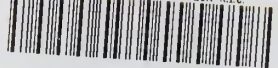


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ISO Environmental Management Standardization Efforts

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TECHNOLOGY ADMINISTRATION
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AND TECHNOLOGY
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ISO ENVIRONMENTAL MANAGEMENT STANDARDIZATION EFFORTS

Introduction

The International Organization for Standardization (ISO) is currently developing a family of "environmental management" standards which address management systems and the environmental aspects of products in the areas of life cycle assessment and labelling. These standards have the potential to exert a significant influence on the design, manufacture and marketing of products. They are also likely to affect the type of environmental data gathered by businesses and how those data are communicated internally and externally. Environmental management system standards may be available as early as the first quarter of 1996.

ISO Technical Committee (TC) 207 on Environmental Management standardization was formed in June 1993. The Canadian Standards Association (CSA) administers the secretariat for TC 207, on behalf of the Standards Council of Canada (SCC), Canada's ISO member body. The scope of TC 207 is "standardization in the field of environmental management tools and systems." It excludes test methods for pollutants, setting limit values regarding pollutants or effluents, setting environmental performance levels, and standardization of products. However, through its working group on environmental aspects of product standards, TC 207 will provide guidance to product-specific TC's for evaluating environmental effects of products and services, and the effect business operations have on the environment. Individual standards approved by TC 207 and adopted by ISO as international standards will be designated as part of the ISO 14000 series.

TC 207 oversees six subcommittees and one working group (see Annex I), which together have a total of some 25 work items under consideration. Forty-three ISO member bodies participate in the work of the committee, and another 15 have observer status. The committee also shares information with more than 10 international or regional non-governmental liaison groups interested in sharing information with the committee. These may be environmental organizations or other entities. In general, TC 207 subcommittees dealing with environmental management systems, environmental auditing and environmental performance evaluation are focusing on process management (how) as opposed to outcomes (what). The subcommittees responsible for generating standards for life cycle assessment and labelling are seeking to establish principles and uniform approaches to product evaluation and communication of environmental attributes.

The ISO member body for the United States, the American National Standards Institute, has designated ASTM (formerly the American Society for Testing and Materials) to manage U.S. participation in TC 207. ASTM also serves as the U.S. Technical Advisory Group (TAG) administrator for four TC 207 subcommittees--environmental labelling, environmental performance evaluation, life cycle assessment, and terms and definitions. The American Society for Quality Control (ASQC) is the TAG administrator for the remaining two

subcommittees--environmental management systems and auditing. The United States also provides the secretariat for subcommittee four, on environmental performance evaluation.

European countries represent the largest geographical grouping participating in TC 207. European influence is evident in the pressure being exerted on the committee to develop environmental management system (EMS) and auditing standards quickly, so that international standards are available to support new European legislation regarding an Eco-audit and Management Scheme (EMAS). EMAS is a voluntary system which allows European Union (EU) member state governments to recognize organizations operating manufacturing facilities in Europe that meet a relatively detailed EMS and auditing protocol.

The European Commission has issued a draft mandate to the regional standards setting body, Comite Europeen de Normalisation (CEN), to produce regional standards to support this legislation. In November 1994, a special CEN working group determined that TC 207's EMS and auditing standards will meet the technical requirements of EMAS. CEN has recommended to the European Commission that regional standards work be deferred in favor of the ISO standards, provided these standards can be finalized as soon as possible. To meet demand from Europe, TC 207 members have agreed to a rapid timetable to develop and approve these standards - approximately 30 months.

Management Standards in the International Organization for Standardization

Its work in the area of environmental management standards is ISO's second foray into the development of management standards. The ISO 9000 series of standards, first issued in 1987 and revised in 1994, describes the elements necessary for organizations to establish and maintain quality management systems. ISO has also released ISO 10011, which establishes basic auditing principles as well as general guidelines for establishing, planning, implementing and documenting audits of quality systems.

