

## **PREFACE (to “Guide To ISO 14001 Implementation in the Municipal Waste Management Sector”)**

Environmental management systems (EMS) should help a municipal waste management (MWM) facility enhance its environmental performance while improving its productivity, operational efficiency and community and business relations. This Guide was developed specifically to assist operators and managers of MWM sites in learning to implement and manage in a practical and cost effective manner environmental management systems based on the ISO 14001 standard. It is particularly suited to the needs of small and medium sized facilities in identifying and addressing their environmental challenges since the authors divide up the MWM process into component unit operations ranging from collection to final disposal. It provides EMS guidance in various handling and treatment areas that are generic to most MWM facilities.

- Advance draft copies of the Guide were discussed at focus group workshops attended by several municipal staff involved in MWM activities. Their comments along with those from experienced practitioners of ISO 14000 EMS from KPMG and Waterloo and Hamilton-Wentworth regional municipalities were incorporated in the final text of the Guide. Our goal has been to prepare a state-of-the-art guidance document that draws upon the experience of knowledge people in its field. Compared to other ISO 14000 publications, this Guide has the following unique features:
- Answers in a simple language some of the commonly asked questions about ISO 14000, such as staff and budget requirements for training, set up and maintenance of the EMS and why and how a municipality or a town should establish an EMS for its facilities.
- Provides a useful training and learning tool comprising of hands-on work book type format, flow diagrams of major unit operations in a MWM facility, and easy to follow checklists to identify and analyze gaps, aspects and impacts and other key system elements.
- Includes practical examples of various EMS elements and procedures drawn from the experience of ISO 14001 registrants, such as environmental policy, legal requirements, objectives and targets, procedures for training, internal communications, hazard reporting, document control and record management.
- Builds on a municipality's existing EMS and experience with best general management practices.
- Includes a listing of sources of other useful information and how to access it.

- Includes two case studies which describe planning and implementation work that needs to be done to achieve ISO 14001 registration by MWM facilities implement along with associated actual and projected costs.
- There is included description a life cycle inventory model for Integrated Waste Management for municipalities and how this model can be incorporated in an ISO 14001 strategy to achieve resource conservation and environmental benefits.
- Can be used as a first-step introductory guide or a source of references for more advanced learning and ISO 14001 implementation for self-declaration. The user has a choice; do it yourself, get involved in a group learning arrangement under a common and shared instructor, or if required get external help. It informs the user where to get professional help for speedy implementation and how to make use of services of an external consultant in the most cost-effective manner.
- Refers to considerations of further advancements in the development of EMS to include stakeholders input, public reporting, setting and evaluating environmental performance indicators which go beyond legislative compliance, and integration with occupational health and safety systems.

### **Benefits to Municipalities of Implementing ISO 14000 EMS for Their MWM Facilities**

Following a successful pursuit of ISO 14001 implementation in many industrial sectors, there has developed a keen interest in ISO 14000 EMS among municipalities in North America.. The US EPA is promoting pioneering work in this regard. In June 1998, the Municipality of Waterloo in Ontario was the first Canadian municipal government to be awarded a ISO 14001 registration in its MWM services. Hamilton-Wentworth, under its Sustainable Community and Pollution Prevention Initiatives, has embarked on a similar project since 1997 for a number of its service deliver areas.

The ISO 14000 or an equivalent EMS will help a municipality identify opportunities for resource conservation, cost saving, efficiency and productivity; which in turn should improve the "bottom line " of its MWM facility. However, it is imperative that a cost-benefit analysis should be undertaken as a first step in order to make a business case for a potential ISO 14001 project. The case studies in this Guide give some idea of the costs; a quantification of ensuing environmental benefits would be a worthwhile challenge. For a municipality, the support of elected officials and public would also be desirable. The exercise of reviewing, analyzing, formulating and implementing environmental policies, procedure and practices required for an ISO 14000 registration will raise an organization's awareness of the impact of its operations and policies on the environment and enhance its operational efficiency while helping to protect the environment. Some of the other benefits accruing from an ISO 14000 registration are:

- conforming with regulations is facilitated and the cost of compliance is reduced as potentially "risky" situations are recognized and corrected,

- annual reviews and audits render efficiency and productivity improvements an on-going dynamic exercise leading to continuous improvement,
- a municipality's environmental responsibility can be more easily demonstrated,
- an improvement in the quality, structure and delivery of municipal services
- a good corporate image and reputation with the public, community groups, taxpayers, bankers, insurance companies, and regulatory authorities are created,
- clear lines of environmental accountability and responsibility within a municipality's organization can be created.

