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# Development and Implementation of Electronic Hazardous Waste Tracking - The Ontario Experience

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# Presentation Outline

- Information about Ontario
- Environmental regulatory requirements
- Hazardous waste management in Ontario
- Developing and implementing the electronic system (HWIN)

# Location



# Location



**ONTARIO**  
**CANADA**

THE FUTURE'S RIGHT HERE

# Ontario Facts

- Area: 1.1 million sq km (425,000 sq miles)
  - Canada: 10 million sq km (3.9 million sq miles)
- Population: 12 million
  - Canada: 31 million
  - Toronto: 5 million
- 2002 statistics:
  - 42.1% share of Canadian GDP
  - 53.5% share of total national manufacturing shipments (2002)
- Per cent distribution of GDP:
  - 1.7% primary sector
  - 27.7% secondary sector
  - 70.6% service sector

# Ontario Industry

- Aerospace
- Automotive
- Biomedical
- Chemicals/Petrochemicals
- Environment
- Food
- Forestry
- Iron & Steel
- Machinery
- Mining
- Plastics
- Other
  - Call Centres
  - Infotech



# Ontario's Hazardous Waste Management Infrastructure

- One commercial landfill and incineration site
- On-site landfills, landfarms and incinerators
- Reuse at various manufacturing sites
- Several recycling facilities
  - Oils
  - Solvents
  - Paints
  - Metal bearing sludges
- Transfer stations and processing/treatment facilities

# Government Environmental Roles in Canada

- Federal & Provincial roles different in Canada than U.S.
  - Primary federal role trans-boundary movements
  - International agreements and reporting requirements
- Ontario framework
  - Environmental Protection Act (Waste Management authorities in Part V)
  - Regulation 347
    - General waste management regulation
    - Both hazardous and non-hazardous waste management

# Ontario's Hazardous Waste Management Framework

## Regulation 347

- Based on U.S. EPA framework since 1985
- Defines hazardous and non-hazardous wastes
- Defines types of waste management systems and sites
- Approval and operating standards for systems and sites
- Requirements for tracking the movement of liquid industrial and hazardous waste
- Annual registration and fee requirements for generators of liquid industrial and hazardous waste



# Responsibilities

- Generators
  - Annual requirement to register hazardous and liquid industrial wastes by February 15
  - Includes payment of appropriate fees:
    - \$50 per site
    - \$ 5 per manifest
    - \$10 per tonne hazardous waste disposed

# Responsibilities

- Carriers
  - Obtain Certificate of Approval to transport waste
  - Identifies classes of waste allowed
  - Obtain paper manifest forms
- Receivers
  - Obtain Certificate of Approval to treat/store dispose waste
  - Identifies classes of waste allowed
  - Possibility of public hearing



