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Golden guidelines around fracking

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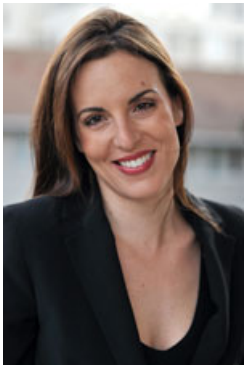
3 Jun 2013

The Karoo could potentially be wealthy in its excessive reserves of shale gas, according to America's Energy Information Administration (EIA). It is thought that the Karoo has shale gas reserves of around 485 trillion cubic feet, which would only be accessible by using a controversial process known as hydraulic fracturing, commonly called "fracking".



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On 1 February 2011, the minister of mineral resources, Susan Shabangu, declared a fracking moratorium on new applications for reconnaissance permits, technical co-operation permits, exploration rights, and production rights for an indefinite period over the Karoo Basin; however, the moratorium did not extend to existing applications, such as those of Shell, Falcon and Bundu, submitted prior to the date of publication of the notice.

On 29 April 2011, the minister issued a statement that, "The [D]department [of Mineral Resources] will neither accept new applications nor finalise existing applications until the department's feasibility study is finalised." The processing of existing applications has, therefore, been put on hold.

On 11 September 2012, the minister held a press briefing during which she announced that the undeclared "fracking moratorium" of 29 April 2011, would be lifted and on 18 September 2012, the minister released the Department of Mineral Resources' feasibility study on shale gas exploration in South Africa which recommended the following:

- That normal exploration (excluding actual hydraulic fracturing) be allowed to proceed under the existing regulatory framework;
- That a monitoring committee be established;
- That the current regulatory framework be supplemented by the establishment of appropriate regulations, controls and coordination systems; and lastly,
- That hydraulic fracturing be authorised under strict supervision of the monitoring committee, once all the proceedings and actions above have been completed.

Since the publication of the report, no further processing of applications has taken place and it is our understanding that regulations governing hydraulic fracturing must be in place prior to the processing of any new or existing applications. These regulations were expected to be released for public comment in July 2013; however, during the Gas Week Conference a member of the task team indicated that it is unlikely that they will meet this timeframe.

In drafting these regulations, we recommend that the "Golden rules for a golden Age of Gas" published by the International Energy Agency in 2012, be used as a guideline. Some of the Golden Rules include the following:

Measure disclosure and engage

Consultation: The rules recommend that communities, residents and other stakeholders be consulted prior to exploration through each phase of development. Providing information to stakeholders is not enough and government, as well as industry, must also engage with them.

The Mineral and Petroleum Resources Development Act (MPRDA) provides for applicants to conduct the consultation process with stakeholders, and government is only required to review the consultation report provided by the applicants.

We, therefore, recommend that the government provides credible, scientifically-based background information so that all stakeholders can meaningfully participate in the consultation process.

Measure and disclose

The Golden Rules provide that baselines for environmental indicators should be established. This would, for example, include the testing of groundwater quality prior to exploration operations and the continuation of monitoring during operations. They further provide for the disclosure of the volumes and characteristics of waste water, methane, other air emissions and fracking fluid additives.

This data must then be made public, which allows for the stakeholders to raise their concerns. This is essential for earning the public's trust.

Our recommendation is that the government should make the disclosure of such information mandatory.

Watch where you drill

Another Golden Rule is to choose sites so as to minimise the impact on landowners, local communities, heritage resources, existing land use, individual livelihoods and ecology. This includes taking into consideration factors such as populated areas, the natural environment, existing infrastructure and access roads, water availability and disposal options.

As there is already legislation regulating the undertaking of activities from an environmental and land-use planning perspective, our recommendation is to ensure that the regulations are compatible with, and enhance, the existing legislation rather than duplicating the requirements thereof and that they take into consideration issues specific to hydraulic fracturing.

Isolate and prevent leaks

The rules provide that wells must be designed, constructed and operated to ensure complete isolation. The minimum depth limitations of hydraulic fracturing must be considered so as to ensure that the operations are conducted at an appropriate distance from the water table. Actions must also be taken to prevent and contain surface spills and leaks from wells, and waste water solids and fluids must be disposed of properly. An example would be to insert liners below the drilling pad and to have spill control equipment available.

We recommend that separate regulations or standards be promulgated in terms of the National Water Act (NWA) to deal with the treatment of wastewater generated by hydraulic fracturing.

Treat water responsibly

Another Golden Rule is that regulations dealing with hydraulic fracturing must be designed to encourage operators to use water efficiently, to reuse and recycle, and to ensure the safe storage of waste water. For example, in Pennsylvania, US, instead of using open pits to store waste water, there is a move towards using waste water storage tanks. In addition, it should be feasible to reuse and recycle significant volumes of the flow-back water from the fracturing operations, thereby reducing the issues and costs associated with truck traffic, and the securing of water supply and waste water disposal.

Our recommendation is that as there is already existing legislation regulating the use of water and the disposal of waste water, it should be supplemented to make specific provision for the use of water in hydraulic fracturing operations.

Eliminate venting, minimise flaring and other emissions

The Golden Rules provide for the targeting of zero venting and minimal flaring, as well as the installation of equipment to assist with the minimisation of emissions. Furthermore, air pollution from vehicles, drilling rig engines, pump engines and compressors, must also be minimised. This can be accomplished by the recycling and reuse of water, which will reduce the volumes of traffic and the resulting air emissions generated from travelling between the drilling pad and the water source. The rules also recommend that electric vehicles and gas powered rigs be used.

As we already have legislation regulating the release of atmospheric emissions, we recommend that the existing legislation is reviewed to ensure that it is equipped to deal with emissions resulting from hydraulic fracturing operations and associated activities.

Be ready to think big

This Golden Rule deals with the co-ordination of the development of local infrastructure so as to minimise environmental impact.

It is important to know that, on average, 500 water tankers are required to hydraulically fracture one well. This translates to around 15000m? of water. Thus, it is recommended that pipelines be constructed to minimise the movements of trucks. As there is currently minimal infrastructure in the Karoo, the building of pipelines is likely to be a very costly exercise. This should, however, be a relatively small price to pay to ensure that any potentially negative impacts on the environment do not outweigh the economic benefits resulting from shale gas production. Another example would be to drill multiple wells from one drilling pad.

Ensure consistently high levels of performance

The last Golden Rule is that there must be a balance in policy-making between prescriptive regulations and performance regulations, to guarantee high operational standards while promoting innovation and technical improvement. The regulations must, therefore, be flexible enough to account for the rapid changes in the technology in relation to hydraulic fracturing, while at the same time promoting best practice.

In conclusion, South Africa has a proficient regulatory framework from which to develop regulations specific to hydraulic fracturing. In addition, certain aspects of hydraulic fracturing will also be regulated in terms of existing environmental and land use planning legislation, which should be enhanced and not duplicated in these regulations.

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