

# Crowsnest-Pincher Creek Landfill Association Public Open House



# Introductions

- Emile Saindon: Crowsnest-Pincher Creek Landfill
- Jean Waldner: Crowsnest-Pincher Creek Landfill
- Steve Meldrum: Eco Waste Solutions
- Cody Halleran: North Shore Environmental Consultants
- Amanda Jardine: Integrated Sustainability Consultants Ltd.
- Tom Parker: Integrated Sustainability Consultants Ltd.
- Gilbert Gagnon: Integrated Sustainability Consultants Ltd.

## 1) Housekeeping



# Presentation Overview

- Landfill History
- Purpose of Presentation
- Technology
- Emissions Model
- Questions

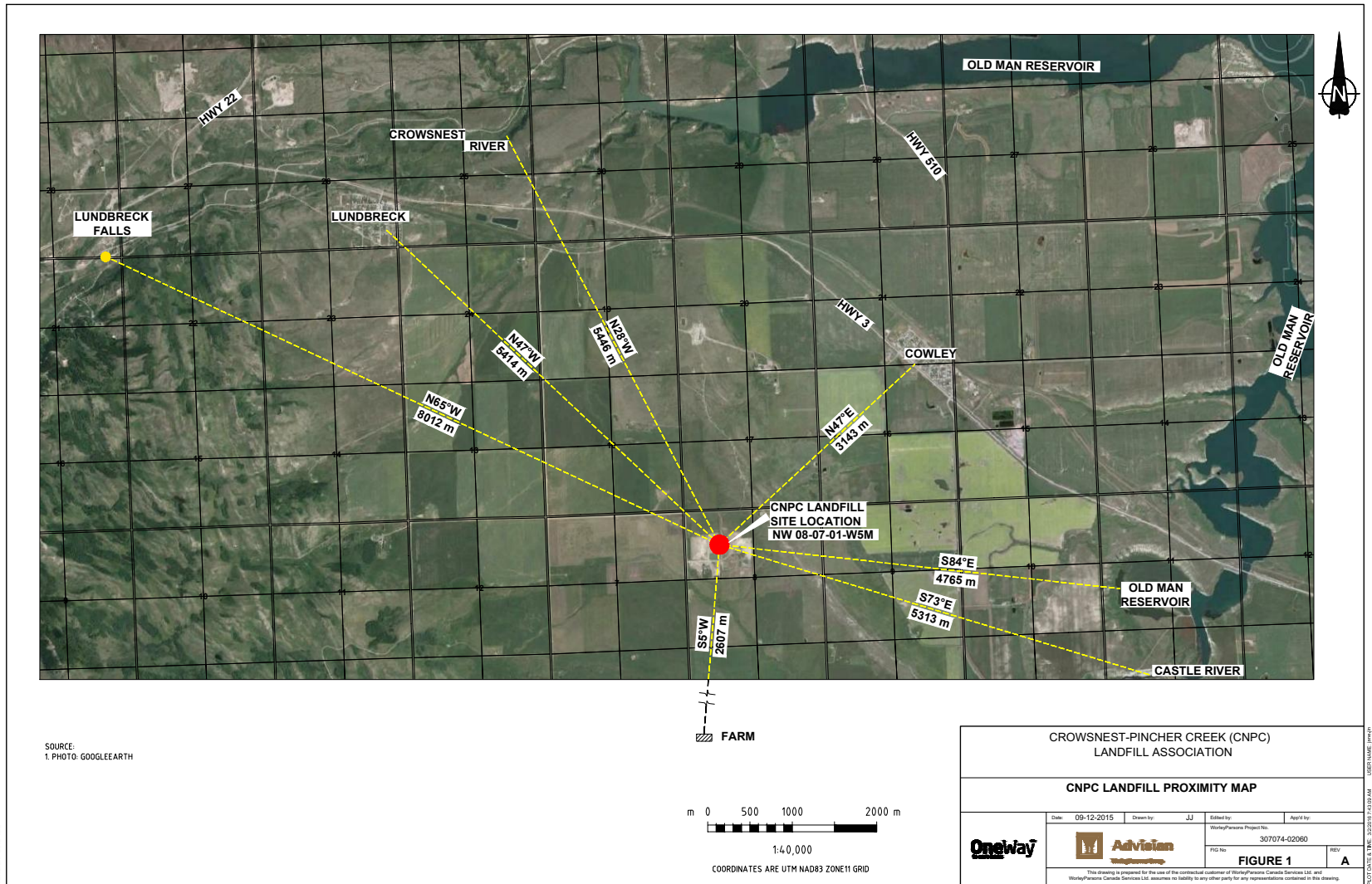
# Crowsnest/Pincher Creek Landfill Association

- **The mission of the Crowsnest/Pincher Creek Landfill Association** is to provide our member communities with a cost effective, sustainable, and environmentally compliant waste management facility promoting clean, green, healthy communities.
- Our environmental mandate is to operate as a Class II landfill for the disposal of municipal solid waste and non-hazardous industrial waste.
- We pursue our moral, ethical, and environmental responsibilities through the provision of collection sites for specified recyclable materials and certain reclaimable hazardous recyclables.





# Location Map



# Landfill History

- The Crowsnest/Pincher Creek (CNPC) Regional Landfill was developed in 1976 as the first regional landfill in Alberta and became the model for future regional landfill developments.
- Operating procedures developed at this site were embraced by other landfills not only in Alberta but in other Provinces as well.
- Alberta Environmental and Parks (AEP) approved an Environmental Engineering plan for a “vertical expansion” in July 1997 and we have been working with AEP ever since to expand our Regional Landfill within our landfill operators mandate and regulations.
- The CNPC Regional Landfill is presently owned and operated by the Crowsnest/Pincher Creek Landfill Association.
- A manager hired by a Board of Directors comprised of Councillors representing the communities it serves administers the Regional Landfill. Specifically these communities include the Town of Pincher Creek, Village of Cowley, Municipal District of Pincher Creek #9 and the Municipality of Crowsnest Pass.

