A Speech To:
The Rural Council of Ottawa Carleton
Greener, Cheaper and Sooner: Alternatives to the Manotick Big Pipe

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Ottawa Ontario: Manotick Wastewater Treatment Plant

I would like to thank the rural council for inviting me to speak here today, thank you for having me and for giving me the opportunity to speak to you on the topic of environmental technology as it applies to wastewater here in the City of Ottawa. I would like to offer some ideas that offer a greener alternative to the Big Pipe, a cheaper alternative and achievable on a much faster schedule.

Policy, Power and Control

I'd like to start by framing the Manotick debate in a broader context. When we talk about wastewater issues in Ottawa, we're not just talking about an individual pipeline project for Munster or a pipeline project in Manotick or the best means of handling the wastes at Hillside Gardens. What we're really talking about here, and the reason City officials

across Canada are very hard hitting on the topic of Big Pipe alternatives is around who has the power and control of how cities are developed.

Here in Ontario we have a defined development methodology. We have Official Plans, we have Environmental Assessments, we have Certificates of Approval and a host of other planning tools. In the end though, nothing can happen in the City unless the Big Pipe is run by the City to a development. Neither water lines nor power lines are a show stopper – the hammer that City officials hold - is the Big Pipe. The Big Pipe is a powerful development tool. Every Big Pipe that has ever been put into the ground in Ontario has reached capacity within ten years. The installation of the Big Pipe can be used as a reward for some and its denial is a punishment for others. It's almost like the Big Pipe is a parallel development tool to all of the official planning tools.

Imagine then what happens when individual communities or individual developers reject the Big Pipe in favour of their own infrastructure. What happens is that development power shifts away from the City and towards individual communities. Big City centralized power is reduced and there is no way some officials will allow that to happen. To prevent this "rural anarchy" from happening, these officials will say anything, reject better environmental alternatives and spend any amount of money in order to protect their base of power, their turf. Far be it for Manotick to set a precedent.

I am optimistic that in the fullness of time, the development model of today will change. The City of Ottawa has become so large and these projects are becoming so expensive, that ultimately the debt charges, escalating taxes and water bills will cause the system to creak and groan to the point where it is no longer sustainable. It would be nice to think that dawning realization would set in before the system collapses under the weight of its own inefficiency.

The current Manotick Big Pipe debate, like the Munster pipeline debate before it, requires the public to suspend disbelief. We have to set logic aside. In the end, the decision that politicians will take, or perhaps the decision they will be backed into a corner to take, is driven by power and political interests and not logic or saving money or being good stewards of the environment.

The State of Secondary Treatment Technology…

The City of Ottawa is known for high technology innovation and for the number of companies that locate here to work in this field. We've become communication wizards, masters of software programming and computer experts of every shape and variety. These technologies race ahead and you only have to think back five years to realize how much things have changed in only a very short time.

So when you look at where we are today with environmental technologies, it's really not quite the same thing. Although there are cities and communities with very sophisticated and advanced water and wastewater technologies – I'm thinking about communities like Barrie, Niagara Falls, Collingwood and Essex County – here in Ottawa we're in the dark

ages. Actually, it's sort of worse than that. The dark ages go back about a thousand years. Secondary wastewater treatment was invented before the dark ages, during Roman times. The Romans invented trickling filters, a secondary treatment technology that gives about the same effluent quality as any secondary wastewater treatment plant of today.

When it comes to wastewater treatment – time has stood still. Sure there are innovations in controls, pipelines, management systems and so forth but I think that where it matters, in effluent quality, in what we put into our environment, in what becomes our drinking water of tomorrow, that we are falling short. This is just a guess but I suspect that if cities were required to discharge their sewage effluent upstream of the city and upstream of water intakes, that we would be very quick to embrace new technologies. As it is, we discharge downstream – let Montreal deal with the problem.

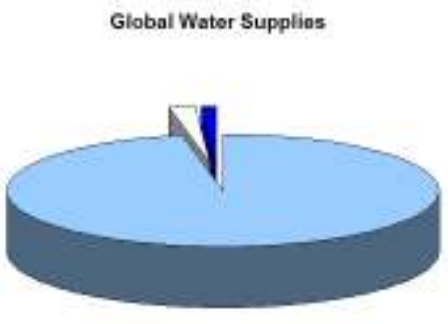
Whenever I raise concerns about the discharge of primary or secondary effluents into our waters, there's a chorus of voices that say things like "it's within the policy guidelines of the MOE", or "these are best practices" or "the receiving body is large enough" but the fact of the matter is we are putting our poop, our pharmaceuticals, hormones, nutrients and everything that is the stuff of life, into our watercourses. We can do better.

Here's what I find tough to bear: We have an incredibly complex policy and legal framework for wastewater treatment. In the end, everything is distilled down to the lowest common denominator. Requirements are reduced to the absolute bare minimum standard. We end up aiming for mediocrity and generally fail to achieve it.

