



N-Viro Halifax: The Dunbrack Comeback



Lise LeBlanc

LP Consulting/Walker Environmental Group



Alkaline Stabilization with Accelerated Drying technology that transforms waste ...



+



=

Dewatered Biosolids 65%
(15-40% solids)

Alkaline Material (CKD) 35%

.... to
Fertilizer + Lime

CFIA Label





N-Viro sites in Canada

Leamington 1996



Sarnia 2001



Niagara 2008

Halifax 2007

35,000t

1.8% of Ag land



Banff 2013

Sudbury 2015



100,000+ tonnes/year

(Summerside)

Product demand for agriculture, land remediation and soil blending

Halifax Harbour Solutions Project

Halifax harbour, deepwater, ice-free port
200 million liters/day of untreated water



The treatment of biosolids was an integral component.

The N-Viro process was selected for beneficial reuse, in keeping with Halifax Regional Municipality's (HRM) composting and recycling philosophy.

**NS regulation, all organic material, including biosolids,
can not be land filled**



Halifax N-Viro Public Relations Programs 2007- 2009 (May, 2008)

Meetings/Presentations/Plant Tours:

- NS Federation of Agriculture (included opposing groups – NSEN, EAC)
- Government Departments
- Municipalities
- Farm County Meetings - Farmer plant tours
- Political Meetings, including the Premier
- University Presentations
- Agricultural Conferences

Booth at farm shows

Mail outs to farmers

NSDA Biosolid Conference

2008- Summer of 2010 - Demand



How safe are biosolids?

August, 2008



Network board member Fred Blois calls these HRM biosolids a chemical soup



Bio-not-so-solids
Dumping sludge on farmland is a crappy idea
The Coast April 2008

The land application of biosolids poses a threat to our agricultural land and farm animals.

Thursday, urging the municipality to say no to the spreading of biosolids on farm land.
GORDON DELANEY / Valley Bureau

Environmentalists want tighter biosolids rules

By GORDON DELANEY
Valley Bureau

KENTVILLE — The province's stricter new guidelines governing the use and spreading of biosolids are not nearly strict enough, say environmentalists.

Earlier this month, the Environment Department announced new guidelines for storing municipal biosolids and applying them to land. The guidelines also require more intensive testing for

of the material as fertilizer on farmland.

Some farmers are using the material on their fields because it's cheaper than commercial fertilizers, which doubled in price this year because of a shortage in supply in the face of high demand from China and other developing countries.

Ms. Cameron appeared at a special Kings County council meeting in Kentville recently to express concerns about biosolids being used on some farms.

She is concerned about the safety of the product and its use in the production of food for consumption.

Ecology Action Centre (EAC) and Food Action Committee (FAC)
Position Statement on the Land Application of Biosolids in NS to Agricultural Lands

We do not support the application of biosolids onto agricultural land in Nova Scotia.



TREATED SEWAGE SLUDGE FERTILIZERS

Donald Good, Ontario Lawyer states: "Never adopt a practice that undermines the confidence of consumers in the safety of the food you produce. The application of sewage sludge to farmland does just that."

WHAT ARE BIOSOLIDS?

Biosolids are made from the solid waste that remains in human sewage – called sludge. In Halifax, this sludge is derived from residential, commercial, industrial, street run off and, hospital sources and is being mixed with a liming agent to create the resultant "soil amendment" product also known as "stabilized biosolids". The Province of Nova Scotia is promoting a plan to apply biosolids to our agricultural farmland. It is high in organic content and nutrients, so in theory, makes good "fertilizer". However, there are a multitude of other noxious components in biosolids other than just feces and a liming agent. Sludge has the potential to contain a complex and biologically-active and unpredictable mixture of industrial waste products, blood, vomit, personal care products, heavy metals, synthetic hormones, pharmaceuticals, illicit drugs, antibiotics, solvents, flame retardants, carcinogens, pesticides, and numerous pathogens including bacteria and viruses. The liming agent used is cement kiln dust, an industrial waste product that contains numerous heavy metals including thallium, an estrogen-mimicking compound, and is mixed in an almost 50:50 ratio with the sludge. This process raises the pH, potentially killing most of the bacteria found in the sludge. If fecal coliforms number less than 1000 microbes per gram of dry weight, the biosolids are considered to be "Class A". N-Viro Systems Canada is processing and stabilizing Class A sludge and is transporting it to rural areas for land application onto agricultural soils. With the current high cost of synthetic fertilizers, some farmers are turning to biosolids as an aid to grow forage or food crops. N-Viro hopes to land apply 34,000 tonnes of sludge on Nova Scotian farmland covering up to 4,800 hectares every year with the approval of the Department of Environment (Approval # 2005-0455546-A02).