This Ministry of the Environment (MOE) has sponsored the preparation of this guidance document in partnership with Companies Supporting Recycling (CSR), Environmental and Plastics Industry Council (EPIC), City of London, Region of Peel, and Town of Markham. We are pleased to publish and offer this ISO 14001 Guide, and believe it will add value to your organization as you work towards implementing an ISO 14001 based EMS. We welcome your input. To send your comments on this publication or to obtain a copy of this publication, please contact the MOE or CSR at the following addresses:

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### **Other Sectorial ISO 14000 Implementation Guides**

Encouraging industries, businesses and municipalities to voluntarily institute ISO 14001 or equivalent EMS standards in their operations is one of MOE's approaches to environmental stewardship. The Environmental Partnership Branch (EPB) of the MOE, in partnership with industry and business associations and municipalities has developed a limited number of sector specific ISO 14001 implementation guides to promote the adoption of responsible and effective environmental management systems by key industrial and commercial sectors in Ontario. These guides were found to be valuable and timely reference and training tools at group workshops organized by industry associations. Each guide has been prepared by an expert consultant with a useful input from other experts and focus groups of environmental staff and potential users from participating industry associations

Besides the MWM sector, other sectors for which ISO 14000 guides have been prepared or are being developed include Automotive parts Manufacturing, Metal Finishing, Auxiliary Processes, Vinyl Processing, Corrugated Paper Packaging, Office Buildings,

Schools, Colleges and University Campuses, Hospitals, and Municipal Facilities. For further information on these publications, please see under publications the MOE website: [www.ene.gov.on.ca](http://www.ene.gov.on.ca) or contact the MOE, Public Information Center.

### **Acknowledgments**

The Project Committee for this Guide comprised of the following persons: Parkash Mahant, MOE; Joseph Hruska, CSR; Cathy Circo, EPIC; Jay Stanford, City of London; Peter Veiga, Town of Markham; Jonathan Hicks, Region of Peel. The Guide's original authors were Ruksana Mirza, Karen Simpson and Beverly Porter of EnviroSphere EMC Inc. Kim K. Kitagawa of Waterloo and Peter Dunn and Mark Bekkering provided valuable information for the case studies. The Project Committee, Avril Fiskien of KPMO and Katy Altoft of CSA International reviewed the draft of the Guide and their comments contributed to its improvement. Photographs provided by CSR, Peel and Waterloo were used on the covers of the Guide. Frank Loconte of MOE's Communication Branch did the art work for the covers. To all these people we offer our sincere thanks.

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May 2000

## **EXECUTIVE SUMMARY (to “Guide to ISO 14001 Implementation in the Municipal Waste Management Sector”)**

### **Background and Purpose**

The Ontario Ministry of the Environment (MOE) in conjunction with partners from industry (CSR: Corporations Supporting Recycling and the Environment and Plastics Industry Council) and local government (City of London, Town of Markham and Region of Peel), has sponsored the development of this ISO 14001 Implementation Guide for municipal waste management operations.

The purpose of the Guide is to assist the waste management departments of Ontario municipalities to develop and implement environmental management systems (EMS) that meet the requirements of ISO 14001. The implementation of an EMS can potentially help municipalities to increase the efficiency of their operations, ensure compliance with regulatory requirements, build positive relations with the community and foster a culture of prevention of pollution.

This Guide provides the information and guidance that a municipality will require to implement ISO 14001 cost effectively. It has been developed in consultation with municipalities to ensure that it focuses on the priorities, realities and needs of this sector. The Guide provides direction on policy development; identifies common activities, aspects, and impacts; provides sample objectives and targets; identifies typical training requirements; and contains a checklist to track progress.

Although each municipality is unique, it is hoped that every municipality will find information from parts of this guide that is helpful in establishing an Environmental Management System (EMS) applicable to its circumstances.

### **Highlights**

The following are highlights of the topics covered in the Guide.

### **Key Benefits of ISO 14001 Implementation**

The Guide discusses the key benefits of ISO 14001 implementation for a municipality. These benefits include:

- reduced costs for energy, material inputs and waste disposal;
- reduced environmental liability;
- assurance of good relationships with stakeholders;
- continuous improvement; and,
- improved environmental awareness within the municipality.

