WORLD FOCUS

The "New" ISO 14001:2004

By Jack Fearing, CPEA

On Nov. 15, 2004, the International Organization for Standardization (ISO) published the new environmental management system (EMS) standard, ISO 14001:2004. This eagerly awaited update replaces the original ISO 14001:1996 version.

Of particular importance is that as of May 16, 2005, all new or renewed certifications must be consistent with ISO 14001:2004. Organizations currently certified to the 1996 standard have until May 15, 2006, to transition to ISO 14001:2004. All ISO 14001:1996 certificates will expire after May 15, 2006.

This article is divided into two sections. The first deals with background and specific standard information; the second presents a summary of select changes between the two versions.

Background: ISO 14001

Since its publication in 1996, it is estimated that ISO 14001 has been pursued by more than 35,000 organizations, both large and small, across a wide range of industry sectors in approximately 85 countries.

The ISO standard development committee TC 207 started to develop the ISO 14000 series including ISO 14001 in 1994. ISO 14001 was published in September 1996. The latest version was published in November 2004. Organizations approved to ISO 14001:1996 have 18 months after the publication of the new standard to complete the transition.

Other environmental standards and guidelines have been developed by the TC 207 committee; the most relevant to EMS are:

•ISO 14004, Environmental Management Systems: General Guidelines on Principles, Systems and Supporting Techniques.

•ISO 19011, Guidelines for Quality and/or Environmental Management Systems Auditing.

ISO 14001 Explained

ISO 14001 provides tools to help companies identify, prioritize and manage their environmental risks as part of their normal business practices. The standard allows a company to focus on the issues most important to its business. ISO 14001 requires companies to commit to prevention of pollution and continual improvement as part of the normal management cycle.

The standard is based on the continuous improvement "plan-do-check-act" management system cycle and uses familiar management system language and terminology.

•Plan (Policy and Planning). Establish the objectives and processes necessary to

International SH&E Efforts

To learn more about how SH&E organizations operate in different parts of the world, the International Practice Specialty drafted an overview of six countries' national SH&E efforts. This overview is adapted from the national SH&E websites of Iceland, Malaysia, Finland, the Philippines, Taiwan and Ireland.

Iceland

Iceland's Admininstration of Occupational Safety and Health (AOSH) is an independent institution under the Ministry of Social Affairs that aims to prevent accidents and injuries in the workplace.

AOSH enforces a law that governs workplaces (on land) with a staff of one

This Issue

Leading The Way . . .

James C. Johnston

It's hard to believe that almost eight years have passed since a dear friend and colleague enticed me to join a group of ASSE SH&E professionals looking to establish a formal, internationally focused group. From these initial meetings, the International Practice Specialty (IPS) had its beginnings at the May 1996 ASSE Board meeting. None of us could have predicted the tragedies and crises that have occurred and that continue to impact our lives. In response to the terrorist threats throughout the world, many of us are now on the front lines to ensure the safety and security of people at work, at home and in transit against targeted or indiscriminate terror acts. Yet, the challenge of workplace accident prevention and environmental protection continues to be met.

The initial mission of this group was to develop international networking means, establish global international SH&E partnerships and build a solid ASSE international infrastructure. Now, as before, workplace accidents are a continuing major issue—mining accidents in the U.S. and especially in China grab newspaper headlines. Chemical/petrochemical accidents continue to have tragic consequences in terms of fatalities and environmental contamination. These technologies should have professional risk control and SH&E management practices infused in worldwide operations.

For those with international responsibilities, many of the problems are even greater than those in the U S. The growth of worldwide manufacturing has introduced new technologies and risks in developing countries. SH&E regulations have dramatically increased with more levels of risk control and technology challenges in both developed and developing countries. Chemical control regulations such as Regulation, Evaluation and Authorization of Chemicals (REACH), the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) and Centers for Disease Control's Select Agent Program regulations are some examples in just one category.

However, for some countries, adequate governmental resources and assistance have made regulatory implementation a continuing concern. These SH&E issues are being managed as new technologies in areas such as manufacturing processes, semiconductors, biosafety, nanotechnology, electronic systems and sustainable energy production and usage have been introduced into the workplace.

In meeting these challenges, ASSE has more than 900 members living outside the U.S. as well as several international chapters. IPS has more than 350 members in more than 33 countries including Australia, China Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam, Croatia, Egypt, England, France, Germany, Israel, Ireland, Italy, Kuwait, Nigeria, Norway, Saudi Arabia, Scotland, Switzerland, United Arab Emirates, Brazil, Canada, Ecuador, Chile, Mexico, Peru, Trinidad and the Virgin Islands.

The current IPS goals were set to meet the challenges and prepare for the growing global SH&E professional needs to keep step with the global economy. These goals include:

• Membership. A draft survey for IPS members has been developed to be sent for member needs analysis.

•Communications. Website database is available for country regulations and articles of interest are also posted. Check out www.asse.org and www.asse.org /dinte_techlinks.html for details.

•An interactive listserv for IPS and Institution of Occupational Safety and Health members is in the final stages of development. The IPS listserv is ready now for your use.

•IPS organization. The new organization to reflect regional liaison has been established. Check out the list of regional liaison persons in the IPS officer listing.

•*World Focus.* The new format reflects a regional orientation for information and communications.

These goals are the beginning of a transition. ASSE participates in international standards setting and is a founding member of INSHPO, an organization of several international professional organizations set

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deliver results in accordance with the organization's environmental policy.

•Do (Implementation and Operation). Implement the processes.

•Check (Checking and Corrective Action). Monitor and measure processes against environmental policy, objectives, targets, legal and other requirements, and report the results.

•Act (Management Review). Take action to continually improve performance of the environmental management systems.

Consistency with ISO 9001

Many of the changes to ISO 14001 represent efforts to make the standard more consistent with ISO 9001:2000. Recognizing that many organizations are developing integrated management systems, ISO 14001 has been revised to include language similar to ISO 9001 and to heighten the similarities and facilitate the integration of these two management systems.

Terms & Definitions

The 2004 version of ISO 14001 contains several new definitions of key terms. The following terms (with corresponding clause numbers) are now defined in ISO 14001:2004: auditor (3.1), corrective action (3.3), document (3.4), internal audit (3.14) (replaces environmental management system audit), nonconformity (3.15), preventive action (3.17), procedure (3.19) and record (3.20).

In addition, some definitions have been changed since the ISO 14001:1996 standard. Definitions of the following terms have been revised: continual improvement (3.2), environmental impact (3.7), environmental management system (3.8), environmental objective (3.9), environmental performance (3.10), environmental policy (3.11), environmental target (3.12) and prevention of pollution (3.18).

Scope

The 2004 revision of ISO 14001 requires that the EMS have a defined and documented scope. For many organizations, this will be relatively straightforward. In the case of more complex organizations, however, it will be important to carefully clarify the scope of the EMS, particularly describing those functions or areas that are

Figure 1
Plan, Do, Check, Act
Management System Cycle
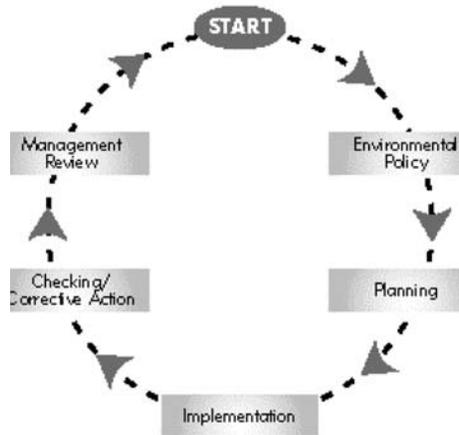
Figure 2
Implement, Maintain
& Improve Environmental
Management System
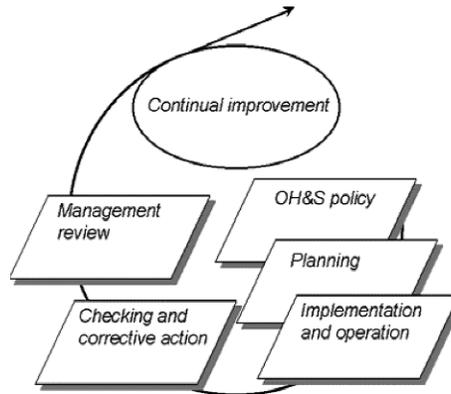
excluded. For example, the following types of organizations will need to precisely define the boundaries of their EMS:

•industries with different divisions of the same company that operate at the same location;

•corporate activities co-located with a manufacturing site;

•campus-type organizations with shared environmental services such as wastewater treatment;

•facilities with tenant operations;

•failure to get buy-in from all stakeholders.