During the two years preceding ISO's creation of TC 207, participants in ISO's Strategic Advisory Group on the Environment (SAGE) debated the relationship between the ISO 9000 series of standards developed by TC 176 and the planned work of TC 207. There are issues common to both quality management systems and environmental management systems, which would also be common to standards describing such systems. Some examples are operational control, audits, communication, training and corrective action. However, SAGE felt that while the two standardization areas share some basic principles, the knowledge required for environmental management and environmental auditing is quite different from quality management and auditing. SAGE members therefore determined that a separate technical committee should be created to develop environmental management standards, and that this committee should involve disciplines that were unavailable in TC 176. It was agreed that the two committees would coordinate their work to ensure the compatibility of standards in both areas.

In order to facilitate this coordination, ISO established a formal liaison between TC 207 and TC 176. Klaus Petrick, leader of the German delegation to TC 176, heads this delegation. Liaison group members determined that harmonization between TC 176 and TC 207 in their approach and documentation was critical to minimize the burden of the evolving environmental management standards on industry and to avoid the creation of non-tariff barriers. Compatibility will also facilitate efforts of organizations wishing to establish a single, integrated management system covering all of their activities. This coordination was considered to be most important in the areas of EMS and auditing standards (TC 207 Subcommittees 1 and 2). Coordination has been formally agreed to within TC 207 at the subcommittee level, although subcommittee members also specified that their work should not be bound to line-by-line consistency with standards developed by TC 176.

More recently, the ISO Technical Management Board (TMB) has been asked to consider the development of standards in the occupational health and safety management area. Several countries already have such standards, including Norway, the United Kingdom and Australia. The TMB has determined that the development of occupational health and safety standards raises several controversial issues. The TMB has decided to convene an international conference on the topic in late 1995, before deciding whether ISO should proceed in this area.

Environmental Management Systems

TC 207 Subcommittee 1 is currently working on two documents, a specification standard and a general guide to environmental management principles, systems and supporting techniques. These documents are intended to provide organizations with the elements of an effective environmental management system (EMS) which can be integrated with other management requirements. The planned specification standard, ISO 14001, defines the core elements of an environmental management system. The purpose of such a system is to enable an organization "to establish and assess the effectiveness of procedures to set an environmental policy and objectives, achieve conformance with them, and demonstrate such conformance to others" (ISO/TC 207/SC1/N60, Environmental Management Systems - Specification with Guidance for Use, 17 February 1995-Introduction). The standard is being written to be applicable to all types and sizes of organizations and to accommodate diverse geographical, cultural and social conditions.

Some 15 countries have already produced draft EMS standards at the national level. Many are modelled after the British standard, BS 7750, first published in 1992. Both BS 7750 and the European EMAS legislation set out comparatively detailed programs for compliance and include requirements for some type of public disclosure or "environmental reporting." Many participants in the ISO process have expressed their concern that these documents are not flexible enough for global application to businesses of different types and sizes. The specification document emerging from SC1 of TC 207 takes these concerns into account. While the international document encompasses the general elements of BS 7750, it allows greater flexibility in application. The European demand that the ISO standard be consistent

with EMAS is addressed in an "informative annex" that will accompany the EMS specification standard. The annex addresses collateral matters such as relationships with subcontractors; the level of detail required to determine the environmental aspects of operations, products and services; and the level of detail of documentation.

Both the EMS specification and guidelines documents are currently being circulated by ISO as committee drafts for ballot. If approved at the committee level, they will move to the Draft International Standard (DIS) stage at the June 1995 plenary of TC 207, in Oslo, Norway. Procedures for cooperation between TC 207 and CEN will also be considered at the Oslo meeting. CEN has already indicated its intention to implement relevant TC 207 standards as European regional standards (ENs), to fulfill its mandate from the European Commission to develop regional standards in support of EMAS. There are procedures for parallel voting on standards in ISO and CEN. Under these procedures, the draft standards are considered for simultaneous adoption as both international and European regional standards. A decision to utilize these procedures for the EMS and auditing standards would be made by the ISO technical management board (TMB), based on a recommendation from TC 207. At the CEN level, this decision would be made by the Technical Board (BT), based on the recommendation of its programming committee on the Environment. Under CEN procedures, once regional standards are adopted, all CEN members must withdraw their National Standards (i.e., BS 7750).

