

Services Performed

IRC analyzed consequences from jet fires, pool fires, and vapor cloud explosions using computational fluid dynamics (CFD) software packages to determine the robustness of the Poinsettia platform design.

Objectives

Objectives of these studies were to verify:

- The blast and fire rating of the fire and blast wall
- Whether passive fire protection is needed for the primary structure of the platform
- Whether existing active fire protection measures need to be reevaluated
- The location of the heating, ventilation, and air conditioning (HVAC) intakes is such that toxic gas will not migrate into the HVAC system if a hydrocarbon release occurs

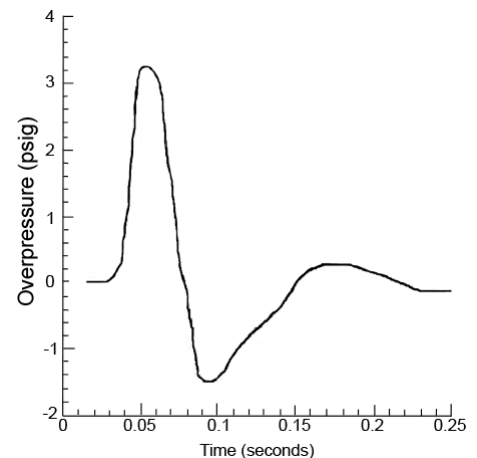
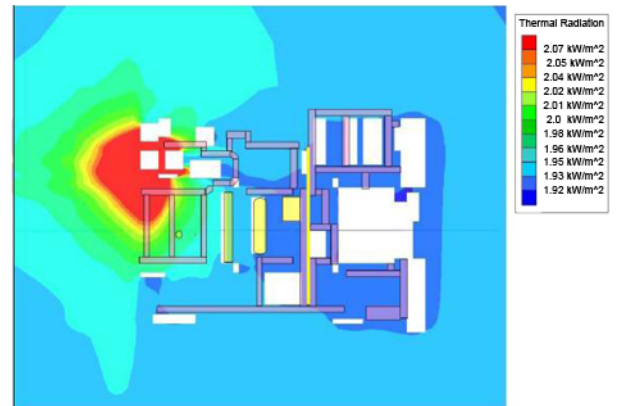
Project Description

British Gas Trinidad & Tobago Limited (BG) contracted Fluor to design the North Coast Marine Area (NCMA) Phase 3c Poinsettia project, which involved the design of an offshore natural gas production platform located approximately 40 km from the north coast of Trinidad.

Gas and condensate exported from Poinsettia would be transported via a new, 20-inch diameter pipeline that would tie into a preinstalled 20-inch riser on the Hibiscus platform. The majority of the process areas on Poinsettia are located on the production deck on the south side of the blast wall. The risers and pig launcher are located on the cellar deck on the south side of the blast wall.

Three CFD codes were used in this analysis:

- PHOENICS—Parabolic Hyperbolic or Elliptic Numerical Integration Code Series
- FDS—Fire Dynamics Simulator
- CEBAM—Computational Explosion and Blast Assessment Model



Key Benefits to Client

- A clear understanding of the severity of fire events based on proposed facility inventories, impairment criteria, and available historical data
- A clear assessment of the adequacy of design fire ratings for key components (e.g., firewalls and primary structure) for immediate and delayed fire events, as well as the suitability of escape routes and temporary refuges

