Response to the inspector for further work on points regarding Hydrocarbons.

Specific responses to **Policy M17(4)(i) and PolicyM16(a).**

I am responding on behalf of Gilling East Parish Council.

It is impossible to consider either of these two policies in isolation. To understand one is to see the necessity for the other. The basic difference between conventional and unconventional gas lies in the geology. Conventional gas is found in porous rocks from which gas will flow unassisted once a well has been drilled into them. Unconventional gas is found in tight rock formations where the rocks have to be fractured and held open by a variety of means before the gas will flow from them. Once a conventional gas well has been drilled it will produce gas for a number of years, perhaps several decades. Unconventional wells on the other hand, will produce gas for only a few years as the area of rock that can be fractured at any one time is small and the flow of gas will diminish very quickly. Experience has shown that gas flow reduces rapidly after 1.5 to 2 years.

Although the end product, methane, is the same in both instances, the surface manifestation is completely different. Unconventional gas requires huge amounts of water, sand, chemicals and hydraulic equipment. Once the target rock is reached, in the case of KM8 at a depth of 10,000 feet, the well-casing is perforated and the rock shattered by water forced into it at enormous pressure. The fissures created are kept open by the sand and the flow of gas is encouraged by the use of chemicals. When the gas returns to the surface it is mixed with water and cannot be used commercially until this has been removed. This necessitates the flaring of gas and the physical removal of the water from the site. Water can be reused in another well but increasing levels of toxicity mean that in reality, it has to be transported to specialist treatment plants. This is because the release of the gas also results in the release of other hydrocarbons and chemicals trapped in it. Typically one would expect to see such substances as benzene, ethylbenzene, toluene, arsenic, 'norms' etc. There will therefore be considerably more traffic movement for the unconventional well. In their planning application for a test well at Bramley

Moor near Rotherham, INEOS have estimated 14,000 vehicle movements to build one well.

Although in the early days High Volume Hydraulically Fracked wells were drilled at multiple separate locations, now the usual practice is to concentrate them on pads. There is no maximum for the number of wells on a pad. In 2017 figures were released that showed Third Energy were planning 400 wells on 14 pads, an average of 28 wells per pad. INEOS estimates that they will be putting between 10 and 12 wells on each pad but said in answer to a question on 6th March 2018, "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".

Pads vary hugely in size. There are few pads that contain 28 wells in the US. One that does, the Strope pad at Franklin Township, Greene County, Pennsylvania, will cover ten acres. The site on Preston New Road in Lancashire, currently being developed by Cuadrilla, covers 4 hectares.

When considering unconventional gas extraction it is unrealistic to talk of "wells". We have to talk about pads and also their cumulative effect. Producers themselves are openly talking about pads with the number of wells that they hope to put on them. Dwellings and other sensitive receptors that are less than 500 metres from a pad face massive disruption and inconvenience. Planning applications already in place give a timescale of three months to drill a well, working twenty four hours a day, seven days a week. This would be accompanied by light, noise and air pollution. Bear in mind that at the failed frack at Preece Hall, 1,000 gallons of diesel were used every day. Even using industry figures of 12 wells per pad this would be three years' worth of drilling for neighbouring communities. For 28 wells it would be 7 years. The industry figures are probably very optimistic. At Preston New Road Cuadrilla are already over 14 months in to what was planned as a 6 month job. To suggest that no separation distance is necessary is to put totally unreasonable demands on communities or individuals who live close to one of these pads.

Insurers see obvious problems with the proximity of wells or pads. In the much redacted and eventually abandoned report commissioned by

DEFRA on the effect of fracking on rural communities, insurance companies estimated increased insurance premiums within a radius of between one and five miles from a well because of the risk of explosions. At a public meeting in Easingwold on 29-10-2016 Rob Arnott of the Oxford Institute of Energy Studies, suggested that the rationale behind a 500 metre set back distance was that this could be deemed a safe distance if the well were to explode. Tom Pickering of INEOS, who was also there, did **not** disagree.

We would contend that the 500 metre separation distance is crucial for the well-being of local residents. Without it, the special nature of unconventional gas extraction, with its need for more wells and the concentration of those wells on large pads, would make the lives of those living 500 metres away very difficult. It would make the lives of those who lived nearer intolerable.

Peter Allen