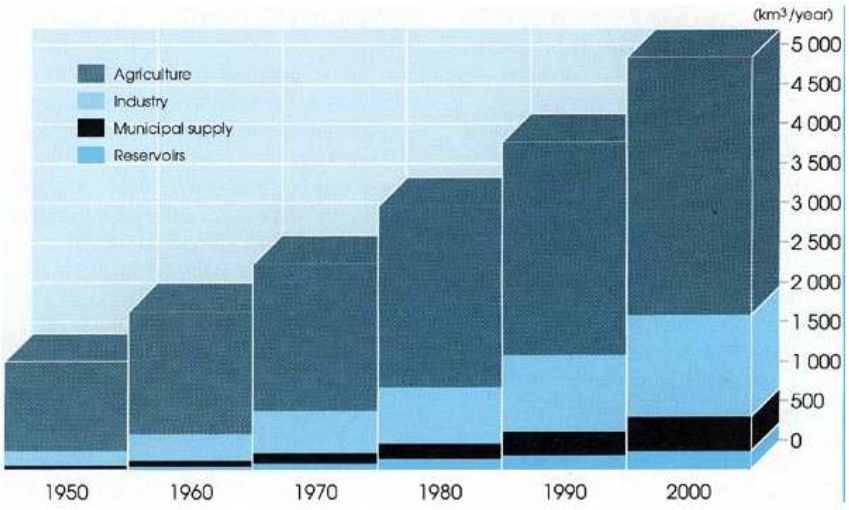
Advanced Tertiary Wastewater Technology…

I really believe that we will see a change and environmental technologies will be widely adopted. The luxury of a seemingly infinite water supply will fade. Change will come because it will be forced upon us.

The world's water supplies are extremely limited. Only about 1% of the world's water is fresh water. That leaves about 2% in the polar ice caps (what is left of them) and 97% as seawater. This is it. This is the total supply of available water and yet over the last 50 years, water consumption worldwide has grown by 5 times. Much of the potable water supply is polluted. We are in a headlong race to destroy our water resources.



97% Seawater
2% Polar Icecaps
1% Total Global Water Supply



This disastrous trend opens up market opportunities for companies like Seprotech. I like to explain the water market this way: The water market is requirements driven. We need water for our survival and we'll do whatever is necessary to get it. Whatever needs to be spent for a clean and safe water supply will be spent. The wastewater market is compliance driven. The suppliers of this equipment will always build and supply that which meets the absolute bare minimum standard of compliance. I'm not really that keen on working in this space – it doesn't leave much room for technology innovation and excellence.

There is good news though. The current state of technology is that we can cost effectively convert sewage to drinking water or near drinking water quality, at a price that is less than the Big Pipe, at a price that is less than Secondary Treatment. This is possible for the same reason that TV's, cars, electronics and a host of other goods, cost less today than they did ten years ago. Developers, mining companies, the military and countries worldwide embrace these technologies. What holds us back here is us – we are voters, we get the governments we deserve and we need to demand change. The solutions are there – the politics has not kept pace.

Seprotech doesn't focus only on legislative compliance. This is the bare minimum standard and it isn't enough. Seprotech's business model is to convert the wastewater market from being compliance driven to being requirement driven. In other words, to convert wastewater from being a waste product to being a valuable commodity. This isn't going to happen overnight everywhere but we are seeing it happen. For example, we are building very sophisticated wastewater recycling systems in Latin America where water shortages are severe. We are working on projects in the U.S Southwest. The fact is that less than 20% of our water is used for cooking, drinking or human contact. About 80% is used for toilet flushing, general wash water, gardening etc. Here in Canada we even have CMHC and Building Code standards for "three pipe systems" or rather a parallel distribution system for recycled water to the home.

Now, obviously if you are going to use recycled water, it's got to be treated to a much higher standard than secondary treated water. This is where "advanced tertiary" technology comes into play. If you take the plant in Manotick for example, this plant puts out crystal clear water. The quality of this water as compared with a secondary plant are:

- 10 x better removal of Organic Material
- 10 x better removal of solids
- 33 x better removal of phosphorus
- 20 x better removal of ammonia

Manotick Effluent Averages: 2004-2006

Parameter	Influent	Effluent
pH Balance		7.95
Biological Oxygen Demand (mg/l)	231	<2
Total Suspended Solids (mg/l)	348	<5
Total Ammonia Nitrogen (mg/l)		0.1
Total Phosphorus (mg/l)	8.62	0.02
Certificate of Approval Compliance		Yes

The Manotick plant uses P-03 technology. It's an advanced tertiary process that targets phosphorus in particular. Phosphorus causes algae blooms but at the levels of phosphorus we're able to hit, plants cannot take it up. We are the only company that has this technology, it is proprietary to Seprotech, we developed this here in Ottawa and we are very proud of how it has performed.