Environmental Auditing

TC 207 Subcommittee 2 has three documents currently out for ballot as committee drafts (CDs): general principles of auditing, procedures for auditing environmental management systems, and qualification criteria for environmental auditors. Like the EMS documents, these documents will probably be approved as draft international standards following consideration of the CD ballot results. Current plans are to issue these documents as guidelines, rather than specifications for which separate certification can be obtained. However, it has been agreed that the auditor qualifications document is applicable for use in the accreditation of environmental auditors. The standards are to be used by management as tools in the implementation of an EMS. They are baseline documents, identifying minimum criteria. The auditor qualification standard is intended to apply to all types of auditors, and does not specifically address how an auditor would audit an EMS.

Other work items under consideration by Subcommittee 2 include: documents on initial reviews; site assessment; compliance auditing; and environmental statement auditing. Work on these items has been put on hold. Subcommittee members will vote in June whether to continue work on initial reviews and site assessments, based on refinement of the scope and proposed work plans for these items. Work on the other two items has been postponed indefinitely.

Environmental Labelling

TC 207 Subcommittee 3 is considering documents on three types of environmental labelling. The first document (ISO 14024) addresses multiple criteria-based practitioner programs (Type I). These are certification programs that communicate a judgment through the use of a single label that a product is "environmentally preferable" within a given product sector, based on an analysis of the product's environmental attributes. The document is intended to serve as a guide for the operation of programs such as Blue Angel, Nordic Swan, and Green Seal. It provides criteria to use when awarding labels to products. In March 1995, this document was circulated as a committee draft for ballot. However, U.S. participants do not feel that this document is ready to move to the DIS stage.

Type II programs deal with self-declarations by manufacturers regarding specific aspects of a product (recyclability, energy use, etc.) and cover any self-declared environmental claims, not just labelling. The document covering these types of programs, which has emerged from the subcommittee and is currently a CD for comment, is compatible with U.S. Federal Trade Commission guidelines on the use of environmental marketing claims.

Type III programs cover labels that list the environmental effects associated with a particular product. A decision was made at the 1994 TC 207 plenary in Australia not to undertake any work for the present on Type III labelling. Instead, the third document under development within Subcommittee 3 describes general principles for all types of labelling. Still under discussion within Subcommittee 3 is whether the content of ISO documents should be limited to principles and methodologies to improve the art of environmental labelling, or whether they should also establish environmental improvement as the end goal of environmental labelling.

Environmental Performance Evaluation

The goal of TC 207 Subcommittee 4 is to develop objective tools to measure, analyze, assess and describe an organization's environmental performance against specified criteria. Environmental performance evaluation (EPE) is intended to provide guidance on performance evaluation as a distinct function within an EMS, and thus is closely related to the work of Subcommittee 1. U.S. participants view EPE primarily as an internal management tool, with the ISO standard establishing the criteria and methodology by which organizations can set their own objectives. So far, this view has prevailed, although some ISO participants want EPE to be a public measuring tool. The timetable for developing the first EPE standards extends well into 1998. There are no existing standards in this area on which to build. To date, the Subcommittee has approved a framework document that provides guidance for the balance of its work. The next step is to develop performance indicators and associated evaluation methodologies covering environmental management systems, operational systems and the environment. The Subcommittee plans to undertake pilot testing of these methodologies during the period June 1996 - February 1997.