# Landfill Recycling Program

The CNPC regional landfill has a partnership with e-cycle solutions, a recycling company in Airdrie, and also offers a Re-use Centre for items worth keeping.

- **Televisions** - These products include a television tuner, or a device that can operate as both a computer monitor and television.
- **CPUs/Computers/Servers**
- **Keyboard, mouse, cables and/or speakers**
- **Monitors** - These devices have built in components necessary to operate as a computer monitor and they do not come within the definition of a television as noted above.
- **Printers** - Includes desktop printers, multi-function printer copiers, printer/fax copier combinations.
- **Laptops & notebooks** - Portable computers that includes the combination of both the CPU, monitor and keyboard all in one package.
- **Antifreeze, Motor Oil & Used Oil Filters** – Used motor oil must not contain any foreign substances, or extra charge levied.
- **Metal, Refrigerators & Freezers** – \$20.00 Fee applies to all Freon Units for the purpose of Freon removal. These items are stored separately.
- **Tires & Batteries**
- **Propane tanks & small propane bottles**
- **Cooking Oil**
- **Cardboard, Plastic Bags, Herbicide Containers**
- **Bale Twine** – Bale twine bags can be obtained at the Landfill office.
- **Wood** – in our Wood Recycling area
- **Household Hazardous** – Paints and household chemicals.

# Recycling Tonnage 2013-2015

Each year there is an increasing amount of materials being recycled at the regional landfill as shown below:

**2013 – 552.50 Tonnes**

**2014 – 573.01 Tonnes**

**2015 – 706.9 Tonnes**





# Future for Recycling at CNPC Regional Landfill

The CNPC Regional Landfill is in the process of building a new 8,000 ft<sup>2</sup> recycling facility that will include an enclosed drive through lane for residents to drop off their items which the landfill will then handle, sort, and package inside the facility.



3755 - 18th AVENUE, NORTH  
LETHBRIDGE, AB  
T9H 6T2  
Bus. 403-329-5400



Figure A. Rendering of CNPC Recycling Building

# Landfill Renewal

- The Crowsnest/Pincher Creek Landfill Association submitted a renewal application on May 30, 2016, to Alberta Environment and Parks (AEP) under Approval #18701-01-02. This renewal is intended to replace the current landfill approval to operate which will expire on December 15, 2016.

**To request a copy of the renewal application please contact:**

Emile Saindon

[esaindon@toughcountry.net](mailto:esaindon@toughcountry.net)

Crowsnest/Pincher Creek Landfill Association

Box 668, Pincher Creek, AB, T0K 1W0



# Community Initiatives


- **Special Donation Funding:** This fund has been set up to help local non-profit organizations with community events/celebrations, and schools needing extra funds for events. This \$1,000 yearly donation per organization can be applied for by completing an online form on our website or e-mailing [cnpcadmin@toughcountry.net](mailto:cnpcadmin@toughcountry.net) and forwarding it to the landfill office.
- **Technology in Elementary Schools:** We donated \$30,000.00 to the Livingstone school division to help 3 local schools purchase elementary iPads and computers.
- **Community Kitchen:** The Crowsnest/Pincher Creek Landfill Association owns a fully equipped, mobile commercial kitchen. The Association continues to look at ways to enhance the communities it serves. This project will provide a much needed service to all community events and non-profit groups looking to raise funds through barbeques and other food services. The unit will be available for bookings immediately.
  - The unit meets all AHS requirements and comes with all the necessary appliances and cleaning equipment. Food safety is a major concern when operating at outdoor events. The unit can be moved and set up in minutes.
  - Groups are urged to call the Landfill and ask to speak to the Manager for further information and booking dates. A small security deposit will be required to ensure the unit returns clean. Delivery and setup can be arranged, a short training session will be provided to those wishing to use the unit.



# Current Status

- We are experiencing increasing volumes of biomass (animal carcasses) and agricultural plastics (silage bags) that each present unique challenges for safe and effective landfill operations.
- Through careful consideration we feel that it would be more responsible to stop the accumulation of animal carcasses being buried in the landfill, helping with disease control, methane emissions, and general health and safety of our staff.
- Additionally, to introduce enough feedstock for efficient combustion, we intend to use agricultural plastics, specifically plastic types which generate low levels of off gasses, rather than bury them in our landfill which take hundreds of years to decompose.
- The addition of an incinerator requires an amendment to our EPEA Approval.
- We have invited you to our open house to the have experts in every field explain the facts about the small incinerator we are proposing to use.

# Current Status

 TV RADIO NEWS SPORTS MUSIC ARTS LOCAL ▼ MORE ▼ WATCH LISTEN LOG IN SEARCH CBC.ca... 

