

MUNICIPALITY OF COLCHESTER COUNTY
SEWER BYLAW COMMITTEE

Joan Baxter, Deb Plestid, David Baxter, August Coombs, Hanna
Hunziker, Chuck Hunziker, Meghan MacCulloch
and Janet Maybee,

Appellants,

STATEMENT OF APPEAL

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INTRODUCTION

Joan Baxter, Deb Plestid, David Baxter, August Coombs, Hanna Hunziker, Chuck Hunziker, Meghan MacCulloch and Janet Maybee, hereby appeal from the approval issued on March 26, 2013 (“Approval”) by the County Engineer on behalf of the Municipality of the County of Colchester (“County”). The Approval issued to Atlantic Industrial Services (“AIS”); permits the discharge of treated Hydraulic Fracturing Wastewater currently stored in the AIS industrial waste treatment facility at 660 MacElmon Road, Debert (“AIS Wastewater”), into the Debert sewage treatment plan (“Debert STP”).

Joan Baxter Deb Plestid, David Baxter, August Coombs and Meghan MacCulloch are residents of Colchester County. Janet Maybee was a resident of Colchester County for approximately 50 years, intends to resume residency in the County within the next few months, and still owns a large tract of land in the Debert area.

Although notice of the Approval and later the Approval were readily available to the public and appellants, the County did not make readily available to the public or the appellants in a timely manner, the record on which the Approval was issued, including the AIS application for Approval or any documents which the County considered in issuing the Approval (collectively the “Record”). The County’s failure to make Record available in a timely manner, significantly hampered the Appellants’ ability to prepare their appeal of the Approval. As a result, this statement of appeal had to be prepared without an opportunity review the Record. As a result, this statement of appeal includes certain assumptions of fact, particularly the failure of AIS to establish the facts required for issuance of the Approval. These assumptions may or may not be borne out by the Record.

Now that the Record is seemingly available online (<http://www.colchester.ca/notices-advertisements>), the Appellants are hereby requesting additional time to modify or supplement this statement of appeal, making revisions based on the content of the Record. This may eliminate or narrow some of the points made below, or require the addition of other points. Appellants also hereby request an opportunity to review any submission made by AIS in response to this appeal and to prepare and submit an appropriate reply.

The appeal being submitted to the County by Ken Summers individually and on behalf of the Environmental Action Council (“Summers Appeal”) contains information about the AIS Wastewater which was obtained from freedom of information requests and may not be included in the Record. The appeal being submitted by James Doane individually (“Doane Appeal”) contains information about test results received by the County which presumably are included in the Record. Appellants hereby incorporate by reference, the facts cited in the Summers Appeal and the test results cited in the Doane Appeal. .

BACKGROUND

According to the US Environmental Protection Agency, the Hydraulic Fracturing Water Cycle consists of the following elements (<http://www.epa.gov/hfstudy/hfwatercycle.html>):

Stage 1: Water Acquisition 1

- Large volumes of water are withdrawn from ground water 2 and surface water 3 resources to be used in the hydraulic fracturing process.
- ***

Stage 2: Chemical Mixing

- Once delivered to the well site, the acquired **water is combined with chemical additives 4 and proppant 5 to make the hydraulic fracturing fluid.**
- ***

Stage 3: Well Injection

- Pressurized hydraulic fracturing fluid is injected into the well, creating cracks in the geological formation that allow oil or gas to escape through the well to be collected at the surface.
- Potential Impacts on Drinking Water Resources
 - ***
 - **Movement into drinking water aquifers of natural substances found underground, such as metals or radioactive materials, which are mobilized during hydraulic fracturing activities**

Stage 4: Flowback 6 and Produced Water 7 (Hydraulic Fracturing Wastewaters)

- When pressure in the well is released, hydraulic fracturing fluid, formation water, and natural gas begin to flow back up the well. This **combination of fluids, containing hydraulic fracturing chemical additives and naturally occurring substances**, must be stored on-site—typically in tanks or pits—before treatment, recycling, or disposal.
- ***

Stage 5: Wastewater Treatment and Waste Disposal

- Wastewater is dealt with in one of several ways, including but not limited to: disposal by underground injection, treatment followed by disposal to surface water bodies, or recycling (with or without treatment) for use in future hydraulic fracturing operations.
- **Potential Impacts on Drinking Water Resources**
 - **Contaminants reaching drinking water due to surface water discharge and inadequate treatment of wastewater**

- **Byproducts formed at drinking water treatment facilities by reaction of hydraulic fracturing contaminants with disinfectants [emphasis supplied]**

The Summers Appeal reveals that there at least 13 hazardous substances in the AIS Wastewater which were disclosed to AIS, for which no test results have been furnished. .

The following chemical compounds which are listed as dangerous goods in Schedule 3 of the Consolidated Transportation of Dangerous Goods Regulations, are according to a US Congressional study (NRDC Paper) commonly employed in fracking (“Dangerous Goods Transportation Act Fracking Substances”):

Acetaldehyde*
 Acrylamide
 Benzene*
 Benzyl Chloride
 Diesel Fuel
 N,N-Dimethylformamide
 Ethylbenzene
 Ethylene Oxide*
 Formaldehyde*
 Hydrochloric Acid
 Hydrofluoric Acid
 Methanol
 Phenol
 Phthalic Anhydride
 Propylene Oxide
 Sulfuric Acid
 Thioure [Dioxide]
 Toluene
 Xylenes

*These hazardous substances are also toxic substances listed on Schedule 1 of the Canadian Environmental Protection Act (“Environmental Protection Act Fracking Substances”).

“In Fracking’s Wake: New Rules are Needed to Protect Our Health and Environment from Contaminated Wastewater, May 2012”, Rebecca Hammer, Natural Resources Defense Council Jeanne VanBriesen, Ph.D., PE, Carnegie Mellon University, <http://www.nrdc.org/energy/files/Fracking-Wastewater-FullReport.pdf> (“NRDC Paper”), the authors include the following table from a US Congressional Study:

Table 4. Chemical Components of Particular Concern That May Be Present in Hydraulic Fluids Fracturing, as Identified in a Congressional Study⁴²

Chemical component used 2005–2009 (MSC report)	Chemical category produced water sample	Detected in at least one
Methanol	HAP	Not tested
Ethylene glycol (1,2-ethanediol)	HAP	Yes
Diesel	Carcinogen, SDWA, HAP	Not tested
Naphthalene	Carcinogen, HAP, PC	Yes
Xylene	SDWA, HAP	Yes (total xylenes)
Hydrochloric acid	HAP	Not tested
Toluene	SDWA, HAP	Yes
Ethylbenzene	SDWA, HAP	Yes
Diethanolamine	HAP	Not tested
Formaldehyde	Carcinogen, HAP	Not tested
Sulfuric Acid	Carcinogen	Not tested
Thiourea	Carcinogen	Not tested
Benzyl chloride	Carcinogen, HAP	Not tested
Cumene	HAP	Not tested
Nitrilotriacetic acid (NTA)	Carcinogen	Not tested
Dimethyl formamide	HAP	Not tested
Phenol	HAP	Yes
Benzene	Carcinogen, SDWA, HAP	Yes
Di (2-ethylhexyl) phthalate	Carcinogen, SDWA, HAP	Not tested
Acrylamide	Carcinogen, SDWA, HAP	Not tested
Hydrofluoric acid	HAP	Not tested
Phthalic anhydride	HAP	Not tested
Acetaldehyde	Carcinogen, HAP	Not tested
Acetophenone	HAP	Yes
Copper	SDWA	Yes.
Ethylene oxide	Carcinogen, HAP	Not tested
Lead	Carcinogen, SDWA, HAP, PC	Yes
Propylene oxide	Carcinogen, HAP	Not tested
Xylene	HAP	Yes (total xylenes)