The scope of the EMS in ISO 14001:2004 is to implement, maintain and improve an environmental management system to ensure conformance to policy and demonstrate such conformance to others.

Environmental Policy

This is the main driver of the EMS that

establishes the organization's environmental strategy. It should be appropriate to the nature, scale and environmental impacts and include commitment to continual improvement, prevention of pollution and compliance to legal and other requirements. This policy should be documented, communicated to employees, and be available to the public.

Planning

This section of the standard should be considered dynamic and establishes both the focus of management and the management of change.

It determines the areas of management, the environmental aspects, what must be achieved, legal and other requirements, and establishes the programs for improvement, objectives and targets. In addition, the need to apply environmental management to projects related to changes to activities, products or services is introduced.

Implementation & Operation

This section of the standard establishes:

•responsibilities and authorities of individuals and functions within the EMS;

•training needs and competence of individuals who perform the control processes and the environmental awareness throughout the organization;

•manner in which internal and external communications will be managed;

•documentation of the system;

•operational control of the sources of pollution both from the organization and the goods and services that it uses;

•manner in which emergency potential will be identified and how such emergencies or incidents will be managed and addressed.

This section of the standard defines how the performance of the EMS is checked and weaknesses corrected through:

•monitoring and measuring the performance of the operational control and compliance to legal requirements;

•establishing processes to identify and report failure to meet control requirements and to prevent it reoccurring;

•ensuring that records are generated and maintained to demonstrate the control and improvement;

•internal auditing to be able to report the suitability, adequacy and effectiveness of the EMS to meet the organization's policy and objectives.

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Management Review
Through review of the results of monitoring, measurement and internal audit, the organization shall establish whether any change to the policy and objectives are necessary and to make amendment to any part of the EMS.

It should be noted that the standard requires that necessary information be collected to allow the review to take place. This implies that this is documented and may form part of the responsibility of the management representative as defined in 4.4.1(b).

ISO 14001:2004 vs. ISO 14001:1996
The following information summarizes some significant changes in each major section of the standard. It should be noted that the information does not include all of the changes to the revised standard. For example, in Section 4.3, Planning, the information only highlights the changes to clauses 4.3.2 and 4.3.3. Clause 4.3.1 contains additional changes not specificied here. The discussion presents the new requirement(s) and lists the organizational review required as a result.

To receive a nine-page summary table of ISO 14001:2004, Changes and Impacts to Business, call (800) 722-2440 or visit www.ensr.com/request. To receive a complete checklist for ISO 14001:2004, contact Excel Partnership Inc. at (800) 374-3818 or visit www.xlp.com.

Section: Definitions
New Requirement(s)
The revised standard contains new terms and definitions to increase compatibility with ISO 9001. These include:
- auditor;
- continual improvement;
- corrective action;
- document;
- internal audit;
- nonconformity;
- preventive action;
- procedure;
- record.

Note: The revised standard removes the definition of EMS audit.

Organizational Review
Review current documentation for consistency in terminology.

Of particular importance is that as of May 16, 2005, all new or renewed certifications must be consistent with ISO 14001:2004.

Section 4.1: General Requirements & Scope
New Requirement(s)
The revised standard contains more specific requirements for the organization to clearly define and document the scope of its EMS, continually improve the EMS, and to determine how it will fulfill the requirements.

Organizational Review
Review the current EMS for compliance. Ensure that the scope and how it will fulfill the requirements is fully defined and documented. Also consider that the revised standard is more explicit regarding continual improvement.

Section 4.2: Environmental Policy
New Requirement(s)
The revised standard requires that the policy is consistent with the scope of the EMS (i.e., that it covers all activities, products and services within the scope). In addition, the standard requires that the policy be communicated to "all persons working for or on its behalf," not just employees.

Organizational Review
Review the current policy to ensure that:
- it is consistent with the scope of the EMS;
- contractors and temporary staff are included in communications regarding the policy.

Section 4.3: Planning
4.3.2: Legal & Other Environmental Requirements
New Requirement(s)
The revised standard is more specific in the areas of:
- determining the legal and other requirements relevant to the organization's environmental aspects and how these apply;
- ensuring that the environmental, legal and other requirements are considered in developing, implementing and maintaining the EMS.

Organizational Review
Review the existing processes to ensure that legal and other requirements are taken into consideration in establishing, implementing and maintaining the EMS.

4.3.3: Objectives, Targets & Programs
New Requirement(s)
The requirements of the 1996 Standard Clause 4.3.3. (Objectives & Targets) and 4.3.4. (Environmental Management Programs) are now incorporated in Clause 4.3.3. The structure change is intended to improve the links between the goal setting and program/planning processes to achieve these goals.

Organizational Review
Review the current objectives and targets, and the EMP to consider whether changes are required in order to meet:
- measurable objectives and targets;
- clear requirements that take into account significant aspects, legal and other requirements.

Section 4.4: Implementation & Operation
4.4.2: Competence, Training & Awareness
New Requirement(s)
The revised standard clarifies that any person(s) performing tasks on its behalf which have the potential to cause significant environmental impacts shall be competent. The term person now specifically includes contractors and temporary employees. The inclusion of "competence" as the first word in the revised title clearly increases the emphasis on competence. The 1996 standard only referred to "personnel."

Organizational Review
Review the existing processes for determining competence and training requirements to ensure that "all persons" working for the organization are included as well as assessed and trained, as required.

4.4.7: Emergency Preparedness & Response
New Requirement(s)
The revised standard contains an additional specific requirement that now requires the organization to respond to emergencies and mitigate or prevent adverse environmental impacts. The 1996 standard contained requirements for establishing and maintain-

ing, and reviewing and revising proce-
dures. It was not explicit regarding the
need to respond.

Organizational Review
Review the existing requirements that are
already covered under the EMS. The
review should also include whether or not
all existing requirements are met.

Section 4.5: Checking
4.5.3: Nonconformance,
Corrective & Preventive Actions
New Requirement(s)
The revised standard clarifies the require-
ment to have a procedure to:
    •investigate and determine causes of
actual nonconformities and to take action
to prevent recurrence;
    •investigate potential nonconformities
and assess the need for implementing pre-
ventive actions;
    •review effectiveness of corrective and
preventative actions.
    Note: The definition of "nonconformity"
as "non-fulfillment of requirement" increas-
es the scope of what a nonconformity cov-
ers, as this now implies noncompliance is a
nonconformity, in addition to failing to meet
an EMS requirement.

Organizational Review
Review the existing processes and amend
as necessary to meet the revised Standard
requirements. Ensure that the definition
of nonconformance is considered.

Section 4.5.5:
Internal Audits
New Requirement(s)
The title of the revised standard has been
amended to reflect alignment with ISO
9001:2000. The revised standard requires
that:
    •auditors selected are competent to
ensure an objective and impartial audit;
    •the audit program is maintained (i.e.,
updated as scheduled audits are not con-
ducted as scheduled or are rescheduled).
    Note: Annex A now refers to ISO
19011:2002 for additional guidance.

Organizational Review
Review the existing processes for estab-
lishing and maintaining audit programs to
ensure that auditors are competent and that
the audit schedule is updated as required.