**CBCnews** | Calgary 

LIVE Calgary More Streams  
The Homestretch  
 Listen Live 

Home World Canada Politics Business Health Arts & Entertainment Technology & Science Trending Video

Canada Calgary

## Aggressive grizzly bears have southern Alberta family on edge

**'Oh my God, they are already in the yard'**

By David Bell, **CBC News** Posted: Sep 11, 2016 3:44 PM MT | Last Updated: Sep 11, 2016 4:34 PM MT



One of three grizzly bears enters a family's backyard in Pincher Creek, Alta., in this image from video. 'They weren't going to be told what to do and they weren't going to leave, they were going to stick around,' Keith Lang told CBC News. (Kayla Furlotte/YouTube)

### Stay Connected with CBC News



ADVERTISEMENT

FOUR IN THE MORNING



Get Weird **FRIDAYS 9** 

# Biomass Landfill Materials: Current & Anticipated

- Currently the Landfill receives:
  - **Wildlife Carcasses**
    - Average of 200 to 250 tonnes per year
  - **Pig and Chicken Farms**
    - Average 700 tonnes per year
  
- Anticipated once approved for beef carcasses:
  - **Bovine Farms**
    - Average 200 to 250 tonnes per month for 3 months during calving season
    - Regular mortality would average 600 tonnes per year



# Plastics Tonnage and Composition

The increasing number of agricultural plastics that are being received at the landfill yearly has led to the inclusion of silage bags into the waste mix with the biomass for the incinerator. This decision will assist in avenues of landfill reduction by volume.

- **Silage Bags**

- Average of 115 tonnes per year

- **Composition**

- The composition of silage bags are primarily polyethylene (PE)
- The waste mix will be discussed further by Eco Waste

# Eco Waste Solutions

An award-winning Canadian provider of innovative waste management solutions, focused on point of need solutions.

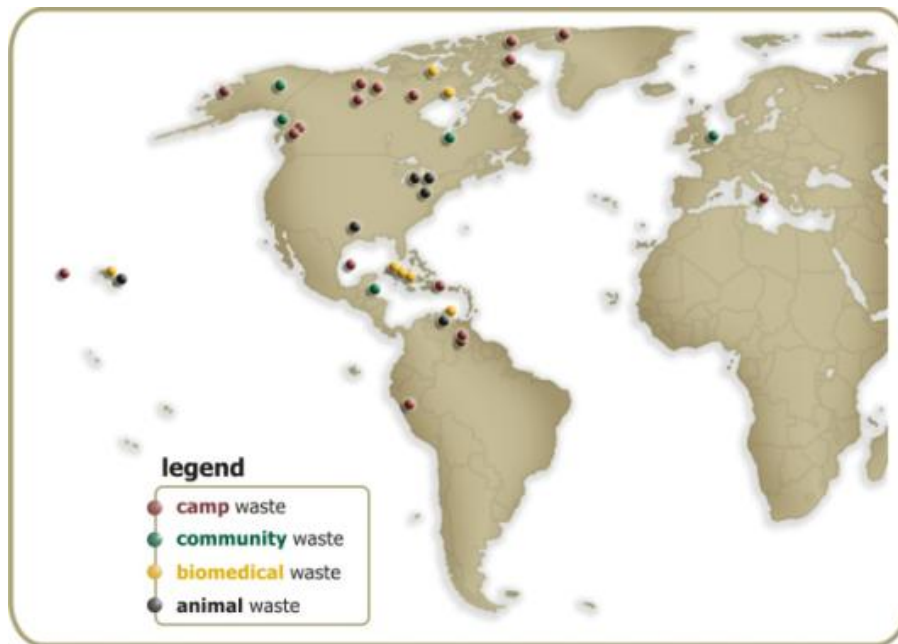
- Over 70 successful installations in 14 countries in the past +20 years
- 12 biomass (animal) incinerator installations completed
- Long tenured team with experience developing and installing waste management projects for a variety of regulated waste generators, rural communities, mining operations and military forces
- Field services, operator training and technical support provided worldwide
- 100% Canadian Company – Eco Waste Solutions (EWS) facilities located in Burlington, Ontario



# Experience Matters

EWS has a strong following with customers from: government, engineering & procurement companies, major mining/resource companies, global militaries and deceased animal processing facilities.

## – Eco Waste Solutions' Global Customers –



Ontario Equine  
Cremation

FLUOR®



Newfoundland  
Labrador

amec



SNC • LAVALIN



HATCH™



DE BEERS

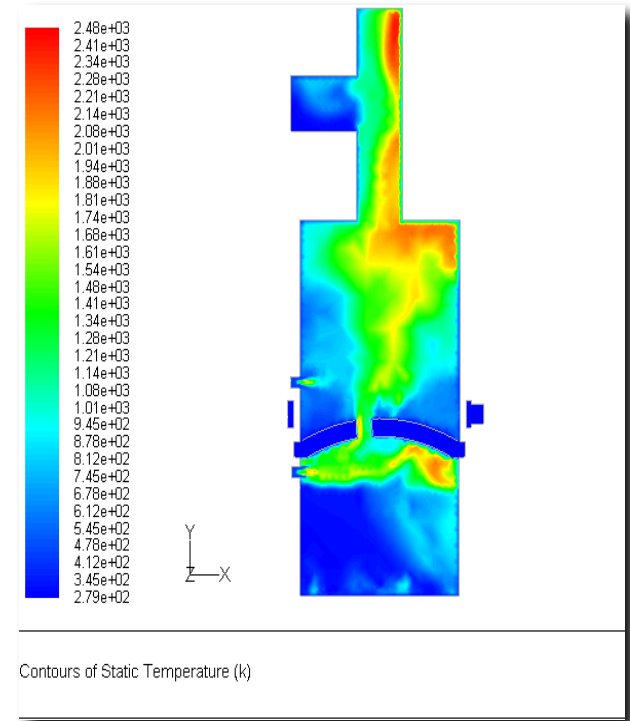


# Waste Mix

- The approximate waste mix to be processed in the Biomass (animal) Incinerator is expected to be:
  - ~70-75% Carcasses,
  - <20% PE Silage Bags (Non-Chlorinated – NOT PVC), and
  - ~10% Wood Wastes
- At loading, the use of a weigh scale and waste recording/reporting tracks amounts and types of waste being processed

# Eco Waste Oxidizer – Batch Process Keys to Clean Combustion

Keys to clean combustion include: **Time**, **Temperature** and **Turbulence** (in the Secondary Combustion Chamber).

