

## The Challenge

In 2017, Blackspur Oil Corp.'s facility near Brooks, Alberta was faced with being shut-in after being advised that their third-party processor could no longer accept sour gas. Traditional sweetening processes were investigated and found to be highly uneconomic. Building a pipeline to alternative sour infrastructure would require additional capital and result in significantly higher operating costs.

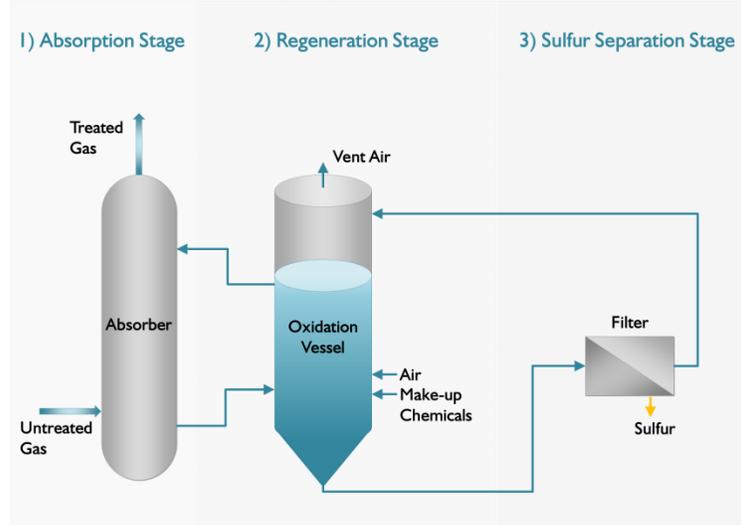


## The Solution

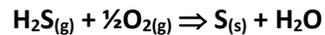
A detailed technical and financial evaluation was conducted and the regenerable SULFCAT® technology was selected to sweeten 3,000 ppm of H<sub>2</sub>S in 3 MMSCFD of sour gas. In the interest of reducing operating costs, improving operational efficiency, minimizing operator intervention and process interruptions, a fully automated control system was implemented. Due to the variability in H<sub>2</sub>S concentration and gas flow rates, the system was designed with a wide range of flexibility to handle fluctuations in gas flow and composition.

## The Process

Sour gas enters the absorber column where the H<sub>2</sub>S is absorbed into the reagent. The absorber is the only vessel that is in contact with the process gas stream and is designed to meet the stringent requirements and design conditions of the process. The reagent is sent to the oxidation vessel where it is regenerated. The regenerated reagent is re-circulated back to the absorber and elemental sulfur is sent to a filter for continuous solid sulfur removal.



The SULFCAT<sup>®</sup> reagent facilitates the conversion of H<sub>2</sub>S into sulfur without being consumed. Oxygen is required in the reaction and is delivered with an oxidation air blower in the oxidation vessel. The overall process can be summarized by the following overall reaction:



### The Benefit

The SULFCAT<sup>®</sup> system was commissioned in the spring of 2018 and has been continuously running without any unscheduled downtime and no off-spec gas production. The SULFCAT<sup>®</sup> system has reduced the operating costs associated with sweetening by approximately 80% and the facility was paid out in 18 months based on operating cost savings. The fully automated controls allow for optimization and fine tuning of both operating costs and H<sub>2</sub>S removal efficiency.

SULFCAT<sup>®</sup> technology can be used to replace any conventional, non-regenerative sweetening process. This H<sub>2</sub>S removal process can be used in conventional oil and gas production to provide the following benefits:

- Reduce overall operating costs
- Improve EH&S standards and practices
- Realize value in existing sour assets proximal to sweet infrastructure
- Provide the opportunity to explore for and develop sour plays within existing sweet fields
- Realize additional reserves by improving gas netbacks
- Provide sweet fuel gas supply for drilling, cogeneration, well pad ops, etc.
- Stay ahead of global Triazine reduction initiatives