In “Public Health Dimensions of Horizontal Hydraulic Fracturing: Knowledge, Obstacles, Tactics, and Opportunities” Seth B. Shonkoff, MPH, University of California, Berkeley, April 18, 2012,

http://www.hefn.org/resources/files/Fracking%20Public%20Health_Shonkoff_2012%204%2018.pdf/view, the author states:

Both ‘flowback water’ (hydrofracking fluid withdrawn from the well after the fracking process) and ‘produced water’ (water that returns to the surface along with the natural gas) contain the chemicals used in the fracking fluid as well as compounds found deep in the earth, such as salts, chlorides, heavy metals (cadmium, lead, arsenic, etc.), organic chemicals (i.e., BTEX), bromide, and naturally occurring radioactive materials (radon, etc.) – many of which are associated with health effects (Colborn, Kwiatkowski et al. 2011). **Even after the flowback and produced water is treated and released as effluent, many of the chemicals persist in high quantities because treatment facilities are unable to screen for and eliminate the complex soup of compounds.**

For instance, a recent meta-analysis (Alley, Beebe et al. 2011) of chemical and physical characterizations of produced waters from unconventional fossil fuels (shale gas, coal-bed methane, and tight gas sands) found that **most of the produced water generated from natural gas extraction from shale and tight gas sands contained so much chloride, that they were classified as saline (>30,000 mg/l) or hyper-saline (>40,000 mg/l)**. The treatment of this produced water involves substantial reverse osmosis, a practice that could generate a waste stream too large to justify the activity (Alley, Beebe et al. 2011). Only the coalbed methane produced waters were considered fresh. Beyond the salinity concerns, the toxicity of the produced waters from shale gas, tight gas sands, and coal-bed methane exceeded toxicity thresholds in nearly all of the monitored chemicals (including heavy metals such as aluminum, barium, arsenic, cadmium, lead, strontium, and uranium) (Alley, Beebe et al. 2011). These results agree with other reports that fracking fluids, drilling fluids, and **flowback and produced waters in drilling evaporation pits all contain levels of chemicals associated with health effects ranging from skin and eye irritation to neurological and nervous system damage, cancer, and endocrine disruption** (Colborn, Kwiatkowski et al. 2011). [emphasis supplied]

The Approval authorizes the discharge of AIS Wastewater into the sewage treatment plant serving the Debert Industrial Park (“Debert STP”). After treatment at the Debert STP, the treated AIS Wastewater will be discharged into the Chiganois River and downstream into Cobequid Bay and the Bay of Fundy.

According to an Environmental Assessment for the Home Hardware Stores Limited Warehouse and Distribution Center Expansion in Debert dated September 2011, <http://www.gov.ns.ca/nse/ea/HH.warehouse.distribution.centre.expansion.debert/Registration.Home.Hardware.Debert.Warehouse.Expansion.pdf> , which was prepared for Nova Scotia Environment:

4.5 Fish and Fish Habitat

Galloping Brook, a first order stream which flows into MacElmons Pond. Galloping Brook, MacElmons Pond, and the Chiganois River, into which they drain, support various fish species, most commonly brook trout, **American eel** and white sucker, with gaspereau and **Atlantic Salmon occurring in the Chiganois River. Atlantic salmon, as part of the Inner Bay of Fundy population, are at reduced numbers and are considered at-risk both provincially and under federal species at-risk legislation. The Chiganois River is important for Atlantic salmon stocked to maintain genetic diversity** for hatchery rearing and has been stocked annually in most years since 2002. Atlantic herring, shad, gaspereau, flounder, striped bass and Atlantic sturgeon can all be found at the mouth of the Chiganois River in Cobequid Bay.

POINT I

It Appears that AIS Failed to Provide the County with Sufficient Evidence: (1) the AIS Wastewater does not exceed Permissible Limits for Hazardous and Potentially Hazardous Substances and (2) the Debert STP Water Treatment Process will not Discharge Hazardous and Potentially Hazardous Substances in excess of Permissible Limits and Without Harm or Potential Harm

The County Should have Required and Considered Such Evidence before Issuing the Approval.

In this appeal, the term “hazardous and potentially hazardous substances” means all substances, materials, goods and waste which are either (i) classified by any level or agency of government as dangerous, toxic, hazardous or similarly categorized, or (ii) fall within definitions in statutes, regulations, rules or bylaws, defining dangerous, toxic, hazardous or similarly denoted substances, materials, goods or waste. have otherwise been identified as having a propensity for harm. Hazardous and potentially hazardous substances thus include without limitation intended, Dangerous Goods Transportation Act Fracking Substances and Protection Act Fracking Substances.

Based on the background material above and for the reasons which will become more apparent in the discussion of the points made below, the County could not make a reasonable determination to grant the Approval without a complete picture of (i) all hazardous and potentially hazardous substances in the AIS Wastewater; (ii) the levels or concentrations of all hazardous and potentially hazardous substances in the AIS Wastewater, (iii) the levels or concentrations of all hazardous and potentially hazardous substances in the Chinagois River, the Cobequid Bay and associated wetlands; (iv) the water flow in the Chinagois River and variations in water flow during each tidal sequence and during the year in the Chinagois River, as the greater the flow the greater the dilution of hazardous substances and potentially hazardous substances; (v) the effect of the accumulation of hazardous and potentially hazardous substances in the mud flats and wetlands; (vi) the amphibious species in the Chinagois River, Cobequid Bay and their associated wetlands, and their tolerance for each of the hazardous and potentially hazardous substances in the AIS Wastewater, including salts; (vii) the life cycle of the amphibious species in the Chinagois River, Cobequid Bay and associated wetlands, and in particular their reproductive cycle and when they are more vulnerable to the adverse effects of the discharged hazardous and potentially hazardous substances.

AIS did not produce the AIS Wastewater. AIS should have obtained manifests or other written evidence upon which the County can reasonably rely (“Manifests”), which disclosed the quantities of all hazardous and potentially hazardous substances employed in the fracking operations which generated the fracking wastewater. Appellants understand that Manifests listing hazardous substances but not quantities were furnished by a producer of fracking wastewater in Nova Scotia (“Triangle Wastewater”), but that AIS has accepted fracking wastewater from New Brunswick for which no Manifests of any kind have been furnished (“NB Wastewater”).

