

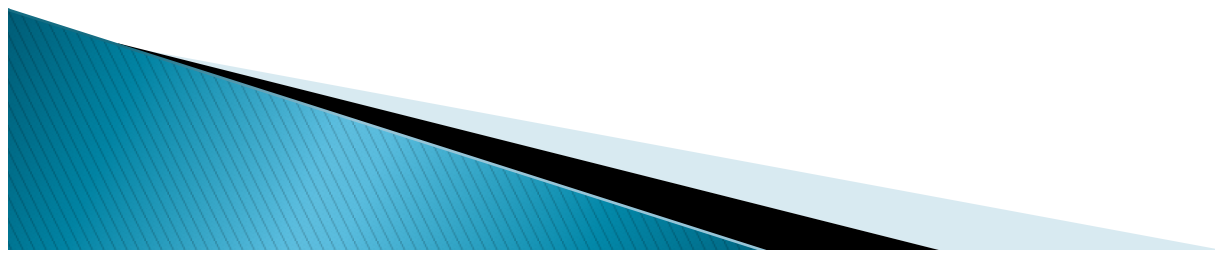


Waste Management Certificate Training: Challenges for Remote Communities

NOFNEC 2017

Overview

- ▶ Funding
- ▶ Operations & Maintenance
- ▶ Waste Diversion
- ▶ Waste Removal
- ▶ Permitting



FUNDING

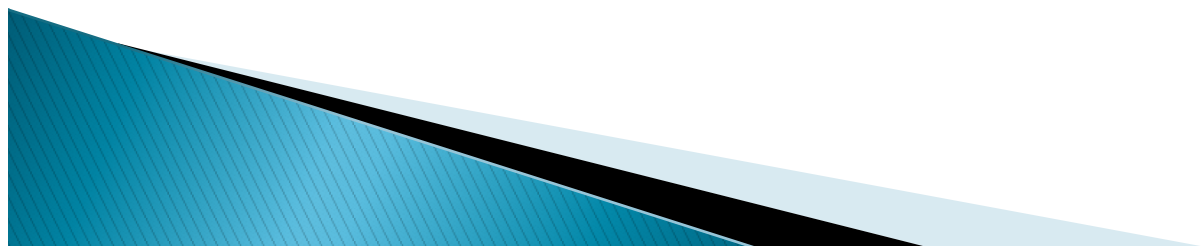
INAC Definition

Refuse Site

- ▶ “An area used for the disposal of solid waste (garbage dump/pit)”
- ▶ Annual O&M Funding – approx. \$5,000

Landfill Site

- ▶ “An area assigned to receive solid waste (Trench Backfill Operation) including spreading, compaction and covering of waste with soil”
- ▶ Annual O&M Funding – approx. \$15,000–\$20,000



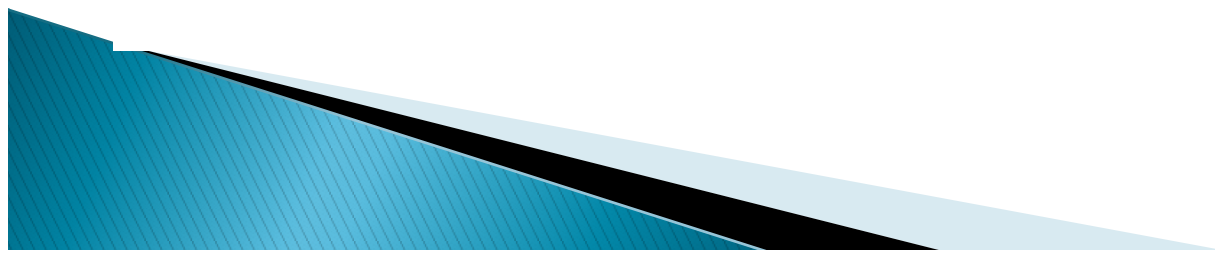
INAC Definition

What type of waste site classification do you have in your community?

