The Manitoba Contaminated/Impacted Sites Program

Presentation to the
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Manitoba

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Format

- Contaminated / Impacted Sites Program
- Examples of investigations and remediation

Part 1

- Contaminated / Impacted Sites Program

The Contaminated Sites Remediation Act (CSRA)

Main Features

- What it does not cover
- Reporting Requirement
- Designation of Sites
- Determination of Responsibility
- Remediation Plans
- Revocation of Designation

What is not covered by the CSRA

The CSRA does not apply to a site to which the provisions of the following Acts respecting the rehabilitation of land apply:

What is not covered by the CSRA

(a) *The Oil and Gas Act;*

(b) *The Mines and Minerals Act*;

(c) *The Peatlands Stewardship Act*.

What is not covered by the CSRA

- The rehabilitation provisions of any licence issued under *The Oil and Gas Act* are administered by the Petroleum Branch

What is not covered by the CSRA

- The rehabilitation provisions of any licence issued under *The Mines and Minerals Act* and *The Peatlands Stewardship Act* are administered by the Mines Branch

What is not covered by the CSRA

- If your operation is licensed under *The Oil and Gas Act, The Mines and Minerals Act*, *The Peatlands Stewardship Act*, the licence will indicate what is required to comply with the licence and what the licence covers.

CSRA

- If the CSRA applies then the following applies

CSRA

Reporting requirement

- The owner or occupier of a site that is contaminated at a level above an environmental quality standard (as defined in the Regulation) must submit the report for review.

CSRA

Designation

The CSRA enables a site to be designated as either:

CSRA

A *contaminated* site — if the site is contaminated at a level that poses a threat to human health or safety or to the environment; or

CSRA

As an *impacted site* — if the site is contaminated at a level that does not currently pose such a threat, but that may pose such a threat in the future.

CSRA

Designation of contaminated sites

- When a sites is designated as contaminated, notices are sent to the owner/occupier, the municipality ands a note is placed on the land title for the site.
- A public registry of contaminated sites is maintained and the list of contaminated sites is shown on our website

CSRA

Designation of impacted sites

- When a sites is designated as impacted, a notice is sent to the owner/occupier.
- A public registry of impacted sites is maintained and the list of impacted sites is shown on our website

CSRA

Determination of Responsibility

- Owner of an designated site is normally responsible for remediation of the site.

CSRA

Determination of Responsibility

- If an owner believes that they are not responsible or should not be solely responsible they may apply to determine responsibility.

CSRA

Remediation

- Remediation of any designated site must be authorized by the department.

CSRA

Submission of Remediation Plan

- Owner of a designated site must prepare a plan to address the risks from the contamination at a site and submit the plan to the department for review.

CSRA

Submission of Remediation Plan

- For designated contaminated sites, a Remediation Plan must be submitted within 30 days.
- For designated impacted sites, a Remediation Plan must be submitted within 90 days.

CSRA

Submission of Remediation Plan

- A Remediation Plans can be any action that address the risk posed by the contaminants on the site.
- Remediation orders for an designated site could also be issued by Director.

CSRA

Remediation Plans - Examples

- excavation and ex-situ treatment (dig and dump)

CSRA

Remediation Plans - Examples

- bio-remediation

CSRA

Remediation Plans - Examples

- monitored natural attenuation, risk management.

CSRA

Revocation of Designation

- Director can revoke the designation of a site if the site is no longer contaminated at a level that poses or may pose a risk.