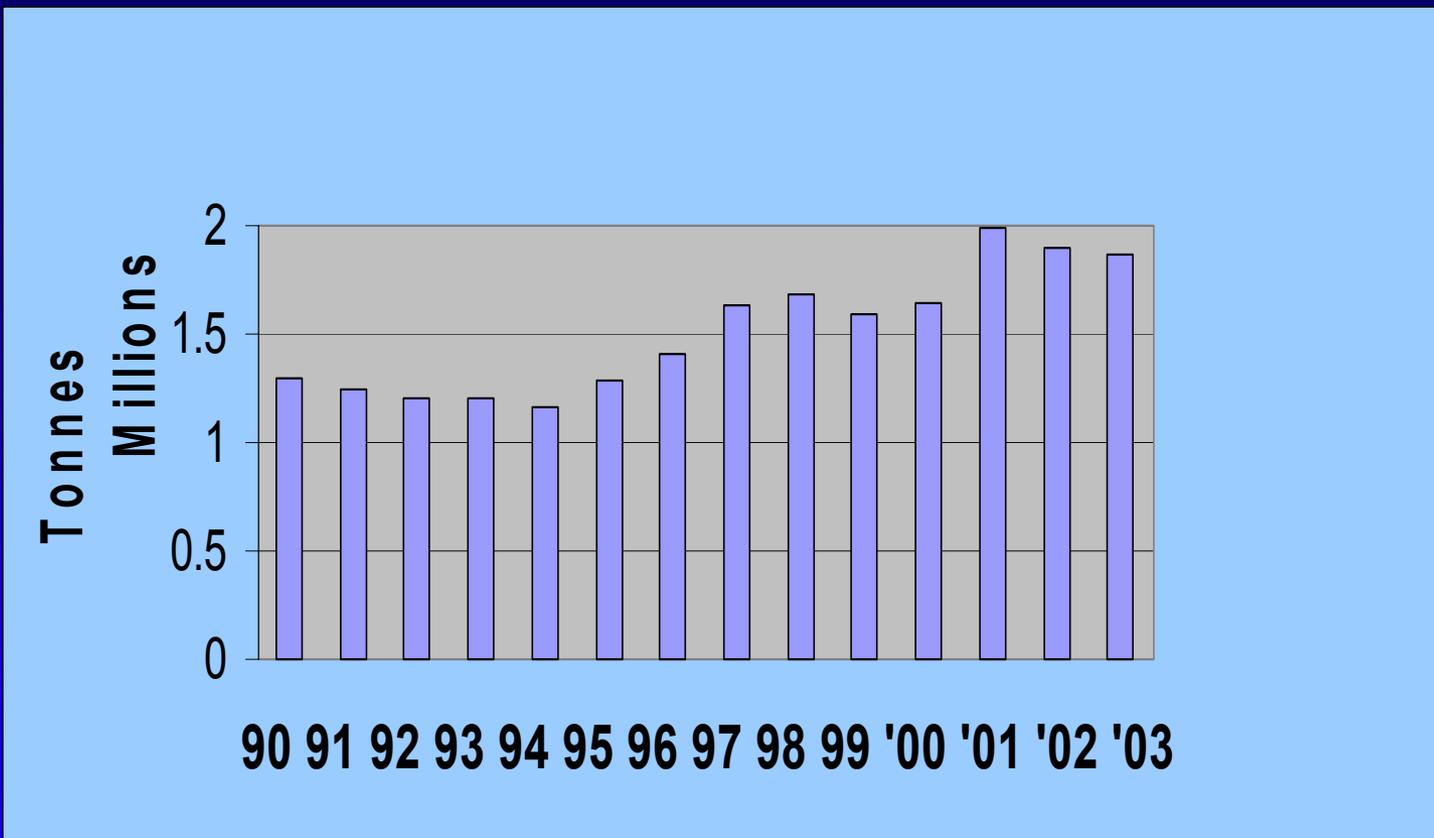
# How This All Comes Together

- Generators must register wastes and pay appropriate fee
- All off-site shipments are manifested
- Every carrier and receiver must be approved
- Movements tracked by Ministry
- Generator registration, manifesting and approval system provides “cradle to grave” management framework for these wastes
  - Compliance initiatives

# Current Statistics

- 22,000 registered generators
  - Dry cleaners, auto body shops
  - Some ship waste once every 2 to 3 years (13,000 ship annually)
- 200,000 hazardous waste movements tracked annually
  - Reconciled daily
- Close to 2 million tonnes tracked annually

# Hazardous Waste Tracked





# The Challenge

- Take the current paper-based system and make it electronic
  - Ensure that, at a minimum, the electronic system does at least what the paper system does
- Convergence of 3 major initiatives
  - Annual registration
  - Payment of fees
  - Hazardous Waste Information Network (HWIN)



# The Vision

- Electronic system to give more real-time tracking information
  - Quicker Ministry knowledge and response to problems
  - Significant reduction of administrative errors
- Time/cost reduction for regulated community to comply with requirements and submit fees
- Only user input necessary
  - No need for Ministry to input data



# The Result: HWIN

- Ontario's Hazardous Waste Information Network
  - HWIN is the first large-scale electronic manifest and generator registration system in North America
  - Allows hazardous waste generators, carriers and receivers to register their activities with Ministry online and pay registration fee online
  - Enables users to create and process electronic manifests over the web
  - Enhances the quality and accessibility of hazardous waste information in Ontario

# The Start

- System development
  - Tied to regulatory amendment
    - Flexibility built into regulation
  - Internal government vs external contractor
    - Who pays?