- a) Refuse Site
- b) Landfill Site
- c) I don't know

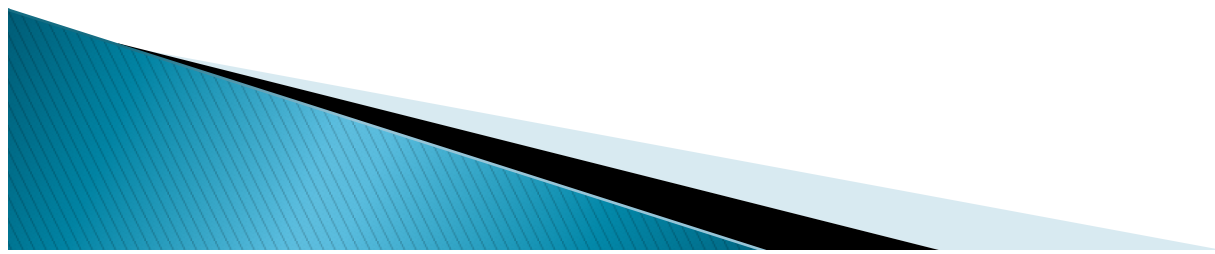


Question!



Funding / Revenue

- ▶ Annual O&M core funding: refuse site vs. landfill site (ACRS)
- ▶ Actual budget allotted to landfill O&M
- ▶ Tipping Fees for 3rd Parties
- ▶ Capital Project Funds
- ▶ Value in waste (scrap metal, batteries, tires, electronics etc.)
- ▶ INAC O&M funding formulas changing?



Expenses

What do you think your community's annual O&M costs are?

- a) \$0 – \$5,000
- b) \$5,000 – \$25,000
- c) \$25,000 +
- d) I don't know



Question!

- ▶ Operations on limited budget
- ▶ Low-cost improvements to O&M using existing resources

OPERATION & MAINTENANCE

O&M

On a scale of 1 (no knowledge) to 10 (well informed), how much do you know about landfill operations & maintenance best practices?

Name an O&M task that can improve landfill operations in your remote community?

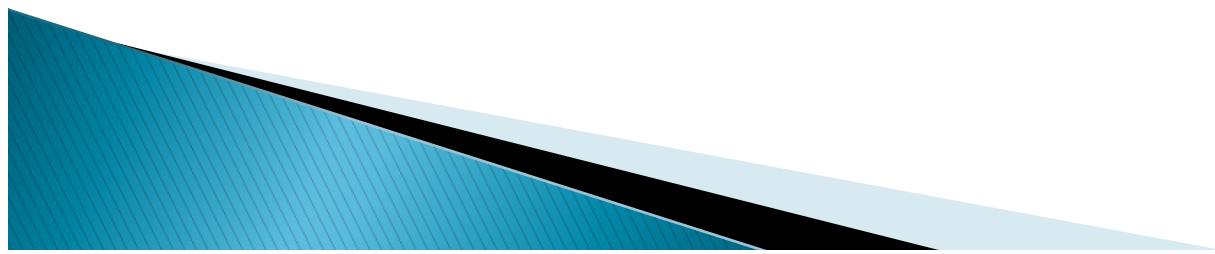


Question!

Operations & Maintenance

Things that need to be done:

