

Landfills and Incineration

Where are we now? Where are we going?

Ministry of Environment
Environmental Protection Branch
Environmental Assessment and Stewardship Branch

SARM Mid-year Convention
November 8, 2017



Government
— of —
Saskatchewan

Overview

- Landfills
- Incineration
- Solid Waste Management Strategy
- Household Hazardous Waste



The Known



Government
— of —
Saskatchewan

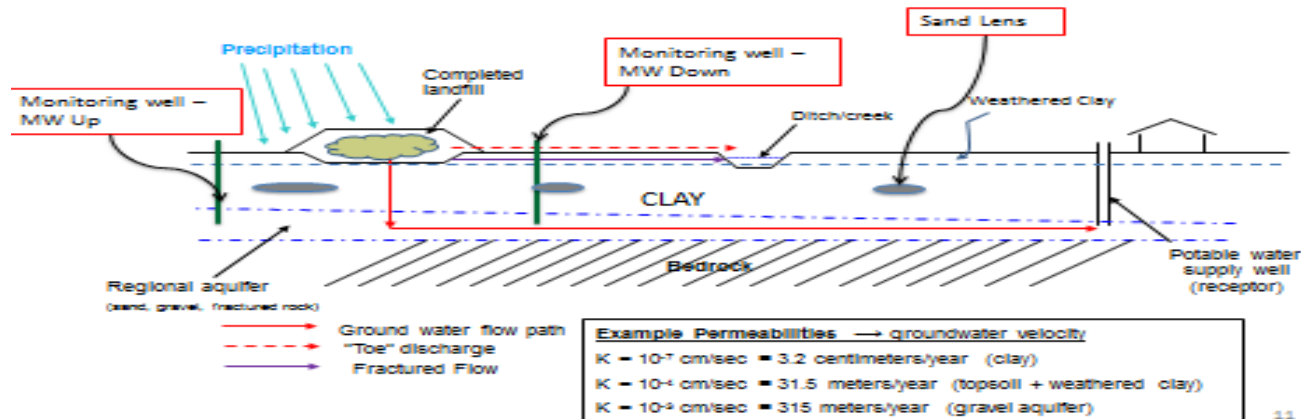
No leachate collection system



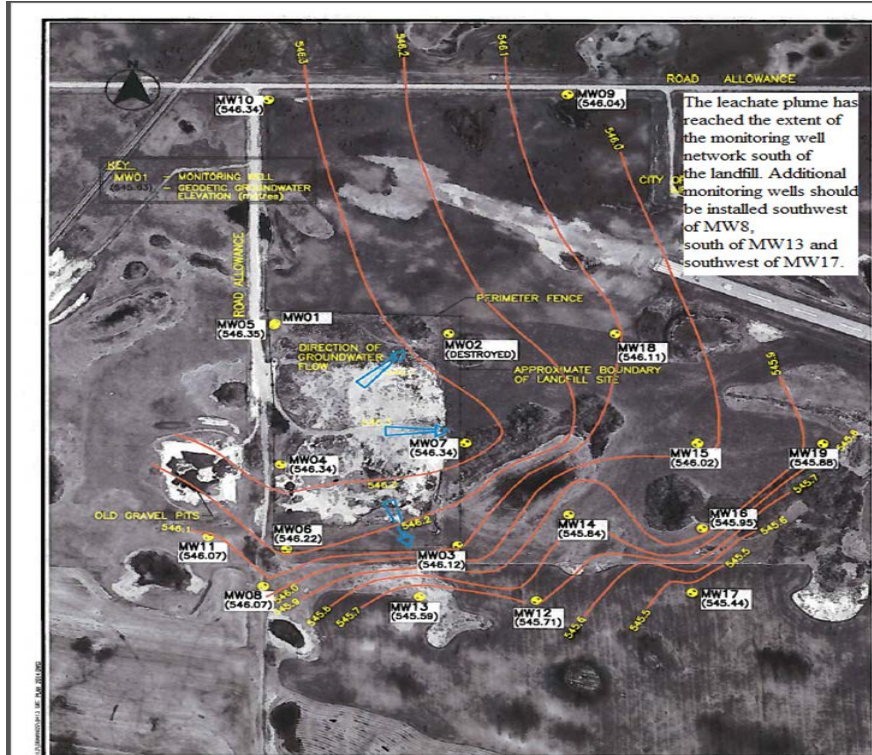
Government
of
Saskatchewan

Who Has Impacts?

