SUBMISSION

Parliament of Western Australia
Environment and Public Affairs Committee

Inquiry into the Implications for Western Australia of Hydraulic Fracturing for Unconventional Gas

Introduction
Hydraulic fracturing was first used commercially for well stimulation in 1949. It has been used in more than two million wells around the world. The process—which is used to complete a well prior to the start of production operations and usually takes only several days at the beginning of a well's life—has been used in approximately 1 million wells in the USA alone. The U.S. Environmental Protection Agency (EPA) has attested that it has not identified a single confirmed case of groundwater contamination related to hydraulic fracturing.

The key features at interest to this WA Government Inquiry are stated in its terms of reference as:

- How hydraulic fracturing may impact on current and future uses of land.
- The regulation of chemicals used in the hydraulic fracturing process.
- The use of ground water in the hydraulic fracturing process and the potential for recycling of produced water.
- The reclamation (rehabilitation) of land that has been hydraulically fractured.

ConocoPhillips will respond to these key features in this submission, but our comments should also be reviewed as additional to the submission made by the Australian Petroleum Producers and Exploration Association (APPEA).

About ConocoPhillips
ConocoPhillips is the world's largest independent Exploration and Production company based on production and proved reserves. The company is headquartered in Houston, Texas and as of June 30, 2013, had operations and activities in 30 countries, $55 billion in annualized revenue, $117 billion of total assets, and approximately 17,500 employees. The company has significant experience and expertise in operating shale and coal bed methane projects in the United States and Canada, and has shale gas and liquids exploration activity in China, Poland and Western Australia.

ConocoPhillips is operator of the Darwin LNG plant in the Northern Territory and the Bayu-Undan offshore facility in the Joint Petroleum Development Area of the Timor Sea. The company is also the operator of the LNG production operations for the Australia Pacific LNG project in Queensland, among the world's first coal bed methane to LNG projects. Other activities in Australasia include our participation in the Sunrise project in the Timor Sea and exploration interests in the Caldita Barossa fields in the Timor Sea and our Poseidon project in the Browse Basin.

In Western Australia, ConocoPhillips has a 46% interest in a shale gas exploration project in the Canning Basin. This project is a joint venture with PetroChina (29%) and operator New Standard Energy (25%). Two exploration wells have been drilled to date with additional exploration planned for 2014. No hydraulic fracturing has been undertaken as part of this project.

Mitigating land use impacts
ConocoPhillips designs facilities and applies technology to reduce land impacts and works diligently to restore former production sites in an environmentally responsible manner. Operations that employ hydraulic fracturing do not have significantly different land impacts than those that do not. Hydraulic fracturing is a short-term discontinuous process within the full life-cycle of exploration and production and only takes place on a few days within a multi-year project.

Minimizing Surface Impacts

ConocoPhillips typically uses horizontal and directional well drilling technology and drills multiple wells from a single pad. This reduces our footprint and other surface impacts, such as land clearing, equipment, road use and pipelines, that are needed to complete a project. At ConocoPhillips' operations in the Bakken, a shale formation in the northern USA, we routinely place five wells on a single well pad

occupying approximately two hectares of land, significantly less area than that traditionally required for separate well pads.

Groundwater Protection

Proper site selection, well design, construction and operating procedures are all necessary to protect against possible spills or failures of surface equipment or wells. A properly designed well is drilled and completed with redundant barriers of steel and cement to ensure the protection of above ground and underground sources of water throughout the life of the well and beyond. In addition to these designed mechanical safeguards, groundwater is protected by physical and natural barriers. These typically consist of multiple layers of impermeable rock that separate the target formations from aquifers by thousands of metres.

Protecting the Environment

We work closely with landowners and regulatory authorities to manage our operations to protect ecosystems. We prepare an environmental assessment early in our project planning process to identify potential impacts from our operations. We use the data to design in mitigations—such as locating well pads and facilities away from nesting habitats and planting vegetation that provides forage for animals and birds.

Fracturing: low level seismic impact

Hydraulic fracturing treatments result in the release of low-level energy in the deep subsurface as the rock is fractured within the targeted hydrocarbon formation, creating extremely low-level seismic events. Energy released underground during hydraulic fracturing is very small and poses no increased risk to the public.

It would be extremely rare for the seismic impact of hydraulic fracturing to be felt at the Earth's surface. According to the Unites States Geological Survey, the smallest earthquakes that can be felt at the surface are about magnitude 3. Hydraulic fracturing stimulation typically releases energy that would equate to a magnitude minus 2 or less on the logarithmic Richter scale. A minus 2 earthquake is not perceptible at the surface, whereas a magnitude 3 earthquake feels like the rumbling of a passing road train.

Over two million wells have been hydraulically fractured worldwide. Of these, there have only been a few situations where seismic activity felt at the surface may have been linked to hydraulic fracturing. However, the evidence is inconclusive as to whether that is actually the case, and no damage or injuries have resulted.