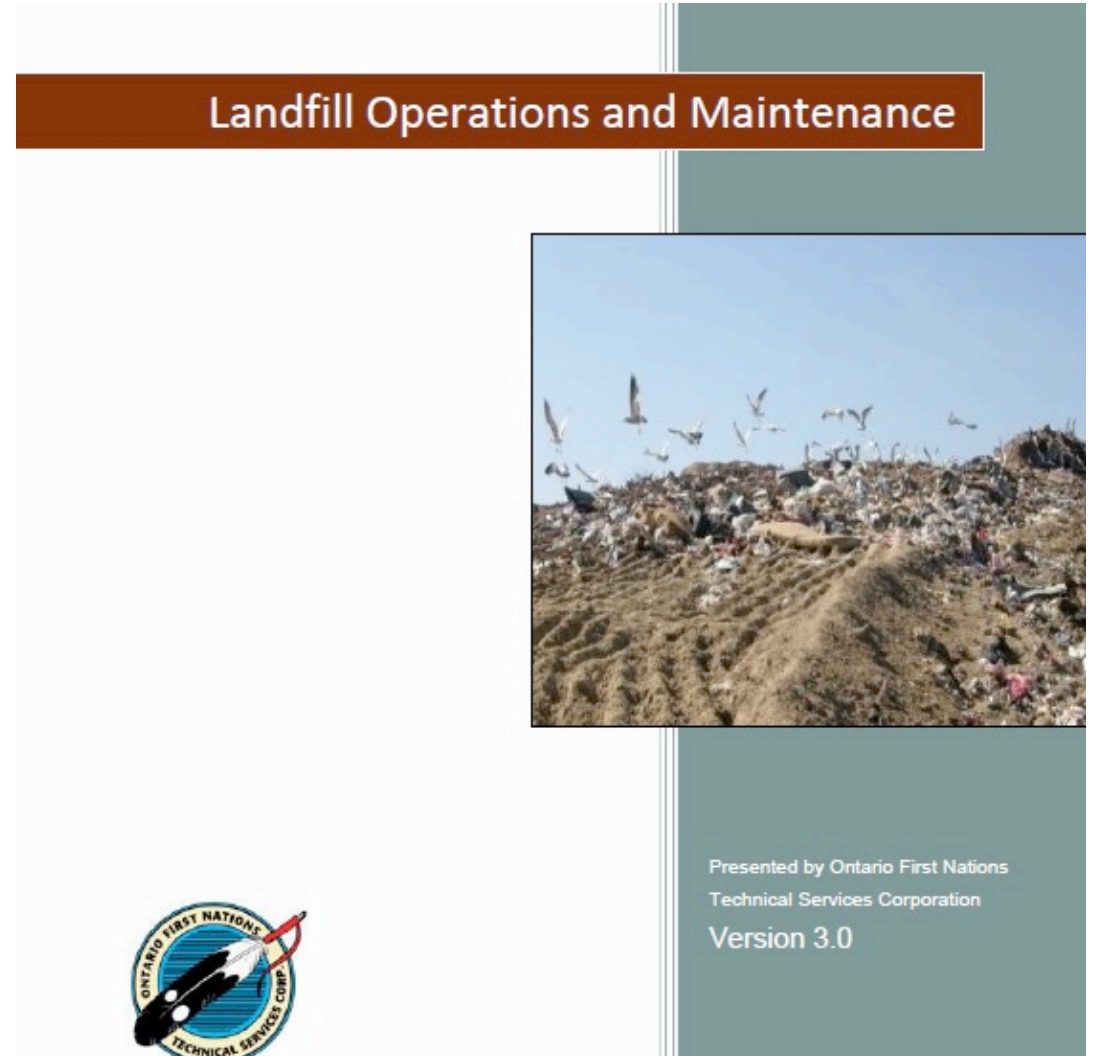
- ▶ Daily / weekly cover material
- ▶ Landfill workers
- ▶ Site security & safety
- ▶ Litter control
- ▶ Construction of soil berms or trenches
- ▶ Drainage improvements
- ▶ Waste diversion
- ▶ Hazardous waste management
- ▶ Maintain cover (fill) stockpiles nearby
- ▶ Progressive closure



Landfill O&M Booklet

Landfill Operations & Maintenance Manual Template

Prepared by
OFNTSC



Method of Operations

- ▶ Trench vs. Area Method
- ▶ Develop a Fill Sequence Plan



Photo Credit: True Grit Engineering

Surface Drainage



Cover & Compaction

- ▶ Vermin, litter, odour control
- ▶ Sand, silty-sand is best for cover
- ▶ Don't use snow – this adds water runoff to your landfill site

Who has seen the most bears at their waste site this year?
(community name & #)



Question!