The burden is also on AIS to establish that only the Triangle Wastewater is included in the AIS Wastewater to be discharged pursuant to the Approval. Water is fungible. How did AIS demonstrate to the County that the Triangle Wastewater was not commingled with any other fracking wastewater, including the NB Wastewater? If there was commingling of the wastewaters, then the Manifests for the NB Wastewater should have also been furnished by AIS and considered by the County.

AIS should have also furnished the County with comprehensive validated test results for each of the hazardous and potentially hazardous substances disclosed in the Manifests and each of the hazardous and potentially hazardous substances which the AIS Wastewater contains or is reasonably suspected of containing. The most prudent course of action would have been to require AIS to provide test results for all hazardous and potentially hazardous substances associated with fracking and fracking wastewater.

By way of example only, although the oxidation of benzene typically results in the production of phenol, we understand there was no testing for phenol which is required by the Approval. For the oxidation process, see for example: “Oxidation of Benzene to Phenol, Catechol, and 1,2,3-Trihydroxybenzene by Toluene 4-Monooxygenase of *Pseudomonas mendocina* KR1 and Toluene 3-Monooxygenase of *Ralstonia pickettii* PKO1”, Ying Tao, Ayelet Fishman, William E. Bentley and Thomas K. Wood, Journal of the American Society for Microbiology, July 2004, <http://aem.asm.org/content/70/7/3814>.

By way of further example, if the Debert STP employs chlorine, testing for bromide would have been essential to determine the potential for by products of the interaction of bromide and chlorine. According to the Health Officer of the City of Toronto:

The most important group of compounds created during chlorination of drinking water are trihalomethanes (THM), in particular: chloroform, bromodichloromethane, chlorodibromomethane and bromoform. Of these, chloroform is usually found at the highest concentrations. These four compounds have been classed as possible carcinogens in humans. The available data link the drinking of chlorinated drinking water to bladder and colon cancer in humans (Health Canada, 1993). “Chemicals in Drinking Water” Dr. Shelia V. Basrur, Medical Officer of Health, March 2001, http://www.toronto.ca/health/hphe/pdf/chemicals_in_drinking_water_technical.pdf

By way of further example, according to the Summer Appeal, AIS provided no test results for the 13 hazardous substances disclosed in the Manifests. Perhaps even more shocking, according to the Doane Appeal, the test results the County did receive, disclosed:

:

... levels of Bromoform reaching 16 times the RDL, a level of Chloroform at 44 times the RDL, a level of Bromodichloromethane 31 times the RDL and a level of Dibromochloromethane 23 times the RDL. To adequately appreciate these chemical levels, consider the enclosed New Jersey Department of Health Hazardous Substances Fact Sheet. Bromoform when mixed with sodium forms a shock sensitive combination which can explode on impact. Levels of sodium in the AGAT report of Nov. 27, 2012 are 4250 times the RDL

The burden was upon AIS to provide all of this information to the County. Although Appellants have not had a reasonable opportunity to review the Record, it seems unlikely that AIS met this burden. The County should have considered all of this information before making a decision to grant the Approval.

POINT II

It Appears there is not Sufficient Evidence the Debert STP is Equipped to Adequately Treat Salts Prevalent in Fracking Wastewater, Let Alone at the Concentrations Authorized in the Approval. It was Unreasonable and Unlawful to Approve the Discharge of Chlorides at Levels up to 10,000 mg/liter

The Approval states in part:

10. *** level of chlorides higher than the parameter limit set by the Sewer Use Bylaw and Sewer Use Policy in the treated wastewater discharged into the public sewer system from AIS facility which has the potential to impact the quality of wastewater discharged into the receiving water body from the Debert STP. AIS shall pay to the Municipality \$0.25 per kilogram of chlorides discharged into the public sewer system over and above the limits set out in the Sewer Use Bylaw, subject to maximum discharge concentration not exceeding 10,000 mg/liter of chlorides at any time.

The limit set by the County in the table in Section 6(a) of Sewer Use Policy is 1,500 mg/liter. Thus the Approval gives AIS permission to discharge wastewater containing chlorides which are 6.66 times higher than the levels permitted by the County Sewer Use Policy; and may be as much as 10 times higher than what the embryos of some freshwater species may tolerate as noted elsewhere in this appeal. The level authorized by the Approval exceeds the British Columbia guidelines by 16.66 times and more than 60 times for a 30 day period of exposure. Those “Ambient Water Quality Guidelines for Chloride” (<http://www.env.gov.bc.ca/wat/wq/BCguidelines/chloride/chloride.html>) guidelines are as follows:

Table 1. Recommended guidelines for chloride

Water Use	Guideline (mg Chloride/L)
Drinking water	250
Recreation and Aesthetics	None
Freshwater Aquatic Life * Maximum Concentration + 30-d Average Concentration ++	600 150
Marine Life	Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.
Irrigation	100

Livestock Watering	600
Wildlife	600

Sewage treatment plants are not generally equipped to remove significant amounts of salts from sewage or other wastewater. By way of example only, Pennsylvania is a State which has welcomed fracking with open arms, but saw fit to bring a halt to the discharge of fracking wastewater into treatment plants because of the high salt levels and other hazardous substances found in the water discharged by the treatment plants.

According to Kevin Sunday, the deputy press secretary with the Pennsylvania Department of Environmental Protection (DEP), gas producers in Pennsylvania traditionally sent their wastewater to municipal water treatment plants for purification and then discharge into rivers. But with the shift to nonconventional production, **the wastewater—which is enriched with heavy metals, radionuclides, and salts liberated from the shale rock below¹—became harder to deal with. Removing dissolved salts, in particular, requires expensive distillation or reverse osmosis.**

Citing these environmental concerns, **DEP secretary Michael Krancer called on the Marcellus Shale industry to cease wastewater delivery to municipal sewage plants in April 2011.**⁶ According to Sunday, the industry immediately complied and accelerated what was already an ongoing shift of delivering the wastes to private industrial treatment facilities that were better able to precipitate metals and filter out suspended solids. When the state had earlier imposed a more stringent discharge standard for treated wastewater of 500 mg/L of total dissolved solids, drillers had found it more cost-effective to invest in centralized and mobile wastewater treatment for recycling and reuse in fracking operations than to discharge into the environment. See National Institute of Health’s Environmental Health Perspectives website, <http://ehp.niehs.nih.gov/121-a117/>

The NRDC Paper contains the following information:

[A] municipal wastewater plant, often called a publicly owned treatment works (POTW), has multiple steps designed to remove suspended solids, dissolved organic compounds that cause oxygen demand in receiving waters, and sometimes nutrients, like ammonia or nitrate. **POTWs are not designed to remove salts, as the typical wastewater they receive does not contain high loads of dissolved inorganic chemicals like salt.**

Treatment at a CWT or POTW followed by discharge of treated water has the potential to affect surface water downstream of the discharge, depending upon the discharge limits

for specific chemicals and the assimilative capacity of the receiving water. **In many cases, the impact of a treated wastewater discharge cannot be determined *a priori*, without consideration of the receiving water and the other activities taking place in the basin. Chemical hazards, both to ecosystems and to human health, are generally concentration-dependent.** Only when waste discharges in combination with contaminants from other sources exceed the assimilative capacity of natural systems do impacts emerge. Discharges that have little or no impact are rarely restricted. For example, while calcium and magnesium ions contribute to water hardness, which can affect water aesthetics, in general the presence of these ions is not a problem and may even be beneficial.¹³³ The Clean Water Act limits pollutant discharges. Pollutants may present a concern because of their direct toxicity to ecosystems or human health (e.g., BTEX) or because of their interaction in the environment to produce unwanted effects (e.g., nutrients like ammonia, which can encourage harmful algal blooms). Other pollutants are a concern because of their potential to affect the beneficial use of the water downstream (e.g., sulfate, which can make drinking water taste bad) or to disrupt ecosystems (e.g., **chloride, which alters fish reproduction**).