NOT iust large



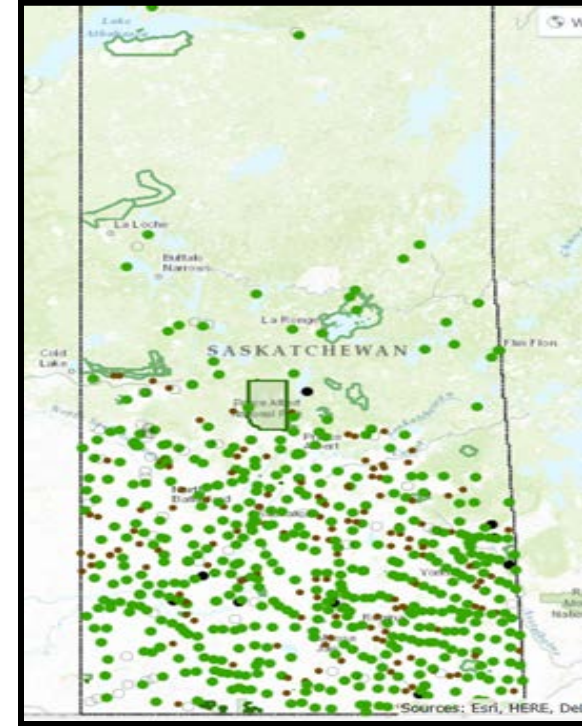
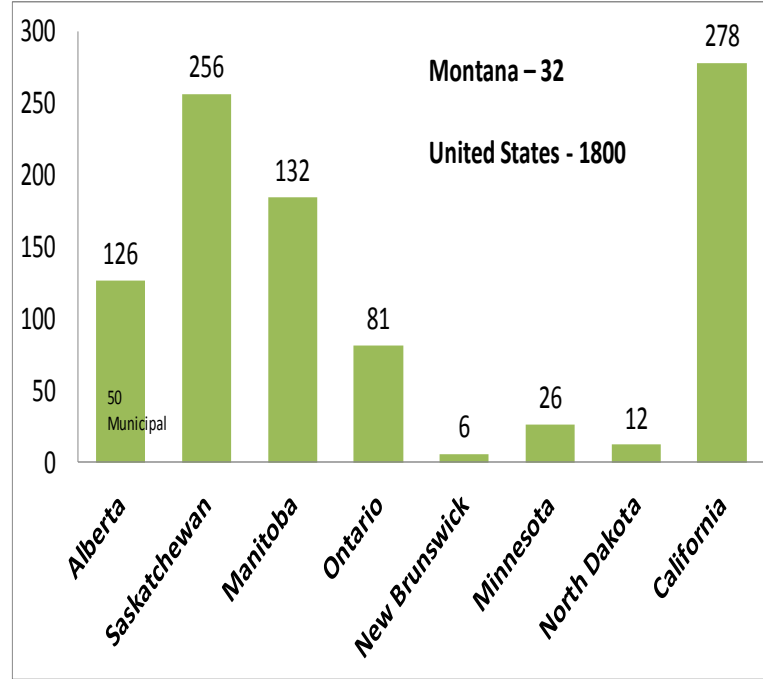
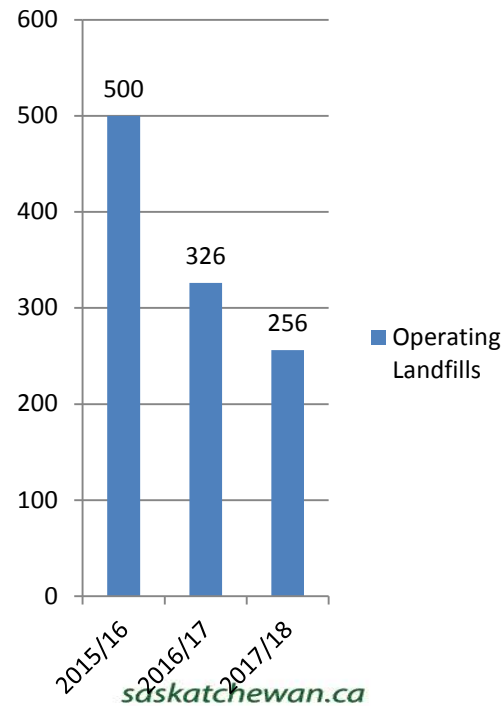
Present - Transition to the Future