WHAT HAPPENS TO ALL THOSE CONTAMINANTS?

The "stabilization process" of sludge does not remove or degrade most of the contaminants. Thousands of pollutants have been detected in urban sewage sludges yet testing in Nova Scotia is limited to only 11 heavy metals, two bacteria (such as E. Coli and Salmonella), dioxins, furans, and PCB's. Bacterial digestion of dewatered sewage sludge can cause reactions between organic matter and residual chemical substances forming more dangerous compounds. There is no way to determine what substances make it into the final product. Current industrial technologies and treatment processes could be creating risks of unknown magnitude for public health since its use on agricultural land will subsequently become part of our food chain. Comprehensive testing for most of the substances listed above has not been done before biosolids have been spread on farmland in Nova Scotia. Of particular concern, and in typical sludges, are the presence of flame retardants and thallium – both of which can cross the placenta and enter fetuses. Experts are concerned about the long-term build up of heavy metals in the soil which are likely to be bio-accumulative and persistent. Over time, metals such as cadmium, zinc, and copper can build up to levels high enough to severely damage soil micro-organisms and reduce future crop yields. Does it make sense to remove the pollutants from sewage, in order to create a cleaner effluent entering water courses, only to spread the same pollutants on our food sources? Land application of biosolids is not "recycling". It is pollution transfer.

NEW EVIDENCE IS EMERGING....

A tremendous amount of new knowledge about what substances exist in biosolids and how they behave has come to light in recent years. Contrary to claims made by proponents of biosolids, soil scientists specializing in sewage sludges have determined that contaminants can leech into groundwater sources or enter other water courses via field run-off. It has been shown in field studies that pathogen re-growth can occur even after the pasteurization process has been done. Pollutants can be taken up by some vegetables and forages; others will remain in the soils for decades. The vast multitudes of persistent, organic chemicals that affect human health will never be tested for. Although more testing is recommended for biosolids, it is important to note that many independent Canadian labs do not have the technologically-advanced equipment needed to detect meaningful concentrations of contaminants that are normally present in most urban sludges nor can they provide information about which levels of contaminants are toxic versus which are safe.



Ask Premier Dexter for
a Legislated Ban on the
Application of Bio-Solids on
Nova Scotian Farmland until
a Study is Undertaken to
Explore Alternative uses.

Until that time, the safest place
for sewage sludge is in a landfill.

Dear Honourable Darrell Dexter:

I am writing to express my opposition to the Province's plan to promote bio-solid fertilizers being used on Nova Scotian farmland. Bio-solid application, over time, can result in contamination of soil and ground-water with heavy metals, pharmaceuticals, and other contaminants. Synergistic reactions between untreated for toxic chemicals may occur forming carcinogens which could enter the food chain. Excessive build up of cadmium, copper and zinc, routinely detected in bio-solids, can destroy living soil microbes and adversely affect fertility and reduce future crop yields. The use of bio-solids will negatively affect the public's perception about the safety of food grown in Nova Scotia. I would like to urge you to enact through legislation a ban on bio-solids being land applied on Nova Scotia's agricultural soils until alternative uses can be explored.

Signed _____ Date _____
Name _____
Address _____

Affix
Stamp
Here

TO:

Honourable Darrell Dexter
7th Floor, One Government Place
1700 Granville Street
P.O. Box 726
Halifax, Nova Scotia
B3J 2T3



2010 Project - HRM
removed rose bushes to
reseed the
Dunbrack Median

N-Viro had started a soil
blending project with local
landscape company





July, 2010



- Odor complaints
- Nausea and headaches
- Virulent green glow





Biosolids cause stink in HRM CBC News 2010 Actress Ellen Page among those speaking out against practice

**Biosolid fight gets a
little help from Ellen Page**



**I implicitly trust Ellen's judgment and if she stands up
and says something is not right then we should listen.**

**If they knew anything, they would know Ellen is quite
well versed on biosolid issues.**




Ellen Page Online
your best source for everything ellen page

Career Press Archive Media Interact Web Site Fan Corner

Biosolid fight in Halifax gets a little help from Ellen Page / James Gann confirms world premiere of «Super»

 The city of Halifax recently spread biosolids - a fertilizer that includes treated human waste - on large swaths of roadside grass, in a suburb where rows of rose bushes were removed. Now people are complaining about a foul smell and are upset that they weren't informed of the move. After visiting the Clayton Park neighbourhood and assessing the situation, Ellen made an appearance on [CBC News Nova Scotia](#) on Monday to express her displeasure over the inappropriate use of the controversial fertilizer. "The government should not be letting this happen," she told anchor Tom Murphy. "It's taking industrial waste, waste from hospitals, businesses, households, full of man-made chemicals, highly toxic, proven carcinogens, radioactive material, and they're putting it on our soil. They're putting it into our ecosystem. You know what? They can practise on their own lawns." In her opinion, a lot more research is needed into whether it's safe and there should be more public input surrounding the use of the substance.

