ExxonMobil

A flare for safety

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Facts about the Fawley refining and petrochemical complex flare system

A flame burning at the top of one of the plant's highest towers might look alarming, but in fact it is an important part of its operation. It is not uncommon for people to be concerned when they see smoke or flames coming from the tower, called the flare stack.

However, the flare is a normal and vital part of keeping the plant running safely during unplanned operational interruptions or scheduled maintenance.

How does the flare work?

The flare acts as a safety valve for the plant. During normal operations, crude oil is refined to produce a variety of products. However, during an interruption, such as an unplanned loss of power, the system is occasionally unable to continue its processing and excess hydrocarbons are routed through the flare system.

There, the vapours are combined with steam and burned off; ensuring maximum combustion of hydrocarbons, while minimising emissions into the air.

Reflection off the clouds

The Fawley site has four flare stacks. When used on cloudy nights, light from the flares can reflect off the clouds, which can then be seen in the local communities.

What is that rumbling noise?

Flaring can occasionally lead to a rumbling sound, similar to distant thunder, resonating from the system. The rumbling is the result of the turbulent mixing of vapours during the flaring process.

It is similar to the sound you hear when you fan a fire and the flame mixes with the added oxygen.

What is that black smoke?

Black smoke from the flare occurs when there isn't enough steam to help burn the hydrocarbons sent to the flare. Site personnel are constantly monitoring the flare to ensure that steam levels are correct.

In the rare instance of a sudden release of hydrocarbons to the system, there may be a delay in response before enough steam can be supplied to the burning process and black smoke may be emitted for a short time.

Regulating emissions

The Environment Agency strictly regulates emissions from the site including noise.

In recent years, we have taken a number of steps to recover and reprocess excess materials to lessen day-to-day flaring. We have also invested in improvements to the flare system to reduce noise and smoke.

However, use of the flare system is still essential to the safe operation of the plant.

For more information, contact the Community Affairs department at ExxonMobil at Fawley on 02380 892511 or email ExxonMobilFawleyPAStaff@exxonmobil.com

Image: One of the four flare stacks at ExxonMobil at Fawley.