

SUBMISSION TO JOINT OIREACTHAS COMMITTEE ON TRANSPORT & COMMUNICATIONS

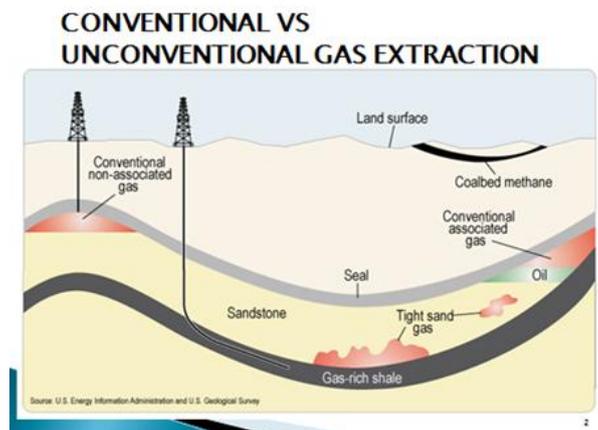
10/10/2012

OPENING STATEMENT

In this statement I will give the Committee

- An overview of what is meant by “fracking”, a picture of the scale of the project proposed and its impacts on the land.
- I will then address the risks of contamination of ground water in the Northwest, the general risks to air and water, as identified by the Environmental Agency (UK) and impacts on health.
- Finally I will deal with the promise of jobs and the social impacts of this boom and bust industry.

- In conventional gas extraction, there is a reservoir of gas underground and a few wells can extract vast volumes of gas, e.g. in the Corrib gas field, 5 wells extract 1 billion cu.ft. of gas.
- In unconventional gas extraction, the target area is deeper, the gas has to be released **by high-volume hydraulic fracturing** and thousands of wells may be needed to extract the same volume of gas.
- In the Northwest, the proposal is to take over 100,000 acres and industrialise it, build 120 pads and drill **3,000 wells**.



Shale gas pads can range in size. The pads proposed for Ireland are **7 acres each, one every square mile** throughout the target area. **24 wells** to be drilled from each pad, **3000 wells** in total.

Shown is a picture of an equivalent pad in Horn River, British Columbia. A recent report by the B.C. Oil and Gas Commission reveals that several minor earthquakes were caused by fracking in the area. Almost 40 “seismic events” were recorded ranging in magnitude between 2.2 and 3.8 on the Richter scale. Records show no earthquake activity in the area prior to 2009.



Google Earth image of Dish, Texas, US.

What does a place that has been fracked look like? A pad every square mile is proposed.

This picture of Dish, Texas shows the scarring of the landscape caused by these pads with their access roads and accompanying heavy equipment, gaspipe networks and installations.

Google Earth images of Dimmock, Pennsylvania or Alberta, Canada will show the same pattern.



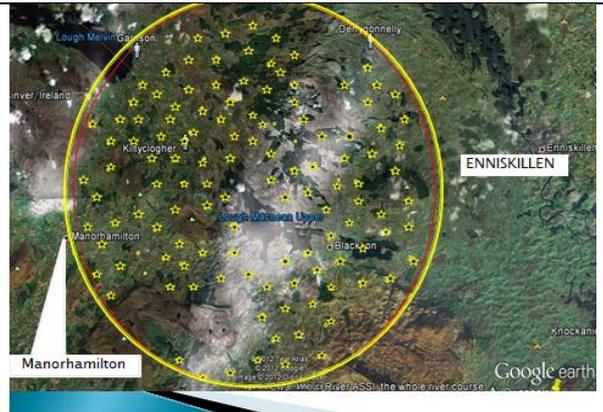
The target areas of Northwest Ireland

- The red circle shows the target area proposed by Tamboran for the first phase of their operation with 3,000 wells.
- The blue circles show the area where the shale layer is 700m or more thick, in Leitrim, Fermanagh, Cavan, Sligo, Roscommon and Donegal. Planned for the second phase of the shale gas project.
- Similar areas are found in Clare, extending down through Limerick into North Kerry and Cork.



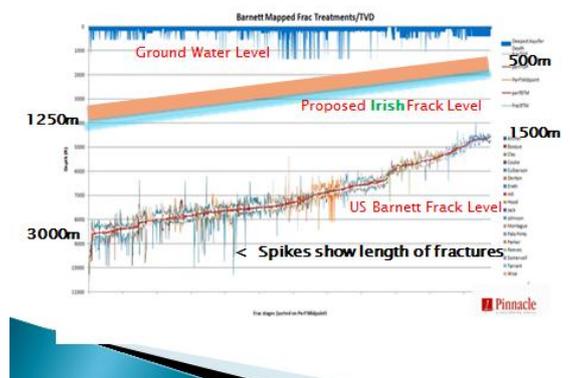
This image gives an indication of the density of pads throughout the target area of Leitrim and Fermanagh if 120 pads are constructed there. It does not show access roads, gas pipe networks or other installations.

On the Leitrim side, this area is part of the Shannon catchment area. It includes Lough Melvin with its unique species of fish, the Glens of North Leitrim, comparable with Antrim or Kerry, numerous SACs and areas of high visual amenity, vast underground water and cave systems and blanket bogs.



