

# Odour Management at the Edmonton Waste Management Centre



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# Presentation Outline

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- Background
- Odour at the Edmonton Waste Management Centre
- Actions on Odours

# Background

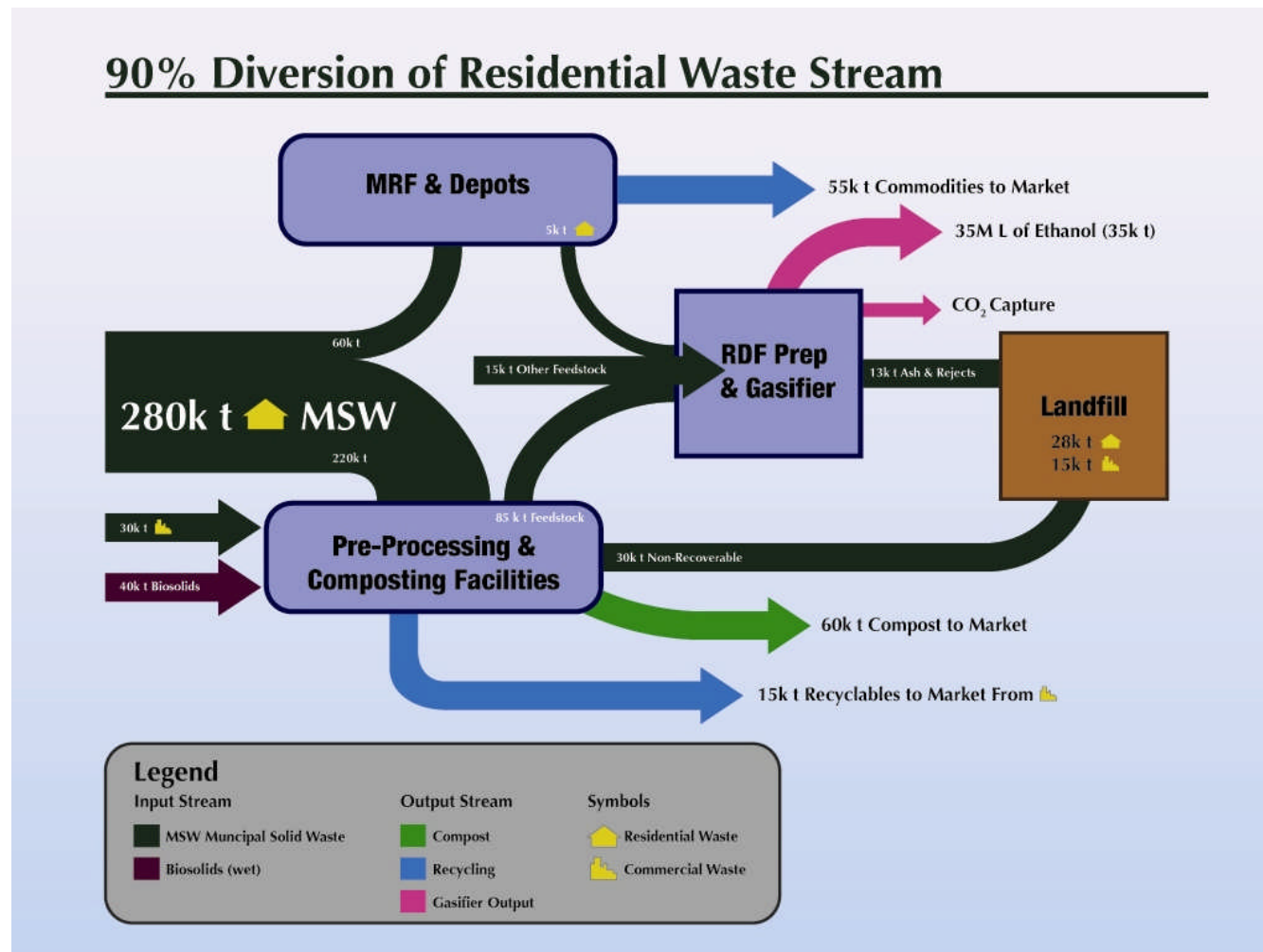


# Where we used to be...

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# Where we want to be...