— CBC News Nova Scotia - 9th August 2010 —



I' m an advocate of hu-manure and utilizing our urine as a great nitrogen source for gardens and plants, but biosolids are very much not hu-manure



Halifax ponders its crap: biosolid debate heats up

City defends funky fertilizer

Staff at Halifax City Hall are hoping to continue the use of biosolids as fertilizer in the HRM.

Local experts wade into debate over use of biosolids

Sobeys and Atlantic Superstore revealed that they would not accept produce grown with biosolids, a fertilizer made from a byproduct of municipal (HRM) waste.

Julija Hunter, VP of public relations, Loblaw Companies Limited, says grainy, green stuff is not up to standard. **Public fear is bread and butter of the Loblaw Corporation's decision not to take produce grown using biosolids.**



HRM Council set to debate continued use of biosolids

Nov 15, 2010

Biosolids fertilizer is safe: HRM staff

A new report from city staff defends the use of biosolids as fertilizer for landscaping and forestry projects in the Halifax Regional Municipality.

Conflicting Views Cloud Sewage Sludge Debate



On November 16, 2010, HRM Regional Council imposed a moratorium on the application of on municipally owned property.

N-Viro Soil Amendment continues to be used by N-Viro customers, as the moratorium is only on HRM owned properties.

Decrease in Sales



Municipal Councils promote moratorium on biosolids

Resolution to the Union of N.S. Municipalities for a moratorium on the use of biosolids for the agricultural industry in N.S. Also, to impose biosolid food labeling on food products.

UNSM Biosolid Debate

Membership rejected a provincial ban on biosolids.

No scientific information was brought forward to suggest the application of Class A biosolids is unsafe.



The NOVA SCOTIA
LEGISLATURE



HRM Council requested an independent review of the literature.

Halifax has set aside \$100,000 to study whether its own biosolids, produced according to a plan established five years ago, are safe.



- **NS Guidelines are more restrictive than other Canadian or International jurisdictions**
- **Decades of research show beneficial uses**
- **The N-Viro process meets all restrictions**
- **Cause of odor not due to N-Viro (SSO)**
- **No basis for moratorium**
- **Need more pro-active and dedicated outreach programs**



Biosolids are back Oct, 2011 Chronicle Herald

Halifax lifts biosolids ban

17:5 to lift the one-year moratorium on the use of biosolids derived from sewage waste.



Did the problem go away?

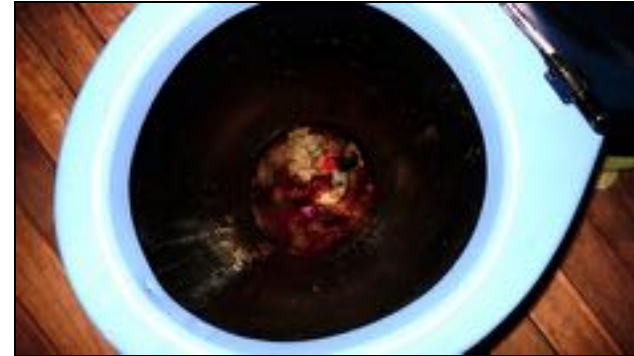


Sludge Storm

Conference organizers want biosolids out of Nova Scotia

Opposers are troubled that Halifax didn't know what happened to their waste once it went “flush.”

Looking to plunge Haligonians into the light, they and Ellen Page staged an event coined **The Nova Scotia Soil Conference**, 2011.



The burden of biosolids



Get the Real Dirt on Biosolids

Sludge diet, Q&A Dr. David Lewis
(forced out of EPA for telling the truth!)

It's a big mistake,” says Maureen Reilly, a veteran biosolid researcher, at a screening of the film **Sludge Diet**.



