Hydraulic Fracturing

Danielle Coore, BA student, University of Toronto
Shea Caughlin, BS student, University of Toronto
Andrea Olive, Assistant Professor, University of Toronto

Hydraulic fracturing (fracking) poses many environmental and public health risks in Saskatchewan. This is not something widely discussed in political circles because of the obvious economic gains of oil and gas development in the province. However, the public should be aware of the trade-offs and the proper steps should be taken to minimize threats wherever possible. There are ten federally listed and protected endangered species in range of active drilling sites in Southern Saskatchewan. This is also an area of the province where there is little surface water suggesting that the fracking industry is drawing from ground water and posing possible threats to both water supply and water quality. All residents of the province have a stake in these issues. Before making some recommendations to minimize risk, it is important to understand the potential threats.

Fracking poses a threat to wildlife, farm animals, and endangered species in Saskatchewan in four primary ways. First, fracking results in habitat fragmentation and destruction by way of altering the prairie landscape through the construction of drill rigs and well pads. Second, noise and light pollution at well pad sites may adversely impact species. One prime example of this is the fate of the Greater Sage-Grouse in Southern Saskatchewan. As is now known, breeding Sage-Grouse avoid areas in which oil and gas developments have occurred, and these birds also have shown to have higher mortality in these regions. In Canada, these birds only inhabit Southeastern Alberta and Southwestern Saskatchewan and only about 6% of the original historical habitat remains. Third, fracking water and chemicals have also resulted in adverse impacts or death in animals in the United States, such as cattle that drink from polluted streams or rivers. Fourth, invasive species are able to spread with roads and pipelines. Such species compete with native species for habitat and food.

Fracking poses two primary threats to water supply in Saskatchewan. First, fracking uses sizeable quantities of water. Typically, two to four million gallons of water are used for deep unconventional shale deposits. The oil and gas industry uses surface water and also draws heavily from ground water supplies. This will present hydrological concerns for the province in coming years. Second, hydrological changes can occur due to heightened surface and ground water withdrawal. This can have unforeseen effects on streams, floodplains, wetlands, springs, shallow ground water, and seep patterns in the province

Fracking poses two main threats to water quality in Saskatchewan due to the numerous chemicals that are mixed with water to frack. Ground water and surface water can be polluted by accidental leaks from the surface of shale pads, from chemical storage or during transportation routes. Second, methane can contaminate wells. Methane is a well-known and potent greenhouse gas and is also toxic to human beings and wildlife. This is not something the public wants in the water supply.

Honourable Scott Moe is the Minister of the Environment and the Minister Responsible for the Saskatchewan Water Security Agency. It is his job to safeguard wildlife and water on behalf of the public. To this end, we suggest that Mr. Moe take the necessary precautions to minimize the risks to public health and wildlife. For example, the government must implement distance boundary requirements for habitat of at risk species. Saskatchewan already has requirements that do not permit drilling within 100 meters distance of water bodies, occupied dwellings, public institutions, or urban regions. These

boundary requirements should be extended to include habitat for at risk species. Also, the government should require companies to drill numerous wells from one well pad so as to minimize the amount of land disrupted.

In terms of water supply, Saskatchewan should also establish best practices for water withdrawal and screening procedures. This should, in the very least, include permits based on the seasonality of withdrawals and for withdrawals over certain sizes (as already required by New Brunswick and New York jurisdictions). Saskatchewan should ensure that water quantity monitoring is implemented before, during, and after fracking has occurred, and account for effects on fish and wildlife as well as aquifer depletion. When using ground water, non-potable sources should be used as this reduces competition with other water sources. In addition, the province should facilitate the use of municipal/industrial wastewater for fracking instead of allowing industry to overuse ground water.

And for water quality, Saskatchewan should ensure the least ecologically harmful chemicals are required where possible to offset risks associated with leakage, contamination, and storage. Importantly, the government should increase public disclosure and involvement. Companies are not required to publically reveal what chemicals are used in fracking. Saskatchewan should require its fracking industry to provide this information on www.fracfocus.ca (as already done in British Columbia and Alberta). Finally, to reduce ground water threats, Saskatchewan should have fracking located at certain and legally specified distances away from municipal, public or private water sources. Furthermore, even in these cases, proper impoundment liners should be mandatory so as to inhibit movement to water sources.

The truth of the matter is that fracking presents risks. The economic gains are well-known and the province is profiting through job creation and economic growth in the oil and gas sector. However, this should be a cautionary endeavor. Some jurisdictions, like New York and Quebec, opted to implement moratoriums on fracking to further investigate wildlife and public health concerns. Saskatchewan opted to forge ahead with fracking. Minister Moe is now tasked with ensuring that risks to the environment, including water supply and quality, are minimized. This is a major responsibility and one that must be taken very seriously because Saskatchewan's people and the prairie ecosystem depend on it.