

CLIENT CASE STUDY

“FLARE SYSTEM VELOCITY CONCERN REVIEW”

- ∴ **Facility Type:** Platform
- ∴ **Services Provided:** Engineering Analysis

The Opportunity:

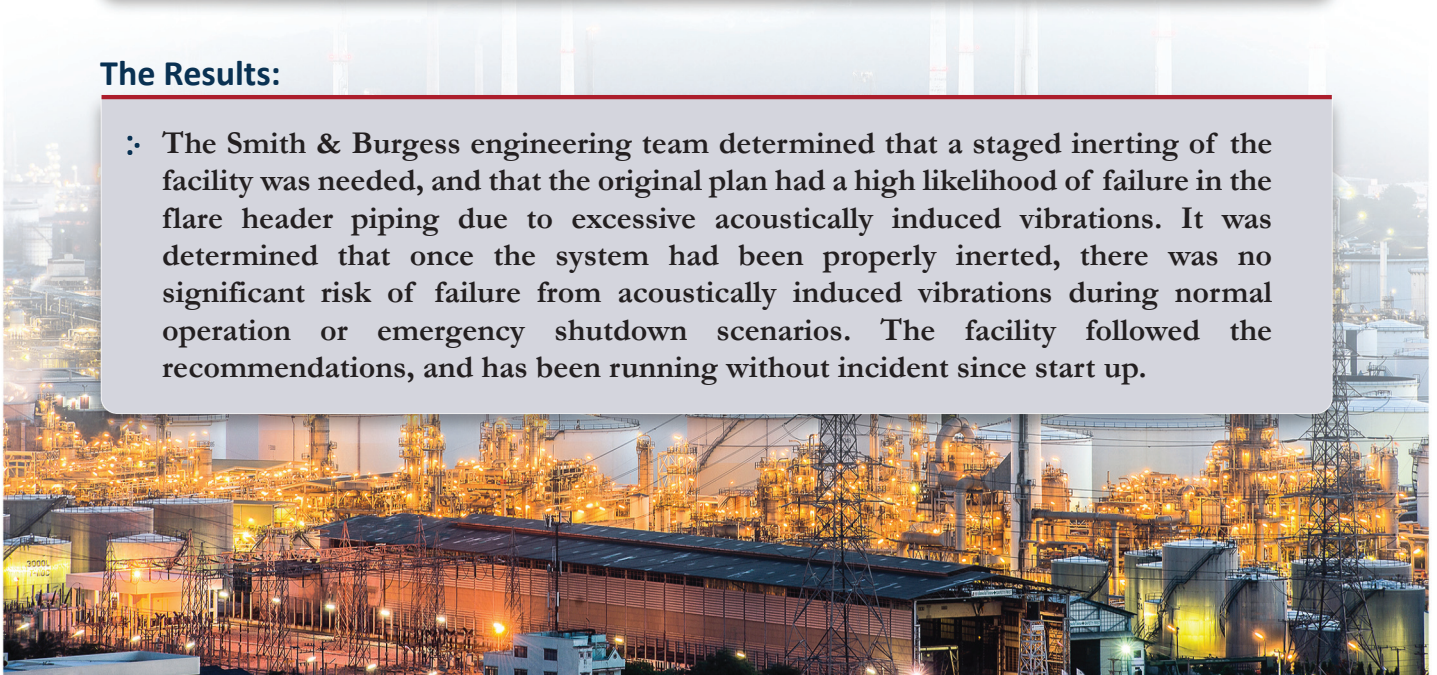
- ∴ After reading about flare header failures due to high velocities, an owner of a production platform in the Middle East wanted to ensure that the initial inerting/purging of the platform and pipeline would not result in flare header piping failure. Smith & Burgess was hired to review the flare systems for safe operation under the high flow rates associated with the initial facility start-up.

Our Solution:

- ∴ The Smith & Burgess engineering team verified the likelihood of failure of the flare system piping under startup conditions based on the Energy Institute’s Guidelines for the Avoidance of Vibration Induced Fatigue Failure in Process Pipework. This analysis was cross-checked against the Carucci and Mueller methods from ASME/Concawe, which were adopted into the 6th edition of API STD 521. Many different scenarios were reviewed with operations personnel in order to ensure the refinery’s start up would be flexible and overly prepared. In addition, the controlled shutdown of the facility was also analyzed.

The Results:

- ∴ The Smith & Burgess engineering team determined that a staged inerting of the facility was needed, and that the original plan had a high likelihood of failure in the flare header piping due to excessive acoustically induced vibrations. It was determined that once the system had been properly inerted, there was no significant risk of failure from acoustically induced vibrations during normal operation or emergency shutdown scenarios. The facility followed the recommendations, and has been running without incident since start up.



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