

## **Review of Hydraulic Fracturing in Nova Scotia**

### **Introduction**

The purpose of the review of hydraulic fracturing operations in Nova Scotia is to look at our current practices for environmental protection and review the current state of scientific knowledge. This will include what has been learned in other jurisdictions to ensure our regulations are the best for Nova Scotia and reflect industry and regulatory best practice.

### **Background**

Hydraulic fracturing is a regulated industrial activity in Nova Scotia. The provincial approval process for hydraulic fracturing involves the Department of Energy and Nova Scotia Environment.

The Department of Energy issues a call for exploration proposals, which are reviewed and evaluated. If a proposal is successful, government can enter into a lease agreement. A company can only undertake an activity, like hydraulic fracturing, by making a separate application to the Department of Energy outlining the activity. This application is reviewed by a committee of relevant government departments and an independent drilling engineer. The company is also required to hold a public open house in the community and reach a lease agreement with the land owner.

From there, Nova Scotia Environment requires any company looking to pursue this technique to submit an application for an Industrial Approval. This application includes details about the area where the activity is being proposed, including proximity to watercourses and wells; location and quantity of water to be withdrawn for the project; baseline monitoring within one kilometer of the drilling location; details on drilling fluids and additives proposed for use; details on the handling, treatment and disposal of wastes; a site monitoring plan; details on petroleum and chemical storage; a flare system design (if applicable); details on the well design; details of any proposed hydraulic fracturing; and an emergency response plan.

Approvals contain project-specific terms and conditions and public consultation may be required. Air quality considerations which are included in an approval for this activity may include limits for particulate and noise emissions from the drill site, efficiency requirements for flaring systems, opacity limits on flaring systems, safeguards to detect flame-out, hydrogen sulphide content monitoring and reporting requirements.

## Summary of Public Comments – What We Heard

The province received 279 public comments through the email to frac-review@gov.ns.ca or in writing. Below is a list of the issues raised from most frequently mentioned to least frequently mentioned. Topics already included in the draft scope are marked with an asterisk (\*).

*Groundwater – 72%	*Insurance (company financial security) – 8%
*Surface water – 72%	Review Independent of Government – 7%
Ban or Moratorium – 46%	Monitoring Long-term Effects – 6%
*Additives to Fracturing Fluids – 41%	Jobs/Layoffs – 6%
*Land (soil) – 27%	Noise and Light Pollution – 5%
*Waste Management – 25%	Sustainability – 5%
Effect on Residents (incl. health) – 24%	Baseline Testing on Wells – 4%
Transparent Public Consultation – 21%	Strategic Environmental Assessment Should be Completed – 4%
Flora, Fauna and Habitat (Forests) – 21%	Fires (Emergency Management) – 4%
Air Pollution – 20%	Worker and Community Safety – 3%
Livestock, Crops and Farming – 20%	Best Management Practices – 3%
Cost/benefit to the Economy – 19%	Impacts to the Food Chain – 2%
Tourism – 14%	Social, Cultural, Economic and Environmental Review – 1%
Creation of Green-house Gases – 13%	Sour Gas – 1%
Trucking – 12%	Aboriginal Interests – 1%
Impacts to Roads and Bridges – 12%	Cumulative Impacts – 1%
Fish and Fishery – 12%	Who Would Use the Resource – 1%
Look at Renewable Energy Instead (solar, wind, geothermal, tidal) – 11%	Car Accidents – 0.4%
*Site Restoration – 11%	Safe Transport of Fracturing Fluids – 0.4%
Linkage to Earthquakes – 9%	
Property Value – 9%	

Of the six most frequently mentioned topics, five were identified in the draft scope, including groundwater, surface water, land, additives used in the process and waste management. Nearly half (46 per cent of respondents) requested a ban or moratorium on the process.

Submissions were received from six environmental groups: Ecology Action Centre, South Shore Naturalists, No Fracking in Nova Scotia (North Shore), Environmental Health Association of Nova Scotia, Sierra Club Atlantic, and the Antigonish Harbour Watershed Association.

A submission was received from the Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO). Other groups that made submissions included the Cancer Society of Nova Scotia, Nova Scotia Federation of Anglers and Hunters, Woman's Action Coalition of Nova Scotia, and Council of Canadians. Submissions were also received from OTANS (the Offshore/Onshore Technical Association of Nova Scotia) and the Canadian Association of Petroleum Producers (CAPP).

Public comments also asked to broaden the scope of the review to more social, cultural, economic and health effects of hydraulic fracturing in Nova Scotia. These are broader issues that relate to the oil and gas industry as a whole, while the focus of this review is hydraulic fracturing.

A number of the issues raised, such as air quality, best practices, safety and additives used in hydraulic fracturing, are currently captured under existing approvals and will be considered as part of our review of existing approvals and regulations in Nova Scotia.

Based on feedback received, the review will also now include review of hydraulic fracturing in oil and gas operations rather than shale gas operations only. The review will also examine disclosure requirements regarding additives used in the process and submission requirements for fracture design prior to any activity.

### **Other Studies That Will Inform the Review Committee**

Of interest to the Nova Scotia review, is the study of hydraulic fracturing, announced in 2010 and currently underway with the Environmental Protection Agency (EPA) in the United States. The EPA has initiated a comprehensive study into the potential impacts of hydraulic fracturing on drinking water. An interim report is planned for release in 2012, with a final report to be released in 2014.

The Nova Scotia review committee will closely monitor the results published by the EPA as well as its interim findings. Research undertaken by other jurisdictions, including Quebec, Alberta and British Columbia, will also continue to be monitored and will inform the Nova Scotia Review committee's work