



# TransAqua

GREATER MONCTON  
WASTEWATER  
COMMISSION

COMMISSION  
DES EAUX USÉES  
DU GRAND MONCTON



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**BIOSOLIDS CAN BE  
COMPOSTED**

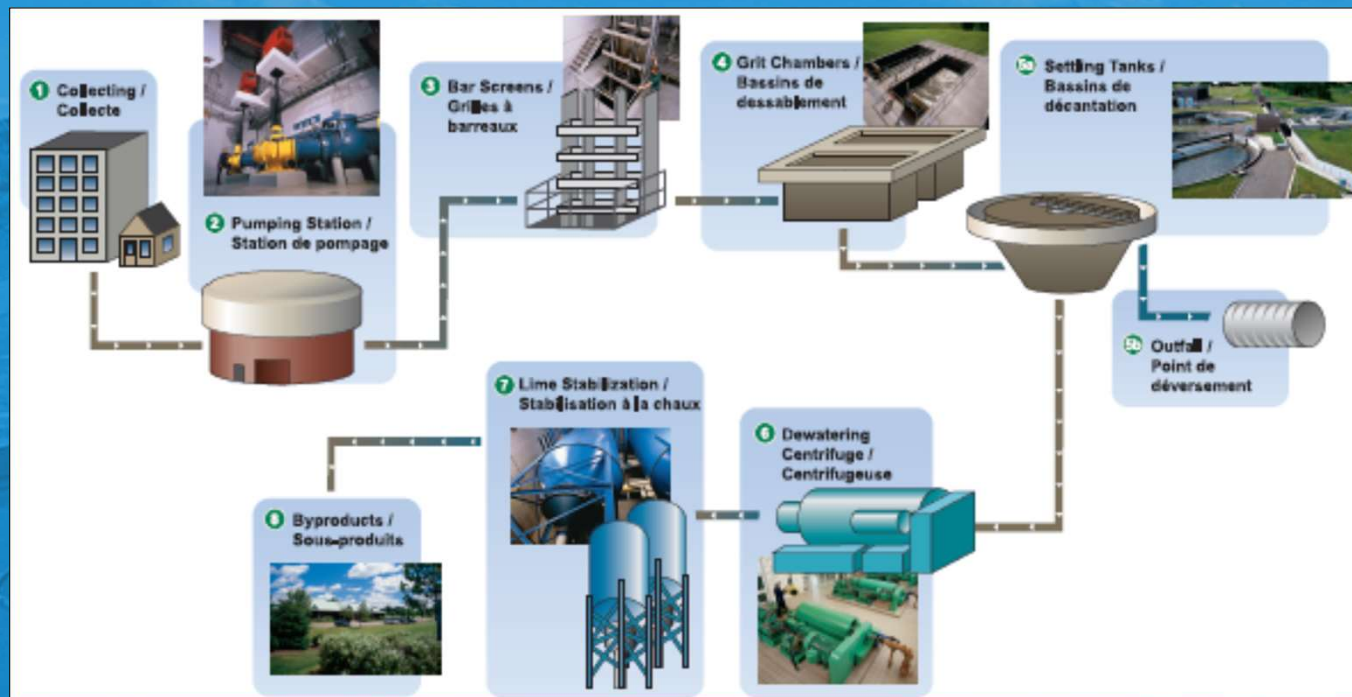
**April 01, 2020**

## Some Questions

- Small and Medium Size Plants-do they produce Biosolids?
- Where has it been going?
- Does it matter?
- What will be the trend in the future for wastewater Treatment?
- What are the options for managing the by-products or biosolids.



# Wastewater Treatment Process



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# Biosolids Management Practices

- Incineration
- Direct land application following anaerobic digestion.
- Landfilling.
- Alkaline stabilization and land application.
- Pelletizing for fertilizer or for fuel.
- Separate storage in lagoons.
- Storage in aerated lagoons and dredging.
- Composting.

