

Can Seismic Operations in the NWT Be Optimized for Environmental Constraints within Current Regulatory Framework?

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The Canadian North contains some of the world's largest untapped hydrocarbon resources within numerous onshore and offshore sedimentary basins ranging in age from Early Paleozoic to Late Tertiary. This vast underexplored frontier area presents numerous challenges from geoscience, environmental, technological and regulatory point of views.

Within the cold, harsh and unique environs of the Northwest Territories, leading edge seismic 2D and 3D acquisition techniques are applied concomitant to unsurpassed land use and environmental practices. By developing detailed and comprehensive environmental protection plans for each individual project and implementing stringent mitigation measures, the impact of seismic data collection on local vegetation, soils, aquatic resources and wild life species is minimized, often to the point of being negligible.

Above and beyond abiding by current government regulations, petroleum and seismic companies active in NWT implement world-wide Best Practice approaches to Health, Safety and Environmental protection during seismic acquisition.

In spite of industry's Best Practice efforts, a plethora of new and evolving environmental government regulations, recommendations and guidance documents are being imposed. These tend to be prescriptive in nature as regulators look for clarity in simplicity in their work. However, many of these prescriptive regulations may ultimately have the effect of harming the environment by limiting industry's ability to innovate and to adapt environmental protection plans to new technology and to the terrain and logistical constraints of each specific project. While performance based regulations may require more work and offer less clarity at the outset, they will ultimately result in improved standards being developed and applied by industry.

In other cases, regulatory efforts are beyond rationale when compared to those applied to other human activities in the area and other comparable operating areas.

These additionally required conditions dramatically impact the duration, efficiency and already high cost of exploration in the Canadian North and without closer collaboration with industry and end users, may eventually prohibit future exploration efforts in the North, causing great economic harm to local communities. Moreover, some of the constraints imposed by multiple

layers of Aboriginal, federal, and territorial governmental agencies and advisory boards results in the delayed and redundant permit approvals at significant cost to operators, taxpayers and northern businesses.

A worrisome development is the proliferation of designated “special, excluded or provisionally excluded” areas within several released Draft Land Use Plans, removing the majority of NWT settlement lands from any future exploration.

With the recent release of the long awaited Mackenzie Gas Project Joint Review Panel (JRP) report and its overall positive recommendation for the construction of the Mackenzie Pipeline, a more streamlined and consistent approach is needed with respect to the regulation and permitting of geoscience work in NWT. If further exploration is to be encouraged in this hard to explore, high cost area, ultimately a balance has to be found between the push of NGOs and government conservationists to maintain the Territories as a pristine area and the efforts of the industry and local authorities to carry on environmentally responsive, sustainable development, including petroleum exploration.

With this paper, we hope to initiate a discussion for Canada’s North on how open, collaborative, adaptable, performance based regulations can:

- a) Enhance overall environmental performance;
- b) Lower risks to health and safety;
- c) Demonstrate the utmost respect for indigenous lands and traditions;
- d) Minimize the disturbance of the earth surface and local water sources;
- e) Reduce the interference with native flora and fauna;
- f) Reduce the cost of regulating Northern Exploration to Canadian taxpayers;
- g) Enhance opportunities for Northern businesses, and,
- h) Reduce the cost of seismic acquisition.



Figure 1. Landscape and wildlife in the Mackenzie Corridor looking west across the Mackenzie Valley.



Figure 2. Minimizing land, vegetation and wildlife exposure in Mackenzie Valley by acquiring Vibroseis seismic data during the winter.



Figure 3. Reducing environmental impact in Northwest Territory by using a local work force and a dog sled team during seismic data acquisition.

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