# What we look like now...

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# Edmonton Waste Management Centre

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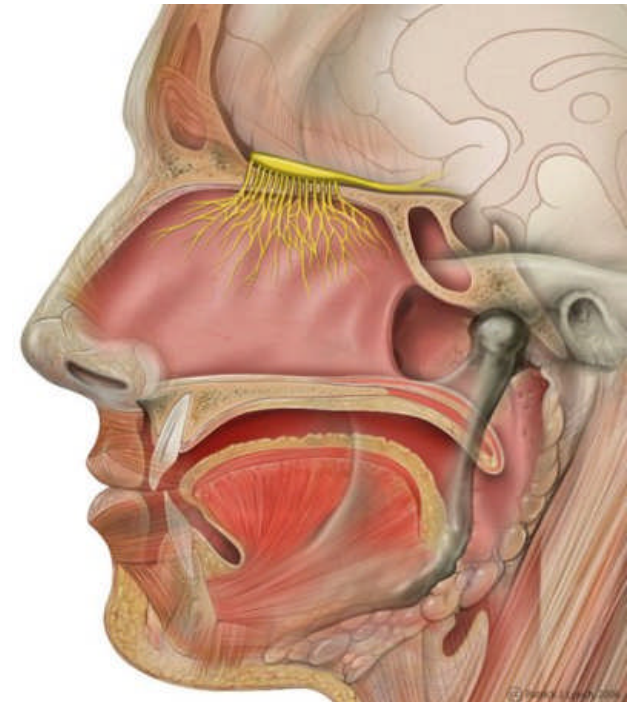
- 550 acres
  - Twelve waste processing facilities
  - Two major research facilities
  - Closed Landfill
  - Sewage biosolids storage/recycling lagoons
- Nine contractors, partners, tenants
- Over 500 people employed on site



# Odour is a Complicated Subject

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- ❑ An odour is a perception of smell
- ❑ Of the 5 senses, sense of smell is the most complex
- ❑ Similar or dissimilar substances may have similar odours
- ❑ Nature and strength may change with dilution
- ❑ Weak odour not perceived in presence of strong odour
- ❑ Odours of same strength may blend & create different odour
- ❑ With constant intensity, person loses awareness of the odour until it changes intensity
- ❑ Unfamiliar odour more prone to a complaint than a familiar one
- ❑ Likes and dislikes may influence association of an odour with pleasant or unpleasant experiences





# Why are we concerned about odours?

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- ❑ Some odours are a nuisance
- ❑ Odours migrate
- ❑ Odours can be a public irritant
- ❑ Understanding odours aids in developing preventative measures

# Odour at the Edmonton Waste Management Centre



# Main Odour Sources

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Cloverbar  
Landfill

Edmonton  
Composting  
Facility

Integrated  
Process  
and  
Transfer  
Facility



Biosolids  
Lagoons

Curing  
Site

# Cloverbar Landfill

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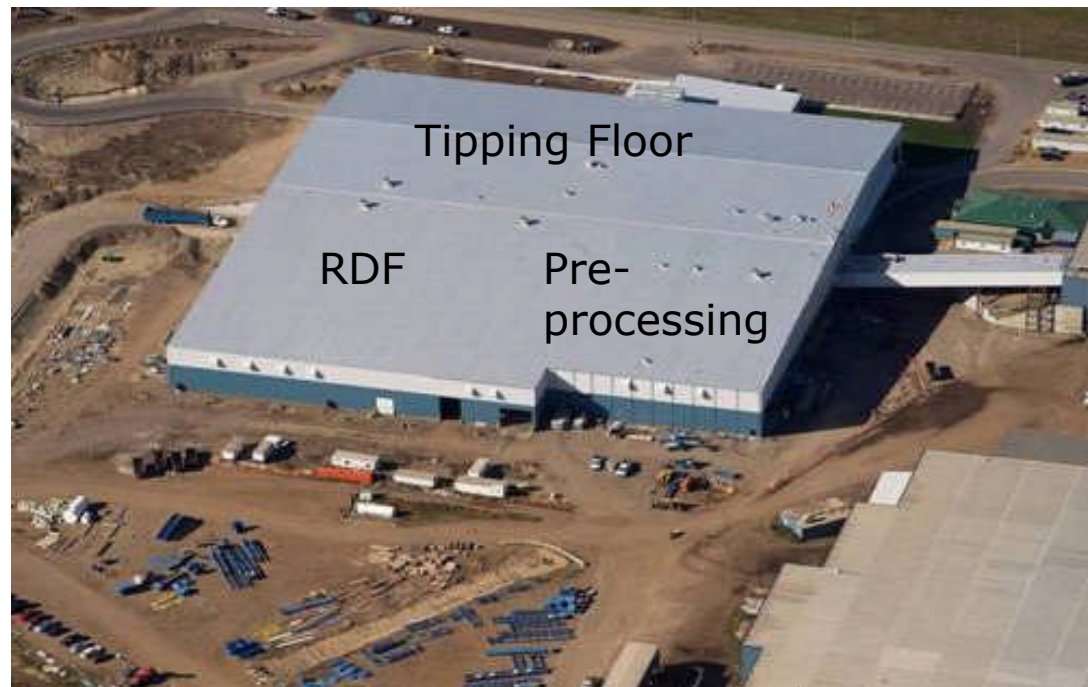
- ❑ Over 13 million tonnes of waste disposed of from 1975-2012
- ❑ Landfill is now closed to the public
- ❑ Landfill gas recovery since 1992
- ❑ Continuous capping



