



# **Financial Measures and Reporting for Contaminated Sites**

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# Outline

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- Canada and Alberta Context
- Financial Measures
- Contaminated Site Reporting

# Canadian Environmental Governance

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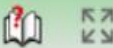
- Governance is split between Federal government, Provinces, and Territories
- Federal environmental jurisdiction:
  - Activities on Federal land
  - Activities that cross Provincial boundaries
  - Activities that affect aboriginal populations
- Provincial and Territorial environmental jurisdiction:
  - All activities that take place on Provincial land
  - Each Province develops their own environmental regulations, policies, and practices
- As a result, approaches to environmental regulation vary across Canada

# Canadian Resource Sector

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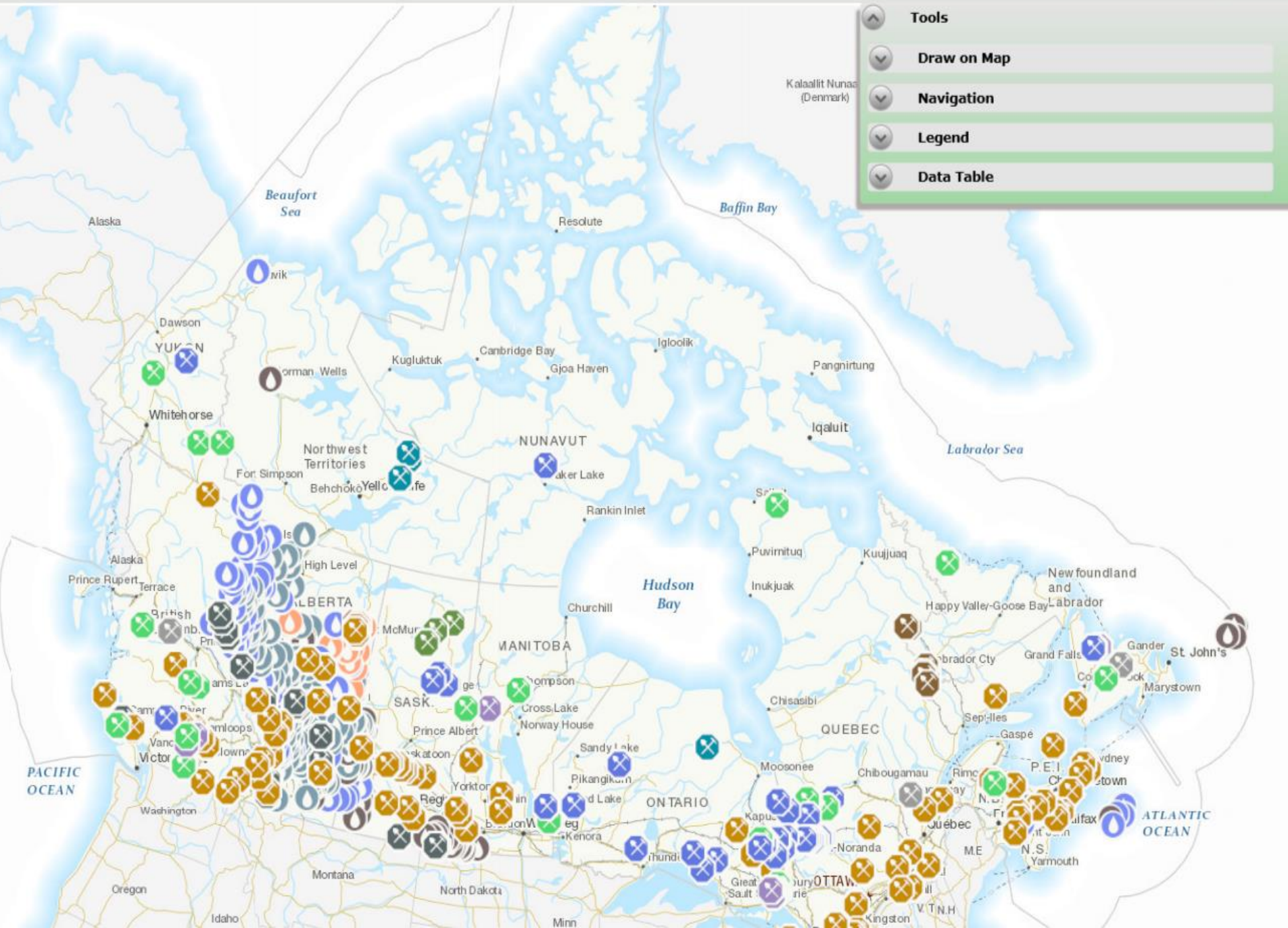
- Resource extraction is a major economic driver in Canada
- Resource extraction industries include:
  - Metal mining
  - Diamond mines
  - Coal
  - Oil and natural gas
  - Oilsands
  - Aggregates (sand & gravel)
- Advances in technology allow larger and more intensive projects
- Environmental regulations have increased to keep pace with the degree of development

