

Case study: East Coast, United States

SULFIX scavenger prevented refinery shutdown

A major East Coast refinery experienced mechanical problems with an off gas compressor that was essential for complying with environmental regulations. Repairing the compressor would require a planned shutdown for repairs. The shutdown would result in either a major refinery outage or expensive fines, if an alternative method for reducing SO_x emissions during the shutdown could not be developed.

The Baker Hughes team had been in contact with the refinery at the local and corporate levels to discuss using Baker Hughes SULFIX™ H₂S scavengers to reduce SO_x emissions in flare gas systems. The refiner contacted Baker Hughes and asked for help developing a treatment program for the upcoming planned shutdown of the off gas compressor. Based on previous contacts and an intimate understanding of the refinery's goals, Baker Hughes developed a plan and a proposed SULFIX scavenger trial to meet the scheduled shutdown date.

However, the off gas compressor continued to deteriorate, so the refiner asked Baker Hughes to start the trial within 21 days, and if successful, be ready to start a full-scale treatment program in less than 45 days.

Baker Hughes responded by rapidly completing the on-site engineering, design, and construction of the treatment system for both the trial and the application of the SULFIX scavenger. In addition, a logistics plan to supply the required truckload quantities of the SULFIX scavenger was put into place.

The resulting trial was successful and a full-scale treatment was started within the refinery deadlines. The refinery shut down the fuel gas compressor for repair, started the SULFIX treatment program, and exceeded both their goals and their expectations.

The SULFIX treatment program allowed the refinery to complete the required repairs and

- Reduce sulfur emissions well below permitted levels
- Avoid financial penalties caused by excess emissions
- Maintain refinery throughput
- Prevent millions of dollars of lost opportunity resulting from a refinery shutdown

Challenges

- Mechanical problems requiring unplanned shutdown for repairs
- Potential fines for excess SO_x emissions
- Develop and implement program to meet emission requirements
- Meet short deadline for program implementation

Results

- Baker Hughes SULFIX H₂S scavenger
- Fast, professional response to refinery needs
- Completion of on-site engineering study
- Rapid design, and construction of treatment system
- Development of logistics system to meet inventory requirements