Now, recently some City officials made comments at the ARAC committee that were negative towards the facility. They said that the Manotick plant had not performed for some 36 months and that there were major problems in 2007 and 2008. I've written to the Mayor and the City Manager to have the City retract these statements and to publicly apologize because as I've said elsewhere, these statements are inaccurate and misleading. There was no data that supports these claims and in fact, we had a major local Engineering Company prepare a peer review that uses the City's own data and annual reports and these refute City claims altogether. The fact is this: the Manotick plant operated flawlessly and totally to the design parameters from 2004, 2005 and 2006. The case on this is ironclad, watertight.

What I find curious, and others might draw even more sinister conclusions, is that if the City had problems in 2007 and 2008, why would they not come to the manufacturer and owner of the technology to address the issue. Surely it's not conceivable that the City would discharge effluent from the Manotick plant into the Rideau River without consulting the manufacturer merely in order to build a case for a pipeline. That may be too cynical – maybe it's just lack of concern, neglect or insufficient time and resources. Whatever is the case, the City has some explaining to do. As I've written The Mayor, fight your battles but not at the expense of a local Cleantech company and employer here in the City.

This Technology is Not Experimental…

Over the last couple of weeks I've been following news reports in which some at The City have characterized the Seprotech technology as "experimental" or new. Well ladies and gentlemen; we have over 3,000 water and wastewater treatment plants in operation throughout the world. We have hundreds of facilities in Canada. Our equipment is listed in the Building Code. The Ministry of the Environment routinely issues us Certificates of Approval. Seprotech is a public company on the Toronto exchange. We have been in business since 1985. We are in Toronto, Ottawa and Vancouver. We are currently setting up new operations in Latin America. We are growing at over 30% per year. We improve and advance the state of technology all the time and we invest heavily in R&D but to call our technology "experimental" or to call the Manotick plant "a pilot" is inaccurate.

Here are some photographs of a variety of different installations:

Manotick Ontario Advanced Tertiary Wastewater Treatment Plant

Thornton Mall Tertiary Wastewater Plant (North of Toronto) Shopping Mall

Rwanda Africa: Tertiary Wastewater Plant for 450 Homes

Tertiary Wastewater Plant: 200 Home Subdivision North of Toronto

Town of South Woodslee: Tertiary Wastewater Treatment Plant

City of Barrie: Municipal Tertiary Wastewater Treatment Plant

British Columbia: Municipal Tertiary Wastewater Treatment Plant

So How Much Should it Cost?….

In a new community, the cost of advanced tertiary wastewater treatment should be around $7,500 per home with a small bore collection system being approximately the same for a total wastewater servicing cost of about $15,000 per home. Even when making allowances for consulting, City Staff costs, contingencies etc, this cost is a very far cry from the $75,000 per home cost for the Munster pipeline or the $65,000 per home cost being proposed for Manotick and this cost will surely rocket past $100,000 per home before this project is complete … but I'm probably estimating low.

The wastewater plant operating in Manotick for 72 townhomes is at 16% capacity. There's a lot more potential capacity in that plant – enough for most or all of Hillside Gardens. The P-03 technology is modular and all of the equipment is standardized so it's easy to add modules to the plant to add more capacity as needed.

The cost of upgrading the existing Seprotech plant in Manotick to accommodate the wastewater from Hillside Gardens and the core would be around $2.0M. I don't want to hazard a guess on the cost of a collection system because this is a retrofit but it will be significantly less than the $33M cost of the Big Pipe. The time required to complete this project would be about eight months. There is no requirement for an Environmental Assessment but the Certificate of Approval would need amendment and this takes six to twelve weeks.

It's very clear that this solution would offer a much greener solution, it's much cheaper and this work could be completed much faster than the City Big Pipe solution.

Suggestions for Another Way…

Here are the recommendations that The City should consider:

- Firstly, Hillside Gardens needs to have a collection system selected and installed. This should be a topic that is totally independent of the treatment methodology whether this is local or Big Pipe. If the treatment is not resolved then the City should truck the wastewater until it is.

- Secondly, The City should solicit firm bids for the Hillside Gardens collection system and conduct a cost benefit analysis of small bore collection against traditional gravity collection.

- Thirdly, there needs to be a review of piping and treatment alternatives. The Environmental Services Committee should conduct a complete, independent review. The committee should retain a panel of experts from both public and private sector.

- Fourthly, the City should solicit Expressions of Interest (EOI's) for treatment alternatives; and finally

- The City should request the City Auditor to conduct a full review on the process that led City Staff to recommend the Big Pipe alternative in Manotick. This should lead to a comprehensive review of water and wastewater servicing in the rural areas of the City of Ottawa.

…In Conclusion…

The bottom line is that pipelines do have their place. They are for inner cities. They are for densely developed suburbs. They are for rural areas when there are plans to develop these areas densely. So pipelines make sense for cities. They make no sense for rural areas where there is no economy of scale and that's why the costs in Manotick are stunningly high.

Ottawa is the Capital of Canada and this City should be setting the environmental standard in Canada. We have an exciting City and a vibrant and innovative business community. We lead in electronics technology and we could be leaders in environmental technology. We have policies and mindsets to change. The Manotick pipeline issue faces us once again with a choice: Do we go down the same well worn and expensive pipeline route or do we have the courage to take a better path?