Equipment

What type of equipment are you currently using for landfill operations?

- a) Loader
- b) Excavator
- c) Compactor
- d) Rubber tire Bulldozer
- e) Crawler bulldozer
- f) None of the above



What challenges do you have with respect to equipment for the landfill site?



Equipment



Crawler Bulldozer - \$200k new



Landfill Compactor - \$500k new

Signage



Fencing



Photo Credit: True Grit Engineering

Environmental Monitoring

- ▶ Sampling of surface water and groundwater to monitor leachate migration



Photo Credit: True Grit Engineering

Burning

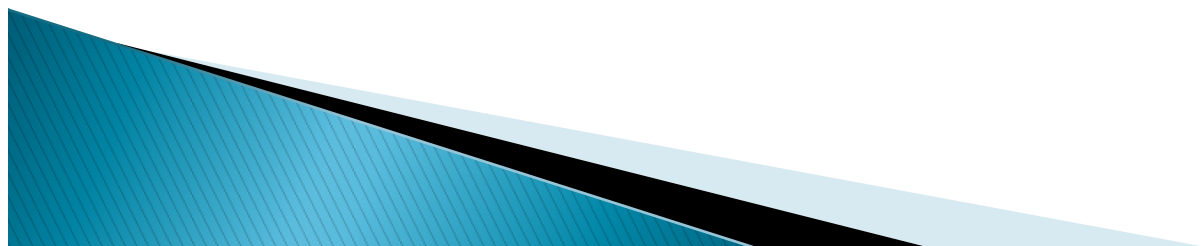
Burning waste releases toxic chemicals into the air.

- ▶ Contaminate water, air, soils and animals
- ▶ Pose risk to health
- ▶ Increase risk of forest fire
- ▶ Contribute to global warming / greenhouse gases



Burning

- ▶ What can be done to discourage burning of household waste?



Suggested O&M?

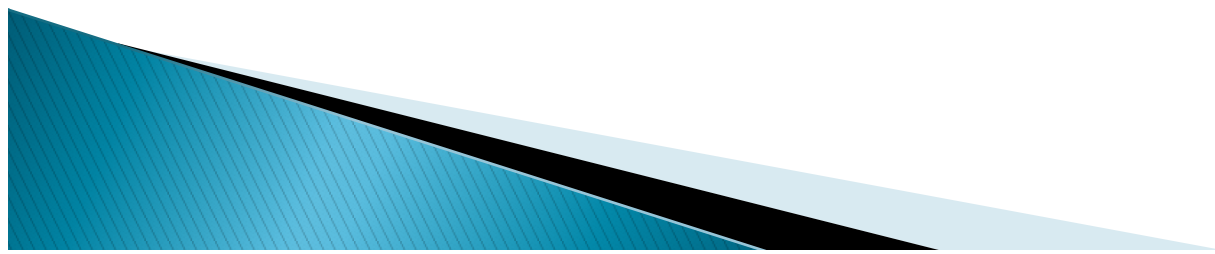


Suggested O&M?



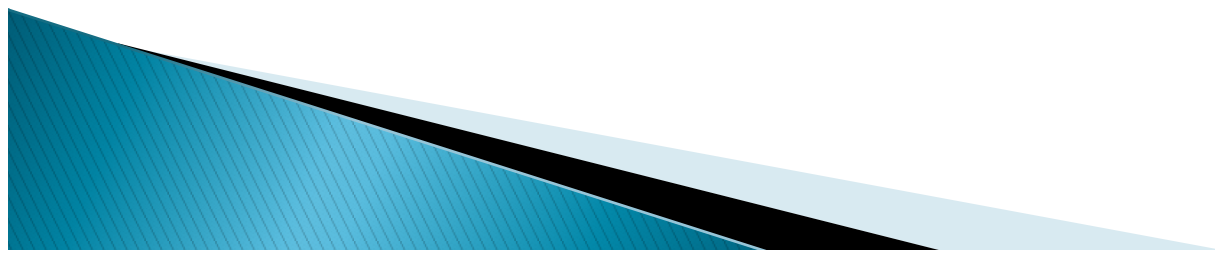
What O&M can be done with little cost and local resources?