By far the largest constituent of concern that is not removed through current treatment in CWTs or POTWs **is salt, predominantly sodium and chloride ions, but also calcium and bromide ions and other dissolved cations and anions.**ⁱⁱ As shown in Table 1, Chapter 2, **produced waters from the Marcellus formation have sodium concentrations** from 26,900 to 95,500 mg/L and chloride concentrations from 1,670 to 181,000 mg/L (measured 14 days after well completion). These levels of salt alone make the water **3 to 10 times saltier than ocean water**. Effluent concentrations from CWTs (Table 4, Chapter 2) show chloride concentrations from 3,300 to 131,725 mg/L in waters with TDS from 7,200 to 198,400 mg/L. **Discharge of waters at the salinity of produced waters from the Marcellus formation would require either treatment to reduce salinity or dilution with pure water to 100 to 500 times their volume to reach drinking water levels.**

The AIS Approval authorizes the discharge of chlorides at levels up to 10,000 mg/liter. The AIS Approval contains no explanation how the County came to the conclusion that such toxic levels of chloride should be permitted. Nor did the authorization to discharge at levels up to 10,000 mg/liter take into account the particular form(s) of chlorides permitted to exceed the County's maximum level of 1,500 mg/liter. As noted elsewhere in this appeal, the adverse effects of certain form(s) of chlorides are more significant than others. Nor did the Approval take into account the level of salts already present and being discharged into the Chiganois River, Cobequid Bay and associated wetlands, the flow of water in Chicagnois River or the variations in such flow during each tidal sequence and during the year, the identification of the aquatic species in the affected waters and wetlands, the times of day and year the aquatic species will be most

vulnerable, or the extent of the harm which would be visited on aquatic species by the discharged salt levels. The alternatives which were available to the County under the Sewer Use Bylaw were as follows:

Engineer Action where Prohibited Discharge Occurs or is Proposed to Occur

5.12 Where sewage or wastewater is discharged or proposed to be discharged, to the sewerage system and such sewage or wastewater contains the matters prohibited by this By-law, the Engineer may do any of the following:

- a. Reject the discharge of sewage or wastewaters and discontinue access to the sewerage system until adequate measures are undertaken by the person discharging or proposing to discharge such sewage or wastewaters to comply with this By-law and to avoid recurrence of non-compliance with this By-law, which may include entering into a Wastewater Discharge Compliance Agreement pursuant to Part 12 of this By-law, if required by the Engineer;
- b. Require pre-treatment of the sewage or wastewaters as a condition for discharge to the sewerage system to the satisfaction of the Engineer by way of installing and utilizing a pre-treatment facility pursuant to Part 10 of this By-law;
- c. Exert control over the quantities or rates of discharge of the sewage or wastewater;
- d. Levy a charge to cover the expenses associated with handling or treating the sewage or wastewater where such sewage or wastewater is extra strength wastewater by way of a Wastewater Extra Strength Surcharge Agreement pursuant to Part 13 of this By-law.

There does not appear to be any reasonable basis for the Engineer's selection of alternative (d).

POINT III

It Appears that AIS Failed to Provide the County with and the County was Required to Consider Adequate Evidence that the AIS Wastewater when Discharged from the Debert STP will not be Harmful to the Environment and Aquatic Species and Will not Violate the Canadian Species at Risk Act

According to Fisheries and Oceans Canada: (i) the inner Bay of Fundy Atlantic Salmon has been listed as endangered under the Species at Risk Act since June 2003. <http://www.dfo->

mpo.gc.ca/species-especies/species-especies/salmon-atl-saumon-eng.htm; and (ii) species has been identified as Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). It is currently being considered for listing under the federal *Species at Risk Act* (SARA). Protection is afforded through the federal *Fisheries Act* and *Environmental Protection Act*. If listed under the SARA, it will be afforded additional protection. Under the SARA, a management plan must be developed for this species. <http://www.dfo-mpo.gc.ca/species-especies/species-especies/eel-anguille-eng.htm>

It does not appear that the Approval took into consideration the potential impact of the discharge of the AIS Wastewater from the Debert STP on the aquatic environment and its inhabitants. To do this, the County would have been required to consider not only the levels of hazardous and potentially hazardous substances in the discharged wastewater but also the levels already present in the aquatic environment and variations which may occur with changes in river flows (tidal, seasonal and otherwise), river and wetland water temperatures and other variables. Nor did the Approval take into account the deposit of radioactive material in the tidal mud flats and river bottom and its long term retention there. Instead the Approval permits the same level of discharge throughout the one year discharge period.

The NRDC Paper informs us:

The effect of high-salt loads on watersheds has been extensively documented through the study of road salt effects,¹⁵⁹ and aquatic ecosystem impacts can be significant and far-reaching.¹⁶⁰ Toxicity studies have focused on fish and macroinvertebrates, and toxicity is species-dependent. Fathead minnow embryos show toxicity below 1,000 mg/L,¹⁶¹ while some aquatic invertebrates can tolerate values in the 5,000 to 10,000 mg/L range.¹⁶² **Beyond direct toxicity to aquatic life, salinity affects the structure and function of aquatic ecosystems. For example, salinity affects microbes, macrophytes, riparian vegetation, invertebrates, fish, amphibians, reptiles, mammals, and birds that make up the complex food web in aquatic systems.**¹⁶³ Further, disposal of waters that contain dissolved solids (salts) in rivers can have effects beyond an increase in salinity of the receiving water. Kefford found saltwater disposal was associated with increased total phosphorus (TP), soluble phosphorus (PO₄³⁻), total Kjeldahl nitrogen (TKN), and suspended solids and with changes in macroinvertebrate community structure independent of direct salinity effects.¹⁶⁴ High chloride levels are also known to be associated with the invasive and devastating golden algae (*Prymnesium parvum*), although high salinity alone cannot trigger a toxic bloom.¹⁶⁵ A *Prymnesium* bloom was responsible for the loss of all gill-breathing organisms in 26 miles of Dunkard Creek in southwestern Pennsylvania in the fall of 2009.¹⁶⁶ For chloride, the EPA in-stream recommended standard to protect aquatic life is 250mg/L, set in 1988 and based on

limited toxicity studies with sodium chloride.¹⁶⁷ **Potassium, magnesium, and calcium chlorides are generally more toxic than sodium chloride.**¹⁶⁸ The Iowa Department of Natural Resources, in setting its chloride standard in 2009, reviewed more extensively available data and took into account the synergistic effects of sulfate and hardness (calcium and magnesium) on chloride toxicity.¹⁶⁹ British Columbia set standards for freshwater aquatic life at a maximum of 600mg/L and a 30-day average of 150 mg/L.¹⁷⁰ Discharge standards for chloride can be much higher as they take into account dilution in the receiving water.

