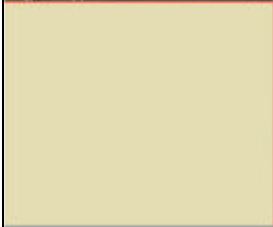




# **ENVIRONMENTAL MANAGEMENT SYSTEMS FOR MUNICIPALITIES - CALGARY STYLE**

**MELODI PRITCHARD  
JACQUES WHITFORD ENVIRONMENT LIMITED**







**Jacques  
Whitford**

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## OUTLINE

- **Trends for municipal EMS**
- **City of Calgary EMS**
  - **Why an EMS?**
  - **Process for EMS development and implementation**
  - **Overcoming barriers**
- **Conclusions**





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## WHY ARE MUNICIPALITIES ASKING FOR AN EMS?

- Regulatory compliance
- Customers and other stakeholders requirements
- Avoid micro-management and deal with bigger picture items
- Systematic approach to integrate with Health and Safety
- Recognition as leaders in Environmental Performance




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## WHAT IS UNIQUE ABOUT MUNICIPAL EMS?


- Mandate of a public sector organization is to enhance quality of life
- Concerns and issues from the public and other stakeholders such as ENGOs
- Some overlap between jurisdictional responsibilities of departments of a municipal organization
- Limited resources for implementing an EMS
- Consistent approach for cross functional work that takes place




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### MUNICIPAL TRENDS IN EMS


- **Many municipalities are implementing EMS**
  - some currently pursuing ISO 14001 certification
  - others developing their system based on ISO 14001, with no intention of certification
- **Within Canada, level of awareness about EMS varies greatly among municipalities**
- **Level of interest in EMS is growing**



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### CANADIAN EXAMPLES


- **Waterloo**
- **Hamilton**
- **City of Calgary**
- **Halifax Regional Water Commission**
- **Other public sector organizations:**
  - Government of Canada
  - NavCanada
  - National Energy Board



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### QUICK FACTS ON THE CITY OF CALGARY

- **Population: 860,749 (2000) - increase of 22% since 1990 (fifth largest city in Canada)**
- **City Area of 722 square Km**
- **Approximately 12,000 employees**
- **Total area of parks in 2000: 7,822 hectares of parks/open spaces**



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### CITY OF CALGARY - THE BEGINNINGS.....

- **Office for the Environment set up in 1990**
- **Alberta EPEA proclaimed in 1993**
- **Council approved Environmental Regulatory Compliance Policy (ERCP)**
- **ERCP required an Implementation Plan**
- **Waterworks Pilot Project**






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## CITY OF CALGARY BUSINESS UNITS

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- Assessment
- [Calgary Parks](#)
- Calgary Police Services
- [Calgary Recreation](#)
- [Calgary Roads](#)
- [Calgary Transit](#)
- [Calgary Waterworks](#)
- City Clerk's
- Community and Neighbourhood Services
- Community Strategies
- [Corporate Properties Group](#)
- Corporate Strategy & Economics
- Customer Service & Communications
- Development and Building Approvals
- Emergency Medical Services
- Engineering Services
- Environmental Management

- Finance
- [Fire Department](#)
- [Fleet and Supply Management Services](#)
- Human Resources
- Information Technology Services
- Management Audit
- Office of the Aldermen
- Office of the City Solicitor
- Office of the Mayor
- PeopleSoft Sustainment Centre
- Planning and Transportation Policy
- Transportation Infrastructure
- Urban Development
- Utility Accounts
- [Waste & Recycling Services](#)
- [Wastewater & Drainage](#)





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## ENVIRONMENTAL POLICY

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The City of Calgary is committed to becoming an environmentally sustainable community by providing the leadership to conserve, protect and improve the environment for the benefit of Calgarians and the regional community. The City of Calgary will integrate sustainable social, economic and environmental objectives into a co-ordinated decision-making process to maintain high standards of living, social harmony and environmental quality.



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## ENVIRONMENTAL POLICY

The City of Calgary has a significant influence on the local and surrounding environment. It will demonstrate leadership by:

- Ensuring environmental considerations are part of all City of Calgary decisions respecting planning for growth, development and operations;
- Initiating and enforcing municipal by-laws and promoting legislative initiatives by other levels of government;
- Ensuring The City of Calgary's own operations **comply with environmental legislation** and other environmental requirements;
- Encouraging and demonstrating **resource conservation and pollution prevention**;
- Communicating and consulting with all relevant stakeholders for input into the development of The City of Calgary's environmental objectives;
- Implementing and **continually improving** an environmental management system for operational effectiveness to fulfill The City of Calgary's environmental policy and objectives.