# Integrated Process and Transfer Facility

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- ❑ Tipping Floor
- ❑ Pre-processing Plant
- ❑ Refuse Derived Fuel Plant
- ❑ Waste Transfer Station





# Edmonton Composting Facility

- ❑ Composts biosolids and organic fraction of MSW
- ❑ Tip Floor
- ❑ Aeration Bays
- ❑ Finishing Circuit
- ❑ Biofilters



# Curing Site Operation

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- ❑ Gore Composting Facility for wood chips and biosolids
- ❑ Final composting and curing of MSW
- ❑ Final screening and storage





# Biosolids Lagoons

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- ❑ 5 Lagoons
- ❑ Biosolids storage and setting
- ❑ Dredging and piping of biosolids to dewatering operation



# Regulation

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- ❑ ESRD Approval for Clover Bar Landfill requiring:
  - ❑ Public nuisances report
- ❑ ESRD Approval for Edmonton Composting Facility requiring:
  - ❑ Wet air handling system to remove odours
  - ❑ Blower fan operation
  - ❑ Biofilter monitoring including olfactometer
  - ❑ Odour monitoring programs around EMMC
- ❑ ESRD Inspections



# Odour Monitoring

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- ❑ Compliance monitoring
- ❑ Baseline status for future planning
- ❑ Determine specific odour sources
- ❑ Complaint Investigation
- ❑ Performance evaluation
- ❑ Comparison of practices for evaluating alternatives
- ❑ Specific events or episodes for evidence
- ❑ Verification of odour dispersion modeling

# Part of the Strathcona Industrial Association

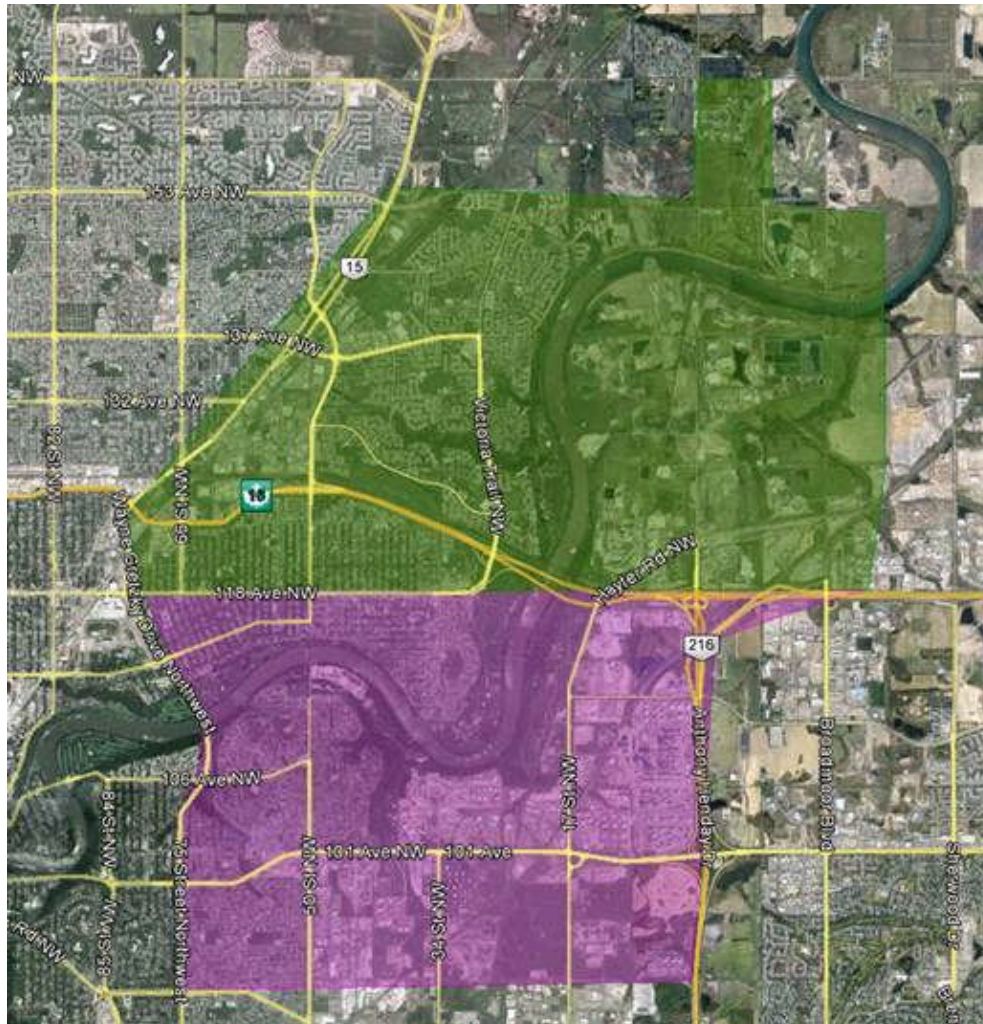
- We're not alone:
  - Asphalt plant
  - Rendering Plant
  - Feedmills
  - Capital Region Wastewater Plant
  - Industries
  - Goldbar WWTP
  - Agricultural (e.g. canola in bloom)