The regulation of chemicals used in the hydraulic fracturing process

At ConocoPhillips, safety and environmental stewardship are fundamental to our core values. Our company adheres to strict well-integrity procedures and safe water-management practices. ConocoPhillips is supportive of pragmatic science-based regulation to protect environmental integrity, including realistic disclosure mechanisms. These mechanisms allow industry to demonstrate that chemical additives, which are just a small fraction of the fracturing fluid, can be managed to ensure that environmental and public health risks are as low as reasonably practicable (ALARP).

ConocoPhillips supports disclosure of the chemical ingredients used in hydraulic fracturing fluids in a way that informs the public whilst protecting proprietary intellectual property. In the U.S. the Company participates in the voluntary chemical disclosure website, Frac-Focus.org.

The use of ground water in the hydraulic fracturing process and the potential for recycling of produced water

ConocoPhillips protects groundwater and surface water by adhering to strict well integrity procedures and safe water management practices.

Protecting groundwater during drilling activities is one of ConocoPhillips' most important objectives. To isolate and protect freshwater zones throughout the life of the well, we design and construct new wells with multiple barriers of steel casing and cement. We closely monitor system pressures during drilling and completion activities. When drilling through freshwater zones, we use air or freshwater-based fluids to prevent water contamination. We hold fluids recovered from hydraulic fracturing in tanks or engineered impoundments and manage them in accordance with government-approved methods to ensure safety and environmental protection.

Recycled Water

ConocoPhillips implements water management practices to use this vital resource efficiently. For example, in the United States, we recycle water used in shale gas and liquids operations. In the San Juan Basin, an arid region in northwestern New Mexico, ConocoPhillips has a pilot project underway that has reused 7.2 million litres of water this year.

This nine well pilot project reuses the "produced water" that routinely flows from a well along with oil and natural gas. The water is separated and then trucked to a filtration site, where trace amounts of oil, solid carbonates, and other substances are removed. The filtered water is then taken to a new well where it is reused for hydraulic fracturing.

ConocoPhillips has also begun recycling produced water in west Texas, where it has successfully reused produced water to hydraulically fracture vertical wells. This program will be scaled up to reuse significant volumes of produced water as the Company expands its drilling and completion activities.

Using the Company's own research findings and technological advances within the industry, ConocoPhillips continually strives to reduce and conserve the water used in hydraulic fracturing. In the Eagle Ford, the Company has reduced water usage by up to 45 percent by modifying the composition of the fracturing slurry used in the operations. This change was first implemented in early 2011 and is now applied to all new Eagle Ford wells in South Texas.

Recycling is not the only means to reduce freshwater use. Non-fresh water sources may be an effective substitute for fresh water where they are available and are compatible with the completion technology used. Also, as described above, different hydraulic fracturing designs may have different water volume requirements. Lastly, produced water recycling may not be practical or environmentally beneficial when produced water volumes are very low, or where the chemistry of the produced water makes it very difficult or energy intensive to treat for reuse.

The reclamation (rehabilitation) of land that has been hydraulically fractured

This heading reflects a reference in standing order 179 which is somewhat unclear in its intent. We are not sure if the Committee intended this to refer to surface land at a drill site or to the geologic formation deep below the surface where hydraulic fracturing has actually occurred.

Surface land is not subject to hydraulic fracturing at all. Instead, surface impacts are associated with conventional issues such as drill pad footprint, pipeline laying, vehicle access and water management. ConocoPhillips' commitment to safe and environmentally responsible operations continues throughout the life of the well and beyond. Once a well has reached the end of its useful life, we recognise that it is our responsibility to restore landholder properties.

The tiny fissures, narrower than the thickness of a coin, which the hydraulic fracturing process causes in the hydrocarbon bearing geologic formation thousands of metres below the surface, do not cause impacts to structural integrity, water sources or ecosystems, and it is not considered relevant or necessary to remediate them. The relevant issue for responsible management is the well from which the fracturing has emanated and this is managed in the same way for a well that has been hydraulically fractured as for a well that has not.

Well Plugging and Surface Restoration

At the end of the productive life of a well, ConocoPhillips employs stringent well site-closure requirements to plug a well. Plugging includes setting cement and/or mechanical barriers in the wellbore to eliminate potential paths to the surface and to isolate oil and natural gas from freshwater resources.

Wells are properly decommissioned in accordance with regulatory requirements and company guidelines that ensure long-term environmental protection. Prior to implementation a well plugging plan is submitted for review and approval to the controlling regulatory agency. Documentation to record the physical location, construction and closure details of wells is also filed with government authorities for permanent reference.

In the United States, regulations have specific provisions for well plugging as well as documentation of the actual plugging operations. These documents include the depth intervals that were cemented and specify the materials used. We meet our commitments to restore surface locations as closely as possible to original condition, or to the owner's alternative preference, in compliance with all regulations and contractual obligations, including when appropriate to restore the land to its natural contour and reseed it with native species.