Life Cycle Assessment

The scope of TC 207's Subcommittee 5 is standardization in the field of life-cycle assessment as a tool for environmental management of product and service systems. It encompasses the assessment of the environmental impact of the extraction of raw materials to the final disposal of waste. The subcommittee is working on documents in four areas: general principles and practices; inventory analysis; impact assessment; and improvement assessment. Documents on general principles and inventory analysis are the most advanced, perhaps because conceptual work has already been done in these areas by groups such as the Society of Environmental Toxicology and Chemistry (SETAC). Defining criteria and methodologies for impact and improvement assessment is more difficult. Many subcommittee participants argue that the state of science in these areas is not sufficiently advanced to permit the development of acceptable standards.

Work in Subcommittee 5 is closely related to the work of other TC 207 subcommittees. Life cycle assessment (LCA) standards are intended to be used within a full-fledged environmental management system. Labelling programs in general are supposed to be based on life cycle concepts; and inventory analysis and impact assessments are intrinsic to an organization's evaluation of its environmental performance. Work on the general principles document is at the committee draft stage. This document addresses a wide range of issues, including appropriate uses of LCA, goals, types of LCA, data quality, level of detail required, and if (or when) critical review of LCAs will be required.

Environmental Aspects of Product Standards

TC 207 formed a separate working group under the leadership of Germany to develop a guidance document for use by standards writers on the environmental aspects of product standards. The stated purposes of this guidance document, which has been submitted as a committee draft for ballot, are to:

- o raise awareness that provisions of product standards can affect the environment in both a negative and positive way;
- o outline the relationship between product standards and the environment;
- o help avoid provisions in product standards that may lead to adverse environmental effects;
- o emphasize that addressing environmental aspects in product standards is a complex process that requires balancing competing priorities; and
- o recommend the use of life-cycle thinking and recognized scientific methodologies in developing product standards that incorporate environmental aspects.

The International Electrotechnical Commission (IEC) has issued its own guidance document on environmental aspects of product standards as well. The IEC guidance is written specifically for standards writers dealing with electrical and electronic aspects of products.

The Role of Third Party Certification

TC 207's work on environmental management system standards is applicable both to self-declaration of conformance by an organization and to third party certification. Similarly, emerging auditing standards are applicable both to internal and external auditors, as well as to auditors in the employ of registrars. However, participants in TC 207 recognize that an organization may seek third party "certification" or "registration" of its management system to meet a regulatory requirement or a demand from customers and/or stakeholders for independent verification. More than half a dozen countries, including Japan, have or are developing accreditation programs for environmental certification bodies or registrars. Some are also making plans to establish programs to certify auditors and/or approve training courses. In the United States, the American National Standards Institute, the Registrar Accreditation Board (RAB), the Environmental Auditing Roundtable, the Independent Association of Accredited Registrars, as well as individual companies, are involved in discussions on the need for and mechanics of a U.S. system in this area.

In the European Union (EU), the Council Regulation establishing the EMAS requires each member state government to "establish a system for the accreditation of independent environmental verifiers and for the supervision of their activities." Companies that wish to participate in EMAS must have their environmental policy, program, management system, review/audit procedure and environmental statement examined by an independent verifier for compliance with relevant requirements of the regulation. A company's environmental statement must also be validated by the verifier in accordance with EMAS procedures.

ISO's Council Committee on Conformity Assessment (CASCO), in conjunction with TC 207, has scheduled a workshop on environmental management and conformity assessment for June 12-13, 1995 in Geneva, Switzerland. CASCO was established by ISO to address conformity assessment issues related to ISO technical standards. Conformity assessment guides produced under the auspices of CASCO have been adopted by both ISO and IEC, and are used extensively around the world. There are CASCO guides in existence that deal with laboratory operations, product certification and quality system registration. Topics under consideration in the June workshop include conformity assessment for environmental management systems (EMS), conformity assessment for products (labelling, life cycle assessment), concerns of small and medium sized businesses and of developing countries, and the current and potential role of CASCO in the environmental management area.