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## EMS FOR THE CITY OF CALGARY


- Ten operating business units
  - **Fleet and Supply Management**
  - **Calgary Recreation\***
  - Corporate Properties Group
  - Calgary Roads
  - Wastewater and Drainage
  - **Waterworks\***
  - Solid Waste Services
  - **Fire Department**
  - Calgary Roads
  - Calgary Transit
- Corporate (including all other administrative groups)
- Four entities already ISO 14001 registered



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## EMS DEVELOPMENT PROCESS

- **Initial Environmental Review (IER)**
  - Environmental Aspects Identification
  - ISO 14001 Gap Analysis
  - Regulatory Reviews
- **EMS documentation review**
- **Drafting EMS Core Manuals and related documentation**
- **Facilitation of Environmental Objectives, Targets, Programs and Operational Controls**
- **Review and development of environmental procedures**
- **EMS awareness training**
- **ISO 14001 and Compliance Audit Training**
- **Registration assistance**




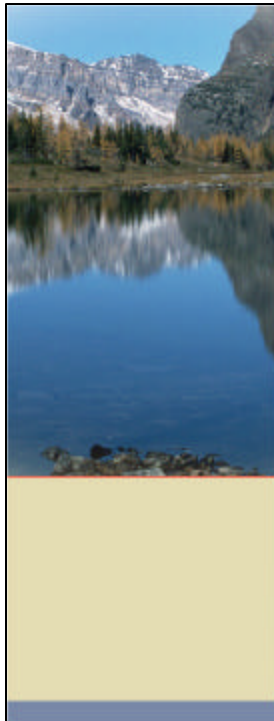
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## SAMPLE OF SIGNIFICANT ENVIRONMENTAL ASPECTS

### Fleet and Supply Management Services

- disposal of hazardous waste/recyclables
- oil spilling, overflowing and leaking to ground or drains
- leaching of PCBs, PCPs, mercury and other contaminants into the soil and ground and surface water
- potential release of lube, hydraulic, and engine oil, anti-freeze, solvents into drains and the storm sewer
- potential release of water containing contaminants, soap and detergents
- storing and disposal of used batteries
- potential release of ozone depleting substances from repairs on air-conditioners




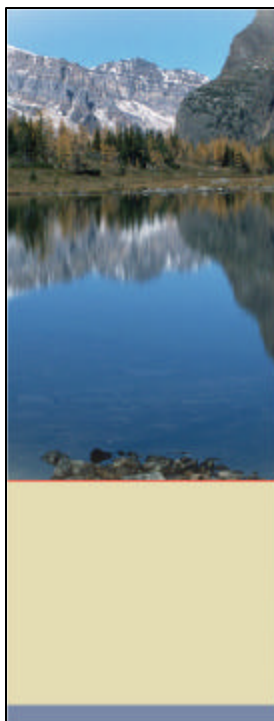


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## SAMPLE OF SIGNIFICANT ENVIRONMENTAL ASPECTS

### Solid Waste Services

- spills and releases
- accepting prohibited waste
- waste buried in landfill
- leachate releases
- stormwater releases
- landfill gas emissions
- landfill fires
- landfill cap failure
- development near landfills - methane potential