JACOB FOLKERTSMA
FOLKERTSMA FARMS LIMITED
2464 HIGHWAY #2, RR3
SHUBENACADIE, NS B0N2H0

Dear JACOB FOLKERTSMA,

Almost one year ago, we sent you a letter explaining that the use of biosolids (treated municipal sewage waste) could be risking your most valuable asset – your agricultural soils. You were also asked to consider having your farm on our *List of Farms Not Using Biosolids*. Over 400 registered farms are now on our list. Because it is difficult for consumers to know which farms or food associations reject the use of biosolids and which permit its use, it may be helpful to you to be included on the list. Since last summer, several thousand citizens have visited our website to obtain a copy of the list and several hundred copies of the list have been distributed at various events throughout the province during the past year. The list has even been published in a few N.S. farming magazines.

At a recent community meeting in Millford, Agriculture Minister John MacDonald promised that his government would soon host a public panel discussion about the use of biosolids as a fertilizer. For the event to be fair, we requested that this event be balanced with experts who can speak on both sides of the debate. This event could really serve as a catalyst to bring consumers and farmers together. Farmers could hear what concerns consumers have about food safety and consumers could learn some of the economic challenges that face the farming community.

We are certain that the majority of consumers do not accept the use of biosolids in the food chain. Farmers should not give consumers any reasons to avoid buying local foods. Farmers should provide

NSEN filed a freedom of information request for a list of NVS's customers

They collected the signatures of over 400 Nova Scotia farmers who have made the promise to never apply biosolids to their land.

**GAY'S RIVER SPRING CONTAMINATED
WHO'S TO BLAME?**

[Office of the Auditor General of Canada](#)

Petition that the potential health and environmental impact of using sewage sludge on agricultural land and that biosolids are reported as part of the National Pollution Release Inventory



Farmers Markets in NS committed to being biosolids free
Decrease in Sales



How did we move forward?

Meetings/Presentations/Plant Tours:

- Municipalities
 - Media tours of the plant
 - Councilor tours
 - Worked with Farm Groups
 - Nova Scotia Institute of Agrologist tours
 - Environmental Inspector tours
 - Invited the opposing groups for tours and discussions
 - Continue to maintain good relationships with Environment, Inspectors, Agriculture,
-
- Media interviews – **Radio, TV, Print**
 - Help farmers with neighbor concerns
 - **Only shipped product when it was going to be applied**
 - Recognize truckers' role – pamphlets, etc





Participated in research projects

- **Vineland Research Station, University of Guelph**
- **CCME Biosolids Contaminants Testing Program**
- **NSAC Biosolids Contaminants Testing Program**
- **Ag Canada Biosolids Contaminants Testing Program**
- **Ecological impacts of the N-Viro biosolids land-application for wild blueberry production in Nova Scotia**
- **Biosolids Emissions Assessment Model (BEAM)**

Brought in expert speakers to talk with farm groups

Always addressed issues respectfully - Trust is Key



Get positive media press when there are no issues

Old ideas, new again: human waste as fertilizer.

May, 2014

“A positive experience”

One farmer in east-coast Nova Scotia, says he's been spreading biosolids on his fields for about six years. Jack Folkertsma says, “It's been a positive experience for me in seeing the soil levels increasing in fertility and being able to do it in a cost-efficient way.”

**24th National Compost Conference
Biosolid beneficial Reuse**

A biosolid idea?

by Neal Ozano

Greg Webster has a lot to say about what is being used to fertilize the farmland in Kings County, Nova Scotia. For eight generations, his family has been farming a large spread near Carn-bridge, where, with spring in full swing, he is getting ready for another season of fruits and vegetables. One of Webster's most pressing concerns this year is the buzzword in the barns and council chambers of Kings County: biosolids. That is, treated sewage as fertilizer.

Webster is not an organic farmer. “Don't even get me started on organics,” he warns, minutes into our phone call. So in other words, he is not the sort to oppose industrial farming techniques. On his farm Webster uses conventional petroleum-based fertilizers and, as he puts it, appropriate pesticides in appropriate doses at appropriate times. But, nonetheless, he says biosolids, which for some are an attractive alternative to conventional fertilizers, are not to be trusted and do not belong on farmland in Kings County.

Matter-of-factly, he says, “To my mind, it's not worth the risk.”

Biosolids, in a general sense, are a residue of sewage treatment. They are the material that is left over when you take all the water out of everything a city or town flushes down its toilets and drains. In Halifax's case that is a lot of wastewater from homes, hospitals, university labs, streets, and industrial parks.