“The test results indicate that **elevated concentrations** of selected MSW leachate indicator parameters were detected in nine of the piezometer locations. **Leachate from the landfill is impacting the water quality of the underlying aquifer.** Elevated leachate parameters were detected in the groundwater in piezometers GE 101, GE 102, GE 106,..... It is evident that the **leachate plume has migrated offsite** to the west. The limit of the leachate plume has not yet been determined.”

Number of Landfills in SK

Operating Landfills by Fiscal Year



There are NO new regulations

- Requirements are from 1986 *Municipal Refuse Management Regulations*
- *Environmental Management and Protection Act, 2010* covers IWW's and burning
- Approved construction and compliant operation was always required (change is to more focus on compliance)

- Modernization of legislation
 - To be consulted with the SWMS
 - *Municipal Refuse Management Regulations* are up for Red Tape Review to be done with SWMS consultation
- Code Chapters
 - No plans for landfill chapter (or any waste management) to move forward at this time
 - Could codify lower risk waste activities prior to landfills (transfer stations, compost facilities, recycling facilities)
- Best Management Practice
 - Most common is Alberta
- MRMR Red Tape Review

Innovation

- How do we work together
 - Regionalize closure/decommissioning work
 - Reduced mobilization costs
 - Grant opportunities
- Types of waste management sites
 - Waste management sites based on waste type
 - Inert landfills (?)
- Types of recycling
 - C&D recycling, shingles

**Aspen Innovation Park/16-43 Waste Management

Fictional Landfill – Tipping Fee Range

Tipping Fee	Low Range (\$/tonne)	High Range (\$/tonne)
5,000 tonnes/yr	143	245
10,000 tonnes/yr	112	183
20,000 tonnes/yr	67	109

Benefits of Working Together – Economies of Scale

Present - Transition to the Future



Present – Transition to the Future



Site Closure and ESA's

- Timelines to complete Environmental Site Assessments (ESA) are site specific based on compliance and risk
- Once a site closes the ministry will provide a timeline for the ESA typically 2-5 years but high risk could be 1 year
- The ministry works with sites to allow for funds to be in place to complete work
- The ESA informs the Corrective Action Plan (CAP), the work and timelines for CAPs are site specific based on any impacts or potential for impact
- Many sites are being proactive and completing these steps

Incineration – Current State

- No municipal incinerators for mixed waste are currently operating in Saskatchewan.
- There are incinerators approved for single stream wastes such as animal carcasses and organics currently operating in Saskatchewan.
- The Wainwright Alberta incinerator was unable to meet its stack test requirements. The environmental tests were over the limits for dioxins and furans of 80 picograms, so the Authority decided on April 21, 2015 to suspend its incinerator operations.
- Southern Alberta Energy From Waste Project (www.saewa.ca)
 - 62 municipalities approx 350,000 tonnes of waste/year indicates enough waste to operate facility
 - \$500,000,000 capital \$1,500,000,000 operating over 50 years = approx \$130/tonne
 - Energy revenue creates net cost = approx \$80 tonne and potential for GHG offsets
 - 40-50 jobs created for operations
 - No recent information since 2015 due to ability to transport waste to lower cost options
- The costs to operate a landfill in SK covers a wide range of factors due to the variable site-specific conditions found across the province.