Organic and inorganic nitrogen levels in produced water are a concern for surface discharge because they can contribute to oxygen depletion in receiving streams and nutrient loading leading to eutrophication. Nitrogen is unlikely to be completely removed in conventional POTWs or CWTs; however, ammonia can be removed in POTWs designed for nitrification, which will control the oxygen-depleting effects of the nitrogen. Produced water that contains high levels of ammonia could increase concentrations such that treatment plants that previously did not need to include nitrification might have to begin doing so to meet their discharge permit limits. Plants that do include nitrification might have to adjust their processes (e.g., increase aeration) to achieve treatment with higher influent loads.ⁿⁿ Of course, plants without discharge standards for nitrogen do not include treatment technologies for this contaminant, and any addition to their influent will lead to an increase in their effluent discharge of this chemical. Nitrogen in wastewaters released to surface waters should be considered in context with other nutrient loads in receiving waters to ensure that the cumulative effects are sufficiently controlled by dilution.

The burden was on AIS to establish the discharge of the AIS Wastewater from the Debert STP will not violate and the Approval fails to take into consideration the Federal Species at Risk Act, includes the following prohibitions:

MEASURES TO PROTECT LISTED WILDLIFE SPECIES

General Prohibitions

Killing, harming, etc., listed wildlife species

32. (1) No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.

Damage or destruction of residence

33. No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.

In *Podolsky v. Cadillac Fairview Corp.*, 2013 ONCJ 65, (CanLII), <http://canlii.ca/t/fw6g3> , the Ontario Court of Justice found:

[63]***The “purposes” of the *Species at Risk Act* (hereafter, “SARA”), as set out in s. 6 of the Act, are, broadly stated, the preservation, recovery and management of wildlife species of special concern. SARA is preceded by a Preamble “recognizing that”, *inter alia*:

- “wildlife, in all its forms, has value in and of itself and is valued by Canadians for aesthetic, cultural, spiritual, recreational, educational, historical, economic, medical, ecological and scientific reasons”;
- “Canadian wildlife species and ecosystems are also part of the world’s heritage”;
- and
- “the Government of Canada is committed to conserving biological diversity”.

A generous reading of this statute is prescribed by [s. 12](#) of the *Interpretation Act, R.S.C. 1985, C. I-21*, which reads: “Every enactment is deemed remedial, and shall be given such fair, large and liberal construction and interpretation as best ensures the attainment of its objects”. This provision is a codification of the conventional purposive approach to statutory construction and is particularly apposite to the field of regulatory legislation, including those statutes directed to environmental protection. (See, generally, *Ontario v. Canadian Pacific, supra.*)

72] Section 32(1) of SARA reads:

No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.

There are no reported cases dealing with [s. 32\(1\)](#). However, several other provisions in the Act offer some guidance as to the legal nature of the offence provision and the breadth of its application. Section 100, for example, expressly stipulates that “[d]ue diligence is a defence in a prosecution for an offence”. More importantly, s. 102(b) instructs a sentencing court to consider, among any other relevant factors, “whether the offender was found to have committed the offence intentionally, recklessly or *inadvertently*” (emphasis added). **This, in my view, makes patent Parliament’s intention to include what might otherwise be described as even an accidental, careless or involuntary killing or harming of a member of, here, a “threatened” species within the scope of penal liability. There is no ambiguity in this provision**

and, accordingly, no room to apply the interpretive principle of manifest absurdity urged by the defendants. (See, in this regard, *R. v. Huggins* (2010), 326 D.L.R. (4th) 720 (Ont. C.A.)) Further, the express reference in [s. 32\(1\)](#) to “an *individual* of a [scheduled] wildlife species” (emphasis added) makes clear that a single death may fall within the scope of liability defined by this provision. No limits established for various contaminants. [emphasis supplied] “

It is not until after juvenile Atlantic salmon mature to the stage of smolts that they develop a tolerance for chloride. “Movement, migration and smolting of Atlantic salmon (*Salmo salar*)”, Stephen D. McCormick, et al., *Can J Fish Aquatic Sci* 55(Supplement 1) 77-92 (1998), <http://www.bio.umass.edu/biology/mccormick/pdf/cjfas%2098%20movement,%20migration%20and%20smolting.pdf>

The Approval to discharge AIS Wastewater at salt levels of up to 10,000 mg / liter is further aggravated by the Approval’s failure to require testing of the chloride levels on a frequent basis; and by the Approval’s failure to take into account (i) existing levels of salts in the aquatic and associated wetland environment, (ii) river flows, including tidal sequence variations and variations throughout the year, and (iii) distinguish amongst the varieties of chloride, some having greater potential than others for harm; (iv) the life cycle of the affected aquatic species.

Furthermore, there is nothing in the Approval which reflects that the discharge and the water in the Chiganois, the Cobequid Bay and associated wetlands following the discharge can or must comply with the guidelines published by the Canadian Council of Ministers of the Environment (CCME) for ambient water quality to protect aquatic life from exposure to benzene, ethylbenzene and toluene. See: www.ceqg-rcqe.ccme.ca/download/en/179; www.ceqg-rcqe.ccme.ca/download/en/216

POINT IV

The AIS Approval Fails to Take into Account the Collective Effect of all Alpha and Beta Radiation:

Radiation levels need to be considered collectively as well as individually. There is nothing in the Approval to suggest this occurred. Instead it appears that the County simply looked at the table in Section 6(b) of the Sewer Use Policy and not the text preceding the table.

b. The following parameter limits shall apply for sewage and/or wastewater containing NORMs that have not been part of a nuclear fuel cycle, re-processed for use of nuclear material or are not artificially produced radio nuclides. **If any Federal Regulations or Provincial Regulations or other Federal or Provincial guidelines have limits which**

are more stringent than those set out in this Policy, the more stringent of the limits shall apply:

NORM Radionuclide	Limit (Bq/l)	NORM Radionuclide	Limit (Bq/l)
Uranium-238 series (all progeny)	1.0	Uranium-238 (U-238,Th-234,Pa-234m, U-234)	10.0
Thorium-230	5.0	Radium-226 (in equilibrium with its progeny)	5.0
Thorium-232	1.0	Radium-228 (in equilibrium with Ac-228)	5.0
Thorium-232 series (all progeny)	1.0	Lead-210 (in equilibrium with Bi-210 & Po-210)	1.0
Thorium-232 series (in equilibrium with all progeny)	1.0		

According to the World Health Organization's book on drinking water sanitation (http://www.who.int/water_sanitation_health/publications/2011/9789241548151_ch09.pdf):

Screening levels for drinking-water, below which no further action is required, are 0.5 Bq/l for gross alpha activity and 1 Bq/l for gross beta activity. If neither of these values is exceeded, the IDC of 0.1 mSv/year will also not be exceeded. The use of these screening levels is recommended, as this maximizes both the reliability and the cost-effectiveness of assessing the radionuclide content of drinking-water.

