

## Background

The recent PFPNet poll of priorities identified the provision of design guidance on cryogenic spill protection as a priority for action in 2024. This invitation to tender is for the development of such design guidance.

The intent of this document is to improve the specification of CSP, to ultimately ensure the correct systems are used in the correct locations, by providing generic guidance on the hazards and risks to ensure CSP is not overlooked at the early design stage;

The project outputs will be of use to facility owners and operators, engineering companies, PFP suppliers, regulators, and insurers.

## CSP Design Guidance Document: Scope

The design guidance shall address the following topics:

- Relevant publications
  - Review of existing design guidance
  - Relevant standards
- The hazards associated with release of cryogenically stored fluids
  - How we can quantify the hazards and physical effects associated with loss of containment of cryogenic fluids
  - Risk reduction measures to prevent or control incidents
  - Hazard mitigation options
- QRA inputs
  - What are realistic leak hole sizes and pressures, leak durations
  - What a reasonable leak frequencies, is PARLOC representative?
  - Ignition probabilities and times
- The nature of releases
  - Jet lengths, transition to vapour
  - Pool formation and durations
- Critical structures
  - Same or different to those for fire?
  - Should the full area be protected or just critical stress areas?
  - The influence of steel grades and the ductile-brittle transition temperature
  - Concrete response
- Detailing
  - Whether PFP rules such as coatback are applicable
  - Compatibility with 3-sided protection designs

The above topics provide the scope of the project. Optionally, the bidder may choose to include commentary on the below topics, however these will not be included in the bid scoring process and will not influence award of the project.

- Test methodology
  - The applicability of various tests to various release scenarios
  - How to consider fire after cryogenic spill
  - The influence of shape / section factor
- Non-LNG releases

- The extent to which testing with LIN is representative of other fluids
- The application of results to other cryogenic fluids.
- Specifications
  - Generic specifications for use at the early-stage design
  - The influence of non-ambient 'start' temperatures and application of test results

## Information to applicants

PFPNet invite bids of up to £40,000 to undertake the above work.

Applicants shall have demonstrable knowledge and track record in the field. CVs of those involved should be provided with bids, highlighting related activities. PFPNet welcome applications from individuals or companies. Joint bids are also welcomed.

Bids are to be returned to [ian.bradley@pfpnet.co.uk](mailto:ian.bradley@pfpnet.co.uk) no later than June 28<sup>th</sup>.

The tender will be awarded in accordance with the PFPNet tender scoring process (available on request), as scored by the CSP Technical subcommittee, and confirmed by the PFPNet steering committee.

Bidders should indicate in their bid whether they will include commentary on the optional topics, however this will not be considered as part of the scoring process.

The project shall commence July 29<sup>th</sup>, with the successful applicant notified no later than July 19<sup>th</sup>.

The project shall run for 9 months, with key deadlines as follows:

- kick-off meeting: within the first month
- progress update meeting: mid-October
- **presentation at the PFPNet conference 21<sup>st</sup> /22<sup>nd</sup> October**
- **draft guidance document due: November 15<sup>th</sup>**
- deadline for comments and feedback from PFPNet: December 9<sup>th</sup>
- **final draft due: February 14<sup>th</sup>**
- deadline for comments and feedback from PFPNet: March 14<sup>th</sup>
- **finalisation (including PFPNet editorial review) due: April 18<sup>th</sup>**
- final copy issued: May 2025

For more information please contact [ian.bradley@pfpnet.com](mailto:ian.bradley@pfpnet.com)