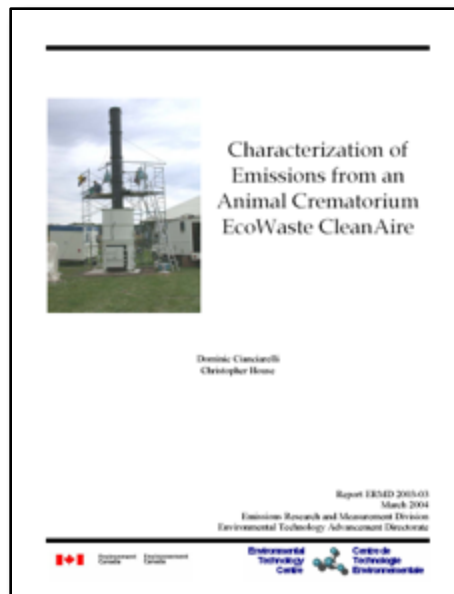


# Environmental Performance



## Dead Animal Disposal Business Dorchester, Ontario

- EWS has studied emissions from animal incinerators in conjunction with the Ontario Ministry of Environment (MOE), Environment Canada, Ontario Ministry of Agriculture Food and Rural Affairs (OMAFRA) and Canadian Food Inspection Agency (CFIA).
- Emissions performance has been verified by Environment Canada's ETV (Environmental Technology Verification) Program.



Environmental Technology Verification  
**CANADIAN ETV PROGRAM VERIFIED**

**Bio Waste Oxidizer**  
Technology Fact Sheet for Eco Waste Solutions

**Performance Claim**

The Bio Waste Oxidizer, manufactured by Eco Burn Inc. (Eco Waste Solutions), is a three-stage thermal gasification system capable of meeting the average stack emission concentrations listed below, when used to incinerate biomedical waste and when the minimum temperature and minimum residence time in the afterburner are 1,000°C and 2 seconds, respectively.

Parameter	Average Scrubber Emission Concentrations
Particulate <sup>a</sup>	28.7 mg/Rm <sup>3</sup>
Pb+Mn+Cr+Cu+As+Ni	0.5 mg/Rm <sup>3</sup>
Cd	0.001 mg/Rm <sup>3</sup>
Hg	0.003 mg/Rm <sup>3</sup>
Dioxin/furan <sup>b</sup>	0.027 ng-TEQ/Rm <sup>3</sup>
SO <sub>2</sub>	37 mg/Rm <sup>3</sup>
NO <sub>x</sub> <sup>c</sup>	167 mg/Rm <sup>3</sup>
CO	8 mg/Rm <sup>3</sup>
HCl	16 mg/Rm <sup>3</sup>
HF	1.1 mg/Rm <sup>3</sup>
Organic Compound <sup>d</sup>	9 mg/Rm <sup>3</sup>

<sup>a</sup> Emissions include excess sodium hydroxide scrubber  
<sup>b</sup> TEQ refers to international toxicity equivalent factor (0.1,0.1,0.1,0.1)  
<sup>c</sup> Nitrogen oxides are expressed as nitrogen dioxide  
<sup>d</sup> Expressed as methane  
E indicates the reference measurement conditions for emissions, which are: at 20°C and 1 atmosphere, adjusted to 11% oxygen by volume

Canada



# Incineration: Best Option for Waste Reduction & Disease Elimination

Volume and Weight Reduction by over 95%  
View inside of an incinerator



**BEFORE**



**AFTER**

# Assured Destruction and Control of Animal Disease Infectivity

EWS has completed testing on Specified Risk Materials from animals – providing results to CFIA and was included in their results & recommendations.

- Animal Prion Diseases are infectious and all are fatal. Currently prion diseases cannot be vaccinated against, treated or cured. – Alberta Prion Research Institute Website
- Bovine Spongiform Encephalopathy (BSE or mad cow) affects cattle and can cross the animal-human barrier.
- Scrapie affects goats and sheep, no current evidence can cross to humans.
- Chronic Wasting Disease (CWD) affects deer, elk and moose, no current evidence can cross to humans.
- *“Scientists have demonstrated the persistent infectivity of the scrapie agent in soil, and healthy sheep have contracted scrapie after grazing on land that had served, 3 years earlier, as pasture for scrapie-infected sheep” - US Department of Agriculture 2004 Report: Carcass Disposal: A Comprehensive Review*
- *“Incineration of SRM at a temperature above 850 C for at least 15 minutes is acceptable as a method of permanent destruction of the abnormal prion.” Canadian Food Inspection Agency (CFIA) Document - Baseline Parameters for the Destruction of BSE Infectivity*

# Large Animal Carcass Disposal Case Studies



- The Hunter Family - Dorchester, Ontario
- Ontario Equine Cremation Services & Ontario Pet Cremation Services
- Contracts with MTO for large animal disposal
- Incineration of large animals from research facilities and off spec meats from Government Inspection Plants. Processing capacity of up to 10 tons per week.
- Fully complies with Ontario Ministry of Environment regulations. Smokeless, odourless operation goes unnoticed by neighbours within 1km of facility.