Radionuclides emitting low-energy beta activity, such as tritium, and some gaseous or volatile radionuclides, such as iodine, will not be detected by standard gross activity measurements. Routine analysis for these radionuclides is not necessary, but, if there are any reasons for believing that they may be present, radionuclide-specific sampling and measurement techniques should be used.²

Gross beta measurements include a contribution from potassium-40, a beta emitter that occurs naturally in a fixed ratio to stable potassium. Potassium is an essential element for humans and is absorbed mainly from ingested food. If the screening level of 1 Bq/l for gross beta is exceeded, the contribution of potassium-40 to beta activity should be subtracted following a separate determination of total potassium.

This should not be regarded either as an "acceptable" dose or as a dose limit, and all reasonable efforts should be made to minimize the doses received. Each situation will be different, and non-radiological factors, such as the costs of remediation and the availability of other drinking-water supplies, will need to be taken into account in reaching a final decision. National authorities also need to be aware that radionuclides

such as uranium are chemically toxic, and the allowable concentrations in drinking-water may be determined by a radioisotope's toxicological rather than its radioactive properties

The same collective approach is found in the applicable Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM) (<http://www.hc-sc.gc.ca/ewh-semt/pubs/contaminants/norm-mrn/management-gestion-eng.php>) are as follows:

“Table 5.1 Unconditional Derived Release Limits - Diffuse NORM Sources

NORM RADIONUCLIDE	Derived Release Limit^(a) AQUEOUS^(b) (Bq/L)
Uranium-238 Series (all progeny)	1
Uranium-238 (U-238, Th-234, Pa-234m, U-234)	10
Thorium-230	5
Radium-226 (in equilibrium with its progeny)	5
Lead-210 (in equilibrium with bismuth-210 and polonium-210)	1
Thorium-232 Series (all progeny)	1
Thorium-232	1
Radium-228 (in equilibrium with Ac-228)	5
Thorium-228 (in equilibrium with all its progeny)	1

Potassium-40

n/a(d)

Where more than one long-lived radionuclide is present in a sample, the appropriate sum of the ratios of the activity of each long-lived radionuclide and its corresponding Release limit, must not exceed 1...

The regulations adopted by the US Nuclear Regulatory Commission (<http://www.nrc.gov/reading-rm/doc-collections/cfr/part020/full-text.html#part020-1301>) require the same collective analysis:

§ 20.1301 Dose limits for individual members of the public.

(a) Each licensee shall conduct operations so that -

(1) The total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1 mSv) in a year, exclusive of the dose contributions from background radiation, from any administration the individual has received, from exposure to individuals administered radioactive material and released under § 35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with § 20.2003...

The concept that all sources of radiation need to be aggregated to determine their collective impact appears to be basic science that was not considered in granting the Approval. See also: "An Investigation on Natural Radioactivity from Mining Industry" E. Esmeray* and M. E. Aydin, Selcuk University, Environmental Engineering Department, Konya, Turkey. African Journal of Biotechnology Vol. 10(20), pp. 4313-4317, 16 May, 2011

And again, we do not believe there is any evidence that the existing radioactive levels in the Chiganois River, Cobequid Bay and the associated wetlands were established or taken into consideration, or the impact of the discharge radiation on aquatic species or the potential for contamination exacerbated by the mud flats, tidal flows and variations in river flows.

POINT V

The Discharge of the Fracking Wastewater into the Debert STP would Violate the Sewer Bylaw

Municipal Sewer Bylaw Chapter 29, contains the following provisions (emphases supplied):

3.27 "**Hazardous Substance**" means any substance or mixture of substance, other than a pesticide, that exhibits characteristics of flammability, corrosivity, reactivity or toxicity, and any substance that is designated as a hazardous substance within the meaning of any applicable provincial or federal legislation, as amended from time to time;

3.28 "**Hazardous Waste**" means any hazardous substance disposed of as waste;

3.30 "**Industrial Premises**" means a property, with or without buildings, on which industrial, commercial or institutional activities are undertaken;

3.31 "**NORM**" means Naturally Occurring Radioactive Materials, or Naturally Occurring Nuclear Substances as defined by the *Nuclear Safety and Control Act* (Canada), which include radioactive materials found in the environment including uranium, thorium, potassium and their decay products such as radium and radon.

3.32 "**Sewage**" means the combination of liquid and water-carried wastes from buildings, containing animal, vegetable or mineral matter in suspension or solution, together with such groundwater, surface water or storm water as might be present and has the same meaning as wastewater;

3.67 "**Suspended Solids**" means the insoluble matter suspended in wastewater or storm water that is separable by laboratory filtration [this would include salts];

3.65 "**Toxic Substance**" means any substance defined as toxic under the *Environmental Protection Act* of Canada, as amended from time to time, and within the meaning of any applicable provincial or federal legislation;

[The **Environmental Protection Act** of Canada includes the following provisions

Toxic substances

64. For the purposes of this Part and Part 6, except where the expression “inherently toxic” appears, a **substance is toxic if it** is entering or may enter the environment in a quantity or concentration or under conditions that

(a) have or **may have an immediate or long-term harmful effect on the environment or its biological diversity;**

(b) constitute or may constitute a danger to the environment on which life depends; or

(c) constitute or may constitute a danger in Canada to human life or health.]

3.72 **"Waste"** means a substance that would cause or tend to cause an adverse effect if added to the environment, wastewater facilities, the sewerage system or storm water system and includes rubbish, slimes, tailings, or other industrial wastes, effluent, septic sludge, sewage, garbage, refuse, scrap, litter or other waste products of any kind;

3.73 **"Waste Radioactive Materials"** means nuclear substances as defined by the *Nuclear Safety and Control Act* (Canada) such as uranium, thorium, plutonium, neptunium, deuterium, their respective derivatives and compounds and such other substances as the Canadian Nuclear Safety Commission may designate as being capable of releasing ionizing radiation and require approval of the Canadian Nuclear Safety Commission for disposal into a sanitary sewer under the *Nuclear Safety and Control Act*;

3.74 **"Wastewater"** means liquid waste containing animal, vegetable, mineral or chemical matter in solution or suspension carried from any premises and has the same meaning as sewage;

The discharge of the AIS Wastewater would violate Section 5.1, which provides:

Prohibited Discharge

5.1 **No person shall discharge into a sewerage system or wastewater facilities, sewage or wastewater which causes or may cause:**

a. **A health or safety hazard;** [For example, the health hazard to those eating fish taken from the Chiganois River and Cobequid Bay which have ingested the hazardous and potentially hazardous substances contained in the AIS Wastewater discharged from the Debert STP.]

f. **A restriction of the beneficial use of biosolids from the Municipality's wastewater facilities;** [The salts, radioactive levels and other hazardous and potentially hazardous substances remaining in the solids likely restrict the use of the facilities biosolids.]