SK Regulatory Approach

EMPA (General) Regulations

Industrial activity

- 13 For the purposes of clause 51(d) of the Act, the burning of any of the following substances constitutes an industrial activity:
 - (a) waste or spent lubricating oil;
 - (b) hazardous substances;
 - (c) hazardous wastes;
 - (d) motor vehicle tires;
 - (e) animal carcasses;
 - (f) railway ties and other wood treated with wood preservatives;
 - (g) waste materials from building or construction sites;
 - (h) trash, garbage or other waste from commercial, industrial or municipal operations;
 - (i) materials containing rubber or plastic;
 - (j) spilled oil or oil production by-products;
 - (k) materials disposed of as part of reclamation operations;
 - (l) animal manure.

Permit required

- 14 (1) A person who intends to engage, or who engages, in an industrial activity is required to obtain a permit.
- (2) The minister may impose any terms and conditions on the permit mentioned in subsection (1) that the minister considers appropriate



SK Regulatory Approach

Industrial Air Source (Air Quality) Chapter

- Anyone operating an incinerator in Saskatchewan, including a municipal waste incinerator, is required to submit an Environmental Protection Plan (EPP) certified by a Qualified Person (QP) for ministry review and approval.
- An EPP is a plan that spells out the overall environmental management of an industrial source.
- An incinerator is designed to destroy garbage, wood waste, refuse, liquid or gaseous waste, or any other non-toxic or toxic waste materials and is capable of controlling:
 - time
 - turbulence
 - temperature



SK Regulatory Approach

Authorization to operate a municipal waste incinerator requires:

- **Proponent self-assessment**
 - A preliminary assessment of the expected impacts of the proposed project on the environment and their relative significance to identify whether a project is likely to be a 'development' under Environmental Assessment and requires approval of the Minister of Environment.
- **Meeting air quality stack testing standards agreed to at the Canada-wide level**
 - In addition to meeting the Saskatchewan Ambient Air Quality Standards, incinerators need to meet the Canada-wide Standard for dioxins and furans.
 - Operators should provide stack test data (emission data) to the ministry prior to the purchase of an incinerator.



Government
— of —
Saskatchewan

SK Regulatory Approach

Plus:

- **Testing of residual ash to determine its appropriate disposal method**
 - The *USEPA Test Method 1311, Toxicity Characteristic Leaching Procedure – TCLP* provides guidance to determine if ash is safe to dispose of in a municipal landfill.
 - This method analyzes residuals and is designed to simulate the process a material would be subjected to if placed in a landfill.
- **Submission of an EPP for ministry review and approval**
 - It is up to a Qualified Person to design an EPP to ensure the municipal incinerator does not create adverse effects on the environment.



Government
— of —
Saskatchewan

Air Pollution Health Impacts

- Dioxins and Furans
 - Cancer
 - Liver problems
 - Impairment of the immune system, endocrine system and the reproductive system
 - Effects on systems of the young

Plastics

or other materials causing chlorine



Government
— of —
Saskatchewan

Economic Challenges of Municipal Waste Incineration

- Incineration facilities are often designed to recover energy to offset the operational costs
 - Designed around a specific input of waste
 - Often rely on all waste in a region to support operations
 - Subject to market uncertainties (price of power, cheaper waste disposal methods, etc).
- Cost to dispose of residue ash
 - Dependent on the testing results the ash may be considered hazardous waste and need to be disposed of at an appropriate facility.
 - Waste is reduced by 80%, the remaining 20% exists as residual ash
- Cost of on-going monitoring
 - Stack testing
 - Ash testing



Important Links

- Municipal Incineration Factsheet:

