

# SWANA Conference

## Waste Screening

‘Do you really want to take that stuff?’

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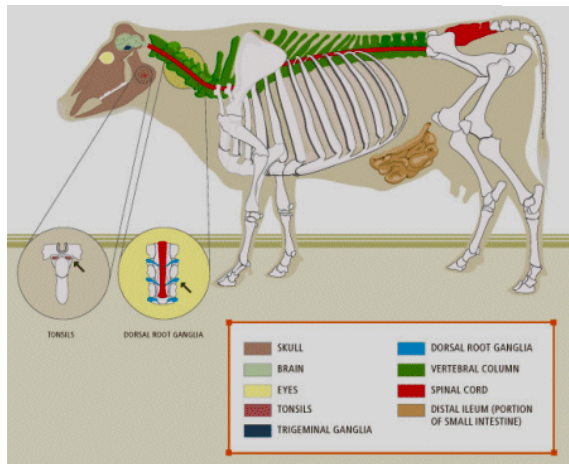
# Introduction

- Waste Screening Basics
- Waste Screening Examples



# Waste Screening Importance

- Landfills are not designed, operated and/or permitted to accept all wastes



## Waste Screening Importance – Regulatory

- Difference between Hazardous and Non-Hazardous Waste
  - Saskatchewan: Hazardous Substances and Waste Dangerous Goods Regulation
  - Manitoba: Dangerous Goods and Handling Transportation Act
  - NWT: Guideline for general management of Hazardous Waste in NWT
  - Nunavut: Environmental Guideline for General Management of Hazardous Waste
  - Alberta: Waste Control Regulation/Users Guide for Waste Managers
- Provincial Waste Diversion Programs
  - Tires
  - Used Oil
  - Beverage containers
  - Others (organics, recyclables, C&D)

# Waste Screening Importance – Regulatory

Alberta:

- ERCB Directive 99-04
  - Engineered liner & leachate collection – unlimited chloride and TPH
  - Engineered liner & no leachate collection – 30,000 mg/kg TPH and 5,000 mg/kg chloride
  - Natural liner & no leachate collection – 20,000 mg/kg TPH and 3,000 mg/kg chloride
- Waste Control Regulation/Users Guide for Waste Managers
  - Class I landfills – hazardous waste
  - Class II landfill – non-hazardous waste
  - Class III landfill – inert waste

# Waste Screening Importance – Process

SWANA training

- Scale House
- Spotter/Traffic Control
- Equipment Operator



# Waste Screening Importance - Process

## Screening addresses

- Hazardous Wastes
- Polychlorinated Biphenols
- Commonly Prohibited Wastes
  - Liquids
  - Septage
  - Biomedical
- Naturally Occurring Radioactive Material (NORM)
- Wastes that require special handling
- Hydrocarbon and salt contaminated soils



## Do you want it? – Salt Contaminated Soils

- You are asked if you can take waste from an Department of Highways salt storage yard. They have estimated 700 m<sup>3</sup> of soil with a salt concentration of 90,000 mg/kg.
- Issues
  - Chlorides are conservative – first indicator for groundwater contamination
    - Alberta limit – 250 mg/l current, changing to statistical approach above background
  - Reality is the public and regulators will notice once chlorides are detected which can lead to a remediation program
  - Very mobile
  - Can affect engineered clay liner structure