Section 4.6:
Management Review
New Requirement(s)
The clause was revised to reflect align-
ment with ISO 9001:2000. The change
specifies that the review is required to
include assessing opportunities for
improvement and the need for changes to
the system. The revised standard also
clearly identifies inputs to and outputs
from the management review process. The
inputs include:
    •results of internal audits and evalua-
tions of compliance with legal require-
ments and with other requirements to
which the organization subscribes;
    •communications from external inter-
ested parties, including complaints;
    •environmental performance of the
organization;
    •extent to which objectives and targets
have been met;
    •status of corrective and preventive
actions;
    •follow-up actions from previous man-
agement reviews;
    •changing circumstances including
developments in legal and other require-
ments related to environmental aspects;
    •recommendations for improvement.
    The outputs from the process include
decisions and actions related to possible
changes to any elements of the EMS,
including the policy, consistent with the
commitment to continual improvement.

Organizational Review
The current process should address the
requirements. However, the process
should be reviewed and all relevant
documents amended as necessary to
cover the specific input and output
requirements.

Section: Annex A
New Requirement(s)
Information and guidance provided for
some of the clauses has been improved,
including references to ISO 14004 and
ISO 19011. ■

References
    International Organization for
Standardization (ISO). ISO 14001:2004,
Environmental Management Systems:
Requirements with Guidance for Use.
Geneva, Switzerland: ISO, 2004.

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national pharmaceutical and manufacturing
companies designing and implementing manage-
ment systems programs.*

up to promote SH&E communication and
practices throughout the world. The next
challenge is to continue development of
member groups in target countries such as
Ireland and China where the U.S. multina-
tionals have a significant presence. Many
U.S. multinationals have staffed these
facilities to include SH&E positions. We
can lead the way by sponsoring these per-
sonnel to become ASSE members and
promote the formation of chapters in these
countries—as a start. The ASSE IPS can
offer assistance to those companies that
wish to participate.
    For those planning to attend ASSE's
Safety 2006 conference in Seattle this
June, we will discuss the ideas in detail.
The PDC has several IPS-sponsored pre-
sentations on REACH regulations, inter-
national management and global SH&E
trends. Don't miss the opportunity to net-
work with IPS colleagues on these key
issues.
    In closing, for each of you who has
helped make a difference to protect peo-
ple, environment and assets as good stew-
ards, I have enjoyed the opportunity to
work with you toward this rewarding
goal. See you in Seattle!

James C. Johnston

Workplace Accidents & Fatalities on the Rise: Global Regulators Attempt to Reduce the Trend

By Victoria Bain and Thierry Dumortier

The number of workplace accidents and diseases worldwide continues to rise steadily, with estimates of the costs reaching €55 billion in the European Union's first 15 member states alone. The current estimate of workplace deaths stands at 2.2 million a year worldwide. This is the latest news from the International Labor Organization (ILO) in its SafeWork report released in September 2005. The report calls for urgent improvements not only in labor conditions but also reporting of accidents and diseases in order to get a firmer handle on the problem. We reviewed the statistics released by the ILO, related enforcement practices and the latest regulatory changes in various countries that are trying to improve the situation and its implications for business.

Statistics

The annual number of non-fatal work-related diseases has been estimated by the ILO to be at least 160 million. However, due to the lack of administrative procedures for ensuring systematic reporting, it is estimated that the real number probably approaches 200 million. The EU Labor Force Survey identified a prevalence rate of 5,372 cases per 100,000 persons per year in 2004.

Although the ILO reports that exposure to toxic substances in the workplace is generally better controlled in industrialized countries, there is increasing evidence that the rate of fatalities has increased for past exposures to certain substances because of the latency of some diseases.

For example, in the U.K., an estimated 3,500 people die each year from mesothelioma and asbestos-related lung cancer. At the same time, there is a general decline in fatal accidents in industrialized countries due to the gradual change in employment patterns, with fewer people now working in hazardous sectors such as steel mills, shipbuilding and ship breaking, agriculture, forestry and mining, and with more people being employed in relatively safe service sectors.

Conversely, the industrialization of developing countries is associated with the rapid increase in numbers of factories that employ untrained and migrant workers and which are, therefore, highly susceptible to injuries and diseases. Experience illustrates that developing countries will continue to show a rise in fatal and major accidents and diseases until a plateau is reached, as prevention policies and programs are gradually implemented and supported with enforcing legislation.

The results of rapid industrialization coupled with relatively limited workplace safety and health standards are clear. In 2001, Asia accounted for the majority of fatal workplace injuries, with China alone accounting for 26 percent worldwide. Close behind were other Asian countries (including Malaysia, Korea, Thailand, Vietnam, Pakistan and Singapore), which jointly accounted for 22 percent, while India alone accounted for 11 percent. Sub-Saharan Africa came in at 15 percent. In comparison, established market economies (including EU-15 countries, Australia, Norway, Switzerland, U.S. and Canada) accounted for only 5 percent of deaths.

Contributing Factors

The upward trend is clearly attributable to among other things the steady growth in the global working population. But even when this and other factors are taken into account, the figures still show an increase in global fatalities. When looking at developing countries only, the rise is sharper. This is not only attributable to population growth but also to rapid industrialization coupled with safety and health standards that lag behind.

The fact that the majority of the global workforce is not protected by legal or preventive safety and health measures, and has no access to occupational health services or even compensation for occupational diseases or accidents is something ILO is trying to address. It has a few approaches to solving the problem, perhaps most effective is strengthening national occupational health and safety (OHS) systems, including collaborating with national authorities in the various countries in question. Fundamental aspects of strengthening a country's

OHS systems include legal provisions, enforcement, compliance and labor inspection capacity and capability. The uptake and implementation of management systems is crucial but is best motivated by legislation rather than simply as good business practice.

In practice, a range of countries have been working on their labor laws in the last year or so. Some examples of significant overhauls reported by Enhesa in its monthly regulatory monitoring service include the Czech Republic, Slovakia, Venezuela, Argentina and Singapore.

Labor Accidents Trigger Enforcement Action

In many countries, labor accidents are a leading cause of enforcement action. The accidents often trigger immediate inspections and stop-work orders.

On July 13, 2005, the Working Conditions Inspectorate in the Netherlands released a report on major accidents involving hazardous substances. The report found that between April 2003 and September 2004, 55 serious incidents occurred involving hazardous substances in facilities which fall under the scope of the Decision Major Accident Risks. The majority of incidents occurred in the chemicals industry during maintenance work. After analyzing 36 of the incidents, prosecutions are being brought in more than half of these cases (Enhesa Monitoring Report 9533).

In Australia, the New South Wales Occupational Health and Safety Amendment (Workplace Deaths) Act 2005 entered into force on June 15, 2005. This amended the Occupational Health and Safety Act 2000 to address reducing workplace fatalities by providing for higher penalties for companies and individuals (including, potentially, directors and other employees), and clarifying certain offense provisions relating to workplace fatalities in the Act and the Criminal Appeal Act 1912 (see Enhesa Monitoring Report 7784).

Some countries make use of accident statistics to prioritize inspections. An example of this is the Site-Specific

Targeting 2005 (SST-05) inspection plan published by OSHA on Aug. 5, 2005 (Enhesa Monitoring Report 9769). Over the past seven years, OSHA has used such a program based on injury and illness data. The 2005 program (SST-05) stems from OSHA's 2004 data initiative, which surveyed approximately 80,000 employers to attain their injury and illness numbers for 2003. The 2005 SST plan will focus on approximately 4,400 high-hazard worksites for unannounced comprehensive inspections over the coming year.

Recent Legislative Developments

In the Czech Republic, a new labor code was approved in September 2005 (Enhesa Monitoring Report 9080), introducing the biggest change in labor legislation since 1990. Once it takes effect July 1, 2006, the code will lay down the basic rights and obligations of employers and employees in terms of safety and health, and give more flexibility to how employers manage safety and health at work. It is expected to be followed by a separate act to detail specific provisions on work safety. It will become the obligation of the employer under whom the accident took place to investigate the causes of the accident.