- ▶ Make a site plan
- ▶ Ditching for drainage
- ▶ Routine cover & compaction
- ▶ Signage
- ▶ Segregating waste
- ▶ Discourage burning
- ▶ Record Keeping
- ▶ Others: Community Education, Waste Diversion, “Pitch-In” community litter clean-up event.



Benefits of Improved O&M

- ▶ Minimize environmental contamination
- ▶ Minimize health & safety risks
- ▶ Extend the lifespan of the site
- ▶ Improve aesthetics, odour etc.
- ▶ Routine O&M makes long-term O&M more manageable
- ▶ Routine O&M with record keeping – potential to re-classify “Refuse” to “Landfill” with increased annual funding?

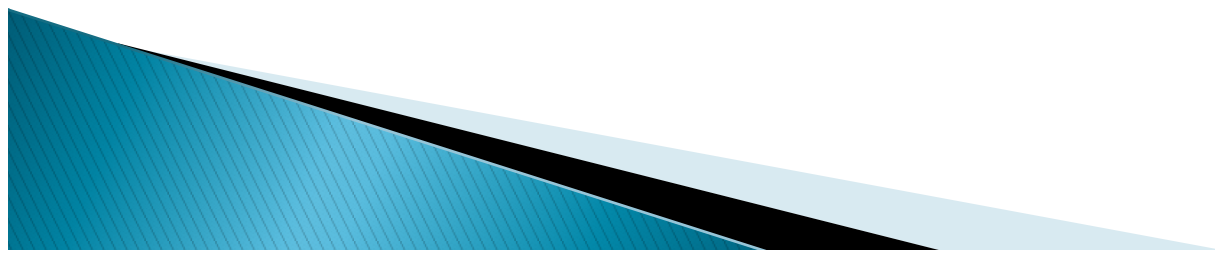


WASTE DIVERSION

Separating Waste

Separate piles for waste that does not need to be covered:

- ▶ Wood waste (safe for burning)
- ▶ Scrap Metal/“White Goods” (i.e. appliances)
- ▶ Furniture/Bulky Material
- ▶ Construction Waste
- ▶ Tires
- ▶ Electronics
- ▶ Hazardous Waste



