



Computational Fluid Dynamics Analysis

Xodus Group's advanced modelling capabilities present clear design and operational recommendations.

Our specialists use Computational Fluid Dynamics (CFD) to model complex scenarios, considering detailed aspects of geometry and physics to provide more accurate and highly detailed solutions leading to cost-effective design.

Using 3D visualisation, results of the analysis can be viewed and explained providing engineers and designers with detailed understanding of complex phenomenon including explosions, gas dispersion, ventilation and other flow patterns. This approach can be applied from feasibility and concept selection to life extensions, giving our customers significant benefits in terms of cost-effective solutions and meeting client and regulatory demands.

Combined with our experience in safety and risk modelling, we can create custom solutions involving the integration of risk assessment and advanced CFD analysis across the full range of offshore and onshore projects. Our main specialities include:

- Explosion consequence studies
- Probabilistic explosion analysis
- Gas dispersion analysis
- CAP 437 helideck design studies
- Concept selection guidance
- Mitigation measure development
- Internal flow studies.

We support and assist our clients in developing tailored risk solutions using a total risk based approach to ensure an integrated design resolution.

CFD analysis provides benefits for the modelling of risk in a variety of ways including:

- Highly detailed reported results allowing engineers to make specific design considerations
- Refinement of standard (2D) Quantitative Risk Assessment Studies, to account for barriers, terrain features, areas of congestion
- Greater consideration of mitigation measures for reducing the risk and cost of facility design
- Reduction in the level of conservatism through more accurate modelling of the physical phenomena
- Improved confidence and assurance in design decisions.

Our experience

Xodus has completed CFD analysis on a large number of projects, from Floating Liquefied Natural Gas (FLNG) / Floating Production, Storage and Offloading (FPSO) facilities through to subsea erosion modelling. Available software / tools include the CFD packages CD-adapco STAR-CCM+ and GexCon FLACS together with in-house probabilistic and analysis tools.

Our CFD analysis experts are members of our Technical Safety & Risk team, which provides services ranging from HSE cases and Control of Major Accident Hazards (COMAH) to quantitative / qualitative risk assessment, human factors and design review.

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