Slovakia's proposed Act on Health and Safety at Work which was published in June 2005 (Enhesa Monitoring Report 9366) would become the framework legislation in terms of occupational safety and health, replacing the current legislation that dates from 1975. The employee's obligation to report on its own accidents or accidents witnessed will be reinforced. In terms of reporting, the employer has to report every month (by the fifth) on all accidents that occurred during the last month. This would be changed so that the employer has eight days to report. Overall, it would bring the requirements in line with EU legislation and introduce measures to provide for improvements in worker safety and health.

In Australia, the Victorian WorkCover Authority (VWA) released its 2005 Compliance and Enforcement Policy on July 20. This was in line with the vision for Victorian workplaces to be free from work-related injury and disease, the entry into force of the Occupational Health and Safety Act 2004 and the released of the general prosecution guidelines.

The policy provides an overview of the legislative framework within which WorkSafe operates and sets out how WorkSafe's "Constructive Compliance Strategy" (a balanced combination of positive motivators and deterrents) is applied to its enforcement and prosecution activities (Enhesa Monitoring Report 9631).

A complete overhaul of Law on Prevention, Conditions and Work Environment was adopted on June 30, 2005, in Venezuela (Enhesa Monitoring Report 9644), enhancing requirements to prevent occupational accidents and illnesses. Key changes include the requirement that Health and Safety Committees be registered with the National Institute for Prevention, Occupational Health and Safety, and makes provision for periodic reports to be submitted. In addition, an occupational safety and health program must be designed and implemented, and a general duty of care has also been introduced. Occupational accidents and diseases had to be reported even under the previous legislation, but this now has to be done within 24 hours. It came into force in July 2005.

Argentina adopted the ILO's ILO-OSH-2001 General Guidelines on the Health and Safety at Work Management Systems on Jan. 27, 2005 (Enhesa Monitoring Report 8501). They are aimed at the voluntary implementation of management systems in organisations for the protection of workers and the prevention of occupational illnesses and accidents.

The same guidelines formed the basis for Germany's national manual on occupational health and safety management systems, which were issued in June 2002 (Enhesa Monitoring Report 5519). The aim of the manual is to provide guidance on integrating occupational safety and health management into the overall management of an organization. The implementation of the national manual is voluntary and does not replace compliance with existing legal requirements. It also does not provide for third-party certification, but there is a possibility of a voluntary check of the OHS system by authorities and Accident Insurance Associations (Berufsgenossenschaften).

ILO's Occupational Safety and Health Management System Standard (ILO-OHS-MS) was adopted by Malaysia as a national standard in December 2003 (see Enhesa Monitoring Report 5404). It is mandatory for all high-risk facilities, and was implemented to standardize all occupational health and safety management systems practiced by companies.

A ground-breaking judgement on July 1, 2005 in the Netherlands saw an employer held liable for repetitive strain injury (RSI) to an employee after it was shown that the employer had failed to comply with the requirement to provide ergonomic working conditions (see Enhesa Monitoring Report 10097). The right to appeal was rejected. The employee was shown to be suffering from RSI after spending more than half his working time using a computer and keyboard, and more specifically this was frequently a laptop computer, a prominent cause of RSI if used intensively.

Although at the time the employee started work in 1986 (he worked there until 1996) little was known about RSI and its causes, the court held that the employer should have monitored developments in knowledge and complied with workplace safety requirements.

In the Netherlands, the Working Conditions Act 1998 requires that occupational illnesses be notified to the Dutch Centre for Occupational Illnesses, regardless of whether or not it involves absenteeism. Employers are obliged to provide their employees with the opportunity to undergo medical examinations, but employees are not obliged to undergo the examinations. These examinations have to cover the specific risks related to an employee's work activity.

Singapore is also in the final stages of overhauling its occupational safety and health requirements, although it is one of those countries where continual improvements have consistently been reported since 1995, and the authorities are now trying to break through the plateau (Enhesa Monitoring Report 8752). Singapore's current occupational fatality rate for 2004 is slightly under five per 100,000 workers, and has been reduced from eight in 1998. The current accident rate of industrial accidents is 2.2 per million man hours, which has been reduced from over six in 1981. Since 2001, the steady improvement has levelled out and the accident rate has remained the same, hence the call for continued improvement. The new OSH framework will focus on preventing or reducing risks at their source, will give industry more responsibility and ownership of safety and will

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or more. This law, No. 46/1980, is Iceland's principal occupational safety and health legislation, and it centers on working conditions in all areas of land-based employment. No. 46/1980 ensures that safety and health conditions in all working environments correspond with Iceland's social and technological development. It also ensures that workplaces are able to address any safety and health issues and to comply with AOSH's policies as well as with existing regulations that support the provisions of No. 46/1980.

Although AOSH's legislation holds the employer, foreman and employee accountable for maintaining good safety and health practices in the workplace, it emphasizes that the employer is most responsible for providing a safe and healthy work environment and proper training.

AOSH's Primary Duties
While enforcing No. 46/1980 is a priority of AOSH, it also performs the following duties, which help workplaces to further promote sound safety and health practices:

1) Conducts inspections to confirm that working conditions comply with safety and health legislation and regulations.

2) Reviews and measures occupational air quality, pollution, noise and lighting.

3) Tests and reviews machines, technical instruments and heavy-duty equipment.

4) Writes, publishes and distributes safety and health information.

5) Offers courses for safety managers, safety representatives and drivers of dangerous cargo.

6) Investigates reported occupational accidents and determines ways to prevent future accidents.

7) Researches occupational diseases and psychosocial risk factors and provides consultation.

8) Controls the import and handling of dangerous materials.

9) Inspects the design of any new working environments to determine whether they meet required safety and health standards.

10) Inspects imported machinery and equipment to find out whether it contains required safety features and Icelandic labels and instructions.

Structure
Two boards under the Ministry of Social Affairs—the Board of AOSH and the Board for Agriculture—and the AOSH director are responsible for the following seven departments:

•Dept. of Development and Inspection (there are eight divisions within this department);

•Dept. of Heavy-Duty Equipment;

•Dept. of Industrial Hygiene;

•Dept. of Research and Occupational Health;

•Dept. of Training and Information;

•Head Office;

•Technical Dept.

Training & Publications
AOSH provides safety representatives, safety managers and drivers of dangerous cargo with several training courses, including those that offer licensing to operate heavy machinery. Courses for safety representatives and safety managers cover such topics as job responsibilities, laws and regulations, occupational accidents and diseases, occupational noise and lighting, physical and psychosocial risk factors, and risk evaluation. In addition, AOSH offers operational training courses on forklift trucks, construction machinery, tower cranes and explosives.

Workers can also participate in AOSH meetings and lectures on occupational safety and health, and they have access to publications such as AOSH's newsletter, training materials, posters and regulations. AOSH provides consultation on safety and health in the workplace for safety representatives, safety managers, foremen, directors and employees.

Inspections
AOSH inspects workplaces, machinery and technical equipment in Iceland to ensure that safety and health laws and regulations are followed. Indoor air quality, pollution and noise are all reviewed and measured during these inspections.

Employers must report all accidents to AOSH. Serious accidents must also be reported to the police.

Research
AOSH continually conducts research on the relationship between working conditions and occupational injuries, accidents and diseases, and it also studies the social risk factors that may contribute to other workplace issues such as physical violence, sexual harassment and poor job performance. Recent research has focused on cancer and mortality rates among different occupational and social groups and on the relationship between working conditions and employees' well-being.

Malaysia
Each year, the Rotary Club of Klang-Port Swettenham chooses a community service project to which members devote their efforts. In 1970, Rotary Club President Dr. Chan Jee Swee suggested the formation of a national society that would promote industrial safety. Industrialists, senior government officials and Rotary Club representatives then formed a committee to draft a constitution for this new society, and on April 27, 1971, the Malaysian Society for Industrial Safety was registered. In 1991, a consensus renamed the organization the Malaysian Society for Occupational Safety and Health (MSOSH). Since its inception in 1971, the society has remained a nonprofit, nongovernmental and nonpolitical organization.

