Well Spacing

INEOS Shale will look to reduce the surface impact of its operations as much as possible.

In the early exploration stage there is very little surface impact due to the short term nature of the activities:

* We will acquire and analyse 2D and 3D seismic data to understand the geology better
* We will drill a small number (up to 19 in total across the three regions) of vertical core wells to extract samples of the rock for analysis of its structure and gas content

The next phase is the appraisal stage which is a longer term operation but will still have a low impact at surface

* Following interpretation of the seismic and core data, if it is positive, we may want to test the production potential of the shale rock at a similar number of sites (up to 11 in total across the three regions) which will involve drilling one or possibly two horizontal wells at each site and fracking them
* Only once all that data is gathered and analysed can we begin to consider a production development

If the exploration and appraisal phase yields encouraging results we will enter into the production development phase and will aim to concentrate wells on as few pads as possible as far as the geology of the shale rock and technology existing at that time allows. Until that specific knowledge is with us we can only make intelligent estimates of what might be required.

Our current view is that in a licence area of 10km by 10km completely clear of above and below ground constraints, we could extract gas from across the whole area by using ten well pads each hosting 10-12 horizontal wells. We can also envisage a scenario where if it is preferable and feasible to utilise fewer pads with a greater number of wells per pad. Of course the realities of the UK landscape and geology will undoubtedly constrain activities and reduce the number of wells and well pads in any given area.

**Geology constraints:** The shale layer is unlikely to be uniform in its shape or structure and once we have the seismic and core well data we will find that some parts of our areas under licence are not worth drilling and fracking because the rocks are not going to yield enough gas to make it worthwhile or there are too many faults in the rock.

**Surface constraints**: We will not be drilling in urban areas or designated areas such as sites of special scientific interest. There are a whole host of other considerations we have to take into account in deciding on what is or is not a suitable location for a site, but these two are the largest.

So the end result is that developing the maximum number of wells and well pads in any 10km by 10km area is not possible given the surface and subsurface constraints. We anticipate that less than half of a given area is developable when the surface and subsurface constraintsare taken into account.

Hence, real developments will see a smaller number of well pads, with a smaller number of wells on some of them. Some areas will not be viable at all, either because of the geology, or because the surface constraints make development sub-commercial.

It is also important to note that once drilling and fracking operations have ceased at a particular site, due to landscaping and site placement within the contours of the surrounding countryside, visibility of a production site becomes negligible, especially from ground level.

All sites will also have to be assessed and approved through the local planning process.