g. **Effluent from the Municipality's wastewater facilities which is in violation of any Provincial or Federal legislation.**[For example, which contains hazardous substances such as salts and radiation which would harm salmon and thus violate the Canadian Species at Risk Act, or which may harm the environment or biodiversity per the Canadian Environmental Protection Act]

5.3 **No person shall discharge** into a sewerage system or wastewater facilities, sewage or wastewater containing one or more of the following:

d. Inflammable or **explosive matter** [if the statements made in the Doane Appeal about the explosive constituents of the AIS Wastewater are correct, then discharge is barred by this provision];

g. Waste containing herbicides, pesticides, xenobiotics, polychlorinated biphenyls (PCBs) or **waste radioactive materials in concentrations greater than those permitted for release into the environment by Federal Regulations and Provincial Regulations;** [Where is the evidence that such concentrations will not be exceeded at anytime during the one year period the Approval will be in effect, taking into account the collective alpha and beta particles, river flows and variations in river flows and the potential concentration of radioactive particles in mud flats and wetlands?]

h. **Any waste classified as hazardous waste** [Are not all or at least many of the hazardous and potentially hazardous substances in the AIS Wastewater hazardous waste? And thus their discharge is barred by this provision]; or

POINT VI

It Appears the AIS Wastewater Discharge would Violate the Municipal Government Act

Municipal Government Act provides as follows:

(bo) "sewage" means the combination of liquid and water-carried wastes from buildings, containing animal, vegetable or mineral matter in suspension or solution, together with such groundwater, surface water or stormwater as might be present;

(ci) "wastewater facilities" means the structures, pipes, devices, equipment, processes or other things used, or intended, for the collection, transportation, pumping or treatment of sewage and disposal of the effluent;

Prohibition and power to make by-laws

333 (1) No person shall permit the discharge into wastewater facilities or a stormwater system of a municipality or a village or into wastewater facilities or a stormwater system or building service connection connecting with the wastewater facilities or stormwater system of a municipality or a village of

(i) sewage containing herbicides, pesticides, xenobiotics, polychlorinated biphenols or radioactive materials that are not approved for disposal in a sanitary sewer by the Atomic Energy Control Board of Canada;

(l) sewage that contains toxic substances at the point of discharge to the municipal sewer in excess of the concentrations specified by the council or village commission, by by-law [the Approval acknowledges that the chloride levels are dramatically in excess of the concentrations specified by the County council];

(m) sewage containing substances for which special treatment or disposal practices are required by any applicable enactments of Canada or the Province [the Approval implicitly acknowledges that the solids from the treatment of the AIS Wastewater do require special disposal practices, when it requires AIS to remain responsible for their disposition],

and compliance with any limit is not attainable simply by dilution.

POINT VII

The Discharge of the AIS Wastewater Violates the Environment Act and the Regulations Promulgated Thereunder

Environment Act provides:

Purpose of Act

2 The purpose of this Act is to support and promote the protection, enhancement and prudent use of the environment while recognizing the following goals:

(a) ***

(b) maintaining the principles of sustainable development, including

(i) the principle of ecological value, ensuring the maintenance and restoration of essential ecological processes and the preservation and prevention of loss of biological diversity,

(ii) the precautionary principle will be used in decision-making so that where there are threats of serious or irreversible damage, the lack of full scientific certainty shall not be used as a reason for postponing measures to prevent environmental degradation,

(v) the stewardship principle, which recognizes the responsibility of a producer for a product from the point of manufacturing to the point of final disposal,

(c) the polluter-pay principle confirming the responsibility of anyone who creates an adverse effect on the environment that is not de minimis to take remedial action and pay for the costs of that action;

Interpretation

3.***

(n) "dangerous goods" means a substance designated as such in the regulations or conforming with criteria set out in the regulations;

(ba) "waste" means a substance that would cause or tend to cause an adverse effect if added to the environment, and includes rubbish, slimes, tailings, fumes, smoke from mines or factories, other air emissions, **or other industrial wastes, effluent,** sludge, sewage, garbage, refuse, scrap, litter **or other waste products of any kind;**

(bb) "waste dangerous goods" means a substance designated as such in the regulations or conforming with criteria set out in the regulations;

Conflict

6 (1) Where there is a conflict between this Act and any other enactment, this Act prevails.

(4) A by-law or regulation of a municipality, or an authorization issued by a municipality is, to the extent that it is in conflict or inconsistent with this Act, suspended and of no effect.

Prohibition

67 (1) No person shall knowingly release or permit the release into the environment of a substance in an amount, concentration or level or at a rate of release that causes or may cause an adverse effect, unless authorized by an approval or the regulations.

(2) No person shall release or permit the release into the environment of a substance in an amount, concentration or level or at a rate of release that causes or may cause an adverse effect, unless authorized by an approval or the regulations. *1994-95, c. 1, s. 67; 2006, c. 30, s. 23.* [This is a sweeping prohibition of any release of any hazardous or potentially hazardous substance at a level or at a rate which might have adverse effects. So the release of hazardous and potentially hazardous substances barred by the Act is not limited to those substances specified in the Act or regulations adopted under the Act. This dictates a comprehensive assessment of the potential for explosions, harm to aquatic species and adverse economic effects which could result from the release of hazardous and potentially hazardous substances.]

Prohibition

68 (1) No person shall knowingly release or permit the release of a substance into the environment in an amount, concentration or level or at a rate of release that is in excess of that expressly authorized by an approval or the regulations.

(2) No person shall release or permit the release of a substance into the environment in an amount, concentration or level or at a rate of release that is in excess of that expressly authorized by an approval or the regulations. *1994-95, c. 1, s. 68.* [This section expressly prohibits any release in excess of the levels permitted by the regulations adopted under the Act]

Storing and handling

75 Unless authorized under this Part or regulations made pursuant to this Part, **a person who handles dangerous goods, waste dangerous goods or pesticides shall do so in a manner that ensures that the dangerous goods, waste dangerous goods or pesticides do not cause an adverse effect to the environment.** 1994-95, c. 1, s. 75. [To the extent the AIS Wastewater contains such goods, the County is under an obligation to ensure they do not cause an adverse effect on the Environment. The terms of the Approval do not ensure compliance with this requirement by the County]

Prohibition

76 Subject to the regulations, **no person shall sell or distribute any** crop, food, feed, animal, plant, **water**, produce, product or other matter **that**

(a) contains dangerous goods, waste dangerous goods or a pesticide in excess of the permissible concentrations as established by this Act, the Food and Drug Act (Canada) or the [Pest Control Products Act](#) (Canada); or

[This prohibition bars the distribution of such goods into the Debert STP. To determine the dangerous goods for which permissible concentrations are established, we need to look to the Dangerous Goods Management Regulations]

The Dangerous Goods Management Regulations provide in part [emphasis supplied]:

(d) "dangerous goods" means a substance that

(i) conforms to the criteria set out in subsections 3.8 to 3.27, inclusive, of the [Transportation of Dangerous Goods Regulations](#) (Canada),

(ii) is included in List I of Schedule II or List II of Schedule II of the [Transportation of Dangerous Goods Regulations](#) (Canada), or

(iii) is designated in Schedule "B" of these regulations;

(l) "waste dangerous goods" means dangerous goods that are no longer in use for their original purpose or materials which have become waste dangerous goods through handling including dangerous goods intended for treatment, disposal or recycling...