CSRA

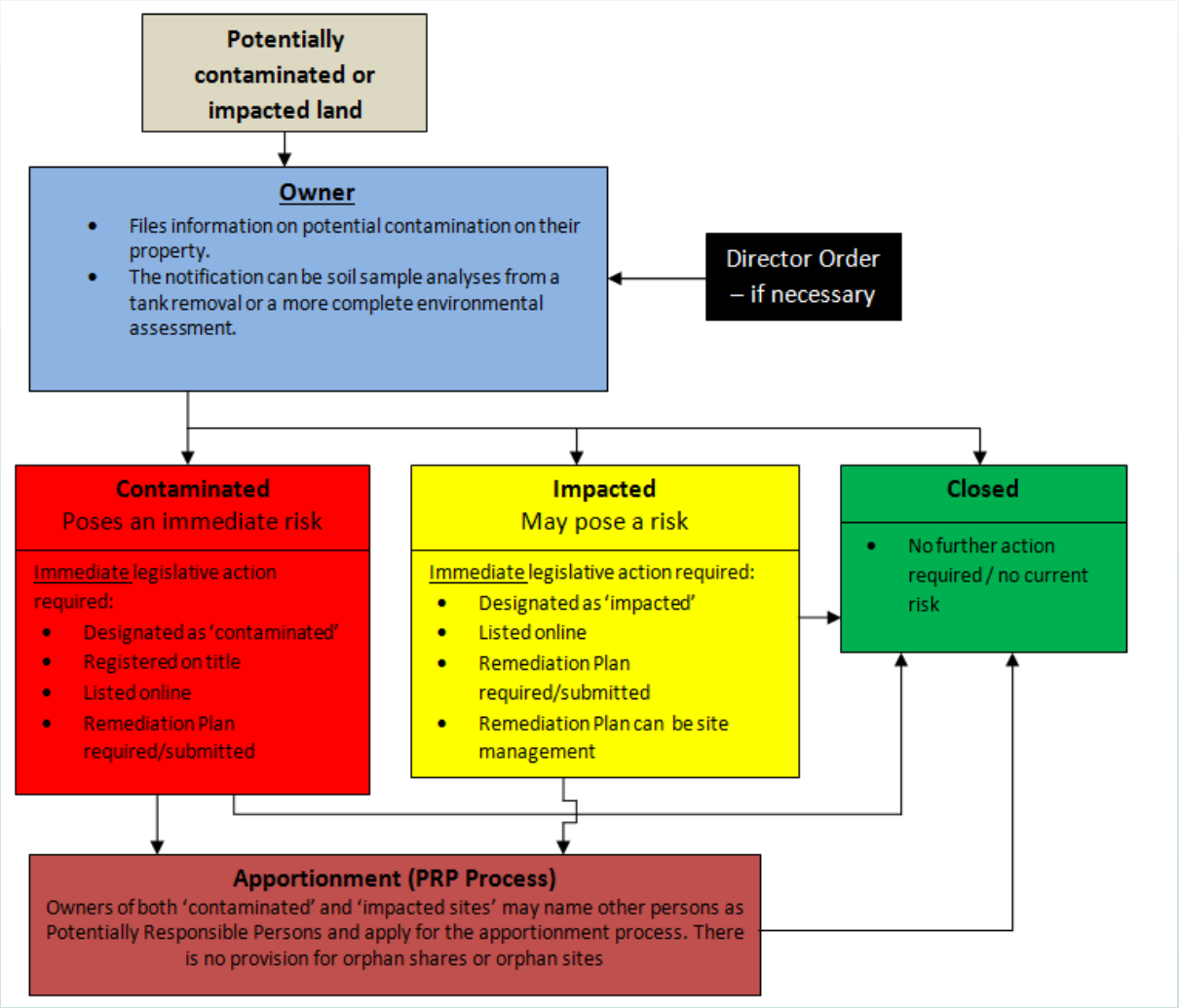
Revocation of Designation

- When the designation is revoked, notice to the owner/occupier and the site is removed from the appropriate registry.
- For contaminated sites, notices of revocation are also sent to the municipality and land titles

Contaminated Sites Process

- So, what, in practice, do we do with a contaminated or impacted site?

Contaminated Sites Process



Contaminated Sites Process

- First Step: Typically property owner retains a qualified Environmental Professional to conduct Phase I ESA (historical background search of property/site visit

Contaminated Sites Process

- Phase I ESA may result in identification of potential environmental impacts, leading to a Phase II ESA.

Contaminated Sites Process

- Phase II ESA involves intrusive investigation (drilling boreholes, installing monitoring wells, recovering soil and groundwater samples)

Contaminated Sites Process

- The recommendations of a the Phase II ESA will lead to a Remediation Plan or further investigation

Contaminated Sites Process

- When ready, the Remediation Plan is submitted for approval and is then implemented by the owner/occupier or their agent

Contaminated Sites Process

- When the remediation is complete, a closure report is submitted for review.
- In some cases, the initial remediation is followed up by long term site management.