## Do you want it? – Salt Contaminated Soils

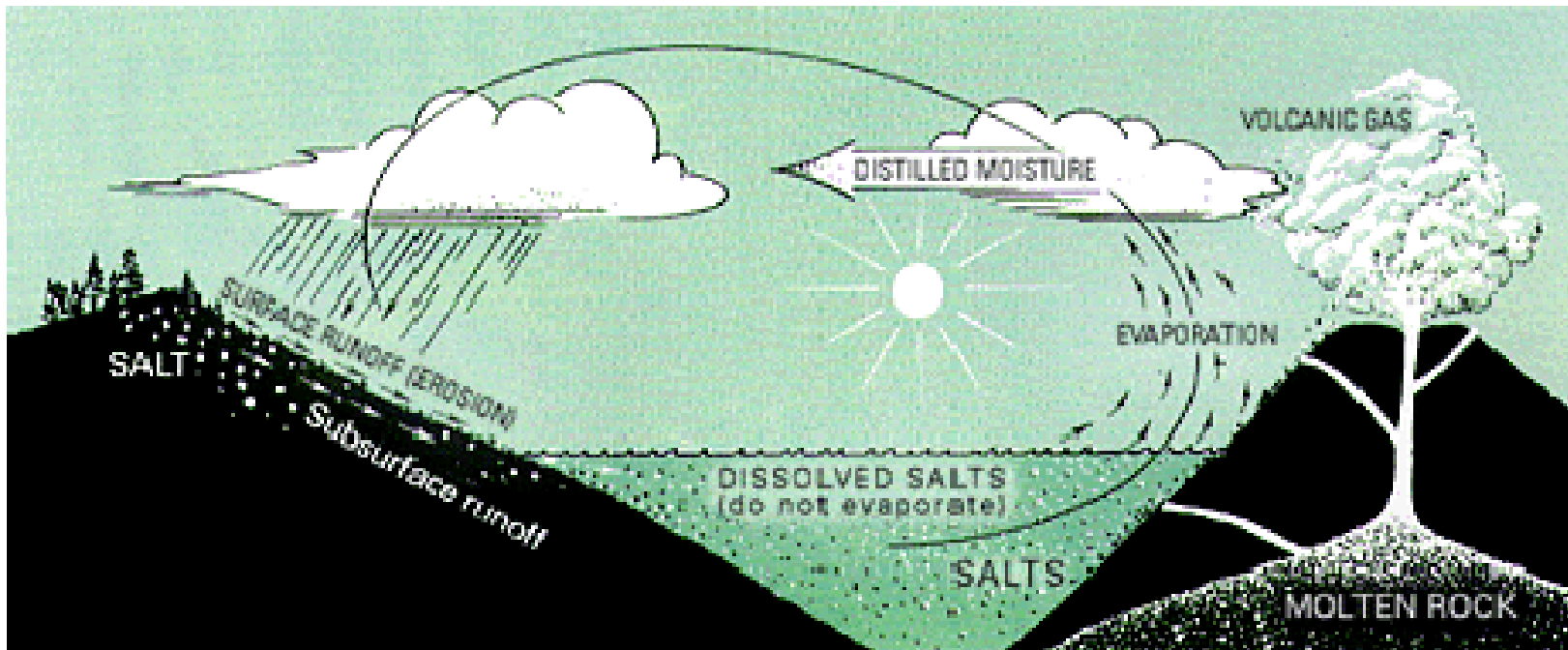
- Sources
  - Oil and gas
  - Highway salt storage yards
  - Food waste
- Regulatory
  - Confirm with your local regulatory body

## Do you want it? – Salt Contaminated Soils

- Considerations:
  - Chloride concentration in leachate varies depending on the total salt loading within the landfill. SWANA MOLO states 100-3,000 mg/L Chloride for MSW landfill
  - Leachate collection systems help to reduce the leachate head hence amount of leachate available to contaminate groundwater
  - The landfill design (clay, synthetic) and geological and hydrogeological setting is important to determine if high concentrations of salt waste can be accepted
  - Regulatory limits based on a dilution factor: ERCB ID 99-04 a dilution factor lower than 20 would be required for the chloride ion to impact the surrounding groundwater at a concentration that would exceed 250 mg/L. This chloride concentration represents the performance standard for class II landfills and the Canadian maximum acceptable concentration for drinking water (*Guidelines for Canadian Drinking Water Quality*)

## Do you want it? – Salt Contaminated Soils

- Considerations
  - Total chloride mass balance
  - Global Salt Cycle



## Do you want it? – Salt Contaminated Soils

- Management Options
  - Landfill owners may/can restrict certain materials, such as oil and gas or salt storage yard wastes if they do not have synthetic liners and leachate collection system
  - Send to a landfill designed to better handle the material

## Do you want it – Hydrocarbon Contaminated Soils

- You have a 2,000 tonne per year MSW operation in an unlined cell. The landfill is located in a sandy till geology with sand stringers. You have been asked to take 500 tonnes of hydrocarbon soil which just under regulatory limit.
- Issues
  - Analytical given in totals vs TCLP
  - Potential effect on synthetic and clay liner
  - Leachate quality and management options – co-mingling
  - Benzene is mobile in groundwater
  - Variability of material
  - Estimated quantity changes
  - Confirmatory sampling

# Do you want it – Hydrocarbon Contaminated Soils

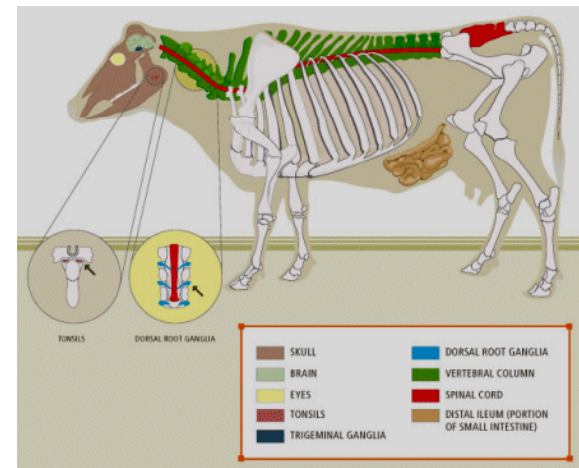
- Sources
  - Oil and gas industry
  - Chemical industry
  - UST removal
- Regulatory
  - Definition of Hazardous waste
- Other management options
  - Use as ADC, if appropriate
  - Appropriate sited, designed, and operated landfills
  - Thermal treatment, aeration & landfarm as per regulations

## Do you want it – Animals and Animal byproducts

- You have a 9,000 tonne/year operation on a clay liner with a leachate collection system. An acreage subdivision was constructed 500 m from your front gate and the Reeve has moved in. There has been a hog barn fire and they would like to deliver 800 hogs for disposal. The hogs range between 100 and 150 kg. The fire was 7 days ago but they could not move them until insurance visited the site.

