

## Submission in response to public consultation for document: **Safety Case Guidelines**

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First, a general complaint about the way the safety framework is being set up: the regulations relating to offshore and onshore petroleum activities should not be covered by the same documents. These are completely different activities in terms of their safety implications and should each have separate, dedicated sets of documents developed setting out how the safety framework applies to each category of activity separately.

It is extremely confusing to read the documents and not know what was intended to apply to offshore activities and what was intended for onshore activities. There is no reason to combine the two types of activity in one set of documents because the people who will need to use the documents, notably the petroleum undertakings, will be engaged in either offshore or onshore activities, not be mixing the two. The public who will be affected by onshore petroleum activities deserves to be able to find out easily what safety regulations apply to this type of activity.

At the moment, the documents in general give the impression of having been copied/pasted ad hoc from other countries' systems, with primarily offshore petroleum activities in mind. Whereas the safety implications of onshore petroleum activities are far more important, given the number of people would be affected by onshore petroleum activities if these were to be allowed in Ireland. I am mostly concerned with the safety risks posed by unconventional shale gas development, which do not seem to have been seriously considered in the drafting of any of the safety framework documents that I have seen.

Given the unpredictable and uncontrollable nature of the safety risks posed by unconventional shale gas extraction, especially by means of hydraulic fracturing (fracking), the simplest and most responsible way to deal with this issue, in accordance with the precautionary principle, is for the Irish government to permanently ban such hydrocarbon development.

I understand that the CER is not authorized to ban fracking in Ireland. However, given that the CER has responsibility for regulating the safety of this inherently unsafe activity, it seems to me that a good place to start would be to devise a safety framework that specifically and explicitly dealt with the issue. I really do not think it is good enough to just add fracking as an afterthought to a system that is designed mainly (it seems to me) for offshore petroleum activities.

A second general complaint: I have not seen any evidence to date that the CER has sufficient expertise and resources to effectively monitor and regulate onshore unconventional shale gas extraction. It therefore concerns me that the petroleum undertakings are for the most part being asked to identify the safety risks posed by their own activities and to decide how best to mitigate these risks. Is there anyone in the CER with the expertise in onshore unconventional gas extraction required to evaluate whether what the companies propose is reasonable or not?

In the United States, painful experience of allowing petroleum companies to set their own rules has resulted in the gradual establishment of more prescriptive rules and regulations, a process which is still far from complete. I hope that the CER will go further than the most restrictive regulations currently in place in the United States and Canada, which have not succeeded in mitigating the safety risks posed by unconventional onshore hydrocarbon extraction there.

In terms of resources, is the CER really equipped to monitor and inspect the hundreds or thousands of onshore well pads that would likely be constructed in the license areas, given the well pad densities in the USA and Canada? One wonders how thorough such inspections could be...

Now, for some specific comments related to the *Safety Case Guidelines* document.

I searched the document for the words “wastewater”, “flowback water”, “NORMs”, “VOCs” and even “chemicals” and did not find them. You see why I find it hard to see how this document relates to hydraulic fracturing in any meaningful way?

#### 1.2.2.2

This item states that “Well Work Activities” are one of the activities prescribed in the *Designated Petroleum Activities Regulations*. I found this category named in the

explanatory document with the above title, but in the actual draft wording for the regulations (*Draft of Designated Petroleum Activities Regulations*), the words “Well Work Activities” do not appear. Although the explanatory document includes a reference to hydraulic fracturing under the category “Well Work Activities”, I am concerned that if this category does not actually appear in the wording proposed for the regulations, it will not be clear that the regulations cover hydraulic fracturing. As I made clear in my submission for the *Designated Petroleum Activities Regulations* document, I think the onshore petroleum activities covered by the regulations need to be more explicitly set forth in the regulations, to avoid confusion.

### 3.1 *Prevention*

The only prescriptive requirements (all three of them!) under this heading relate to offshore petroleum activities. You can't be serious.