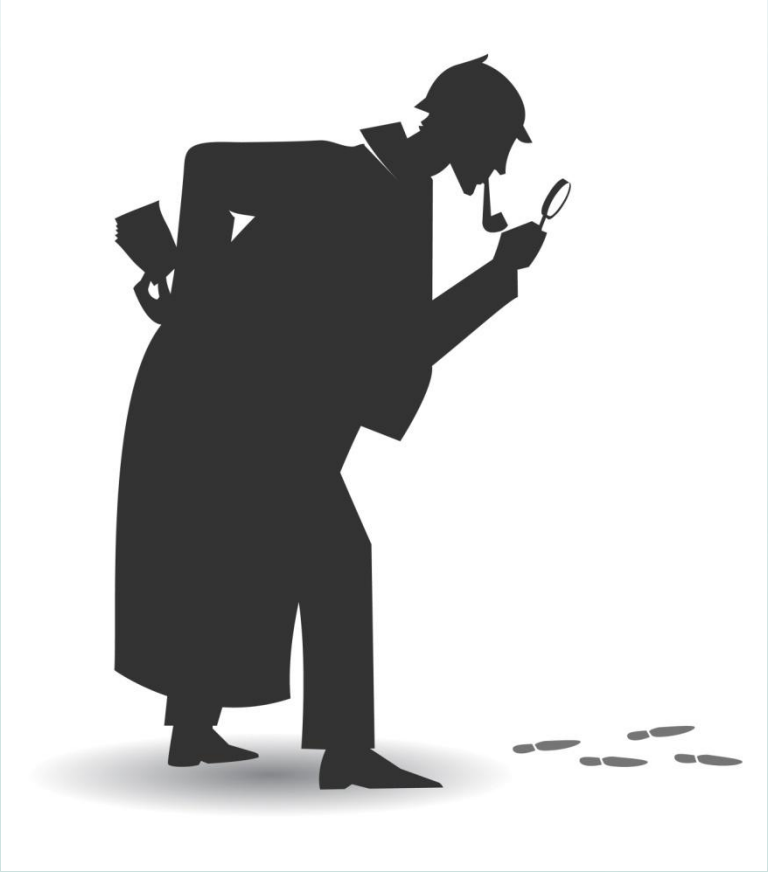
Contaminated Sites Process

- After review of the closure report, a closure letter may be issued by Manitoba Conservation
- If further work is required, such as site management, a letter authorising the additional work is issued.

