Fifteen Years of Anaerobic Digestion Operations

Source-Separated Organic Waste
City of Toronto

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Federation of New York Solid Waste Associations Conference, May 20, 2019
Build That Tank…and Beyond

Composting

Anaerobic Digestion (AD)

Renewable Natural Gas (RNG)
Organics Collection
Green Bin Program

- 2002
- Maximizes convenience
- 188,500 tons of food waste annually (2018)

- Food waste
- Pet waste, cat litter
- Diapers, sanitary items
- Paper food packaging (soiled)
- Tissues, napkins, paper towels
- Houseplants, soil
City of Toronto

Vision: to be an international leader in the operation of an innovative and sustainable solid waste management utility
Our Approach

Disco Road Organics Processing Facility (DROPF) - DBOM

83,000 tons SSO per year

Dufferin Organics Processing Facility (DOPF) - DBOM

61,000 tons SSO per year
DROPF - Location

• City owned facility
• 2-acre site
• Former landfill site
• Existing transfer station (garbage, recycling material, yard waste and HHW)
DROPF - Capacity

• 83,000 tons per year
  SSO uninterrupted
  • 1,650 tons/week
  • 30 transfer trailers/week
  • 70 curbside trucks/week
• Began operation in 2014
DROPF - Facility Overview

Tip Floor

- SSO
- Digester Solids

Pre-Processing

- Pulp

Anaerobic Digestion

- Residue
- Biogas
- Effluent

Kerr, N., Gidda, T. Development of A Large Scale SSO Organics Processing Facility Using Anaerobic Digestion. 03 Nov. 2014
DROPF - Organics Separation

- Wet separation
- Grit removal system
DROPF - Biogas Utilization

- 304M ft\(^3\) biogas per year (8.6M m\(^3\))
- Biogas => heat + Renewable Natural Gas
- Flare
DROPF - Outputs

• Wastewater: meeting Toronto sewer use by-law discharge requirements without surcharges
• WWTP (SBR - DAF)
• Digestate (centrifuge dewatering)
• Dewatered digestate => Composted at a third party facility
DROPF - Odor Management

- Inorganic 6-cell biofilter
- 131 ft tall stack (40 m)
- No odor complaints since start-up
- Close proximity to people
Dufferin Organics Processing Facility (DOPF)

61,000 tons SSO per year
DOPF - Location

- City owned facility
- Adjacent MRF and transfer station
- 10 years full scale pilot plant
DOPF - Capacity

- 61,000 tons per year SSO
- Operation: Q2 2019
DOPF - Organics Separation

- Wet/dry separation through extrusion
- Grit and plastics removal system
DOPF - Renewable Natural Gas (RNG) Facility

- 222M ft³ biogas per year (6.3M m³)
- Biogas => RNG
- Enbridge - DBFOM
DOPF - Outputs

- Wastewater: meeting Toronto sewer use by-law discharge requirements without surcharges
- WWTP (MBR)
- Digestate (centrifuge dewatering)
- Dewatered digestate => Composted at a third party facility
DOPF - Odor Management

• Inorganic 4-cell double-decked biofilter
• 131 ft tall stack (40 m)
• No odor complaints
• Close proximity to people
Biogas and RNG across Canada

Updated January 2019
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