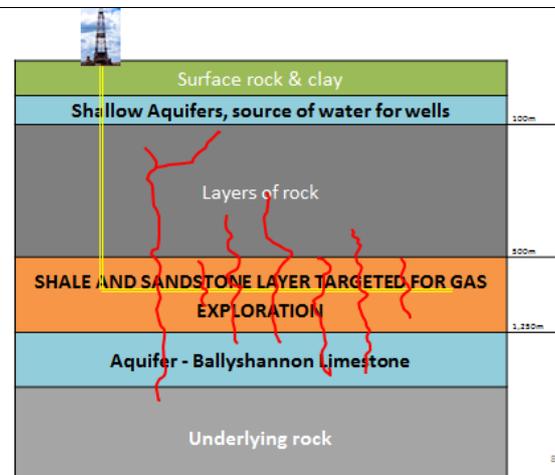
Depth of hydraulic fracturing in Ireland vs US

- The Barnett Shale in US is found 1500 – 3000m deep underground. (1- 2 miles)
- The length of individual fractures from Hydraulic Fracturing can be up to 580m
- A recent report recommended that fracking should not occur at a depth less than 700m below the ground water level
- In Northwest Ireland, the shale is much shallower than the Barnett Shale – 500m to 1,250m deep



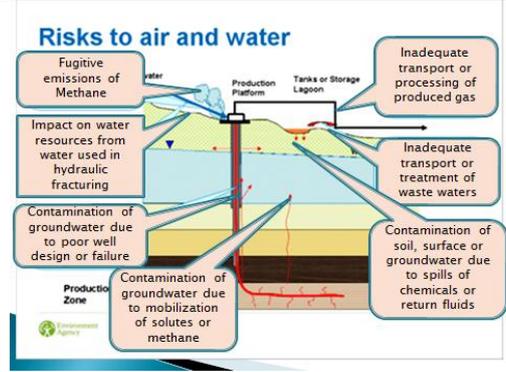
Profile of earth in target area of Leitrim/Fermanagh

- Shallow aquifers throughout the area.
- Shallow shale layer starts at 500m underground.
- Directly underneath the shale layer is another aquifer, Ballyshannon limestone which rises to the surface in South Donegal and is the public water source for the area.
- Fracking would almost certainly fracture the limestone layer, making it more permeable, allowing flow of water.
- Fractures can go anywhere, bringing contaminated fluids and gases with them.
- Shallow fracking brings greater risk of contamination of ground water.



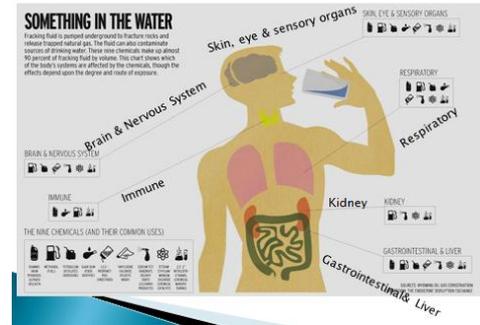
Risks to air and water can come from:

- Cement casing failures, well failures, blow-outs
- Fluids or gases leaking from wells or moving through fractures or faults to ground water sources
- Accidents causing spillages, contamination of lakes and streams
- Huge volumes of contaminated wastewater, inadequately treated
- Methane leaking into the air or into ground water
- Traffic fumes, dust, ozone.



Impact on public health

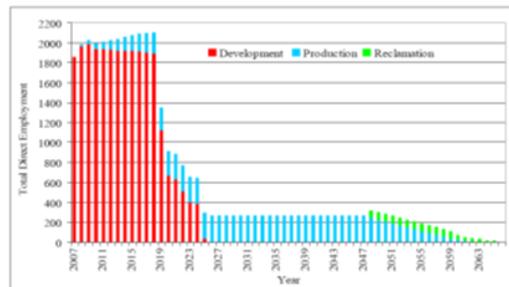
- The nine most common chemicals found in fracking fluids **ALL** have serious effects on human and animal health.
- This does not include what comes up from below – salts, heavy metals, petroleum products, radioactive substances
- We do not know the extent of the long-term effects – high-intensity, high-volume hydraulic fracturing is new – the health effects are only now being studied.
- In addition, communities living in fracked areas suffer from stress caused by noise, anxiety and disruption.



Effect on Jobs and existing industries

- Each well needs approx. 400 workers, these number are not cumulative, the workers move from well to well. Largely migrant workers, low-skilled jobs.
- Boom and Bust – 15 years, industry moves on, those jobs gone.
- Fewer long-term jobs – 60 pads in Leitrim = 180 jobs.
- Existing industries include agriculture and tourism. Both of these at risk, 15,000 employed in tourism sector in Northwest.
- Pharmaceutical industry depends on clean water.

Jonah Fields Direct Workforce through the life-cycle of shale gas operation



Graph: Ecosystem Research Group/Jaoquet

Past Experience in US

- Boom and Bust Scenario
- Direct & significant influence on population, affecting nearly all sectors of the community – Housing, Culture, Public Services
- Increases in social problems such as crime, mental health problems, community dissatisfaction, conflict
- Increases in public health problems such as allergies, respiratory, immune, dermatological disorders

Conclusion

The emerging scientific evidence shows that current technologies and practices are not safe or desirable and, under the precautionary principle, the Government must make a clear commitment that further licences will not be issued for on-shore shale gas exploration or development in Ireland.