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Dear Mr. Ummat,

We are writing as part of the appeals process and to express serious concerns about the treatment of fracking wastewater at the Debert treatment system in Colchester. We are deeply disappointed that on December 10, 2014, Colchester County approved a proposal to treat fracking waste despite rejecting a similar proposal last year. In order to protect communities along the Chiganois River, the Cobequid Bay and the Bay of Fundy, we ask that the County Council scrap this risky plan.

In its January 2014 letter, Atlantic Industrial Services (AIS) wrote that it treated the fracking wastewater with Reverse Osmosis as a response to feedback from opponents. AIS asserts the fracking wastewater is in compliance with the Municipal Sewer use By-Law and the Unconditional Release to Environment limits. AIS also assures that the contaminant level of the wastewater is “many times lower” than the daily effluent Colchester County accepts from AIS into its municipal system.

It is unclear whether Reverse Osmosis can adequately remove or reduce volatile chemicals, hydrocarbons or heavy metals. Governments and the scientific community currently lack the analytical capabilities to detect all the chemical components in fracking wastewater, and do not have a solid scientific understanding of the fate and toxicity of many of them. The Council of Canadian Academies’ recent report, *Environmental Impacts of Shale Gas Extraction in Canada*, clearly outlined the lack of information on many key issues including the safety of fracking chemicals.

While Atlantic Industrial Services has completed some testing on the fracking wastewater, fracking fluid is a complex mixture of chemicals of poorly understood and variable composition. Reactive components of fracking fluid will be transformed to other chemical products upon contact with water and/or sediments. Further, organisms can biotransform some chemicals in their guts or livers. Depending on the chemical, transformation can either decrease or increase their bioavailability and toxicity.

Low aqueous concentrations of certain contaminants are still a concern because they can bioaccumulate in aquatic biota and biomagnify in aquatic food webs to high concentrations that may pose risks for health of humans as well as marine and terrestrial wildlife.

This danger to fish populations in the Bay of Fundy would have dire coastal health and economic implications should contamination occur. This is made clear by the tests commissioned by AIS showing fish mortality (up to 100%) as well as growth and reproductive inhibition. AIS test results showed that 100% of flathead minnows were killed at 30% concentration.

Even though no trout died over the 96 hour period, this does not make the wastewater safe to fish populations. A new Fisheries Act regulation passed last spring dramatically reduced the Act's ability to protect fish. The regulation now creates exemptions and allows one to deposit a deleterious substance into water frequented by fish, which was previously prohibited by the Act. The new rules allow the Minister of Fisheries and Oceans to authorize deposits of deleterious substances if the "whole of the deposit is not acutely lethal to fish." The regulation defines "acutely lethal" as a deposit that kills more than 50% of fish at 100% concentration over a 96 hour period. This threshold does not take into account that sometimes the most damaging pollution is slow and chronic.

Research by the U.S. Environmental Protection Agency and the U.S. Endocrine Disruption Exchange Inc. has demonstrated that fracking fluids contain toxic substances known to cause serious health impacts such as cancer and organ damage, and have negative impacts on neurological, reproductive and endocrine systems. Under the Chemicals Management Plan (CMP), Environment Canada reviewed chemicals used in the fracking process in both Quebec and the U.S. Approximately half of the fracking chemicals did not meet the CMP criteria for further investigation, meaning these chemicals have not been assessed for potential risks to the public.

And while immediate effects may not always be detected, Professor of Engineering Tony Ingraffea from Cornell University notes that the effects of fracking are cumulative. So although communities may not see immediate impacts on their drinking water, communities will see the effects of fracking in 10 or more years. Such effects have been proven in studies such as a recent publishing by Warner *et al.* of Duke University in *Environmental Science & Technology*. This study drew the conclusion that despite treatment, wastewater discharges from a brine treatment facility reduced the quality of downstream surface water and sediments.

AIS based its testing on several standards including Health Canada's Guidelines for Canadian Drinking Water Quality. However, Ecojustice's recent report *Waterproof: Standards* found that Canada's standards continue to be below international benchmarks and are at risk of further falling behind.

The problem of fracking wastewater is a critical reason that communities around the world are calling for a ban on fracking. We commend the Nova Scotia government for banning the

importation of fracking waste into Nova Scotia and more recently moving forward with a legislated ban on fracking in the province.

In addition to Nova Scotia Environment's approval, this matter also falls under federal jurisdiction, as releasing contaminants to aquatic environments is regulated by the Fisheries Act. Environment Canada and Fisheries and Oceans' should also investigate and regulate the disposal of fracking wastewater in Colchester.

We recognize the existence of tailings ponds at the AIS facility in Debert, along with the tailings ponds closer to the original fracking sites in Kennetcook and Noel, and do not wish that they remain there forever. That said, we do not wish for Colchester or any other community in the watershed to become a testing ground for the long-term implications of what we are being assured today is treated fracking waste.

Given the lack of understanding of the impacts of fracking chemicals, and a desire we are certain you share to protect water sources, public health and the surrounding ecosystem, we urge the Appeals Committee to reject any plans to discharge fracking wastewater into the Chiganois River, the Cobequid Bay and the Bay of Fundy. Your decision will protect water sources and community health for generations to come.

Respectfully,



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The Council of Canadians is Canada's largest member-based advocacy organization with tens of thousands of members and over 70 community-based chapters across the country. We are a social justice organization and address environmental issues through an environmental justice perspective.