Part 2

- Examples from the field

Investigations



Examples: Investigations

Typical subsurface investigation

Examples: Investigations

Recovery of soil off of solid-stem augers

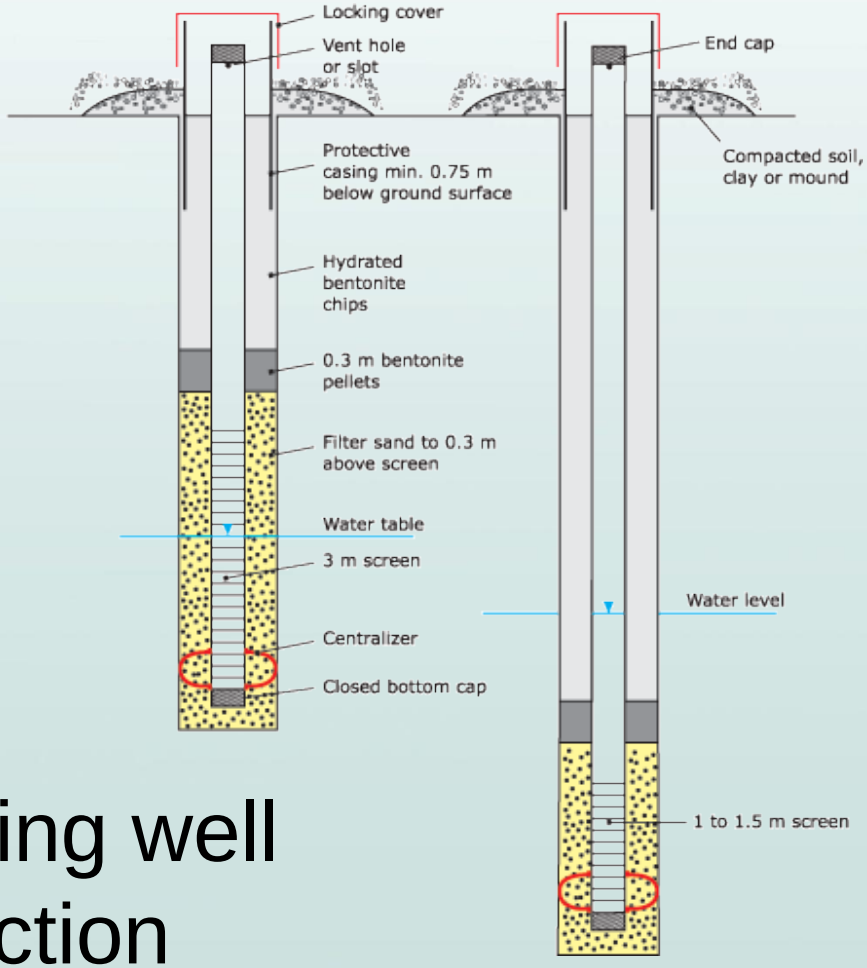
Examples: Investigations

Recovery of soil from split spoon sampler

Examples: Investigations

Installing a monitoring well – Geotek Engineering & Testing, Sioux Falls S.D

Examples: Investigations



Monitoring well construction

Examples: Investigations

Monitoring well nest – these wells were completed at progressive depths to sample different horizons