# Minerals and Mining Map 2013



**Tools**

- Draw on Map
- Navigation
- Legend
- Data Table

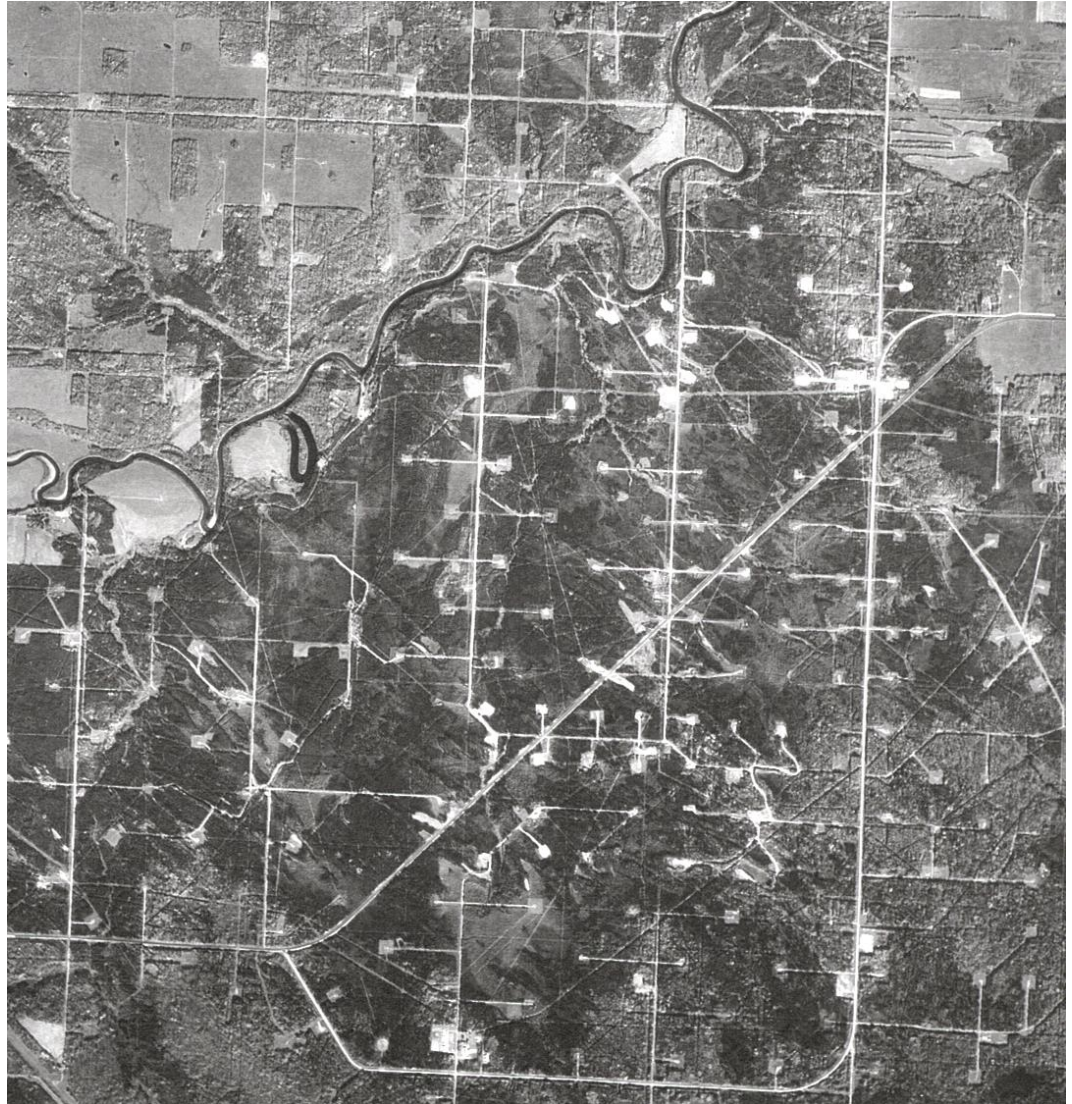


# Alberta Context

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- Oil and natural gas activity
  - 400,000 wells
  - 415,000 km pipelines
  - 81,000 ha disturbed by oil sands mines
- Coal mines
  - 7 active open pit coal mines
    - ~9,000 ha total area
  - ~2,000 abandoned coal mines
- Aggregate mine
  - ~2,300 pits
  - ~ 24,000 ha total area

# Conventional Oil and Natural Gas



~1 km  
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# Oil Sands Mine





# Coal Mine



# Aggregate Mine



# Financial Approaches for Orphan Sites

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- Proactive
  - Security
  - Insurance fund
- Reactive
  - Funding for orphan site reclamation

# Security

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- Security provides funds to cover unfunded liabilities left when a company defaults on reclamation obligations
- Three types of security programs:
  - Flat rate
  - Full cost
  - Risk-based