MSOSH's Objectives
The society seeks to:

•foster occupational safety and health awareness among employers and employees;

•increase cooperation between employers and employees on occupational safety and health issues;

•hold seminars, workshops and meetings on occupational safety and health;

•recognize members for performance and contributions;

•maintain a library of occupational safety and health books, manuals and articles;

•publish and distribute statistics and information to help prevent accidents and to promote employee safety;

•work with the Dept. of Occupational Safety and Health (DOSH), the Social Security Organization (SOCSO), the National Institute of Occupational Safety and Health (NIOSH), the Fire Services and Rescue Dept., the Malaysian Trade Union Congress (MTUC), higher-learning institutions and other organizations to promote occupational safety and health;

•work with DOSH, SOCSO and government agencies to develop public safety and health programs.

MSOSH's Services
MSOSH supports its commitment to promoting safety and health awareness by:

•conducting safety inspections and audits;

•providing safety advisory services;

•holding the annual safety award competition;

•helping to organize initiatives such as the Safety Campaign and Safety Week.

MSOSH also offers training programs on 40 different topics, including accident prevention and investigation, hazard investigation, occupational healthcare delivery systems and safety management.

The Occupational Safety & Health Act (1994)

On Feb. 24, 1994, Malaysia enacted the Occupational Safety and Health Act, which requires all employers with more than five employees to develop a written safety and health policy for their workplaces. Malaysia maintains that an established safety and health policy demonstrates a company's concern for its employees. Companies can use this policy as a foundation for creating occupational health and safety programs, and they should refer to it in all work activities and decisions.

The act emphasizes self-regulation and places responsibility on those who create and work with risk, and it holds both the employer and the employees accountable for providing a safe and healthy workplace. The act recommends the formation of a safety and health committee that allows the employer and employees to actively participate in implementing good safety and health practices in the workplace.

Dept. of Occupational Safety & Health (DOSH)

Malaysia's DOSH is a government agency established under the Ministry of Human Resources. This department ensures the safety, health and welfare of employees by protecting them from occupational hazards present within the following industries:

•agriculture, forestry and fishing;

•construction;

•finance, insurance, real estate and business services;

•hotels and restaurants;

•manufacturing;

•mining and quarrying;

•public services and statutory authorities;

•transport, storage and communication;

•utilities (gas, electricity, water and sanitary services).

DOSH Duties

To increase safety and health awareness among employers and employees, DOSH develops standards, enforces regulations and uses promotions to effectively communicate their efforts to the workforce and to the public.

•Standards Development. DOSH periodically conducts analyses or reviews of existing safety and health policies to determine whether they meet planned objectives and amends them as necessary. The department also drafts new industry regulations, guidelines and codes of practice based on industry needs.

•Enforcement. DOSH enforces safety and health regulations through:

1) accreditation of individuals as specified by the Occupational Safety and Health Act and other regulations;

2) approval of the design, installation, fitting and repair of machinery;

3) investigation of occupational accidents, injuries and diseases;

4) legal proceedings;

5) preliminary, scheduled and supplementary inspections of workplaces;

6) registration of factories, worksites and machinery.

•Promotions. DOSH promotes safety and health education by:

1) holding lectures, public speeches, exhibitions and campaigns on occupational safety and health;

2) encouraging positive safety and health practices through motivational programs;

3) offering special occupational safety and health services to public and private agencies;

4) conducting research and technical analysis of occupational safety and health hazards;

5) distributing informative materials on occupational safety and health.

Finland

The Finnish Institute of Occupational Health (FIOH) is a research organization that specializes in occupational safety and health. To ensure the safety and health of Finland's workforce, the institute produces and distributes research-based information on occupational issues and advises on how to best apply this information to working environments. Professor Harri Vainio is the current director-general of FIOH.

FIOH is divided into eight research departments with each department containing a group of experts that conducts multidisciplinary scientific research to improve working conditions, promote worker health and ability, and ensure the successful operation of working communities. Much of FIOH's research is short-term so that it can be applied quickly to Finland's workforce, but the institute does perform long-term research that focuses on subjects such as disease mechanisms. FIOH also provides consultation services and publishes a periodical titled *Work Health Safety*.

Information Service Center

FIOH's Information Service Center serves as a resource for those in need of occupational safety and health information and is considered Finland's most comprehensive safety and health library. The center's services and databases are available online, and training in information use, management and development is offered. FIOH's online bookstore also carries dozens of publications that cover a wide range of safety and health topics.

Training Center

FIOH's Training Center encourages the development of work environments, communities and organizations and promotes the importance of safety and health expertise in the workplace. The center offers continuing education and supplementary courses that improve and maintain skills among SH&E, health professionals, labor protection personnel and administration/production employees. This training is based on FIOH's research and development work.

The center also evaluates the training needs of SH&E professionals and determines how to best incorporate this training into universities, polytechnic schools and educational institutions.

In addition, since a government decree regulates the training of occupational safety and health professionals in Finland, the center offers such qualification training, and it plans to develop qualification training for work environments and communities.

Advisory Services

FIOH provides expert services so that the results of the institute's research and development efforts are readily available within Finnish workplaces.

These expert services include occupa-

International SH&E Efforts

tional hygienic measurements, testing of PPE, diagnosis of occupational diseases and content development of occupational health services such as ergonomics, occupational safety analyses, safety-related information services, aptitude testing and work community development services.

Philippines

Established in November 1987 by former President Corazon Aquino, the Occupational Safety and Health Center (OSHC) is the Philippines' national authority for occupational safety and health research and training. OSHC's mandate protects Filipino workers from occupational accidents, injuries and illnesses through effective safety and health programs, policies, services, response, resource management and mutually beneficial partnerships. It works with multiple sectors to meet this objective.

OSHC is led by a governing board, an executive director and a deputy executive director, and is divided into six divisions—safety control, health control, environmental control, training and public information, and finance and administration.

The center's strategic plan aims to:
•develop an occupational safety and health communication system;
•provide occupational services and assistance to sectors in need;
•create an occupational safety and health training program;
•establish a rapid-response system for priority industries;
•propose and support occupational safety and health legislation;
•strengthen OSHC's capabilities;
•recognize excellence in occupational safety and health;
•organize an occupational safety and health research agenda;
•form relationships with multisector groups;
•conduct network management and institutional development.

With the assistance of governmental and nongovernmental organizations, OSHC also conducts occupational safety and health research, develops training programs, sets safety standards and guidelines, monitors working conditions and performs employee medical examinations.

Zero-Accident Program

OSHC's Zero-Accident Program (ZAP) trains companies toward achieving zero accidents in the workplace. With the cooperation and support of different sectors in the Philippines, ZAP has provided nationwide training and has a membership of more than 3,300 members. As ZAP members, companies can participate in a voluntary protection program (VPP), which gives criteria for occupational safety and health practices. Companies that join the VPP can receive technical assistance and guidance from the OSHC on compliance with safety and health standards.

Taiwan

Taiwan's Institute of Occupational Safety and Health (IOSH) is a research organization governed by the Council of Labor Affairs (CLA). Founded in 1992, the institute's staff currently numbers 64, 47 of whom are researchers. The institute includes the following divisions:
•Analysis Methods Division;
•Exhibitions Division;
•Occupational Hygiene Division;
•Occupational Medicine Division;
•Occupational Safety Division.

IOSH's mission is to apply scientific methods, surveys and analyses in the study of occupational risk factors and to develop measures to mitigate these risks.

To keep up with Taiwan's rapid industrial growth, IOSH continually researches short-term and long-term technologies that address new occupational safety and health challenges. IOSH then forwards its research results to CLA so that regulations and policies may be formulated. The industrial community also receives these results through publications, networks, exhibitions and technology transfers.