Here are just a very few obvious prescriptive requirements for onshore unconventional gas extraction that I think you should add under *Prevention* (this list is not exhaustive!):

“Safety cases for onshore unconventional hydrocarbon extraction must describe how the following requirements are achieved:

- All ground and surface sources of drinking water must be protected from any contamination by:
  - Methane
  - NORMs (normally occurring radioactive materials)
  - Heavy metals
  - Salts
  - Fracking chemicals
- The health and safety of local residents must be protected by preventing:
  - VOC and methane emissions
  - Explosions
  - Blow-outs
  - Earthquakes”

### 3.2 *Control and Detection*

I propose the following basic (minimal) control and detection measures for onshore unconventional hydrocarbon extraction:

- Continuous monitoring of air quality and regular (monthly) sampling of ground

water and surface water.

- Well pads shall be manned at all times.
- Provisions shall be made for the safe and timely evacuation of local residents in case of a Major Accident.
- Provisions shall be put in place for notifying local residents of any degradation in water or air quality due to the petroleum activity, or an accident.

### 3.3 *Emergency Response*

Funny (well, not very) how not a single one of the safety case requirements listed under this heading mentions local residents? This seems to me to be a significant omission, and again makes me wonder if the CER has really considered the dangers that unconventional hydrocarbon development poses for people in the local area.

### 4 *Requirements for Production Safety Cases*

This entire section seems to consider only the case of offshore activities, without taking the specific circumstances of onshore, densely spaced well pads in populated areas. A significant omission.

#### 4.3.3 *Hazardous Inventories*

It should be explicitly stated that *all* chemicals and substances used in unconventional hydrocarbon extraction must be publicly disclosed. The quantities used must also be disclosed, as well as the dates of use. Publicly disclosed means on a website that local residents can consult. The chemicals used must under no circumstances be considered “trade secrets”.

#### 4.4.5 *Quantitative Risk Assessment*

For onshore unconventional hydrocarbon extraction, this quantitative risk assessment must include a full assessment of the health risks (short and long term) to residents in the local area, and this assessment must take into account the cumulative risks posed by other petroleum infrastructures (well pads, compressor stations, pipelines, etc.) in the vicinity. Keeping in mind that in the USA well pads are constructed at densities of up to 6 per km<sup>2</sup> (EU Parliament report *“Impacts of Shale Gas and Shale Oil Extraction on the Environment and on Human Health”* <http://www.europarl.europa.eu/document/activities/cont/201107/20110715ATT24183/20110715ATT24183EN.pdf>), the cumulative effects of such intensive and highly polluting industrial activity in populated areas is not negligible.

#### *4.7.2 Hazards and Inherent Safety*

“Inherent safety”, in the context of the safety regulations for onshore unconventional hydrocarbon extraction, refers to what, exactly?

#### *5 Requirements for Well Notifications*

In my view a Well Notification should be submitted (and published) for each onshore well. If people are required to publish and post in visible locations their intention to build a garage or install a septic tank, I think the same requirements (at least!) should apply for wells to be drilled horizontally underground, well pads to be constructed, and pipelines to be laid.

Safety Cases and Emergency Response procedures should take into account the existence or nonexistence of hospitals with 24-hour emergency facilities in the vicinity. For example, the Loop Head peninsula, which is covered by a license option and where shale gas extraction could be permitted in the future, is about 2 hours away from the nearest 24-hour emergency room (Limerick). That is 2 hours once the ambulance arrives, perhaps from Ennis, which is an hour away...

Given the well pad densities that are normal in the United States, around 150 well pads could conceivably be constructed in the Loop Head peninsula if an exploitation license is granted there. It seems to me that the construction and operation of a hospital with a full-service A&E department should be part of emergency response requirements.

#### *9 Requirements for Decommissioning Safety Cases*

For unconventional onshore hydrocarbon extraction, even after wells are abandoned the risk of water pollution and methane migration (with the possibility of explosions) remains for years, even decades. There should be a requirement for continued monitoring and for a fund to be established by the petroleum undertaking before the commencement of petroleum activities that will be sufficient to cover all the longterm pollution and safety risks associated with the site.

#### *10 Publication of Approved Safety Cases by Petroleum Undertakings*

The "public version" of safety cases must include the full disclosure of all chemicals used. This information is of critical importance to protecting public safety and must under no circumstances be kept secret for reasons of “industrial or commercial confidentiality”. This should be explicitly stated in all CER safety framework documents.