# Security – Flat Rate

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- Minor amounts of security often used for small activities with relatively low-cost reclamation
  - Alberta charges a flat rate \$1000/acre for use of public land
  - Northwest Territories charges a security fee of up to \$1000 per activity based on professional judgment of reclamation costs

# Security – Full Cost

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- Larger activities post full cost security
  - Reclamation costs can be significant
- Alberta uses full cost security at coal mines and aggregate mines
  - Site owner must provide reclamation plan
  - Security deposits are based on estimates of the full cost of the reclamation plan
  - Cost estimates reviewed periodically and security adjusted as necessary
  - Operations can be audited periodically to ensure cost estimates are accurate

# Security – Risk Based

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- Asset to liability ratios are used to evaluate risk
- If asset to liability ratio falls below a threshold, security requirements are triggered
- Examples:
  - British Columbia’s risk-based security calculation
  - Alberta’s Mine Financial Security Program
  - Alberta’s Licencee Liability Rating program
- Advantage
  - companies can utilize capital for operations
  - Encourages progressive reclamation by reducing reclamation liability estimates as reclamation proceeds
- Risk of default increases as asset value declines
  - If reclamation left until resource is gone, it becomes more challenging to fund

# Security – Risk Based

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- British Columbia's risk-based security program
  - Base security amount adjusted for estimated site-specific cost of reclamation and risk of default
  - Base security amount varies with activity
  - Government staff estimate site-specific cost of reclamation and risk of default based on past company performance
  - Good company track record is rewarded with lower risk of default, poor track record leads to higher risk of default



# Security – Risk Based

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- Alberta's Mine Financial Security Program
  - Assumes that another party will take over operations if owner becomes defunct
  - Site owner must provide a plan for progressive reclamation
- Four components:
  - Base Security Deposit provides government with immediate funds to maintain safety and security of site
  - Operating Life Deposit provides funds to cover remaining reclamation obligations
    - OLD requirements start at 15 years from projected end of life and rises to reflect declining assets
  - Asset Liability Deposit is triggered if  $\text{asset:liability} < 3$
  - Outstanding Reclamation Deposit is triggered if owner falls behind in progressive reclamation

# Security – Risk Based

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- Alberta Licencee Liability Rating program
  - All oil and gas companies must report the ratio of their assets to liabilities
    - Assets calculated according to a formula provided by the Regulator
    - Liabilities are the estimated costs to abandon well and reclaim site
  - If asset to liability ratio falls below 1, the company must provide security and cannot acquire new well licences
  - Security is returned if company reduces liabilities by reclaiming sites

# Orphan Site Funding

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- Alberta's Orphan Well Program
  - Program funded by levy on oil and gas production (2015 budget - \$30 Million)
  - All new oil and gas well licencees must pay a base amount into the fund
  - Orphan Well Association manages the abandonment and reclamation program
  - Orphan Well Association board of directors appointed from oil and gas industry and Alberta Energy Regulator
  - British Columbia and Saskatchewan have similar Orphan Well programs, based on Alberta's system
- Manitoba's sand and gravel insurance program
  - Levy of \$0.12 per tonne of gravel
  - Collected funds are used to pay for reclamation if a company defaults on reclamation obligations

# Federal Contaminated Sites Action Plan (FCSAP)

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- FCSAP is a federally funded program for remediating federally-owned contaminated sites
  - >9,000 active or suspected sites in inventory
  - Military sites
  - Orphan sites on Federal land
  - Planned budget 2014-2015 \$120 Million
  - Program budget 2003-2016 \$2,700 Million

# Contaminated Site Tracking

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- Typically two kinds of contaminated site lists:
  - Government holds the liability
  - Regulatory involvement but property owners hold the liability
- Registries of government held liability
  - A range of approaches across jurisdictions from internal lists to public databases
    - Support government budgeting for contaminated site remediation
    - Public registries allow governments to report to the public on effectiveness on meeting program goals
    - Public example: Federal Contaminated Sites Inventory supports the FCSAP program

# Contaminated Site Tracking

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- Registries of privately held liability
  - Some jurisdictions provide public information about contaminated sites which have had regulatory involvement
    - A public service to facilitate land open reporting of risks during land transfers
    - Public reporting on compliance with environmental legislation
    - Need to balance right-to-know with privacy concerns
    - For example, Alberta maintains publicly-accessible files for all contaminated sites which have had regulatory interaction
      - Environmental Site Assessment Repository ([www.esar.alberta.ca](http://www.esar.alberta.ca))

# Conclusions

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- Canada's jurisdictional split between Federal, Provincial and Territorial governments results in a patchwork of approaches
- Many jurisdictions apply proactive security programs
  - Flat rate
  - Full cost
  - Risk based
- Some jurisdictions have funding for orphan sites, where security is lacking or insufficient
- Tracking of contaminated sites varies across Canada
  - Internal tracking vs public databases have different challenges and meet different needs

Alberta 

**Questions?**