# In Northeast Industrial Area

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-  Northeast Industrial Area
-  Goldbar Industrial Area

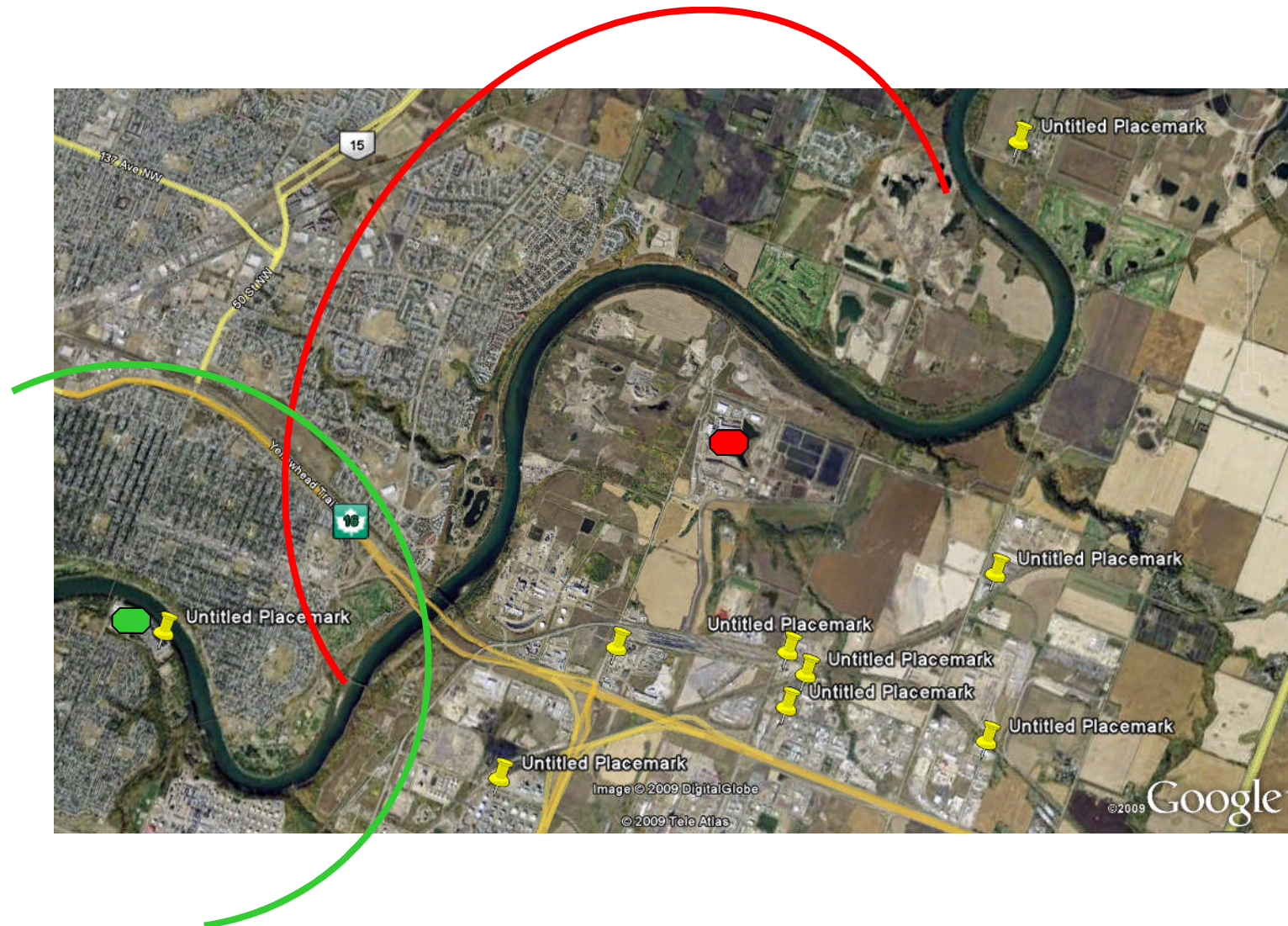
# Contributions to Odour Events

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- ❑ 2000 - 2005: Initial years of Edmonton Composting Facility operation
- ❑ 2005 - 2010: Last years of Clover Bar Landfill operation
- ❑ 2011 – current: Closure of Clover Bar Landfill – Opening of Integrated Processing and Transfer Facility
- ❑ Higher than normal volumes of grass due to high rainfall
- ❑ Weather and process-related issues led to difficulty in processing waste in a timely manner
- ❑ Meteorological temperature inversions, combined with winds increased potential for odour detection