Before biosolids can go on fields they are, essentially, cleaned. This is how it works: Once Halifax's waste runs through the municipality's three sewage treatment plants the process of transforming it into a fertilizer can begin. First cement kiln dust is added. This is a lime-like residue from the production of cement that lowers the pH of soil, an important part of soil treatment in a province with acidic soils. The mix of dust and treated sewage then goes into a rotating drum where it is heated

to kill off bacteria and other pathogens found in the sludge. Sterilized, the once-sewage (now fertilizer) is ready to go. Processed, bagged and sold by N-Viro Canada LP,

tential contaminants they think are lurking in N-Viro's product. Both the Nova Scotia Environmental Network (NSEN) and Halifax's Ecology Action Centre (EAC) have put forward positions on the use of biosolids; both agree they should not be used until their effects, and more simply, their contents, are better known.

“It's less about the human waste itself,” says Marla MacLeod, the EAC's food miles committee co-ordinator, over the phone from her office. “If it were being done in a closed system using a composting toilet, it wouldn't really be such a scary thing, because the concept of using waste as fertilizer is not a bad idea. What really concerned us was everything else attached to that.”

The “everything else” she refers to is a potential soup of pharmaceuticals, fire retardants, cleaning products, and other potentially harmful contaminants that might be dumped down the drain in the Halifax Regional Municipality (HRM) and inadvertently left behind in the sludge N-Viro uses.

The Chair of NSEN's Biosolids and Waste Water Caucus, Marilyn Cameron, who is also a Kentville-based veterinarian, agrees with MacLeod that it is the unknowns about biosolids that are scaring farmers, consumers, and Kings County councilors.

Cameron, along with fellow NSEN member Fred Blois, gave a presentation to Kings County council in November of last year informing the Council there is not enough research on what potentially



Lise LeBlanc, a consultant working for N-Viro Canada, holds that company's treated sewage fertilizer. (Neal Ozano photo)

in Nova Scotia the waste-based fertilizer can then be used anywhere conventional fertilizers are permitted.

RISKY?

Most environmental groups and opponents agree on one thing when it comes to biosolids: the risk is that there just is not enough information available on the po-

harmful substances – also known as emerging constituents (EC) – are in biosolids.

“While there is some documentation of (emerging constituents) in biosolids, no focused study has been completed yet on an inventory of ECs in Canadian biosolids,” says a scientific review commissioned and released by the Canadian Council of Environment Ministers (CCME) in late



NSFA Non-Agricultural Waste Policy

NS Farm Community recognizes that use of NAW products have soil benefits for agriculture production when managed under CCME and provincial Guidelines.

The Federation encourages continued research of the benefits and risks associated with NAW products. It encourages the establishment of industry protocol for returning bio-solids spread on soils for crop production.



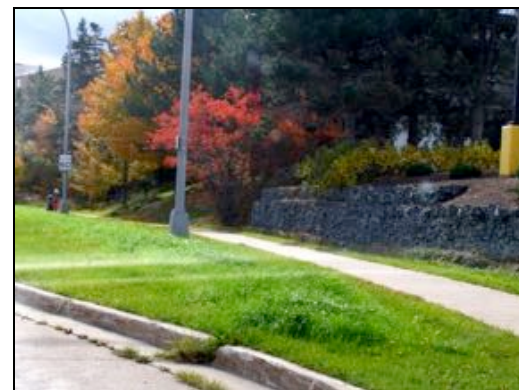


Increase in Sales!

Storage is 125 ft x 310 ft – empty

Fall is over sold

2016 (80%) 15,000 tonnes booked - spring
8000 tonnes booked - summer
6000 tonnes booked - fall





Looking Back what would we do differently?

- **More risk communication training – everyone in organization**
- **Start the discussion with benefits rather than risks**
- **More promotion and education for Public (we focused on Ag)**
- **Important for Municipalities to have ownership of their product**
 - Committee involvement on projects, i.e. Master Gardeners,**
 - flower and garden shows – give away programs**
- **Communicate in advance (i.e. HRM Councilors)**
- **Credible experts**
- **Demonstration projects – Municipality and in Agriculture “Showcase”**



- Always work on building **trust**
 - Mr. Corporate Canada
 - Canadian Horticulture Council (Industry Stds & Food Safety)
 - 100% product vs 5% product – public sees it as the same
- Address odor – if you can't, plan around it
- Media and Facebook are bigger than ever
- Don't forget about your truckers and custom spreaders!



*Sometimes a short walk
down memory lane is all
it takes to appreciate
where you are today.*



**Never take it for granted when
your program is going well**

Biosolid complaints solved peacefully

**Important to tell our story and
change the conversation**