IOSH Initiatives

•*Safety and Health Databases.* IOSH has created databases to track local workers' information such as dynamic and static anthropometry, head and face anthropometry and blood test data. The databases also keep records of occupational injuries, industrial hygiene conditions, chemical hazard survey results and other statistics that are available for public access. IOSH has invested significant resources into building these databases, and it believes this endeavor will positively impact the long-term development and improvement of safety and health technology in Taiwan.

•*Patent Applications.* IOSH holds several patents, and it routinely applies for new ones. Many local and international government and academic organizations recognize IOSH's innovations and recommend them for use. The following are a few of IOSH's devices that have received patent approval from both Taiwan and the U.S.: construction safety helmet; ergonomically designed work-chair; hydraulic brake malfunction warning device; and size-selective airborne particle sampling method and sampling device.

•*Joint Studies of Occupational Injuries and Diseases.* To better understand occupational injury and disease patterns in Taiwan, IOSH is currently developing an occupational injury and disease reporting system in cooperation with the Dept. of Labor Safety and Health and the Dept. of Labor Inspection. IOSH also uses worker cohort groups to conduct follow-up studies of occupational injuries and diseases.

•*Survey of Occupational Exposure to Chemical Hazards.* IOSH conducts occupational exposure studies within local industries and assists companies in reducing exposure levels. Recent exposure studies have focused on:
1) carbon disulfide exposure in viscose rayon and cellophane production;
2) manganese exposure in manganese steel production;
3) toluene exposure in tape manufacturing.

•*Publication of Books, Guides and Manuals on Occupational Safety and Health.* To ensure that IOSH's research results reach workers, IOSH publishes books, guides and manuals that are distributed at no cost upon request. Workers have welcomed this effort, and IOSH has issued numerous revised editions and reprints of its publications. Inspection agencies receive IOSH's publications in bulk, and businesses can obtain copies from their regional inspection agency. IOSH's publications are also available online for free.

•*Mobile Occupational Safety and Health Exhibition.* On March 29, 1999, IOSH formally introduced a mobile occupational safety and health exhibition to the public. This exhibition, which was held at Nankang Vocational High School in Taipei, featured an overview of IOSH's research results and information on the

following occupational safety and health issues:

- airborne particulate hazards;
- confined space safety;
- electrocution prevention;
- employment;
- ergonomics;
- fall prevention;
- fire and explosion prevention;
- mechanical safety;
- noise reduction;
- safety signs;
- severe occupational injuries.

The exhibition continues to be held at vocational high schools across Taiwan so that students, workers and members of the general public are able to receive IOSH's latest safety and health information.

Ireland

Ireland's Health and Safety Authority (HSA) is responsible for maintaining occupational safety and health practices. Headquartered in Dublin, HSA has offices in Athlone, Cork, Galway, Limerick, Sligo and Waterford. Tom Beegan serves as HSA's chief executive officer and Jim Lyons is chair.

As a state-sponsored organization, HSA is governed under the 2005 Safety, Health and Welfare at Work Act and reports to the Minister for Enterprise, Trade and Employment. An 11-member tripartite board determines national occupational safety and health policy.

The authority believes that safety is everyone's responsibility, and it consults with employers and employees to develop sound policies and practices. It also works with advisory committees and task forces to mitigate specific occupational hazards and risks.

HSA's primary function is to monitor and enforce safety and health compliance in Ireland within these nine industry sectors:

1) ADR/transport of dangerous goods;
2) agriculture and forestry;
3) chemical safety;
4) construction;
5) hazardous substances;
6) healthcare services;
7) mines and quarries;
8) public services;
9) retail services.

Through education, training and research, HSA serves as the national source for safety and health information and advice.

The authority also performs the following duties for the benefit of employers, employees and the general public:

- conducts workplace inspections to ensure that employers comply with safety and health laws;
- investigates complaints, accidents and injuries;
- promotes standards of safety and health at work;
- proposes and develops new occupational legislation and standards;
- publishes research and guidance on occupational hazards and risks and codes of practice;
- sponsors occupational safety and health research.

Corporate Plan: 2003-07

HSA's Corporate Plan for 2003-07 sets forth the following objectives:

- Communicate with and influence employers, employees and members of the public.
- Value knowledge as a central resource.
- Apply best practices during inspections, investigations and enforcement.
- Consult, monitor and review safety and health legislation.
- Effectively manage people and resources. ■

References

Administration of Occupational Safety and Health (AOSH). http://www.vinnueftirlit.is/page/englishabout.

Finnish Institute of Occupational Health (FIOH). http://www.ttl.fi/internet/english/default.

Health and Safety Authority (HSA) http://www.hsa.ie.

Institute of Occupational Safety and Health (IOSH). http://www.iosh.gov.tw.

Malaysian Society for Occupational Safety and Health (MSOSH). http://www.msosh.org.my.

Occupational Safety and Health Center (OSHC). http://www.oshc.dole.gov.ph.

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SAFETY 2006

European OSHA Noise Standard Changes Feb. 15, 2006

By Randy Creek, CSP

The European Week for Safety and Health at Work, sponsored by EU OSHA, was held Oct. 24-28, 2005; during this week, the "Stop That Noise" campaign was launched. On Dec. 12, 2005, a Noise at Work summit was held in Bilbao, Spain; it was the final event of European Week 2005.

These events were intended to ensure that all those in the European Union (EU) affected by the new noise standards (Directive 2003/10/EC, effective Feb. 15, 2006) had an opportunity to share and discuss challenges, strategies and good practices for better control of noise at work.

Discussions at the summit covered several key topics.

The Impact of Noise at Work

In addition to hearing impairment, noise-induced hearing loss and tinnitus, workshops addressed several key topics:

•*Noise and Chemicals.* It was explained that certain substances are "ototoxic" or ear poisoning. Workers exposed to some of these substances and to loud noise seem to be at greater risk of hearing damage than if they were exposed only to noise or only to the toxic substance.

For example, a connection appears to exist between noise and organic solvents. These are substances that are normally found in noisy environments such as plastics and printing industries, and paint and lacquer manufacturing.

•*Noise and Pregnant Workers.* There is the issue of elevated blood pressure and tiredness experienced by pregnant women working in noisy work areas; however, experimental evidence also suggests that the hearing of the unborn child can be affected.

In Europe, employers are required to assess the exposure of pregnant workers to noise; where there is risk, the employer must adjust the working conditions to avoid exposure. In this case, personal hearing protection is not considered a viable solution as it does not protect the fetus.

•*Increased Risk of Accidents.* The new noise directive requires that the relationship of noise and accidents be included in the risk assessment for noise. Noise can lead to accidents by making it harder to hear and correctly understand speech and signals, masking the sound of approaching danger signals, distracting workers, and contributing to work-related stress, which increases the cognitive load, thereby increasing the likelihood of errors.

Legislation

In 2003, Directive 2003/10/EC, (replacing 86/188/EEC) of the European Parliament and the Council of the European Union on the minimum health and safety requirements regarding the exposure of workers to the risks of physical agents, such as noise, was adopted. National legislation of all of the member states must ensure the implementation of this standard before Feb. 15, 2006.

The entire standard is available at http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_042/l_04220030215en00380044.pdf. Those who are affected should study the details thoroughly. However, there are certain key elements of this standard.

Acting in accordance with the procedure on co-decision laid down by Article 251 of the Treaty on European Union, in the light of the joint text approved by the Conciliation Committee: (12) In order to correctly assess the exposure of workers to noise it is useful to apply the "objective measuring method" in ISO 1999:1990. The measured upper and lower exposure action values should be decisive for initiating the actions at the lower and upper exposure action values needed to avoid irreversible damage to workers' hearing.

