

Explanatory Text - Images to visually explain the exploration and appraisal stages as described on page 16 (Table 2 Stages of Development) of UKOOG submission.

Image 1: Site Construction

- Site construction of a 1.5hectare well pad took 6-8months (timeline includes the construction of a bellmouth onto the A583 and access track to the well pad).
- Nearest residential sensitive receptor 280m from the edge of the pad (not the landowner of the site).
- Temporary construction laydown area located next to the access track.
- Top soil stripping to create earth bunds at each of the pad for restoration.
- Construction of cellar, 4m high perimeter noise wall and installation of HDPE membrane.
- Farming continues alongside the site operations and throughout the lifecycle of the site.

Image 2 & 3: Aerial and Side View of Rig on site

- Exploration stage drilling includes coring and logging of wellbore to establish scientific understanding of the target formation (Bowland shale).
- 2 wells drilled at site (PNR 1z and PNR 2).
- The well, PNR 1 was drilled vertically first, cored and analysed to make a decision of where to land the lateral wells PNR 1z and PNR 2 as these were the first laterals to be drilled into the Bowland formation (UK and Lancashire) but not the first time lateral drilling has been used in the UK.
- 24/7 drilling operations.
- Drilling rig on site 35m high.
- Supporting equipment approx. 4-5m high including mud pumps, cabins and fluid system
- 10m high noise wall located adjacent to the rig.
- Drilling time took between 3-4months (excludes mobilisation, demobilisation of equipment and time used to skid across from well 1 to well 2).
- The laterals extend up to 800m.
- Temporary construction compound reinstated.

Image 4&5: Aerial and side view of hydraulic fracturing equipment

- No rig
- Frac rig spread mobilised and located on site with a surrounding 10m high noise wall.
- The spread includes 4 acoustically housed frac pumps and 1 not acoustically housed frac pump
- Ancillary equipment includes sand silos, cabins, flowback tanks and fresh water storage tanks. All shipping container size.
- Tallest equipment on site is the Coil Tubing tower 25m in height. This allows for the coil tube (steel pipe) to unravel and act as a conduit for fluids to go downhole and manoeuvre downhole configuration of the frac sleeves.

- Daytime operations only.
- Supporting equipment on the left hand side of the picture is the well testing equipment which separates gas, returning water (flowback fluid) from the well and flare system.
- 2 flares (10m high) which are enclosed and designed in accordance with Environment Agency Best Available Technique (BAT) guidance.
- Flares are ceramic lined to substantially reduce noise and heat radiation. Flare flames are to remain with the enclosed stack of the flares.
- Duration to hydraulic fractured each laterals is 1-2months (excludes mobilisation and demobilisation of equipment).

Image 6: Testing equipment

- Frac spread has been demobilised from site.
- The well is being tested and data analysed.
- Well testing equipment remains on site and the flares.

1.0 Site
construction photo



2.0 Aerial photo of rig



3.0 Side view of rig



4.0 Aerial photo of fracking equipment



5.0 Side view of fracking equipment



6.0 Photo of testing equipment