# The Start

- System design
  - When is a generator registered?
  - When is a manifest completed?
  - What form of information required?
    - Free script or scroll-down menus
  - Built in 2 modules
    - Generator registration
    - Manifest



# Promoting System Use

- Quick/easy update to generator profile when changes occur
  - Significant reduction of Emergency Generator Registration Numbers
- Record-keeping
  - Record retention not necessary if HWIN used
  - If paper system used, 2 year requirement maintained



# Coding Policy Drivers into HWIN

- Waiver of some fee components for certain circumstances
  - Recycling (tonnage only)
  - Management of household hazardous waste (all)
  - Site remediation (all)



# Coding Rules for Users' Rights

- Registration
- Payments
- Signatures
- Changes
- Multiple-site companies



# Security Issues

- Information security
  - Ensure that only company officials can access their company information
    - Authentication
  - Company able to designate System Administrator
  - System Administrator able to provide full or limited rights to other company officials



# Security Issues

- Payment Security
  - Ensure secure means of payment
  - Match payments with individual generators
  - Ensure accounting functions included in system



# Multiple Site Management

- Parent – Child relationship coded into system
  - Necessary for both to agree on access
  - Either can abilities to modify/access certain data
    - Similar to System Administrator abilities
  - Each site managed individually for both information and fee requirements

# System Access

- 24 / 7 / 365
- Fast
  - Originally needed to fully complete registration process otherwise data not saved
  - Load-by-load changes/normal discrepancies

# Help Functions

- Users will have questions
  - Lead to the establishment of a Help Desk
  - Need to be staffed with knowledgeable people
  - Ability to quickly respond and provide answers
    - Sufficient human and technical resources critical



# Turning the System On

- Place “tombstone” data on the system
  - 33,000 generators
  - ~1,400 carriers
  - ~1,900 receivers
- Different systems within Ministry
  - Compatibility of data



# Turning the System On

- How do you tell 35,000 plus clients changes are coming?
  - Needed to be done quickly
    - First notice December 2001
    - Compliance date February 15, 2002
  - 4 mailings
    - Several subsequent electronic mailings



# Issues After System Launched

- Everybody has a computer
- Everybody has an Internet connection
- Everybody has a credit card
- Everybody will eventually use the electronic system
  - Some smaller companies who deal infrequently with hazardous waste
  - Need to build paper-component
- If you build it they will come
  - Outreach, communication, education are extremely important through development, launch and post-launch

# Lessons Learned

- Paper vs Electronic
  - Need to keep this constantly in mind
- Apply concepts from other web sites
  - Internet banking
- Flexibility in regulatory language
  - Allows more options in system design
- Time is critical (manifests)
  - System access competing with time it takes to sign paper manifest



# Where Are we Today

- Very good response on electronic registration
  - 70% to 80% electronic
- Not as good response on electronic manifest
  - Time to sign paper manifest
  - Ministry working with 3 largest carriers/receivers to get them using electronic manifest system



# What About Tomorrow

- More payment options
  - Currently only certain credit cards
  - Looking at electronic funds transfer from bank accounts
- Proxy
  - Provide ability for third parties to complete paperwork on behalf of others



# What Would We Do Differently?

- Understand how the “old” paper component meshes with the “new” electronic system
- Conduct more consultation/discussion sessions with potential users of the system
- Do more outreach, education information transfer once the system became operational