

Winnipeg Biosolids SAC Reference Slides

November 18, 2013



Follow Up from SAC Meeting #1

- Biosolids produced: 152 tonnes each day
 - 152 tonnes is the same weight as 27 elephants
- City produces enough biosolids to fill 21 Olympic sized swimming pools each year
- Cost of Biosolids Management
 - CCME states that biosolids management is approximately 50% of annual wastewater operating costs

CCME Disposal and End Product Options*

- Land Application
- Thermal Oxidation/Combustion and energy recovery
- Pelletization for soil conditioner
- Compost
- Land reclamation (mines, top cover in landfill)
- Landfill (not considered sustainable reuse)

**CCME Canada-Wide Approach for the Management of Wastewater Biosolids*

Compost

- Biosolids, woodchips, air, and mixing make compost
- Used as soil conditioner/amendment: alternative to peat moss

Land Reclamation

- Mine reclamation
 - Biosolids applied to mining land to promote plant growth, prevent erosion
- Landfill top cover
 - Biosolids cover landfill to prevent erosion, runoff and promote plant growth

Landfill

- Biosolids landfilled with residential, commercial waste
- Not considered sustainable reuse

Land Application

- Biosolids are hauled to agricultural or forested land and used as fertilizer
- Manitoba: allows land application during growing season (April– November)

Thermal Oxidation

- Biosolids are burned to produce heat and energy
- Ash can be reused:
 - Fertilizer (must have low metals)
 - Asphalt mix
 - Cement mix

Pelletization

- Biosolids are dried to form pellets
- Pellets used as biofuel or fertilizer

Biosolids in Europe*

- France:
 - 65% land application
 - 15% thermal oxidation with energy recovery
- United Kingdom:
 - 70% land application
- Germany:
 - Thermal oxidation with energy recovery
 - Land application
- Northern Europe:
 - Primarily thermal oxidation with energy recovery

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Biosolids in Canada

- Land application most popular in Canada
 - Approx 80% of biosolids are land applied*
- Trends in Western Canada
 - Land application
 - Composting
- Manitoba:
 - Land application
- Saskatchewan
 - Land application
 - Composting

**CCME Statistic*

Biosolids in Canada

- Quebec*:
 - 42% thermal oxidation
 - 31% landfilled
 - 16% land application
 - 9% compost
 - 2% site reclamation
- Ontario**:
 - 40% land applied
 - 40% landfilled
 - 20% thermal oxidation

**Municipal biosolids: What is best the best option for the climate*

***City of Waterloo Biosolids Master Plan*

Biosolids in the USA*

- 70% land application
- 20% thermal oxidation
- 17% landfilled
- 3% reclamation (mines and landfill top cover)

*Source: <http://www.ecy.wa.gov/programs/swfa/biosolids/faq.html#production>

Big Cities and Biosolids

- Minneapolis:
 - thermal oxidation
- Calgary:
 - land application, composting (future)
- Toronto:
 - pelletization, land application, landfill, thermal oxidation
- Ottawa:
 - land application (69%), landfill (19%), landfill top cover (12%)
- Edmonton:
 - Composting, land application