Wood Waste



Scrap Metal



White Goods



Tires

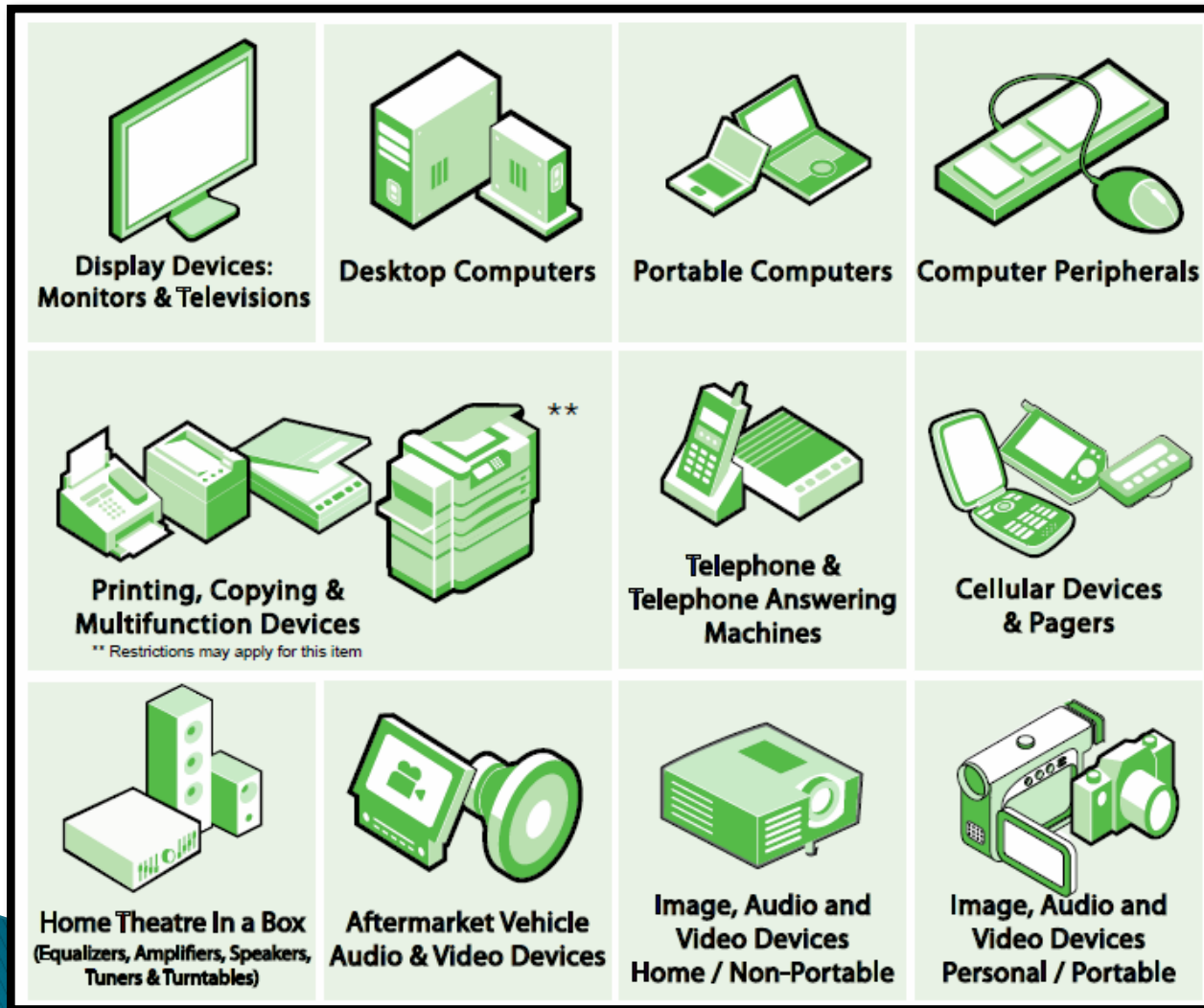


Ontario Tire Stewardship

- Free hauling for registered tire “collectors”
- Offer an allowance of \$0.88 per passenger light truck tire



Electronics



Ontario Electronic Stewardship

- Register as a “collector”
- Permanent collection site or hold an “event”
- OES pays \$150 – \$235* per tonne (1000kg) of electronics

(*2015 rates)

Hazardous Waste



Hazardous Waste

BATTERIES

Hazardous Waste

AEROSOLS

Hazardous Waste

**FLUORESCENT
BULBS**

Hazardous Waste

PAINTS

Separating Waste

- ▶ Where do we store this waste? Can you think of possible locations within your own community?
- ▶ Any innovative ideas for storage using existing infrastructure, assets and materials in the community?



Question!

WASTE REMOVAL

Waste Removal

So we've sorted our waste and diverted out of our local landfill, now what?