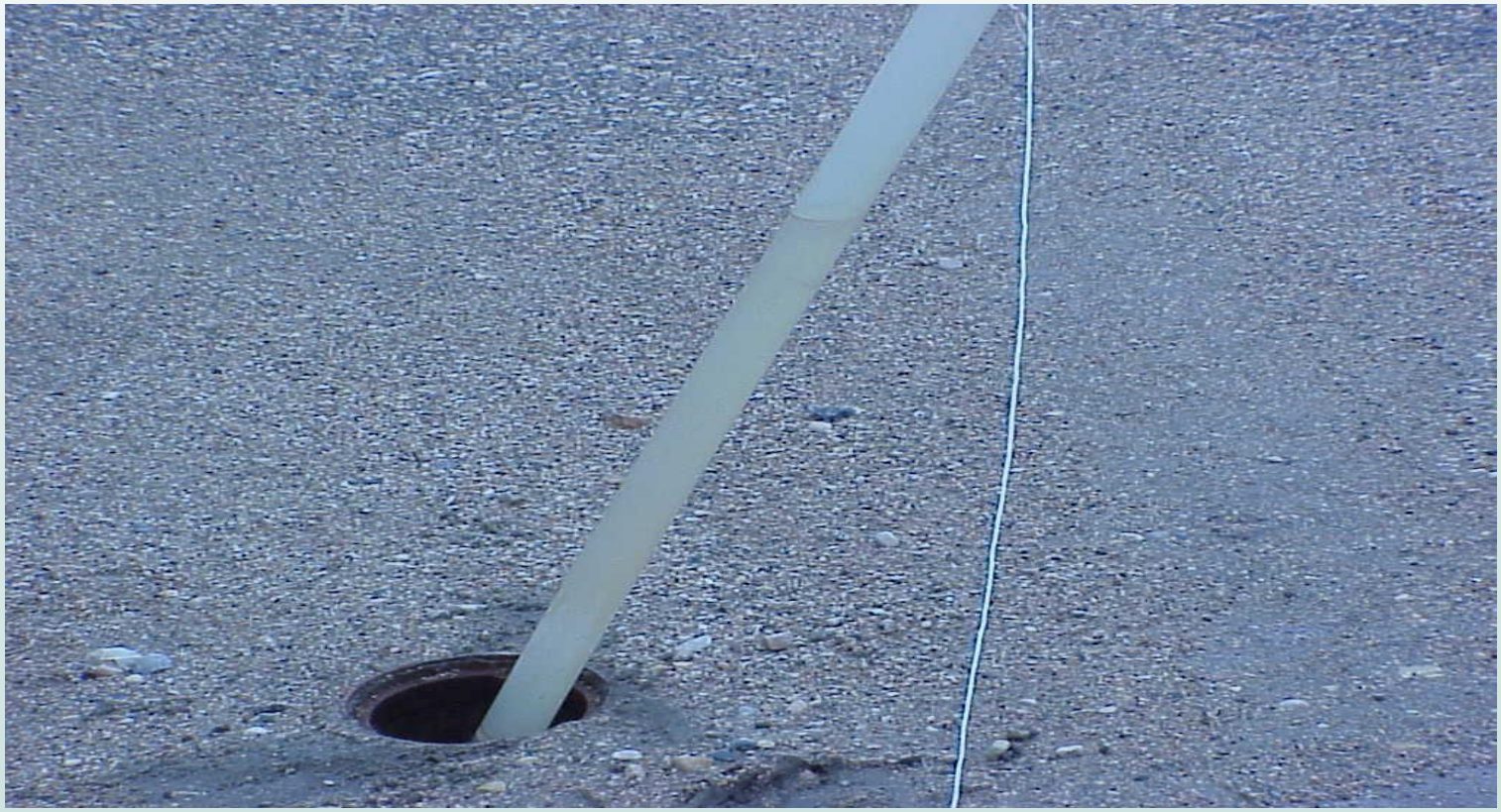
Examples: Investigations

Monitoring well typical flush mounted monitoring well

Examples: Investigations

Monitoring well typical stand up monitoring well

Examples: Investigations



Sampling with a bailer

Examples: Investigations

Sampling free product with a bailer

Examples: Investigations

Quality inside out

SQFlex pumps have built-in protection features that protect the pump itself and in many cases the well. Among these features are:

- Protection against dry-running, overloading and overheating
- Automatic restart when water returns to the well or when the motor temperature returns to the safety range
- Continuous load condition and voltage monitoring

Bearings
Powerful carbon/ceramic bearing system ensures high reliability.

Power transmission
The unique Grundfos micro frequency converter ensures power transmission to the motor.

Motors
Two motor sizes are available for the SQFlex system with built-in unique features: 3000 rpm for helical pumps and 3600 rpm for centrifugal pumps segmented stator and permanent magnet rotor for high efficiency and starting torque.

Any voltage
A wide voltage range enables the motor to operate at any voltage between 30V and 300V DC or 90-240V AC, which makes installation and sizing especially easy.

Pump casing
Stainless steel for long pump life.

Helical rotor pump (3")
Based on original pumping principles, the helical rotor pump uses a few, simple components for effective pumping – medium to high head and medium to low flow.

Communication
Two-way communication between control unit and pump eliminates the need for additional wires.

System efficiency
Maximum Power Point Tracking (MPPT) means even and high system efficiency regardless of power source.

Sand slinger
To ensure maximum protection of the motor and thus extended motor life, the SQFlex pumps are equipped with a composite sand slinger on the motor shaft as standard. The sand slinger rotates with the shaft, thereby pushing sand away from the centre and out through three grooves in the pump sleeve. Another distinctive benefit is that pump and motor can be replaced independently of one another, in case one of them wears out.

Dry-running protection
This unique feature shuts down the pump if it detects water shortage. It protects the well from being over-pumped and the motor from burning out. The pump restarts automatically when water returns to the well.

Centrifugal pump (4")
Technology based on 30 years' experience enables high flow in shallow water conditions. Stainless steel components give high wear resistance.

Down hole submersible pump

Examples: Investigations

Low flow groundwater sampling

Examples: Investigations

Vapour sampling with a Summa bottle

Remediation

Remediation Examples

UST Removal – exposing tanks

Remediation Examples

UST Removal – removing tanks

Remediation Examples

UST Removal removing tanks

Remediation Examples

Removing contaminated soil, note white absorbent pads under the product line

Remediation Examples

Contaminated soil removed, note dark stains on wall. The contamination probably extends under the street

Remediation Examples
Domtar Site

Domtar: 3 million dollar + cleanup in Transcona

Remediation Examples

Domtar Site

Treatment of surface water before leaving Domtar site

Remediation Examples

Domtar Site

Contaminated water at Domtar site

Remediation Examples

Domtar Site

This house was moved to access creosote that had migrated from the Domtar site

Remediation Examples

Domtar Site

Excavation next to houses

Remediation Examples
IKO Site

Seine River diverted to access impacts from IKO Site

Remediation Examples
IKO Site

Contaminants on site included:

- Bunker C oil,
- diesel fuel, creosote,
- coal tar, asphalt,
- asphalt flux oil,
- waste shingles & roofing paper