# The Challenge for Lagoon Systems

- Sludge accumulates unseen and unbudgeted.
- Sludge accumulation on an expensive aeration system poses additional challenges.
- Dredging difficult with aeration.
- No local infrastructure or contractors equipped and experienced.
- Expansion of a lagoon system may not be feasible.
- Siting of a new lagoon system may not be publicly acceptable or environmentally feasible.



# Challenges and Opportunities with Small to Medium Size Wastewater Treatment Plants

- Trend may be for more compact treatment systems.
- Design should be more modular and repeatable.
- Not taking enough advantages of successful designs.
- This treatment plant design approach will result in Biosolids produced daily.
- Will need more compost operations able to handle it.
- Difficult for small to medium size municipalities to site, design or manage composting and associated feedstocks.
- Compost system will need to be more modular and repeatable..

# Biosolids Production and Handling



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# Modular Composting System





# Acceptance of the Compost by the Public





# Compost Quality

	GMWC compost*	Category A (CCME)**	Type AA BNQ***
Trace elements	(mg.kg <sup>-1</sup> dry weight)	Maximum concentration within product (mg.kg <sup>-1</sup> dry weight)	Maximum concentration within product (mg.kg <sup>-1</sup> dry weight)
Arsenic (As)	<1	13	13
Cadmium (Cd)	<1	3	3
Cobalt (Co)	4.77	34	34
Chromium (Cr)	24.44	210	210
Copper (Cu)	104.81	400	400
Mercury (Hg)	0.27	0.8	0.8
Molybdenum (Mo)	2.58	5	10
Nickel (Ni)	10.55	62	62
Lead (Pb)	10.13	150	120
Selenium (Se)	0.17	2	2
Zinc (Zn)	274.12	700	700
Fecal Coliform (MPN/g dry)	75	1000	1000
Salmonella (P-A/25g(ml))	Negative	3	Negative
Organic Matter (%)	67.00	-	>40
* sampling results 2018 (average of Lots 1-9) ** CCME (Canadian Council of Minister of Environment) revised 2005 *** CQA Compost testing based on CCME			

# TransAqua participation in a National Sampling Program

## EMERGING SUBSTANCES OF CONCERN IN BIOSOLIDS: CONCENTRATIONS AND EFFECTS OF TREATMENT PROCESSES

*Final Report – Field Sampling Program*  
CCME Project # 447-2009

*Submitted to:*

CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT  
123 Main Street, Suite 360  
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June 30, 2010

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*This report was prepared by Hydromantis, Inc., University of Waterloo and Trent University, under contract to the Canadian Council of Ministers of the Environment (CCME). It contains information which has been prepared for, but not approved by, CCME. CCME is not responsible for the accuracy of the information contained herein and does not warrant, or necessarily share or affirm, in any way, any opinions expressed therein.*

PN 1448

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CCME Project # 447-2009

## Goals

Conduct a targeted sampling program at selected representative wastewater treatment plants to provide a focused Canadian study and an inventory of ESOC in Canadian biosolids.

 **Hydromantis, Inc.**  
Consulting Engineers



 **TRENT**  
UNIVERSITY



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## Value of Compost in GHG reduction

- The Compost Facility currently represents a 68% reduction in GHG's to the overall operation. Will be 53% in 2021 once secondary treatment is commissioned. Net GHG emissions will rise from 0.73 KtCO<sub>2</sub>eq to 2.30 KtCO<sub>2</sub>eq

# Historical Community Compost Demand

Compost Clientele (tonnes)	2012	2013	2014	2015	2016	2017
Public pick-up bins	2,880	4,000	3,696	4,000	5,750	5,000
Commercial users	280	515	160	960	1,000	1,000
City of Moncton	1,464	42	535	800	40	130
City of Dieppe	192	1,009	26	200	60	60
Town of Riverview	128	16	34	96	150	60
Community projects	128	128	24	400	200	200
Trials/tests/promotional	360	680	600	400	200	150
Miscellaneous/TransAqua	320	400	400	400	200	200
Annual compost output totals	5,752	6,790	5,476	7,256	7,600	7,400
End of Season Inventory				1,750	100	3,000





**Thank You / Merci**

**Questions?**