ISO/TC 207 INFORMATION

ISO/TC 207 on Environmental Management

secretariat **Canada** (Canadian Standards Association for Standards Council of Canada)

scope: develop standards and guidance for the selection and use of tools and systems (see below)

U.S. TAG Administrator: ASTM

WG 1 Environmental Aspects in Product Standards

convener **Germany**

scope: develop guidance for use by other technical committees for including environmental elements in existing or forthcoming product standards

SC 1 Environmental Management Systems

secretariat **United Kingdom**

scope: establish standards for activities to set environmental policy, objectives, and responsibilities and to implement them through planning, measures of effectiveness, and control of environmental impact

U.S. TAG: ASQC

2 WGs - general guidelines (Canada and USA); specifications and general guidance on them (France and U.K.)

SC 2 Environmental Auditing

secretariat **Netherlands**

scope: establish standards for measuring organizational compliance with an environmental management system and for establishing the policies, directives and goals expressed by organizational policy

U.S. TAG: ASQC

SC 3 Environmental Labelling

secretariat **Australia**

scope: develop standard terminology, definitions, symbols, test methods, test summary reporting standards, etc.

U.S. TAG: ASTM

SC 4 Environmental Performance Evaluation

secretariat **United States**

scope: guidance for evaluating environmental effects of products and services, and the effect business operations have on the environment

U.S. TAG: ASTM

2 WGs - general principles (USA); industry-specific indicators (Norway)

SC 5 Life Cycle Analysis

secretariat **France**

scope: standardize programs for analyzing environmental impacts of products, processes and services during their life cycle, including the production and utilization of raw materials, manufacturing processes, distribution methods and options related to disposal or recycling

U.S. TAG: ASTM

4 WGs - code of practice (USA); inventory (Japan and Germany); impact analysis (Sweden); evaluation and improvement analysis (France)

SC 6 Terms and Definitions

secretariat **Norway**

scope: standardize terminology and coordinate the use of standards with other committees within ISO

U.S. TAG: ASTM

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PROPOSED ISO NUMBERING/PLANNED STANDARDS

SC 1 - Environmental Management System

ISO 14000 - general guidelines on principles, systems and supporting techniques
(issued as CD for ballot, February 95)

14001 - specification with guidance for use (issued as CD for ballot, February 95)

14002 - guidelines on special considerations affecting SMEs

SC 2 - Environmental Auditing and Related Environmental Investigations

ISO 14010 - General principles (issued as CD for ballot; February 95)

14011-1 - environmental management system auditing (issued as CD for ballot,
February 95)

14012 - guidelines for environmental auditing - qualification criteria for environmental
auditors (issued as CD for ballot; February 95)

Other proposed work items:

14011-2 regulatory compliance audits-ON HOLD

14011-3 audit of an environmental statement-ON HOLD

14013 management of environmental management system audit programs

14015 environmental site assessment-DEFERRED UNTIL AFTER 6/95 TC MTG
(further justification to confirm as work item requested)

guidelines for initial environmental review-DEFERRED UNTIL AFTER 6/95 TC 207
MTG (further justification to confirm as work item requested)

performance audits

SC 3 - Environmental Labelling

ISO 14024 guiding principles/practices for certification programs - guide for
certification procedures (CD for ballot/comment; March 95)

14021 - self-declaration environmental claims (CD for comment; March 95)

14020 - basic principles of all environmental labelling

14022 - environmental labelling symbols (Type II)

14023 - testing and verification methodologies for application in
environmental labelling (Type II)

SC 4 - EPE

14031 - generic environmental performance evaluation

14032 - industry-specific environmental performance indicators

SC 5 - Life Cycle Assessment

14040 - general principles and practices

14041 - goal and definition/scope and inventory analysis

14042 - impact assessment

14043 - improvement assessment

SC 6 - Terms and Definitions

14050 - environmental management - vocabulary

Working Group

14060 - guide for the inclusion of environmental aspects in standards

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working groups cover: auditing principles, auditing
procedures, auditor qualifications

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working groups cover: guiding principles for practitioner

programs, self-declaration claims, guiding principles for
environmental labelling programs

SC4 - Environmental Performance Evaluation

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SC5 - Life Cycle Assessment

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SC6 - Terms and Definitions

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