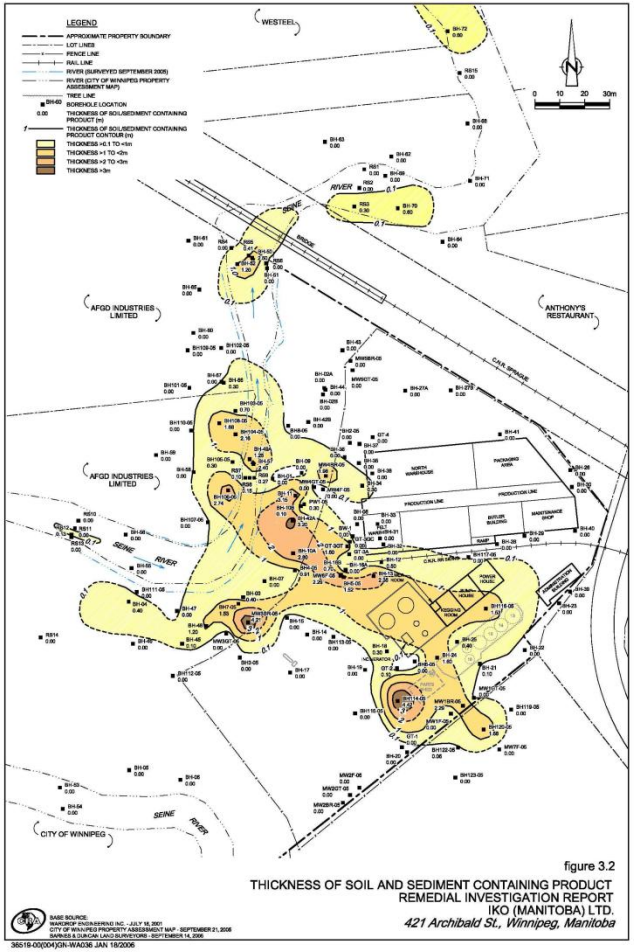
Remediation Examples
IKO Site

Asphalt storage

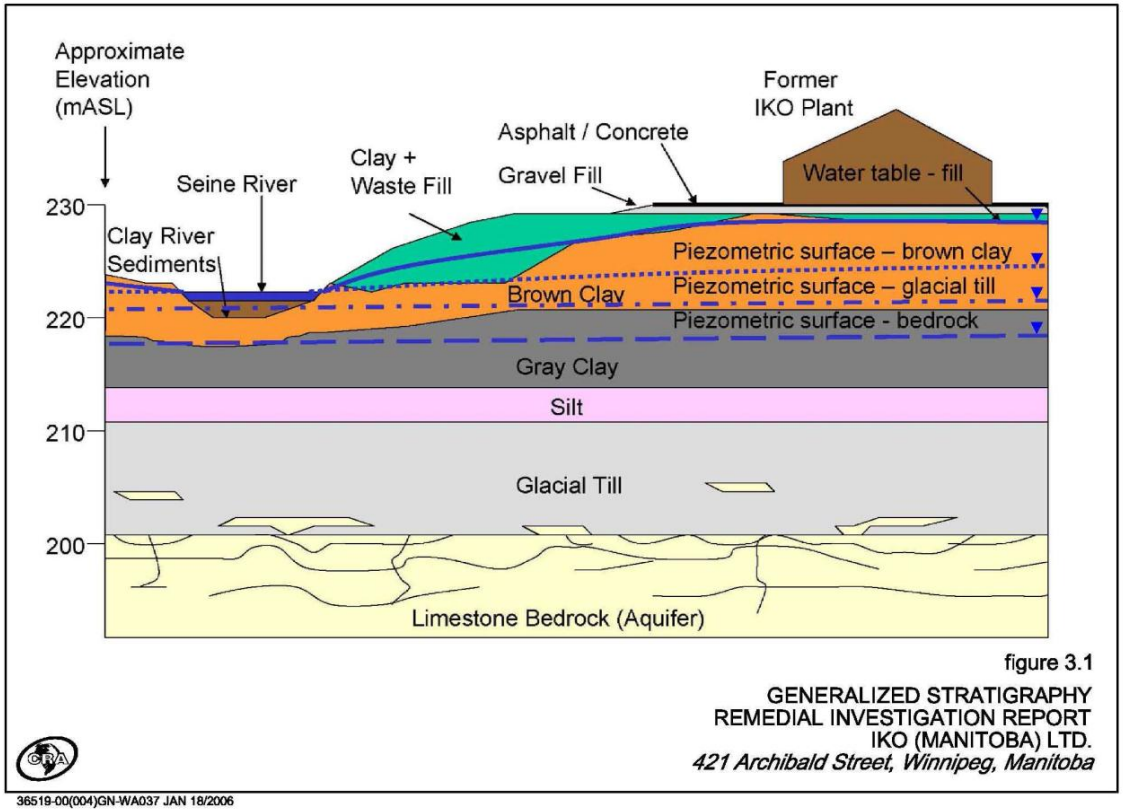
Remediation Examples
IKO Site

Key contaminants were

- Polycyclic aromatic hydrocarbons (PAH)
- benzene, toluene, ethylbenzene and xylene (BTEX)



Remediation Examples
IKO Site



Cross section of site