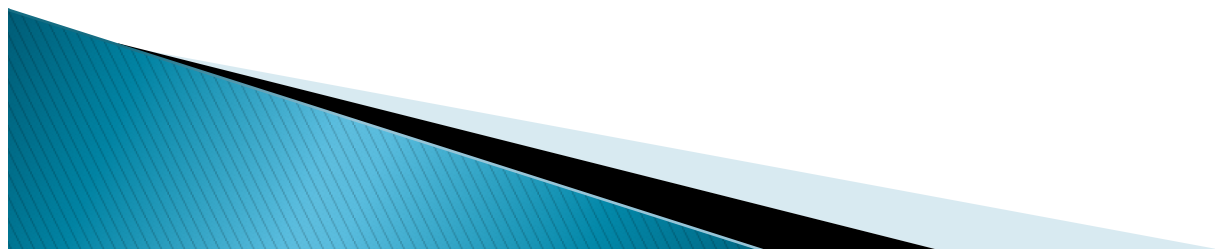
- ▶ How do we get it out of the community?
- ▶ How do we afford to do so?
- ▶ What challenges do we face removing this waste?
- ▶ Has your community had any success in waste removal by winter road or other? If yes, what type of waste was removed?



Question!

Success Stories

- ▶ Scrap vehicle prep and partial removal (Wunnumin Lake)
- ▶ Scrap metal tank removal – through soil remediation projects
- ▶ Removal of automotive batteries – through soil remediation project
- ▶ Waste oil removal project
- ▶ Waste oil boiler / furnace



PERMITTING

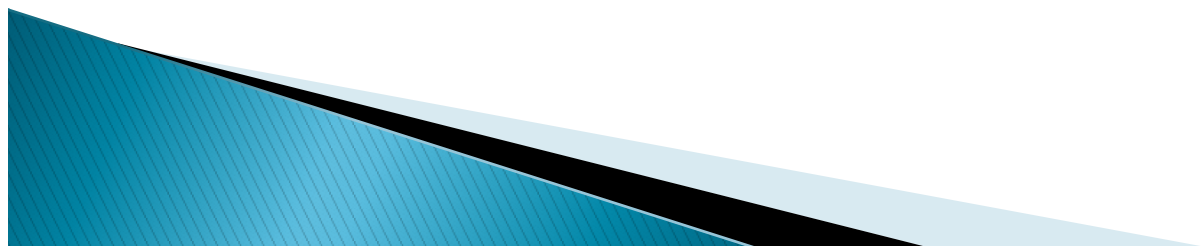
Permitting

On-reserve permitting

- ▶ No permits specific for landfills on-reserve
- ▶ ACRS identifies these site

Off-reserve permitting

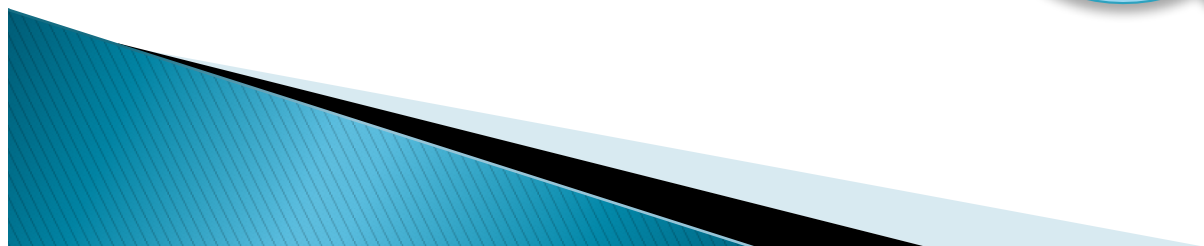
- ▶ MNRF and MOECC involved in permits
- ▶ MNRF requires Land Use Permit
- ▶ MOECC requires Certificate of Approval
- ▶ Option for FN corporation to buy the land (liability & responsibility with FN, but INAC still funds O&M)



OTHER CHALLENGES?

Other Challenges?

Are there any other challenges for waste management that your remote community faces that we haven't discussed yet today?



Thank you! Miigwetch!



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