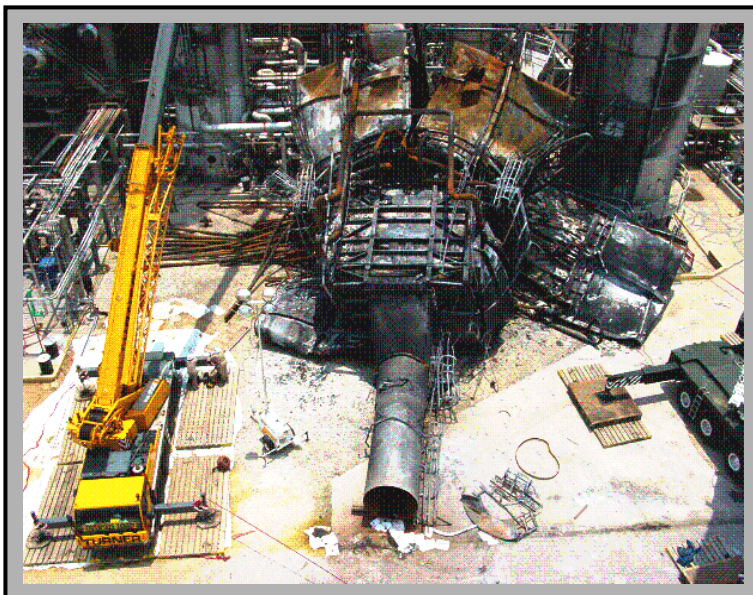


January 2004

Avoid Improper Fuel to Air Mixtures

Here's What Happened:



Photograph of the heater and adjacent column

On June 11, 2003, an explosion destroyed the natural gas furnace at the NOVA Chemicals Bayport plant. Before the explosion, an operator noticed flame stability problems with the low NOx burners and began to manually adjust the airflow. During the few minutes that adjustments were being made to manage the burners, a loud puff was heard followed by a major explosion in the furnace. Damage included total destruction of the furnace and adjacent column. Fortunately, no one was injured, however the consequences could have been much worse.

What You Can Do !

To prevent a similar explosion at your plant:

- ❑ Ensure that a thorough hazard review and management of change is conducted
- ❑ Ensure that adequate performance testing is conducted
- ❑ Ensure that the burners and flow lines are cleaned and devoid of debris before startup
- ❑ Log and record any operating issues that occurred during your shift
- ❑ Communicate any issues during shift-to-shift meetings
- ❑ Ensure that the operating procedures, safe operating limits and control parameters for all new equipment are accurate and well understood. You may have only minutes to act to prevent an explosion.

How Did This Happen?

It appears that the explosion was caused by clogging in the nozzles on the new Ultra Low NOx burners resulting in an unstable flame. However, there were several other contributing factors that reinforce the importance of establishing effective design, construction and operating management of change processes when introducing new technology.

PSID Members check: "Furnace" in Free Search

Learning from this incident is being presented here with the permission of NOVA Chemicals. If you have questions or comments, please call Daniel Wiff, NOVA Chemicals Process Safety Advisor @ 412-490-4649.

A more detailed report on this incident is available by request to ccps_beacon@aiche.org.

***Flame Instability is Dangerous.
 Ensure that you understand the consequences of Change.***

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