Product Line: Simulation of LNG leak fire from piping lines.

Challenges:

Complete flow behavior and heat distribution of flame for few seconds. Hexahedral mesh for the given cad model and unsteady simulations carried out in commercial coupled solver. Reactive and multiphase simulation has been carried out.

Inputs Provided:

- 3D CAD model.
- SOW (Statement of the Work) and boundary details for understanding the stages of the project.

Assumptions (If Any):

- Geometry simplifications by eliminating joints and clamps.

Methodology:

Unsteady, reactive and multiphase simulation has been done with incompressible flow of air over LNG pipes with Epsilon turbulent model.

Tools Used:

Geometry: CAD modeling tool has used for cleaning the geometry.
ICEM CFD: Meshing has been done with tetrahedral elements.
ANSYS CFX11.0 : Simulations for different angle of attacks for the airfoil were carried out.

Solutions Provided:

- Unsteady, reactive and multiphase simulation for turbulent flows.
- Detailed post processed data, observations for customer specified time steps.

Benefits:

- Continuous interactions and ideas exchange results in early finish of the project.
- Best insight of fire behavior and temperature distribution delivered for system in lesser time.