The Guide also discusses the barriers that municipalities and other organizations have encountered in the process of implementing ISO 14001. It is hoped that awareness of these barriers will help municipalities to target their implementation programs towards overcoming them.

### **Checklist for Conducting a Gap Analysis**

A Gap Analysis should be conducted at the start of implementing ISO 14001 to determine the gap between the requirements of the standard and the current status of a facility. The Guide provides a checklist for conducting a gap analysis that results in the production of an action plan and schedule for ISO 14001 implementation.

### **Assistance in the Development of an Environmental Policy**

The ISO 14001 standard has several specific requirements related to the content of the environmental policy. These requirements include a commitment to continual improvement, prevention of pollution, and compliance with environmental regulations. The guide provides a sample environmental policy that complies with the requirements of the standard.

### **Identification of Environmental Aspects for Common Waste Management Activities**

Central to ISO 14001 is the identification of the environmental aspects and impacts that require to be managed. The waste management systems of all municipalities have some activities in common. The Guide identifies the environmental aspects and impacts associated with the major waste management processes, including waste collection, materials recovery, composting, energy recovery and landfilling.

### **Guidance in Assessing Significance of Environmental Aspects**

The ISO 14001 standard requires that the identified environmental aspects be assessed in order to determine which have or can have a significant impact on the environment. As the standard does not stipulate the method for evaluating significance, guidance on some standard methods available for determining significance is provided in the Guide.

### **Assistance in Setting and Achieving Environmental Objectives**

As part of the commitment to continuous improvement and prevention of pollution, the standard requires that:

- environmental objectives and targets be set,
- a management program be established to ensure that the objectives are met and,
- that the progress towards those goals be monitored.

The guide provides assistance in this area by giving examples of common objectives and targets and illustrating the use of a sample management program tool.

### **Environmental Performance Indicators (EPIs)**

EPIs are a measure of an organization's environmental performance and are used to measure the progress towards achieving environmental objectives and targets. EPIs can be an important component of an effective EMS, since what gets measured in an organization, gets taken into account in decision making. The Guide discusses the use of EPIs in municipal waste management operations and provides examples of EPIs applicable to waste management activities.

### **Life Cycle Inventory Model for Integrated Waste Management (IWM Model)**

The Guide describes the use of the IWM Model developed by CSR (Corporations Supporting Recycling) and EPIC (Environment and Plastics Industry Council) to quantify energy consumption and emissions released from waste management operations. The model quantifies emissions of greenhouse gases, smog precursors, acid gases, heavy metals and organic compounds from a user-specified combination of collection, transportation, recycling, composting, energy recovery, and landfilling activities. The Guide discusses the potential for using the results of the IWM model to develop EPIs for a municipality's waste management system.

### **Listing of Relevant Environmental Legislation**

The standard requires that organizations have a procedure in place to identify and conform to relevant environmental legislation and that the facilities have access to copies of applicable documents. The Guide provides a sample procedure, a listing of applicable legislation, and identifies methods for obtaining copies of legislation.

### **Identification of Environmental Training Needs**

Training is a key component of the ISO 14001 standard. The guide provides a listing of legislated environmental training requirements (e.g. transportation of dangerous goods, fuel transfer, etc.), as well as those required under ISO 14001 (e.g. environmental awareness, emergency preparedness and response, etc.).

### **Overview of Registration Process**

An organization can achieve conformance with ISO 14001 either through self-declaration or through third party registration. The majority of organizations that have implemented ISO 14001 to date have chosen the latter course, mainly because of the greater level of credibility associated with third party verification. The Guide contains an overview of the

registration process to provide municipalities with an indication of the timing, resource requirements and possible outcomes of a registration audit.

### **Registration Hints**

Throughout the Guide, the reader is provided with registration hints, which highlight the areas that an external registrar may focus upon during an audit of the EMS.

### **Implementation Strategy**

In addition to this Guide, a stand alone Implementation Strategy that recommends next steps for promoting the development of ISO 14001 based environmental management systems by municipal waste management departments of municipalities has been developed. The recommendations include the validation of the Guide through its application at a partner municipality wishing to implement ISO 14001 and the development of ISO 14001 training workshops for municipal staff.