Chevron Phillips Chemical Company–Orange

TEEA 2015 Winner: Technical/Technology

Recovery project saves company money while reducing hazardous waste disposal

Beginning in 2010, the Chevron Phillips chemical plant in Orange, Texas recognized a unique opportunity to make serious strides in reducing hazardous waste. At the time, spent isopentane amounted to more than 90 percent of the facility's total hazardous waste. At more than 750 tons per year, this presented a unique opportunity to make a difference in waste generation.

The idea was simple—design a process where the isopentane otherwise sent to be disposed of as waste could be reused. The implementation of this concept took much more work. A single distillation tower purifies batches of used isopentane, providing Chevron Phillips, at the completion of the process, with a product that is greater than 99.5 percent pure isopentane. Over the last five years, as the facility fine-tuned this procedure, Chevron Phillips saw the rate of successful recovery stabilize as the process was perfected. The current waste reduction for isopentane is greater than 76 percent.

Not only did Chevron Phillips significantly reduce its largest waste stream but, in the most recent year, the company offset purchasing of new material by using material from the isopentane recovery unit. Almost 9 percent of isopentane used at Chevron Phillips comes from the IRU. The site runs approximately three batches through the recovery unit each month, avoiding around $170,000 per year in costs from disposal and material purchase. A co-benefit of this project is a reduction in air emissions.

Having already implemented this successful project, Chevron Phillips–Orange expects additional cost reductions and an increase in offset purchasing over the coming years. The facility itself has already used lessons learned through this project over the last few years as an opportunity to have an impact on other facilities currently and in the future.