*Toronto Mounted Police Services – Brigadier  
OECS using Eco Waste Solutions technology*



# Large Animal Carcass Disposal Case Studies



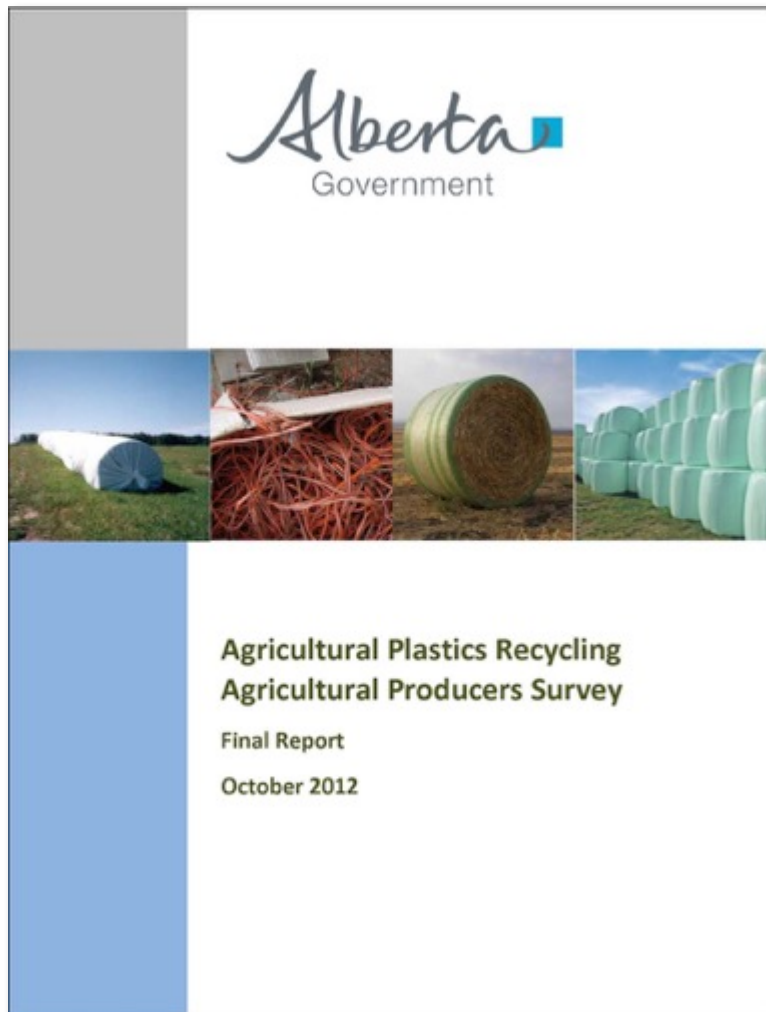
- Government of Newfoundland Veterinary Laboratory – St. Johns, Newfoundland
- Designed to process up to 2000 kg of animal and pathological waste per day
- It is equipped with a top loading package as an optional loading method that utilizes a load tray, to load animals from the top of the Primary Chamber



# Newfoundland Vet Lab – Dead Animal Handling



# Agricultural Products – Recyclable and Non-recyclable



- Uncontrolled “burning is common practice for managing plastic at end-of-life, while sending to a landfill site is also a frequently used practice.”
- Only “17% of agricultural plastics users sent one or more types of plastics for recycling in the past 12 months.”
- “Roughly one-in-five say they have used net wrap (23%)” which is a non-recyclable plastic product.
- “A best estimate of the total amounts of agricultural plastics eligible for recycling in the past 12 months would be in the ballpark of 3,000 metric tonnes” in Alberta.