# Prime Impact Areas





# Actions on Odours





# Odour Specialist Report

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# IPTF Eco Sorb Installation

- ❑ Eco Sorb is an odour eliminator
- ❑ Reacts with odour on a molecular level to neutralize
- ❑ Non-toxic
- ❑ Sprayed where odour will exit from the building



# ECF Eco Sorb Installation

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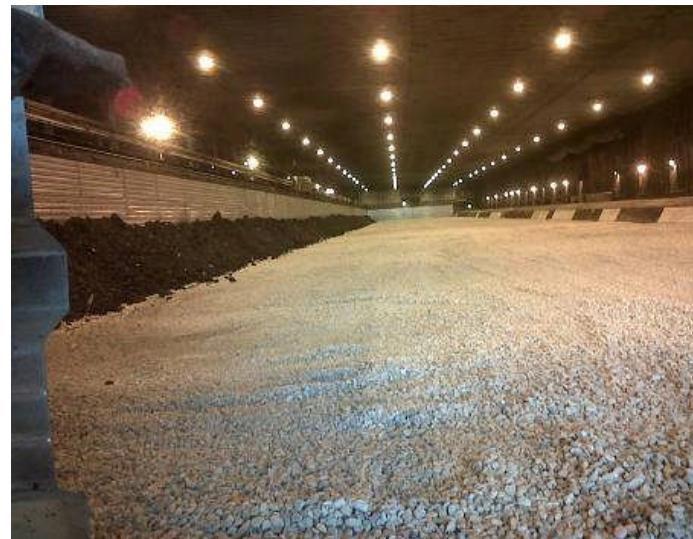
- ❑ Sprayed where odour will exit from the building
- ❑ Portable misting unit that can be placed at trouble spots



# ECF Aeration Floor Rebuild

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- ❑ Beds are aerated by pulling air through the compost
- ❑ Bed floors have been rebuilt to improve aeration
- ❑ Result will be a more stable compost product coming out of the bays and going to the outdoor curing area





# ECF Biofilter Media Exchange

- ❑ Media on all three biofilters have been changed out since 2011
- ❑ Removed weed build-up
- ❑ Improve air distribution



# Biosolids Lagoon Redesign of Discharge Station

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- ❑ Odour emissions spike during time of discharge
- ❑ Discharge station is being redesigned to minimize turbulence from unloading





# Biosolids Lagoon Water Cap

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- ❑ Maintaining a water cap on the lagoons will reduce odour emissions that are caused by exposed solids



# Odour Response Procedure

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- ❑ Odour concerns are called into the City's 311 hotline
- ❑ Operator fills out odour concern script and emails to EWMC staff
- ❑ Odour consultant provides weather station data and quick response after every concern within GBIA and NEIA
- ❑ If two calls from NEIA and GBIA are received within 6 hours, odour consultant will do a field and potentially a facility survey
  - Odour description, scale, Nasal Ranger, Jerome Meter readings
  - at location of odour complaint and surrounding neighborhood
  - If EWMC is source of odour consultant will conduct facility survey and record results as indicated
- ❑ Odour bosses on site will have operations altered to reduce odour emissions

# Odour Monitoring Procedure

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- ❑ The Procedure created for the EWMC:
  - Provides a framework to manage EWMC operations in low and high potential odour generation situations
  - Outlines operational responsibilities for staff and contractors to properly manage operations to minimize odour generation at the EWMC
  - Implements an EWMC Odour Management Committee to enhance communication and improve the operations of potential odour generating facilities at the EWMC

# Community Liaison Committee

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- ❑ Representation of surrounding communities: Fraser, Bannerman, Quarry Ridge, Kirkness, Hairsine, Kernohan and Canon Ridge
- ❑ 6-12 members
- ❑ Frequent meetings to provide an opportunity for information sharing
- ❑ The City listens to the committee's comments and report on its odour management initiatives/ progress at each meeting

# Odour Monitoring and Forecasting System

- ❑ E-nose
  - monitors on-site odour emissions continuously
- ❑ Weather Station
  - acquires local weather conditions continuously
- ❑ Wireless communication network
- ❑ Control Centre
  - calculates odour impact
  - archives data