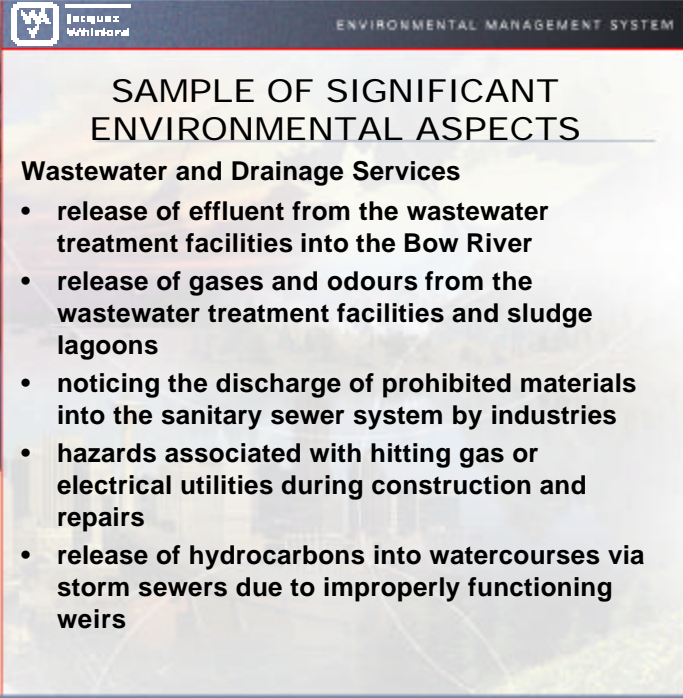

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## SAMPLE OF SIGNIFICANT ENVIRONMENTAL ASPECTS

### Roads

- contacting underground utilities during street repairs and local improvement constructions
- release of calcium chloride, oil and other dust abatement materials
- leaching of contaminants from CCA and PCP treated poles
- leaching of salt into the soil, groundwater and storm sewers during storage and during salting of roads;
- release of tack coat in water courses
- release of carbon dioxide and volatile organic compounds while mixing asphalt






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## SAMPLE OF SIGNIFICANT ENVIRONMENTAL ASPECTS

### Wastewater and Drainage Services



- release of effluent from the wastewater treatment facilities into the Bow River
- release of gases and odours from the wastewater treatment facilities and sludge lagoons
- noticing the discharge of prohibited materials into the sanitary sewer system by industries
- hazards associated with hitting gas or electrical utilities during construction and repairs
- release of hydrocarbons into watercourses via storm sewers due to improperly functioning weirs



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## INITIAL BARRIERS

- Time - add on to existing work
- Corporate coordination
- Focus
- Senior management commitment at business unit level
- Knowledge/awareness of EMS
- Corporate reorganization
- Resources





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## OVERCOMING BARRIERS

- EMS implementation teams for business units
- Dedicated corporate staff for EMS development and implementation
- Use of consultant - consistent approach
- EMS Champions part of “Environmental Network”
- “Environmental Network” adopted best management practices from various business units as corporate template
- EMS, ISO 14001 Lead Auditor, and compliance audit training



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## OVERCOMING BARRIERS

- Identifying aspects/operational controls to a particular business unit
- Executive officers holding business unit managers accountable for progress on EMS
- “EMS Scorecards” used to monitor progress
- Reallocation of resources from other budgets
- Integration with other business unit/corporate processes (e.g. records management, health and safety, spill reporting, etc.)

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## TRAINING, AWARENESS AND COMPETENCE

- Training needs assessment/matrix
- Development of training programs
- Delivery of EMS awareness training programs
- Delivery of job-specific training
- Communication via intranet, emails, safety meetings, newsletters in addition to training

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# TRAINING MATRIX

## (Golf Course Operations)

Key Personnel (Title/Level)	EMS Awareness/ Env. Policy Awareness	Release Reporting 1 – Mgmt 2 –	Detailed Emergency Response and Awareness	First Aid Trainer Pesticide Applicator Certificate of Registration	Communication Respirator Fit Sites	Cash Handling	Food Handling	AED	First Aid/ CPR	WHMIS	TDG	Equipment Training	Spray Tank Training	Confined Entry	City Driver's License (1 ton)
Foreman	•	•	•	•	•				•	•	•	•	•	•	•
Greenskeeper	•	•	•	•							•	•	•	•	•
Grounds Maintenance Workers	•	•	•									•		•	•
Clubhouse Supervisor	•	•	•											•	
Attendants						•	•	•		•					






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## EMS AWARENESS TRAINING



- Focus on basics of EMS (Plan-Do-Check-Act)
- Significant environmental aspects
- Location of environmental procedures
- Content of Environmental Policy
  - resource conservation/pollution prevention
  - regulatory compliance
  - continual improvement
- EMS representative for business unit
- Basics of due diligence



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## MONITORING REGULATORY COMPLIANCE

- Regulatory review as part of IER
- Development and maintenance of compliance audit protocols
- Compliance auditor training
- Developing “pool of internal auditors” in addition to external auditors



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## CONCLUSIONS

- Senior management commitment required
- “Team approach” is the most successful method for implementation so that employees take ownership of the system
- Training, awareness, and coaching is necessary
- Need for communication and consistent, yet flexible approach when several organizational units are developing an EMS
- Patience is required - factors beyond control of those involved may cause minor setbacks that slow down implementation



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## QUESTIONS?

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