<http://publications.gov.sk.ca/details.cfm?p=79443>

- Section 13 and 14 of *The EMPA General Regulations*:

<http://www.publications.gov.sk.ca/details.cfm?p=73291&cl=5>

- Industrial “Air Quality” Source Chapter:

<http://www.publications.gov.sk.ca/details.cfm?p=77463>



Government
— of —
Saskatchewan

Contact Information

Client Service Office – 1-800-567-4224

Centre.inquiry@gov.sk.ca

Turn in Poachers and Environmental Violations (illegal dumping or burning) – 1-800-667-7561 or #5555 on sasktel cell or

<http://www.environment.gov.sk.ca/tipweb>

Sarah Keith, Director Air and Land Management – (306) 953-3477 sarah.keith@gov.sk.ca

Saskatchewan Solid Waste Management Strategy (SWMS)

November, 2017

Saskatchewan Association of Rural
Municipalities

Vision for Sustainable Solid Waste Management in Saskatchewan

- Development of a Provincial Strategy.
- Engage the public, stewards, industry, First Nations and Métis communities, to improve waste management.
- Long term vision is to change the way we view, create and manage waste in the province, becoming more sustainable, innovative and economical.

Let's talk Waste Management!

Engagement Spring 2017



Public Engagement on the Solid Waste Management Strategy Discussion Paper



- 91 in-person participants
- 64 online survey response
- 42 webinar participants
- 32 written submissions

Engagement workshops, online survey, written submissions



Draft Saskatchewan Solid Waste Management Strategy

- Establishing a vision for waste management and reduction
- Three Strategic Priorities
 - Landfill Management
 - Waste Stewardships and Recycling; and
 - Government Leadership

SWM Strategy Package:

Draft Strategy and Action Plans

- 10-year strategy includes:
 - Goals, Objectives, Performance Measures; and
 - Mechanism for internal review and continuous improvement.
- 2-year operational action plans that includes:
 - Collective program planning;
 - Decision making on priorities and commitments; and
 - Performance targets to ensure alignment with strategy goals and objectives.

Next Steps

- Completion of the draft Solid Waste Management Strategy and action plans that incorporates feedback received from internal and external stakeholders.
- Once complete the final draft of the strategy and action plans will be made available online for public comment.
- Currently planning additional in-person engagement for January 2018.
- Final strategy implementation - 2018/19 Fiscal Year.

Household Hazardous Waste (HHW) Management

Stakeholder and Public Engagement
on Draft Regulations

Household Hazardous Waste (HHW) in Saskatchewan

- Illegal to dispose of in landfills according to the Municipal Refuse Management Regulations; Section 10(1). However, no provincial regulation or program exists to manage these wastes.
- Currently HHW is managed independently by municipalities. Programs are inconsistent and vulnerable to funding and resource shortages.
- During the spring engagement on the Solid Waste Management Strategy Discussion Paper - 78% of survey respondents identified HHW as an important priority to support waste diversion and recycling.

Definition - HHW Products

- CSA Standard Z752-03, Definition of Household Hazardous Waste, including, but not limited to;
 - devices, equipment, material, products and substances that meet the criteria for **flammable, corrosive, physically hazardous, toxic or environmentally hazardous**;



FLAMMABLE



POISON



EXPLOSIVE



CORROSIVE

- But not including medical sharps.

Proposed HHW Regulations - Feedback

- Survey announced during proclamation of Waste Reduction Week, October 16th to 22nd
 - Survey and summary of proposed regulations available on saskatchewan.ca
 - Online consultation ending December 15, 2017

Thank you – Any Questions?

Jameel Rashid

Environmental Assessment and Stewardship Branch

Phone: 306-787-0783

Email: jameel.rashid@gov.sk.ca

Consultation website:

<http://www.saskatchewan.ca/government/public-consultations/responsible-waste-management-survey>



We do not inherit the earth from our
ancestors, we borrow it from our children.
-Native American Proverb

saskatchewan.ca