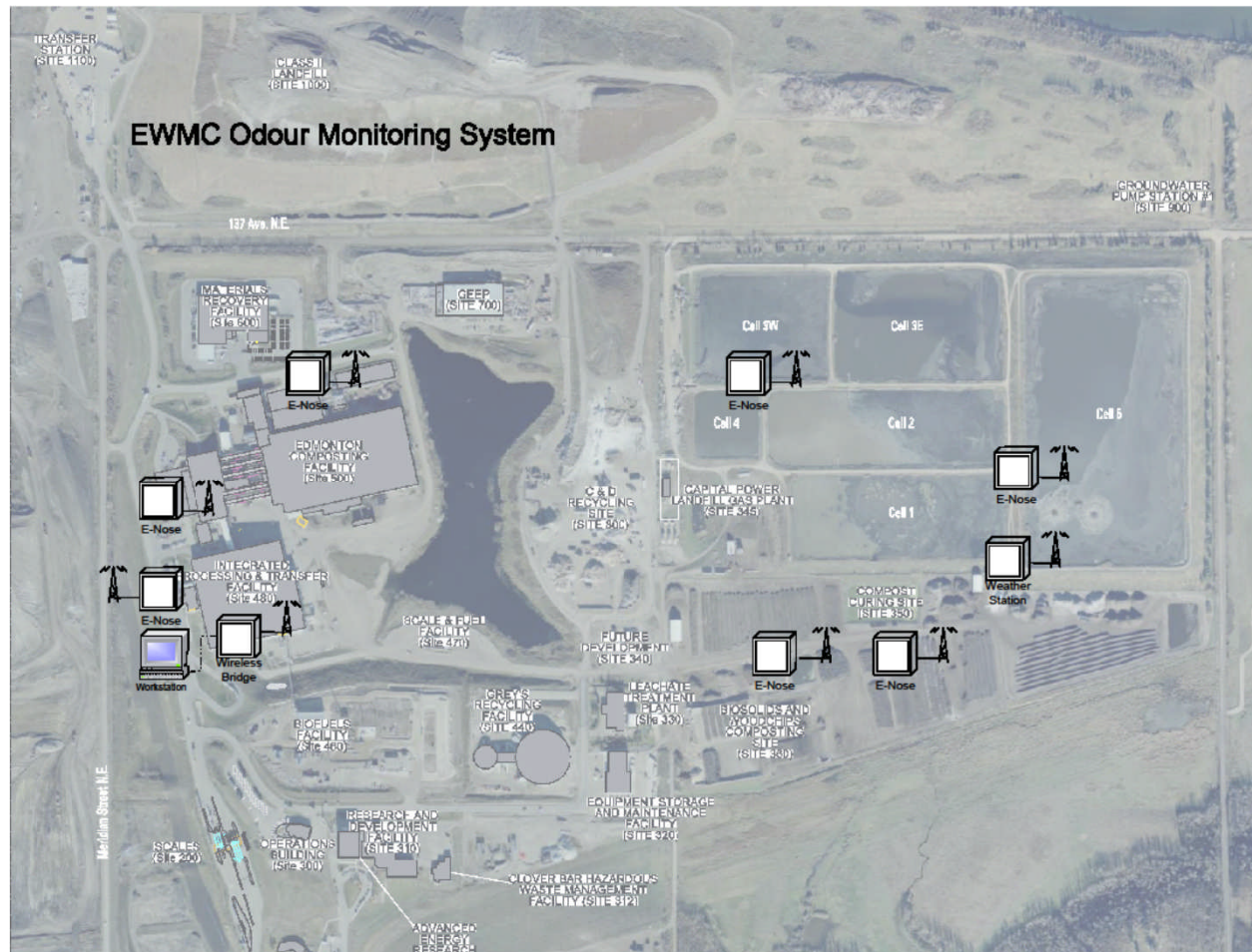


# How the Enose “Works”

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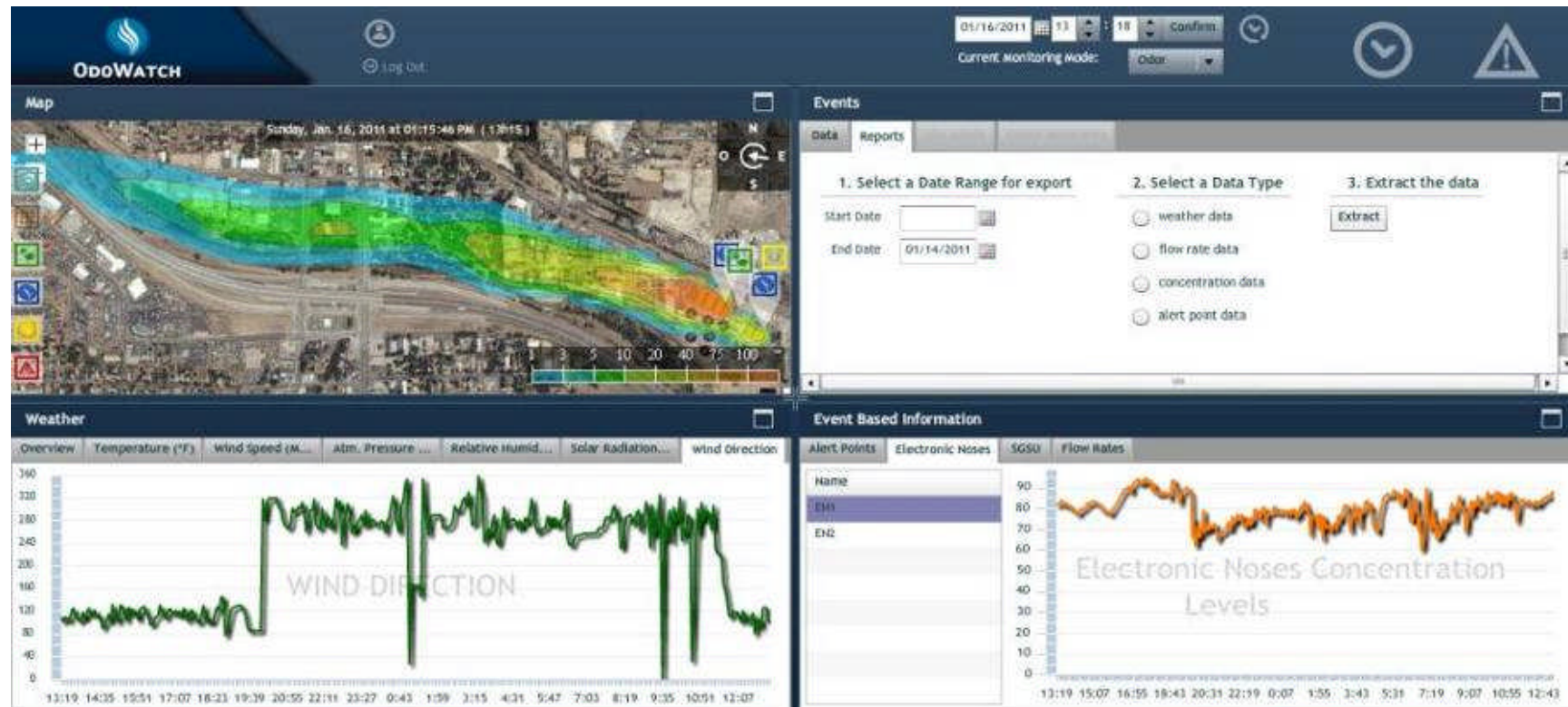
- ❑ Proprietary information
- ❑ Enose calibration:
  - sample the the odour source
  - sample is fingerprinted
  - sensors are selected
- ❑ Once Enose is installed at the source it continuously draws in the odour and sensors detect the strength
- ❑ The odour source is modeled in the software