Section I:
General Provisions

Article 3: Exposure Limit Values & Exposure Action Values

1) For the purposes of this Directive (2003/10/EC) the exposure limit values and exposure action values in respect of the daily noise exposure levels and peak pressure are fixed at:

a) exposure limit values: 8 hour exposure limit = 87 dB(A) and Peak = 200 Pa respectively;
b) upper exposure limit action values: 8-hour exposure limit = 85 dB(A) and Peak = 140 Pa respectively;
c) lower exposure action values: 8-hour exposure limit = 80 dB(A) and Peak = 112 Pa, respectively.

2) When applying the exposure limit values, the determination of the worker's effective exposure shall take into account the attenuation provided by the individual hearing protectors worn by the worker. The exposure action values shall not take into account the effect of any such protectors.

3) In duly justified circumstances, for activities where daily noise exposure varies markedly from one working day to the next, member states of the EU may, for the purposes of applying the exposure limit values and the exposure action values, use the weekly noise exposure level in place of the daily noise exposure level to assess the levels of noise to which workers are exposed, on condition that:

a) the weekly noise exposure level as shown by adequate monitoring does not exceed the exposure limit value of 87 dB(A);
b) appropriate measures are taken in order to reduce the risk associated with these activities to a minimum.

Section II:
Obligations of Employers

Article 4: Determination & Assessment of Risks

6) Pursuant to Article 6(3) of Directive 89/391/EEC, the employer shall give particular attention to the following when performing the risk assessment:

a) the level and type of exposure

Today's Global Regulatory Challenges

By Halley Moriyama

Global companies face many business challenges, not the least of which involves the growing volume of environmental regulations around the world. These regulations are not just addressing the traditional media, but are beginning to focus on other issues such as producer responsibility.

Your stakeholders are also becoming more vocal. A recent Investor Responsibility Research Center study showed that between 2001 and 2004, there had been a 53-percent increase in the number of proposed resolutions at annual corporate meetings that concern corporate social responsibility matters. Transparency and corporate citizenship have now become part of the value equation.

This article explores some of these recent trends and addresses the following considerations: 1) Where is environmental regulatory innovation taking place, what is the focus of that innovation, and where is it going; 2) What challenges do these regulatory trends create for global companies; and 3) What global companies can do to meet these challenges?

Regulatory Innovation

Where is regulatory innovation taking place? The simple answer is the European Union (EU). While we may not all agree on what is coming out of Brussels, the EU clearly has become the source of some of the most provocative environmental legislation in the world.

There are several reasons for this trend. First, EU legislation is based upon the precautionary principle—that is, environmental impacts are to be avoided where possible. As a result, EU legislation is more focused on addressing a potential hazard, regardless of whether a risk has been scientifically established. Second, the environment is deemed the top priority in European opinion polls. The composition of the European Parliament is increasingly reflecting this priority.

The EU is one of the most lucrative markets in the world. As a result, global companies are paying close attention to what takes place in Europe. This applies not only to U.S. multinationals, but others as well. For example, China will be pass-

ing new producer responsibility legislation in 2006, mimicking the EU's end of life electronics legislation. It is also considering chemical registration legislation that mirrors the EU's proposed REACH regulations (discussed later). Perhaps for trade reasons, China appears to be trying to get into regulatory "synch" with the EU.

Let's take a quick look at some of the more innovative environmental legislation emerging from Europe, beginning with their overarching legislation concerning the licensing of facilities.

Most of the world regulates manufacturing plants on a media-by-media basis. The EU, on the other hand, has taken a holistic view. The Integrated Pollution Prevention and Control regime (Directive 96/61/EC of Sept. 24, 1996, concerning integrated pollution prevention and control, as last amended by regulation (EC No. 1882/2003) establishes a single multimedia permitting system in an effort to apply best-available control technology to optimize air emissions, effluent discharges and waste generation.

Producer responsibility has received heightened attention in the EU. To that end, several pieces of legislation concern packaging waste, the take back of end-of-life electrical and electronic equipment, and limitations on the toxic metal content of both packaging materials and electrical and electronic equipment [(Council Directive 94/62/EC of Dec. 31, 1994, on Packaging and Packaging Waste, as amended by Directive 2004/12/EC of the European Parliament and of the Council of Feb. 11, 2004, and Directive 2005/20/EC of March 9, 2005; Directive 2002/95/EC of Jan. 27, 2003, on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS); Directive 2002/96/EC of Jan. 27, 2003, on Waste Electrical and Electronic Equipment (WEEE); and Directive 2003/108/EC of Dec. 9, 2003 amending Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE)].

Such legislation is prompting manufacturers to reevaluate the design of their products to reduce packaging, reduce or eliminate toxic properties, and facilitate end of life recycling. More producer

responsibility legislation is on its way. Last spring, a directive on the ecodesign of energy using products was promulgated (Directive 2005/32/EC of April 13, 2005 on the Design of Energy-Using Products).

The EU has increasingly been turning to economic instruments to achieve environmental goals. The Greenhouse Gas directive (Directive 2003/87/EC of Oct. 13, 2003, establishing a scheme for greenhouse gas emission allowance trading within the community and amending Directive 96/61/EC) is one such example. It not only establishes a permitting system for specified emitters of greenhouse gases, but it also creates an emissions allowance and allocation system. If sources do not have sufficient allowances, they must either reduce emissions or purchase offsets in the marketplace.

There is proposed chemical registration legislation: [COM (2003) 644—Oct. 29, 2003—Proposal for a Regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)]. It is being hotly debated in Europe and is expected to be finalized in 2006-07.

This is a regulation and not a directive. In other words, when passed, it will become law immediately throughout Europe and will not require transposition by each member state. The significance of REACH is that it combines existing and new chemicals into a single approval process, and requires the manufacturer and not the government to prove that the chemical is safe. This applies to both new and existing chemicals. This is consistent with the producer responsibility theme that is resonating throughout EU environmental legislation.

While Europe has had freedom of information legislation for some time, more robust legislation was to have been enacted last year by the member states (Directive 2003/4/EC of the European Parliament and of the Council of Jan. 28, 2003, on Public Access to Environmental Information and Repealing Council Directive 90/313/EEC). Greenpeace and other NGOs are actively making requests for company information through this

Today's Global Regulatory Challenges

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more "requestor friendly" process. In the past, most governmental information was deemed company proprietary. Under the new legislation, far less will be considered confidential.

Lastly, there is legislation coming out of Europe addressing the general theme of corporate social responsibility (CSR), and company reporting of CSR activities. CSR reporting to stakeholders is increasingly common in Europe, much more so than in the U.S. Much of this reporting is customer-driven rather than the result of legislation. It is interesting to note, however, that CSR was to be addressed as part of the overall financial reporting by public companies in the U.K. However, the government recently decided to eliminate this requirement in light of a slowing economy.

EU Regulatory Trends

EU legislation clearly is moving more and more toward producer responsibility, including:

• reducing the environmental footprint of manufacturing operations;

• managing the supply chain;

• reducing the environmental externalities of the products you make.

CSR has become of increasing importance in Europe. Consumer and stakeholder pressure are fueling this interest. Politicians are embracing the CSR theme, often linking it with economic growth. Corporate transparency, as in the U.S., is also an outgrowth of the CSR movement.

Lastly, site contamination and cleanup legislation is moving forward throughout Europe. The EU Directive on Environmental Liability, which was first proposed in 1989, is now a reality, with member states required to implement it by April 30, 2007 (Directive 2004/35/CE of April 21, 2004, on Environmental Liability with Regard to the Prevention and Remedying of Environmental Damage). Many member states have already done so. While retroactive liability is not part of the directive, the implementing legislation throughout much of Europe is not as forgiving. Historic contamination is a political hot potato. At the end of the day, the current owner often will be held as the responsible party when the polluter cannot be identified.

Challenges to Global Companies

These legislative trends in Europe are producing various challenges to global companies, particularly those who sell to the European marketplace and/or have manufacturing plants in Europe.