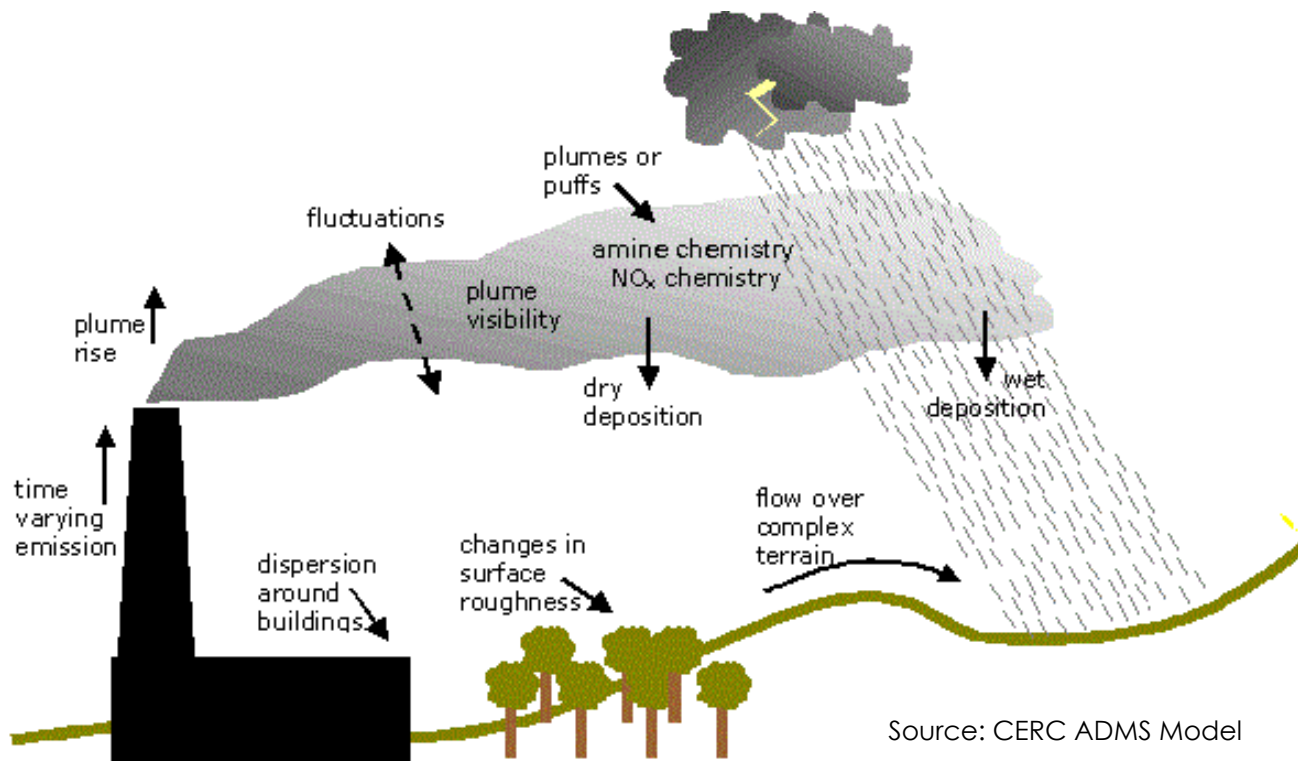
# North Shore Environmental Consultants

- North Shore was established in January 2002, by opening our first office in Sherwood Park, Alberta. North Shore was founded upon the principle that a smaller, flexible environmental consulting firm could provide superior client service and satisfaction. Over the years, North Shore's guiding principle has proven effective and the company has grown to include offices in Calgary and Lacombe, Alberta as well as Regina, Saskatchewan.
- **AIR QUALITY ASSESSMENTS/DISPERSION MODELLING**  
North Shore uses air quality plume dispersion models to mathematically simulate how air pollutants disperse in the ambient atmosphere. Our team completes these air quality assessments to ensure that ground-level concentrations of pollutants from industrial emission sources are predicted to comply with ambient air quality standards objectives.



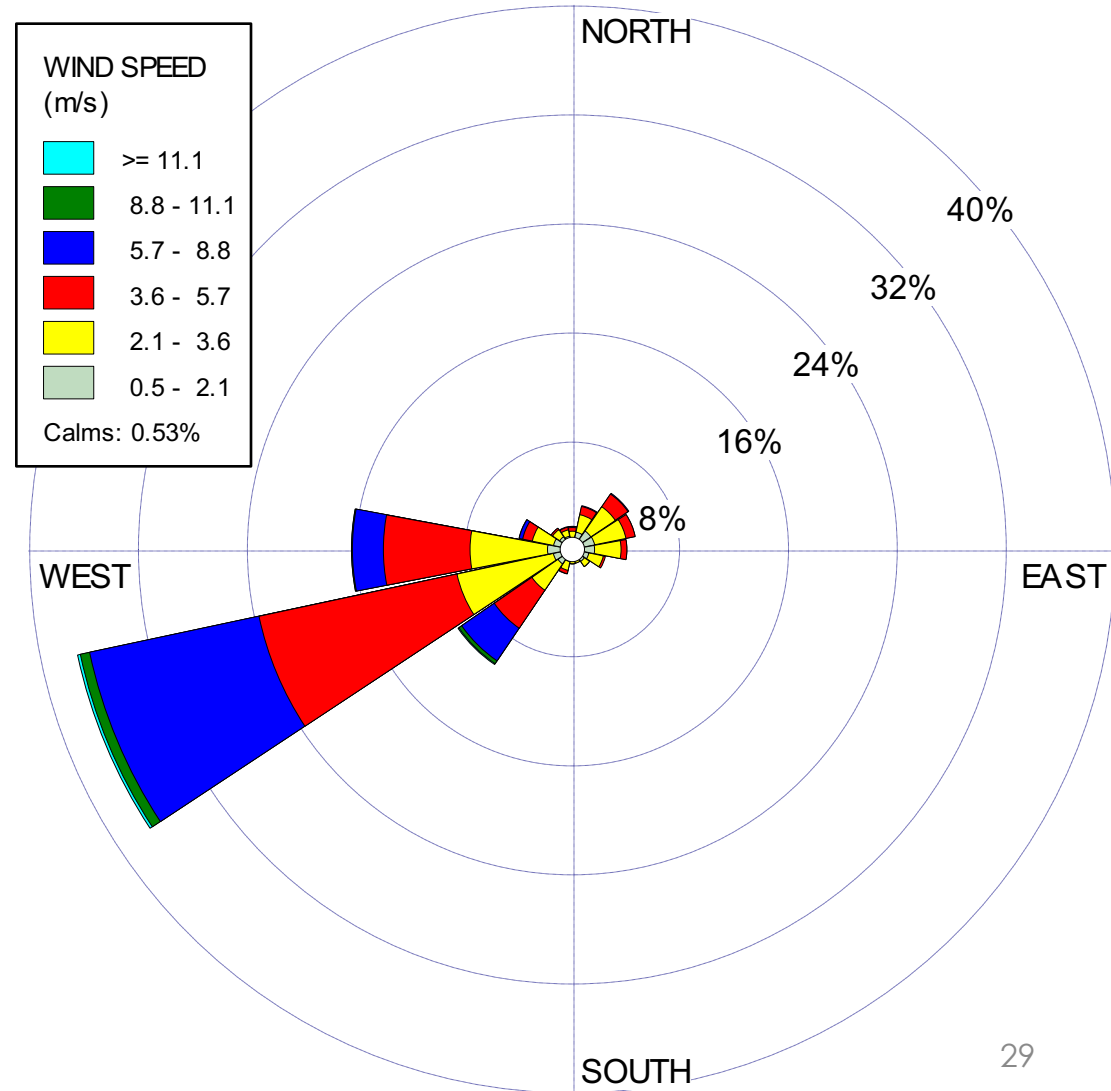
# Air Dispersion Modelling

- A series of equations that mathematically predict the behavior of pollutants in the air.
- Complex model that looks at emissions, weather, and geography to calculate a worst case scenario for ground level concentrations.