Designation 3 Substances defined in these regulations as dangerous goods or waste dangerous goods are designated dangerous goods or waste dangerous goods for the purposes of the Act and these regulations.

Storage of waste dangerous goods 6 (1) No person shall store waste dangerous goods which that person did not produce without the prior written approval of the Minister or an Administrator.

(2) No person shall dilute or adulterate waste dangerous goods without the prior written approval of the Minister or an Administrator. [We do not believe any such approval has been obtained for the dilution of any waste dangerous goods except perhaps radioactive materials]

Disposal offence 12 No person shall cause, suffer or permit the dumping, depositing, dropping, throwing, discharging or leaving of dangerous goods or waste dangerous goods in a manner which may cause an adverse effect without the prior written approval of the Minister or an Administrator. [Again, prohibition exists if the release might cause an adverse effect]

AIS Wastewater appears to contain dangerous goods listed in Schedule A, Column I, Lines 7, 9.1 and 9.2

Schedule "A" - Designated Dangerous Goods [Primary Classification]

Transportation of Dangerous Goods Regulations (Canada)

Column I Classification and Division	Column II Quantity - Waste Dangerous Goods
1. Explosive [if Doane Appeal is correct]	50 kg or 50 L
2.1 Compressed gas (flammable)	5000* L
2.2 Compressed gas (non-corrosive, non-toxic, non-flammable)	10 000* L
2.3 Compressed gas (toxic)	500* L
2.4 Compressed gas (corrosive)	500* L

2. Compressed gas (total)	10 000 L
3. Flammable liquid	5000 L
4.1 Flammable solid	10 000 kg
4.2. Substance liable to spontaneous combustion	1000 kg
4.3 Substance which reacts violently with water	1000 kg
5.1 Oxidizing substance	1000 kg or 1000 L
5.2 Organic peroxide	50 kg or 50 L
6.1 Poisonous (toxic) substance	1000 kg or 1000 L
6.2 Infectious substance	1000 kg or 1000 L
7. Radioactive material	any amount
8. Corrosive substance	1000 kg or 1000 L
9.1. Miscellaneous dangerous goods	5000 kg
9.2 Environmentally hazardous substance	50 kg
9.3 Leachable toxic waste	10 000 kg or 10 000 L

POINT VIII

The Approval Exposes the County to an Unnecessary Risk of Financial Loss Because the Approval Fails to Require AIS to Enter into an Indemnification Agreement in favor of the County and Secure the Potential Liabilities of AIS with Adequate Collateral

The County is a volunteer. The County has no obligation to accept the AIS Wastewater for treatment at and discharge from the Debert STP. The County may incur significant financial losses, including payment of damages suffered by third parties, legal fees and other litigation expenses. These losses may result from claims made by any person or organization, arising out of the discharge of the AIS Wastewater permitted by the Approval, the solids remaining after treatment at the Debert STP and the discharge of the AIS Wastewater contrary to the Approval.

The Approval does not condition the discharge of AIS Wastewater upon any of commonly employed means to ensure that primary financial responsibility for any such losses and claims rests with AIS. There is no provision for any contract between the County and AIS which would at a minimum contain each of the following (“Discharge Contract”): (i) representations and warranties by AIS regarding the AIS Wastewater, including its sources and hazardous and potentially hazardous substances; (ii) obligate AIS to provide pollution legal liability insurance or similar insurance covering the County; (iii) obligate AIS to indemnify and hold the County harmless from any claims or losses arising out of the AIS Wastewater; (iv) obligate AIS to bear all costs and expenses, including all legal fees incurred by the County and arising out of the AIS Wastewater; (v) clearly subject AIS to a contractual claim for damages for breaching the terms of the Approval; (vi) an agreement that AIS is the owner and solely responsible for the proper remediation and disposition of all solids remaining after treatment of the AIS Wastewater; or (vii) a requirement that AIS provide the County with a cash deposit, surety bond, letter of credit or similar form of liquid collateral to secure the AIS obligations, including the potential financial losses, costs and expenses.

The Approval’s failure to provide for a Discharge Contract and compliance with the Discharge Contract prior to any discharge of AIS Wastewater, exposes the County to an unreasonable and unnecessary risk of financial loss, costs and expenses which should be borne by AIS.

POINT IX

The Burden was on AIS to Demonstrate and the County was Required to Consider if there is Sufficient Evidence that None of the Hazardous or Potentially Hazardous Substances in the AIS Wastewater will Following Discharge from the Debert STP Violate the Navigable Waters Protection Act

Navigable Waters Protection Act provides in part:

2. ***

“navigable water” includes a canal and any other body of water created or altered as a result of the construction of any work.

Throwing or depositing stone, etc., prohibited

22. No person shall throw or deposit or cause, suffer or permit to be thrown or deposited any stone, gravel, earth, cinders, ashes or other material or rubbish that is liable to sink to the bottom in any water, any part of which is navigable or that flows into any navigable water, where there are not at least twenty fathoms of water at all times, but nothing in this section shall be construed so as to permit the throwing or depositing of any substance in

any part of a navigable water where that throwing or depositing is prohibited by or under any other Act.

This Act's prohibitions are particularly apt here because of the tidal effects on and the mud flats present in the Chiganois River and the Cobequid Bay and any associated wetlands, which are likely to retain hazardous and potentially hazardous materials for a far longer period than other environments.

POINT X

The Approval Should have Included the Reasoning of the Engineer

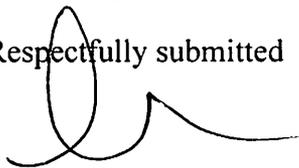
The Approval and AIS Wastewater are legitimate subjects of serious public concern and may affect significant rights including without limitation (i) anyone with land abutting the Chiganois River, Cobequid Bay or any associated wetlands, (ii) First Nation rights to fish, and the (iii) rights of any commercial fisher in Cobequid Bay or the Bay of Fundy. If the Approval contained the reasons for the issuance of the Approval, the Appellants, County Bylaw Committee and any court which later reviews the Approval, will be much better able to determine the bases upon which the Approval rested; and the resources of the County Bylaw Committee and Appellants might have been more devoted to fewer issues

CONCLUSION

The Approval does admirably reflect some of the legitimate concerns of the County and public at large. However, in the absence of an adequate opportunity to review the Record, the Appellants are entitled to (i) assume that the information before the County did not support the AIS Approval, and (ii) conclude it is more likely than not, that the discharge of the AIS Wastewater into the Debert STP and after treatment at the STP into the Chiganois River, Cobequid Bay and associated wetlands, would violate applicable law. It follows, that the decision to issue the Approval was unreasonable and should be overturned.

Dated: April 10, 2013

Respectfully submitted



Mark Tipperman on behalf of Appellants

With special thanks to Jim Doane, Barb Harris, Ken Summers and Tricia Barry for their several suggestions and research reflected in this statement of appeal