Remediation Examples
IKO Site

Excavation at IKO site – PAH & BTEX contamination

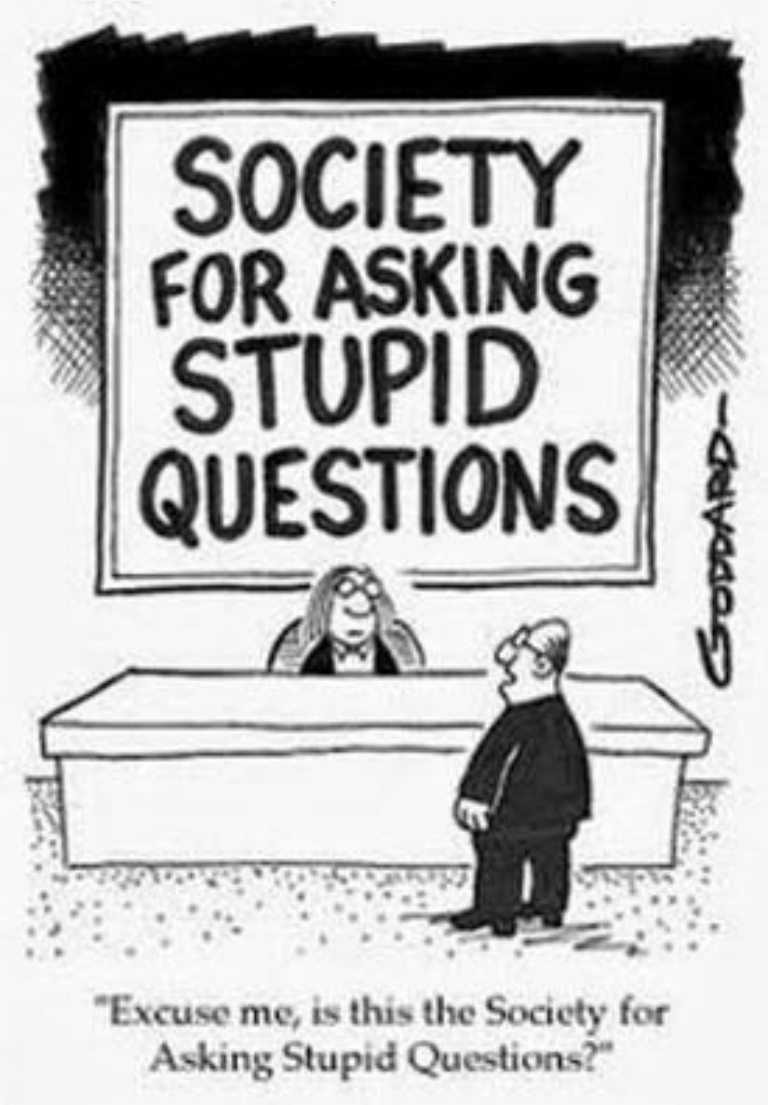
Remediation Examples
IKO Site

November
2009

Remediation Examples
IKO Site

December 2009

Questions


SOCIETY FOR ASKING STUPID QUESTIONS
GODDARD
"Excuse me, is this the Society for Asking Stupid Questions?"