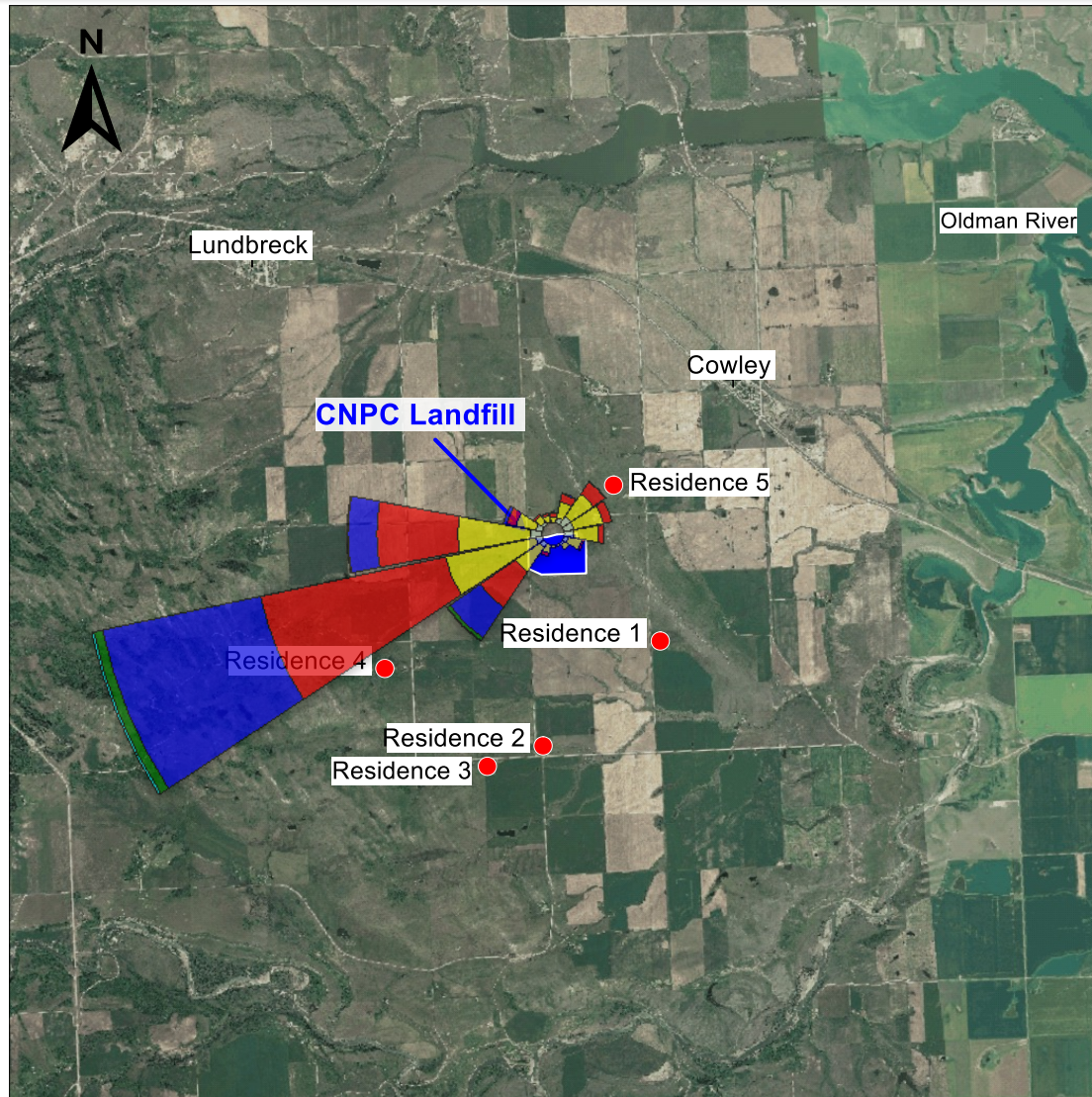


# Wind Behaviour in the Region

- Air dispersion model calculations use local wind surface and profile data to predict ground level concentrations.
- A windrose summarizes how wind speed and direction are typically distributed.
- This windrose includes 5 years of local wind data.



# Project Area Map



# Limits & Regulations

- Alberta Ambient Air Quality Objectives
- Ontario Ambient Air Quality Criteria
- Canadian Ambient Air Quality Standards
- Canada Wide Standards
- South Saskatchewan Regional Plan Air Quality Management Framework
- Alberta Government Code of Practice for Small Incinerators



# Incinerator Emissions Summary (at stack)

- Alberta Government Code of Practice for Small Incinerators
- Canada Wide Standards for Municipal Landfills

	Limits	Incinerator Emission Rate	% of Limit	Unit
Total Particulate Matter (TPM)	50	7.9	15.80%	mg/m <sup>3</sup>
Hydrogen Chloride (HCl)	75	2	2.67%	mg/m <sup>3</sup>
Carbon Monoxide (CO)	57	6	10.53%	mg/m <sup>3</sup>
Dioxins and Furans (D/F)	80	0.03	0.04%	pg TEQ/m <sup>3</sup>
Mercury (Hg)	20	0.008	0.04%	µg/m <sup>3</sup>



