chemical in fresh and spent triazine chemical tanks.
Flex hoses with quick connect fittings were used to minimize the cost to install and remove the UltraFab system when moving from location to location. Other features included storage and pumps for injecting methanol and corrosion inhibitor into the main gas line and a gas bypass to ensure easy startup at each location.

RESULTS
The UltraFab installation addressed several challenges for the operator. The primary benefit was reduced diesel costs, which paid for the equipment in less than six months. The solution also reduced environmental emissions since natural gas burns much more cleanly than diesel fuel. The triazine formulation provided downstream corrosion protection and hydrate protection resulted from water and moisture removal. Enabling the entire operation to run continuously made the rig site an inherently safer place to work.

THE ULTRAFAB ADVANTAGE
UltraFab Flooded H₂S Removal Systems offer an operationally efficient, cost effective solution. Superior UltraFab design, coupled with Nalco Champion 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 MMscf/D to several hundred MMscf/D and reducing H₂S concentration to virtually any outlet specification, including zero ppm.

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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