Judith and Peter Ryan
Caribou Island, NS

Environmental Assessment Branch
Nova Scotia Environment
P.O. Box 442
Halifax, NS, B3J 2P8

March 5, 2019

Good morning ladies and gentlemen,

This letter has been prompted by Northern Pulp Nova Scotia's Replacement Effluent Treatment Facility Environmental Assessment Registration Document.

WHO WE ARE

My name is Peter Ryan and I live on Caribou Island with my wife, Judith.

I was born Canadian in France. And educated there and England before attending Queen's University, Ontario from where I graduated with a degree in Economics. Judith is a Stellarton native and a graduate of King's University. She is a published writer, curator, and industrial historian.

Through my various promotions with Scott Paper Limited, a distant cousin of Scott Maritimes, I worked in their New Westminster, B.C. mill which manufactured paper towels, bathroom and facial tissue. Some of these were produced from its own groundwood pulp, which was bleached with hydrogen peroxide.

Although I prospered with the company, after 5 years in Toronto Judith and I decided to return to Halifax to better raise our family. It was a difficult decision as over 18 years I had grown considerably within Scott Paper Limited, one of the most reputable companies on the Toronto Stock Exchange. We now live full-time and work on Caribou Island.

NPNS' RETF PROPOSAL PERPLEXITIES

I have several concerns, particularly the following that I would like you to take into account when deciding on the merits of accepting NPNS' RETF proposal as is.

A.

It is truly astonishing how over a half-century of producing mill effluent, there is so little science from Northern Pulp on determining the array of compounds that are part of its effluent, despite world renowned oceanographic institutions — the Bedford Institute of Oceanography and Dalhousie University's Department of Oceanography — nearby.

Possibly the following statements from NPNS' Replacement Effluent Treatment Facility Environmental Assessment Registration Document (RETF EARD) may offer an explanation.

Presently, there is no regulatory requirement to conduct a human health risk assessment (HHRA) study in association with the NPNS project. The project is currently in a Class 1 EA Process in Nova Scotia that does not specifically require the completion of a HHRA (Human Health Risk Assessment) in advance of registration of an EA.

NPNS' RETF EARD 9.0 Page 489

So,

At this time, effluent chemistry characteristics (including the specific substances present in treated effluent and their anticipated concentrations) will not be known with certainty until the project is operational.

ibid 9.1 Page 489

Nevertheless, NPNS has advanced, from Australia, the Toxikos 2006 study 'Comment on Bell Bay effluent and potential impact on nearby seal colonies' for a future Human Health Evaluation. NPNS regularly states the mill effluent in the Toxikos report is comparable to that of its own projected operation, and therefore the risks to human health are negligible:

The Toxikos (2006) HHRA was a highly conservative assessment that substantially overestimated exposure and risk to potential human consumers of fish and shellfish that may be influenced by the effluent diffuser discharge in Bell Bay. The authors concluded that there were negligible risks to human health from consuming any marine food item harvested in the vicinity of the effluent diffuser, for any of the substances that were assessed in the HHRA.

Ibid 9.1 Page 491

However an audit of the Toxikos (2006) study's methodology by Dr. Andrew W. Wadsley was released in May 2007, with the following contradictory conclusion:

This review found that calculation errors, use of inappropriate parameter values, failure to include background dioxin concentrations, and failure to use the permitted maximum limit of dioxin in the pulp mill effluent, results in an underestimation of dioxin concentrations by a factor of 1,390 in the Human Health Risk Assessment and by a factor of 90 in the Marine Impact Assessment. The impacts of these errors are far reaching and invalidate all of the quantitative ecotoxicological analyses prepared for assessment under the Tasmanian Pulp Mill Assessment Act 2007 and for assessment of the pulp mill project under the Australian Environment Protection and Biodiversity Conservation Act 1999.

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.582.2806&rep=rep1&type=pdf

The Wadsley audit was cited in 2010 by the Tasmanian Times

https://tasmaniantimes.com/2010/08/why-tasmania-needs-a-science-reform-commission/

which also included this paragraph:

In an article by Charles Waterhouse from The Sunday Tasmanian on 24 September 2006 were excerpts from a leaked DPIPWE draft review of Toxicos' assessment on impacts on marine life from the proposed Gunns Pulp Mill.