- Issues

- Odour
- High moisture
- Vectors (flies, scavengers)
- Compaction/settlement
- Leachate quality
- Impact to operation



## Do you want it – Animals and Animal byproducts

- Sources
  - Animal barn fires
  - Provincial and Federal regulated diseases
  - Abattoir waste (BSE?)
  - Food recalls
  - Spoiled grocery waste/ milk trucks
  - Animal shipping highway accidents
  - Wildlife
- Regulatory
  - To confirm with you regulatory agency but typically there is no limits or restrictions on animal or animal parts disposal in landfills except for Federally Regulated BSE wastes

## Do you want it – Animals and Animal byproducts

- Other Management Options
  - Onsite composting
  - Compost facilities
  - Division of waste amongst landfill facilities

## Do you want it – Sulphur Waste

- You have a 150,000 tonnes per year operation with an average mix of 85% MSW and 15% contaminated soils. You have been asked if you can take a sulphur contaminated soil job over three years of 10,000 tonnes/yr with sulphur ranging between 2% and 10%.
- Issues
  - H<sub>2</sub>S with landfill gas
  - Disposal/recirculation of leachate
  - Clogging of leachate collection system

## Do you want it – Sulphur Waste

- Sources
  - Oil and Gas industry
- Regulatory:
  - Alberta – Sulphur Disposal Guidelines

## Do you want it – Sulphur Waste

- What are other management/disposal options
  - Oilfield waste landfills with synthetic liners and leachate collection systems with procedures in place to manage sulphur wastes
  - Design and construct a separate cell for the waste
  - Design and construct a cell within a cell (synthetic cap, lime encapsulation)

## Do you want it - Mattresses

- You have a 12,000 tonne/year operation. Your local hotel is changing out all of its mattresses and asked if you can take 375 queen size mattresses.
  
- Issues
  - Difficult to compact
  - Loss of airspace
  - Wire wrap

## Do you want it - Mattresses

- Sources
  - Hotels/motels
  - Public
- Regulatory
  - No issue
- Other Options
  - Alternative daily cover
  - Divert or share waste with other landfills

## Do you want it – Quick Lime Bags

- You have a 15,000 tonne/year MSW operation. A local hauler has brought you quick lime bags before without your review which cause a spot fire once the bags got wet. You have set special receiving conditions that they are not complying with.
- Issues
  - Dust residual reacts with water and ignites
  - FIRE



## Do you want it – Quick Lime Bags

- Sources
  - Oil and Gas
- Regulatory
  - To confirm with local regulatory body, but typically no issue if bags are empty
- Other Options
  - Contaminated soil landfill

## Do you want it – Car Wash Sump Waste

- You live in a municipality that has roughly 100 industries that have sump waste. The waste from each generator has not been evaluated. Your landfill has a dewatering pond and you charge \$15/load.



## Do you want it – Car Wash Sump Waste

- You live in a municipality that has roughly 100 industries that have sump waste. The waste from each generator has not been evaluated. Your landfill has a dewatering pond and you charge \$15/load.
- Issues
  - Oil and gas residuals
  - Liquid disposal – contaminated water that won't meet discharge criteria
  - Waste acceptance criteria - testing
  - Cross contamination in vacuum truck
  - Appropriate disposal fee - ultimately you will likely incur final disposal costs
    - Deep well
    - Leachate treatment

## Do you want it – Car Wash Sump Waste

- Sources
  - Mechanics shops
  - Car wash
- Regulatory
  - Liquid waste restrictions
  - Hazardous waste
- Other Options
  - Obtain approval to dispose in active face if non-hazardous and you receive regulatory approval. Typically won't be able to dispose of at active face unless have liner and leachate collection
  - Run-off/evaporation pad and then dispose of sediment

# Do you want it - needles

- You have a 3,000 tonne per year operation and have several feedlots, a veterinarian, and a medical clinic near your facility.
- Issues
  - Sharps on equipment
  - Potential for staff being punctured



# Do you want it - needles

- Sources
  - Feedlots, medical establishment, veterinarian offices, public
- Regulatory
  - CCME Biomedical Waste Guideline
- Other Options
  - Biomedical incinerators/autoclaves
  - Special waste handling procedures

# Conclusions

- Not all facilities can accept all wastes
  - Engineering design
  - Operational experience
  - Regulatory
- If you determine you can accept a special waste
  - Have procedures in place
  - Price appropriately for all costs to be associated with the waste

Thank You.

Questions?