# Odour Monitoring and Forecasting System



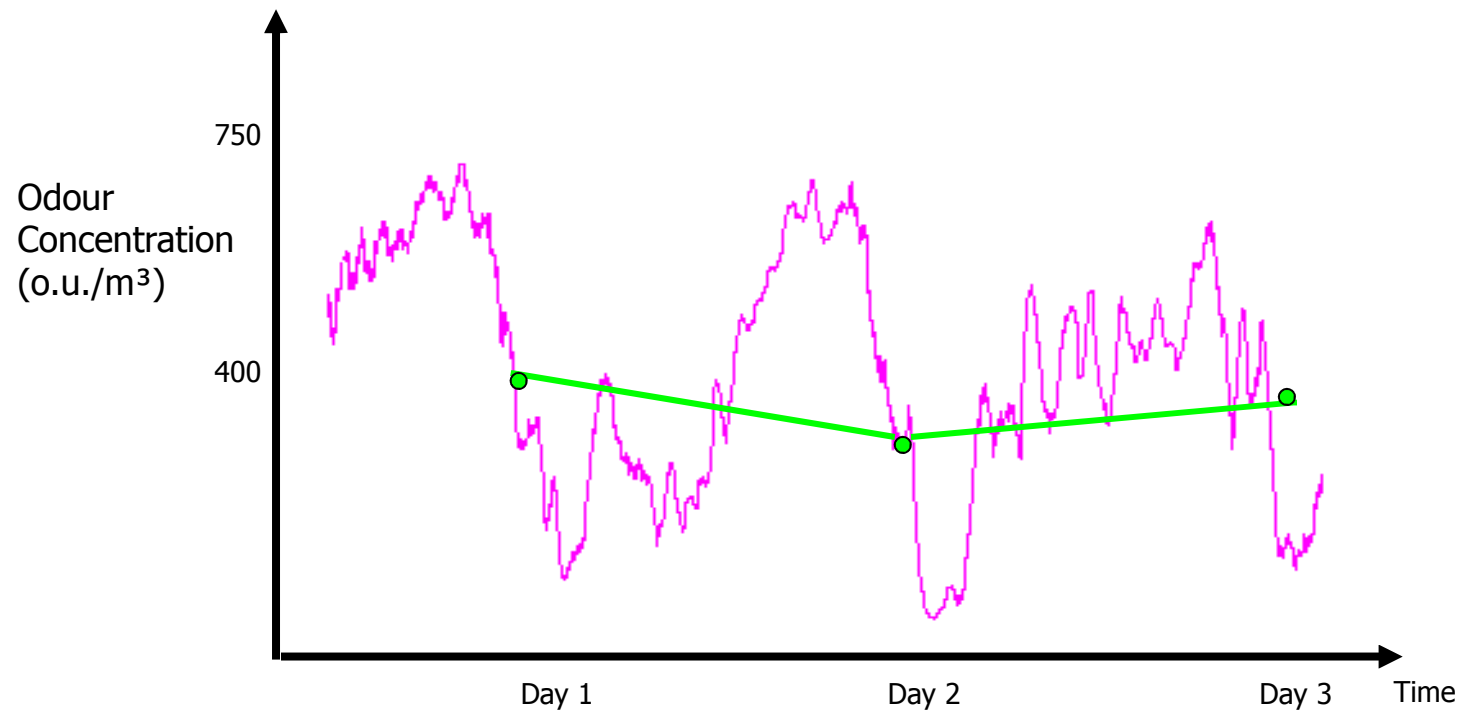


# Odour Monitoring and Forecasting System



# Odour Monitoring and Forecasting System

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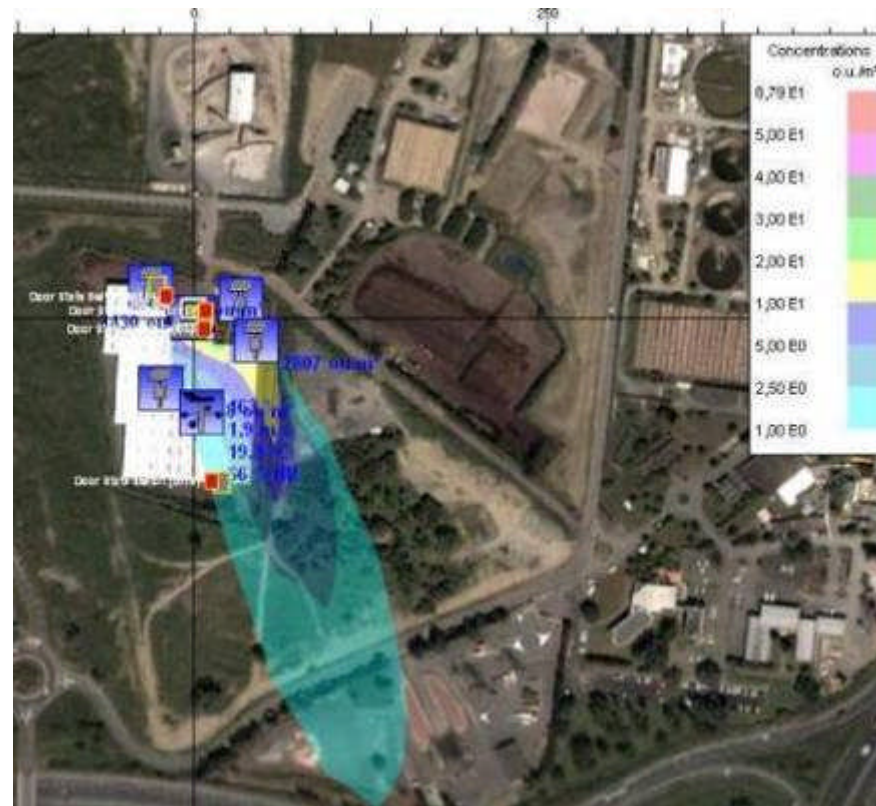
# Odour Monitoring and Forecasting System

April 15th

Plume 3:45 PM



Plume 4:00 PM



# Odour Monitoring and Forecasting System

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- ❑ Odour impact calculations
  - Real-time odour plume calculation and display
  - Calculation of past odour plumes
- ❑ Remote access to database
- ❑ Alert Points
  - Can monitor up to 200 alert points
  - Odour concentration displayed for each alert point
- ❑ Allows verification or disproval of odour complaints

# Questions?



Thank you