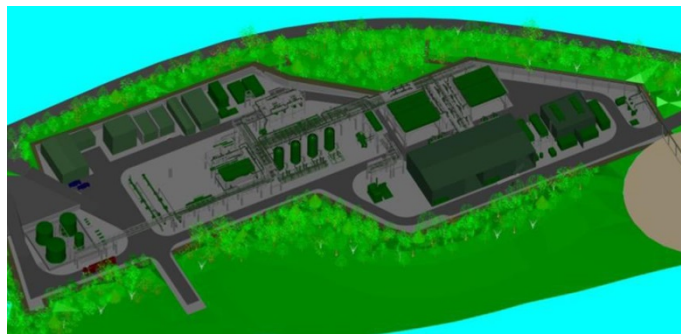


## The Problem

Our client had been developing its portfolio of storage assets, a process MMI as a company has supported from its inception. The project involved a depleted onshore gas field, which was to be redeveloped for storage purposes. This brownfield development had limited additional acreage available, which limited the options for inherent safety through segregation and creating distance between processes, as well as between processes and people. Whilst the local community was living at a reasonable distance from the site, an understandable antipathy had formed in the community, for which exceptional communication and clarity was required. The site had the added complications of limited access to pipelines, and the need to accommodate road tankers on-site. A further constraint was provided by the need to consider existing wells on the processing site in the risk assessment and management process.



All gas storage sites in the UK have been placed under the schedule for hazardous substances, for which the Control Of Major Accident Hazard Regulations (COMAH) apply, which increases the level and rigour of assessments required. Prior to routine operating activities, such as gas compression and processing, the construction phase had to be designed in detail. This pre-operational phase included construction of a processing plant, an injection plant, drilling of several wells on a separate well site and the construction of two new pipelines to connect wells with plant and plant with the National Grid.

## Our Approach

The core part of MMI's work was to show that safety critical aspects were designed in accordance with the ALARP principle at all times. This was done primarily through the development of small design studies, as well as the Pre-Construction Safety Report, which requires all early information to be brought together for assessment by the Regulator. The MMI team was responsible for developing and supporting the following key documents and systems:

- Pre-Construction Safety report (forerunner of ultimately the COMAH Case)
- Quantitative Risk Assessment (QRA)
- Qualitative Risk Assessments (Bow-Ties)
- Emergency Response Plan
- 7 Underpinning Safety Assurance reports relating to individual design and interface issues

The team was also responsible for supporting the general safety of the project by facilitating the full FEED HAZOP.

## Outcome

The project was developed to full FEED level on time and on budget.