# Air Dispersion Model Results (within landfill)

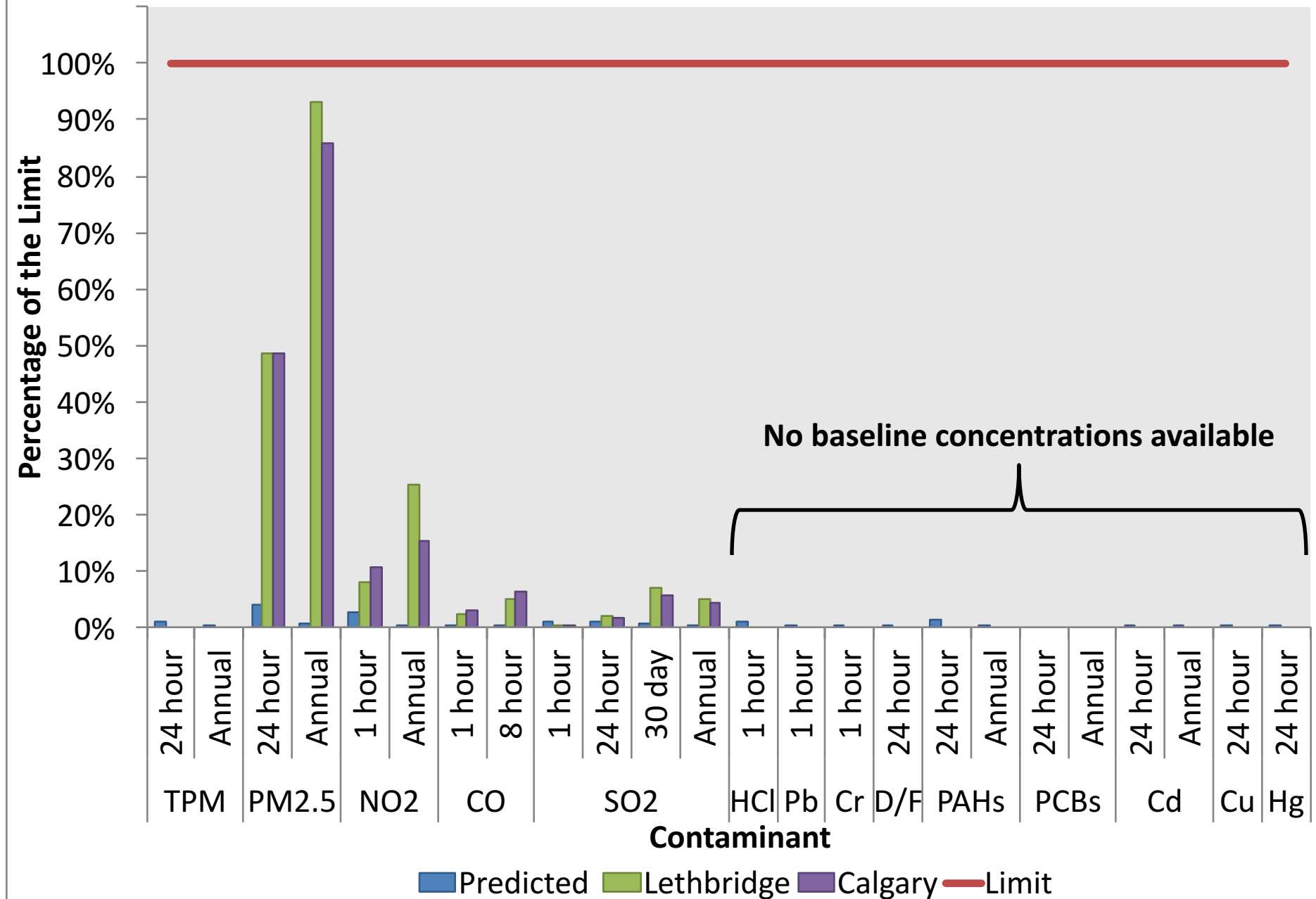
Pollutant	Averaging Period	Limit	Predicted	% of Limit	Unit
Particulate Matter less than 2.5 microns (PM <sub>2.5</sub> )	24 hour	27	1.069	3.96%	µg/m <sup>3</sup>
	Annual	8.8	0.075	0.86%	µg/m <sup>3</sup>
Nitrogen Dioxide (NO <sub>2</sub> )	1 hour	300	8.202	2.73%	µg/m <sup>3</sup>
	Annual	45	0.185	0.41%	µg/m <sup>3</sup>
PAHs	24 hour	0.00005	0.0000006	1.28%	µg/m <sup>3</sup>
	Annual	0.00001	0.00000005	0.45%	µg/m <sup>3</sup>
Hydrogen Chloride (HCl)	1 hour	75	0.870	1.16%	µg/m <sup>3</sup>
Sulphur Dioxide (SO <sub>2</sub> )	1 hour	450	4.379	0.97%	µg/m <sup>3</sup>
	24 hour	125	1.401	1.12%	µg/m <sup>3</sup>
	30 day	30	0.282	0.94%	µg/m <sup>3</sup>
	Annual	20	0.099	0.49%	µg/m <sup>3</sup>
Total Particulate Matter (TPM)	24 hour	100	1.069	1.07%	µg/m <sup>3</sup>
	Annual	60	0.075	0.13%	µg/m <sup>3</sup>

# Emissions Model Summary

- Predicted results are well within all limits and regulations.
- Emissions from incinerator are extremely low, lower than baseline levels in urban areas (Calgary and Lethbridge).
- No predicted risk to ambient air quality.



# Predicted Concentrations Compared to Limit



# In Conclusion

**The Crowsnest/Pincher Creek Landfill Association would like to thank you for your attendance at this public open house.**

**For more information please contact:**

Emile Saindon

[esaindon@toughcountry.net](mailto:esaindon@toughcountry.net)

Crowsnest/Pincher Creek Landfill Association

Box 668, Pincher Creek, AB, T0K 1W0

**Proposed EPEA Amendment Application submission date:**

January 2017

Thank you!

**Questions?**