



# Underground Gas Storage Well Integrity Quantitative Risk Assessments



The consequences of a loss of well integrity can be catastrophic. The released gas may pose a threat to facilities as well as the public by creating a flammable, explosive or toxic hazard. Well control response actions to deal with such a release may not be straight forward, and bringing an end to a well release can take time. A release may expose the owners of storage facilities or E&P companies to significant liabilities. Understanding which wells pose the greatest risk enables storage facility operators to target their efforts on the higher risk wells, ensuring OPEX budgets are used as effectively as possible.

Wild Well Control understands that operators may have hundreds of wells and can facilitate screening the well inventory. Determining the primary targets for modeling will be based on the screening factors below.

- Proximity of population (dwellings, parks, roads, etc.)
- Surface facilities and infrastructure
- Well deliverability – max reservoir pressure, worst-case discharge rate and reservoir volume
- Age of well
- Safety systems in place on the wells

Wild Well can assist the client by identifying these factors as part of a data gathering exercise if the information is not known or contains gaps.

Having screened the well stock, Wild Well can then conduct gas dispersion, radiant heat and vapor cloud explosion (VCE) studies to quantify the consequences of a release from identified wells. An exclusion zone can be determined around the well site for the various hazards. This will highlight if the public are at risk for toxic gas exposure or whether there is significant potential for collateral damage from a well fire or vapor cloud explosion. Once the risk has been quantified, a program to ensure the continued integrity of the well stock can be adjusted as necessary to reduce risk. See also Wild Well Control's Approach to Underground Gas Storage Well Integrity.

Once this risk has been quantified, a program to ensure the continued integrity of the well stock can be adjusted as necessary to reduce risks to as low a level as possible. See also Wild Well Control's Approach to Gas Storage Well Integrity.