The draft states:

'Toxicos fails to conclude or describe the risk to seals of bioaccumulating dioxins from exposure to pulp mill effluent. Evidence exists that the effect of exposure is significant, "therefore the Toxicos implication is misleading and their conclusion false". Toxicos states that dioxins are not significantly bioaccumulated by fish. This statement is profoundly inaccurate, misleading and directly contradictory to references cited by Toxicos and Toxicos statements. The method used to determine the risk of bioaccumulation in fish is inappropriate. The assessment using effluent concentration by Toxicos is invalid and misleading and all conclusions based on this information are unsubstantiated. Toxicos demonstrates a complete lack of understanding of the meaning of biomagnification.'

The conclusions from the Toxidos (2006) study and the Dr. Andrew W. Wadsley's audit are so contradictory that a thorough Human Health Risk Assessment is called for prior to releasing NPNS' effluent into the Northumberland Strait as its impact on *sensitive aquatic organism, marine mammals, birds, fish and humans* may be significant.

B.

Should any of the *sensitive aquatic organism, marine mammals, birds, fish* be adversely impacted, would the repercussion on Nova Scotia's fishing industry be at all similar as to when Alberta discovered in 2003 one black Angus cow to have bovine spongiform encephalopathy (mad cow disease) which caused the United States to immediately close its borders to Canadian beef and cattle which in turn caused about another 40 countries to follow suit?

https://globalnews.ca/news/1830438/timeline-canadas-2003-mad-cow-disease-crisis/

C.

The effluent's proposed outfall location is a particularly poor one. On the western side of the proposed outfall, the Caribou Island lighthouse is less than a couple of kilometers away. Attached below is the Nautical Chart for the Caribou Harbour and it is clear how shallow the harbour is at this point. I recall one concerning experience while circumnavigating the island on my Expedition sailboat, a laser hull with a single self-furling sail, and running aground while attempting to get out of the incoming ferry's way.

On an incoming tide, especially as the current at this point circles clockwise, a good portion of the effluent will flow into the harbour; and whatever solids that are in the effluent will likely settle on the shallow shores, possibly edging Caribou Harbour towards becoming another Boat Harbour.

http://fishing-app.gpsnauticalcharts.com/i-boating-fishing-web-app/fishing-marine-charts-navigation.html?title=CARIBOU+HARBOUR+boating+app#12/45.7600/-62.6850

It is clear that the proposed plan B water route has not been surveyed nor sampled.

The Water Quality data off Caribou Island is from Pictou Harbour,

This section provides an overview of water quality sampling in Pictou Harbour in 1990, 1995 and 1998 (Dalziel et al. 1993; JWEL 1996; ENSR 1999). Pictou Harbour was used as a proxy for Caribou Harbour with respect to water quality, in the absence of available water quality data for Caribou Harbour.

NPNS' RETF EARD Environmental Effects Assessment 8.11.2.4 Page 143

Surely the Environmental Assessment Branch, Nova Scotia Environment should request the NPNS' proposed plan B water route to include a survey and sampling of this very different Caribou Harbour.

In conclusion, I would like to say that we have been blessed to build a home on the shores of the Northumberland Strait. The Waterside beach is large and magnificent. We get lobsters and scallops harvested off our strand by a fisher friend and occasionally we share our neighbour's oysters from her licensed but still secret oyster bed in Caribou Harbour. In the fall we watch the northern gannets dive into herring schools, marvel as red-throated loons moult their red plumage, enjoy the night-ballet of lit herring-boats knowing that winter is fast approaching. We shall feed the crows, pheasants, chickadees and snow buntings. Some years gray seals give birth on the ice off the Hamilton Point. In late spring, we will witness fawns and now less frequently kits. In the summer, children and parents will build sand castles by the water's edge. By August, when it is too hot in New Glasgow, Trenton, Stellarton, Westville and Pictou, families will come to cool off in the Strait's balmy waters.

We have shared this wonderful corner with Korean, French, Chinese, Afghani, British, Austrian, Angolan, Portuguese, Iranian, Mauritanian, Turkish, American and Canadian friends who have all expressed what a beautiful spot this Caribou paradise is. It is truly one of Nova Scotia' unsung treasures. Please protect Caribou Harbour and the Northumberland Strait for Nova Scotians, our children, our fishers and the friends of Nova Scotia.

Yours sincerely,

Peter Ryan