

Horizontal Enclosed Flare Abates Hydrocarbons from Recycling Process

Synopsis

A large Recycling Facility in North Carolina wanted to consolidate its waste streams of nine (9) Phase Separation System reactors into one (1) thermal oxidizer for hydrocarbon abatement.

Initial Operating Issue

The ensuing abatement system needed to operate in a fully automated manner while providing a 99% (or greater) total hydrocarbon and non-methane hydrocarbon destruction rate. The system's uptime and need for low maintenance were crucial for allowing continuous on-stream operational service. The customer also specified that a cost-effective system design, minimal operator interface, and meeting stringent safety requirements were also very important criteria to consider when selecting an air pollution control technology.

Proposed Solution

The engineering design team at Pollution Systems reviewed the facility's process application and recommended the installation of an [Enclosed Flare](#). Enclosed Flares are proven technologies for oxidizing various pollutants such as [VOCs](#) and hydrocarbons. These systems operate over a large process window and can safely handle fluctuations in waste stream flow rates and compositions while providing simple and reliable operation.

The Technology: How it Works

Enclosed flares provide a simple, straightforward means to ensure compliance while being one of the least maintenance-intensive of all air pollution control technologies and exhibiting the highest on-stream time/reliability.

Configured to accommodate high-energy process discharge streams with excess air for combustion, these systems can provide most of the necessary temperature/energy for destruction with minimal additional primary fuel. Thus, making them cost-effective to operate.



Implementation

Pollution Systems designed an Enclosed Flare system, Model #HCEF-18, that was appropriately sized to accommodate the plant's waste gas stream and to meet or exceed a +99% or higher total hydrocarbon and non-methane hydrocarbon destruction rate. The system was fully automated for ease of startup and operation. Since this facility wanted a system with little downtime, Pollution Systems built the Enclosed Flare as a horizontal system which provided easy access and thus shortened the time needed for maintenance performance.



Results

Pollution Systems completed the Horizontal Enclosed Flare System within the expected time frame and within budget. The Enclosed Flare successfully abated the hydrocarbon and non-methane [VOCs](#) from the nine (9) waste streams sent to the flare for treatment. Overall, the customer was very happy with the cost, ease of operation, safety, and $\geq 99\%$ DRE of the system. Since the completion of this project, they have contacted Pollution Systems about building two more Enclosed Flare Systems to handle their plant's future site expansion and anticipated increase in production capacity.

