Public Health Wales' response to Natural Resources Wales initial evidence programme on unconventional oil and gas.

The term unconventional oil and gas (UOG) refers to oil and natural gas that cannot be extracted using conventional methods such as rock drilling alone. Typically UOG relates to hydrocarbons contained in shale and coal formations which can produce shale oil/gas and coal bed methane (CBM). UOG can generate consider public concern and anxiety not only on emissions to air, water etc. but also relating to concerns such as societal impacts, climate change, sustainability and confidence in the operator and regulator.

The UOG industry is relatively recent and there is a lack of operational experience in the UK, including Wales. This means that there is no evidence on the potential impacts of UOG at a local site by site basis although Wales has a long history of similar extractive industries such as coal mining and conventional oil and gas.

The available research evidence and data originates from countries outside the UK which already have commercial scale operations. Most evidence has focused on shale gas activities, especially in the United States, and there is less evidence relating to CBM. We recommend caution when extrapolating such evidence to Wales since the data used are country-specific and the mode of operation, underlying geology, local site specific factors, local socio-political demographics and the regulatory regime are likely to be very different.

Several agencies in England and Scotland have reviewed this evidence in relation to its applicability to the UK. For example, Public Health England has reviewed published evidence on shale gas while the Scottish Government commissioned two separate reports on UOG (shale gas and CBM); one undertaken by Independent Expert Scientific Panel and a Health Impact Assessment by Health Protection Scotland. Public Health Wales considers these reports to be helpful in supporting risk assessment of unconventional gas extraction in Wales.

The current evidence base on UOG is still relatively limited and has tended to focus on the impact on local air and water quality from pollutants associated with these industries. Such hazards and their impacts can be very site-specific. For example, UOG can produce air pollutants that can impact on local air quality but the extent of these impacts will be heavily dependent on local factors such as background levels of air pollution, UOG well density and footprint, meteorological conditions and the distance from the nearest residential area. Similarly, UOG has the potential to mobilise natural compounds within the water, but these will vary accordingly to the geology of the area, again showing the importance of characterising the potential impact on a case by case basis.

There are also considerable gaps in knowledge around issues such as use of specific chemicals, management of waste and waste water, physical hazards (noise and light pollution), associated traffic and risk perception. There is also a scarcity of

good quality epidemiological studies. Furthermore, owing to the relatively recent history of UOG, most studies and research have tended to focus on short-term impacts and there is a lack of evidence looking at the long-term impacts of these industries.

A number of reports including those from Public Health England, the Independent Expert Scientific Panel for Scottish Government and the Royal Society noted that the technology and regulatory framework exists to allow for safe extraction of such reserves. Both Public Health England and the Independent Expert Scientific Panel for Scottish Government concluded that the potential risks to public health from exposure to the emissions associated with unconventional gas extraction should be low if the operations are properly run and regulated. Public Health Wales broadly supports this view and feels that a proportionate precautionary approach is warranted based on ensuring that the appropriate mitigation and control measures are put in place to ensure that the regulatory framework identifies and manages all potential hazards from UOG. Similar approaches are used to regulate effectively other industries (such as incinerators, landfills, waste transfer sites) which have the potential to pollute the environment. A strong and transparent regulatory regime should ensure any risks to public health (arising as a result of adverse environmental impacts) are kept as low as reasonably possible. This should also include detailed scrutiny at the planning stage as well as at permitting.

However, it is important to recognise that gaps in the evidence base do exist and more knowledge is needed to better understand the technology to minimise risk and how current regulations can best apply. In our view, Wales specific evidence is needed to inform policy development in Wales. For example, a common issue is the lack of baseline environmental and health data prior to UOG development. Such data are needed to detect any potential impact in the environment or local community. Both Public Health England and Heath Protection Scotland recognised that baseline data should be collected in areas prior to UOG development to allow for effective comparison before and after UOG activities and, if necessary, to support epidemiological studies. In our view, both baseline and ongoing monitoring could be used to inform the risk assessment process.

Clearly the reports from both England and Scotland are very helpful in understanding the potential impact of UOG. However, they do not replace the need to examine the range and scale of the potential impact associated with UOG development in Wales. Simply transferring findings and recommendations from these reports and other research will not sufficiently put these impacts into a Wales context. Reliance on experience and findings elsewhere will always have its limitations.

Experience with other industries show that early consultation with communities is vital to identify and address their concerns and to ensure that the planning and regulatory environment is able to implement plans and measures to minimise any impacts on health. Such engagement could also help scope potential benefits of

such activities. It is clear, therefore, that there is a need to consider at an early stage not just the direct risks to health and the environment from the technical aspects of extraction but wider social and health impacts. In Lancashire, a local Health Impact Assessment (HIA) was undertaken to look at the potential impact of a proposal to drill while Health Protection Scotland, at the request of Scottish Government, undertook a HIA to look at wider health impacts to inform policy developments prior to any proposed extraction. This latter assessment looked at both the current evidence on unconventional gas extraction but also sought the views of a range of stakeholders including community and environmental groups. It also recommended that local HIAs be considered for all proposed UOG developments either as part of the Environmental Impact Assessment requirements or separately. In their report, Public Health England also recognised the importance of tools such as HIA and strategic environmental assessment to fully assess the public health impacts of shale gas extraction. Such evidence demonstrates the importance of early engagement and the need for a Wales-wide HIA to better understand the scale and potential impact for Wales, both at national and local levels (with the latter requiring evidence generated in respect of individual UOG proposals). This approach would also be consistent with the Public Health (Wales) Bill which aims to strengthen the role and importance of HIA in Wales by making the use of HIA mandatory in specified circumstances and to ensure that potential future impacts on the health and well-being of communities or on individuals are considered when making decisions. While the circumstances and manner in which HIAs should be undertaken will be set out in regulations, it is possible that UOG would be consider a significant development requiring a HIA.

We would expect drilling and extraction, whether for exploration or commercial production, to require planning permission at each phase from the Local Planning Authority who will assess whether they are likely to have any significant effects on the environment and local community. In Wales, Health Boards are expected to be consulted on any application for shale gas extraction and Public Health Wales will support them to provide a public health-related response to consultations.

As experience internationally and in England and Scotland has shown, communities are particularly sensitive to such developments and are concerned about the potential impact on the environment and health. Therefore, we feel that if policy officials consider it appropriate, sufficient resources and time are allocated to support a detailed Wales-specific review to better understand the environmental and wider health implications of petroleum production.

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