Selected challenges facing global companies include:

• Producer responsibility legislation is gaining momentum in Europe and elsewhere. Producer responsibility requires greater integration of the SH&E function with manufacturing, R&D, procurement, etc.

• Sustainability/social responsibility is becoming main stream; corporations must learn to manage "across silos" and create more cross-functional teams.

• Demands for transparency combined with freedom of information and the ease and speed with which e-mail and the Internet disseminate information greatly increase the "reputational risks" to global companies. In the digital age, your worst fears may be only a keystroke away.

• The demand for SH&E information is exploding from many directions, including stakeholders; managing that information on a global basis continues to be a challenge.

• Legislation regarding site contamination, cleanup and related liabilities are spreading around the world.

To ensure that your company is able to respond to new requirements and public expectations, global companies should:

• Closely monitor EU legislation.

• Focus on training at all levels and create a continuous learning environment. More processes and procedures (management systems) will not automatically lead to compliance and SH&E performance improvements.

• Continuously monitor environmental liabilities, including reputational risks.

• Understand the breadth of stakeholders and their concerns; engage them in active dialogue to build strong communications channels and a foundation of trust. ∎

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Workplace Accidents & Fatalities on the Rise

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introduce higher penalties and financial disincentives for poor safety management.

Conclusion

While regulators struggle to keep up with increasing industrialization and its accompanying toll on the health and safety of workers, the statistics reflect the fact that even in developed countries the existing health and safety frameworks are not sufficient to keep levels of accidents and illnesses down to a minimum. Highly regulated countries are therefore turning their attention to better implementation of the requirements and a tougher approach to enforcing compliance. Companies should review their accident and occupational illness records to determine how they compare with other companies in the sector. Multinational companies not only have to ensure compliance with local requirements, but they should also ensure proper operating practices (and hence low accident numbers) that may go beyond local requirements. It will help avoid disruption in production, help to ensure good relations with employees and local enforcement agencies, as well as prevent reputation damage due to poor labor practices. ∎

References

The ILO's SafeWork report can be accessed at http://www.ilo.org/public/ english/protection/safework/wdcongrs17/ intrep.pdf. A database of the ILO's labor standards is available at http://www.ilo .org/ilolex. For more information, contact Enhesa at monitor@enhesa.com.

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NAOSH Week

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Emerging Global SH&E Regulations

Europe/Middle East/Africa

Czech Republic
• Amendment introducing changes to the air emissions limits adopted (Oct. 5, 2005).
• Regulations on safety and health at workplaces with the risk of falls (Aug. 17, 2005).

Austria
• Act on the transport of dangerous goods amended (Oct. 27, 2005).

Belgium
• Royal Order on the safety protection of trainees (Sept. 21, 2005).
• Royal Order on work at height adopted (Aug. 31, 2005).

France
• Decree on plans for the prevention of technological risks adopted (Sept. 7, 2005).
• Order on prevention of major accident hazards due to dangerous substances and preparations in some classified installations modified (Sept. 29, 2005).

Germany
• Amendments of Basel Waste Lists adopted in Germany (Sept. 28, 2005).
• Guidance to Accident Prevention Rule, "Principals of Accident Prevention" issued (Oct. 1, 2005).

Ireland
• Adopted the Safety, Health and Welfare at Work Act 2005 (Appeals Forms) Rules 2005 (Sept. 1, 2005).

United Kingdom
• Amendment to the CHIP3 Regulations adopted (Sept. 22, 2005).
• The Restriction of the Use of Certain Hazardous Substances in Electrical and Electrical Equipment Regulations 2005 adopted (Oct. 7, 2005).
• Adopted the Volatile Organic Compounds in Paints, Varnishes and Vehicle Refinishing Products Regulations 2005 (Oct. 9, 2005).

The Americas

Argentina
• Building and Construction Industry Improvement Regulations 2005 (Sept. 15, 2005).
• Industrial wastewater discharges controls regulated (Aug. 23, 2005).
• Hazardous waste prohibited in the province of Buenos Aires (Sept. 29, 2005).
• Register of producers and exporters of copper and aluminum waste regulated (Oct. 17, 2005).

Brazil
• Amendment to legislation on environmental conservation (Oct. 26, 2005).

Canada
• New Substances Notification Regulations concerning Chemicals and Polymers adopted (Aug. 31, 2005).
• Orders amending the Domestic and Non-Domestic Substances List issued (Aug. 23, 2005).
• Transportation of Dangerous Goods Regulations amended (Aug. 31, 2005).

Mexico
• Cancellation of procedure concerning certificate of non-hazardous character for certain hazardous waste (Oct. 17, 2005).

Peru
• General Environmental Law enacted (Oct. 15, 2005).

U.S.
• Adopted final rule on National Emissions Standards for Hazardous Waste Combustors (Sept. 14, 2005).
• Maintained EPA program to minimize emissions of nitrogen oxides (Sept. 29, 2005).
• Adopted Cross-Media Electronic Reporting Rule (CROMERR) (Oct. 13, 2005).

Asia/Pacific

Australia
• New South Wales: Electrical Safety (Electrical Installations) Regulations remade (Sept. 1, 2005).
• New South Wales: Road Transport (Safety and Traffic Management) (Drive Fatigue) Amendment (Miscellaneous) Regulations 2005 (Sept. 30, 2005).
• Victoria: Order declaring certain ammonium goods as high-consequence dangerous goods (Sept. 13, 2005).

China
• Automatic monitoring system for pollutant emissions shall be installed (Sept. 19, 2005).
• Safety Rules on Radiation Sources adopted (Sept. 14, 2005).
• Management of PPE specified (July 22, 2005).

India
• Environment (Protection) Second Amendment Rules 2005 creating an exception for noise restrictions on diesel generator set on defense vehicles (May 16, 2005).

Japan
• Volatile organic chemical emission monitoring methods determined (June 10, 2005). ■

Country Profile: Chile

Chile is located in southwestern Latin America. The country is bounded on the north by Peru, on the east by Bolivia and Argentina, and on the south and west by the Pacific Ocean (see map). Chile extends nearly 4,300 km (about 2,650 miles) in a north-south direction, with an average width of only 177 km (about 110 miles). This makes Chile the longest and narrowest country in the world.

The country may be divided into three distinct regions. The north, which has one of the driest deserts in the world, also contains the country's largest mining and fisheries investments. The Central Valley, which has most of the population, is where the country's main industrial and agricultural interests are situated. The south, which is largely characterized by fiords and glaciers, ends in the world's most remote city, Punta Arenas, across the Strait of Magellan.

The country is divided into 13 regions, which include the capital, Santiago; 51 provinces; and 335 municipalities. The regions are: Tarapaga, Antofagasta, Atacama, Coquimbo, Valparaiso, Libertador General Bernardo O'Higgins, Maule, Bio-Bio, Araucania, Los Lagos, Aisen del General Carlos Ibanez del Campo, Magallanes y de la Antartica Chilena and Region Metropolitana.

Population

According to the Census of April 2002, the current population of Chile is roughly 15 million—or less than 20 inhabitants per square km. According to this same source, the population increased at an annual average rate of 1.2 percent between 1992 and 2002, one of the low-est growth rates in Latin America. The Chilean population is highly urbanized, with 86.7 percent of the population living in urban areas. About 40 percent of the population live in the metropolitan area of Santiago. The six largest cities are Santiago (4,655,800), Concepción (373,400), Viña del Mar (318,489), Antofagasta (293,800), Valparaíso (267,800) and Temuco (266,225).

Ethnically and religiously, the population of Chile is very homogenous and integrated. Around 75 percent of the population is Catholic. The official language is Spanish, but English is spoken fluently by the business community.

Government

Overview

Chile is a unitary democratic republic, which has been independent since the early 19th century and is governed by a constitution that was enacted in 1980. This constitution was approved after a plebiscite was conducted by the military government of that period, and was fully ratified upon the return of democracy in 1990.

The government is divided into three branches. According to the constitution, executive authority is vested in a president who is popularly elected every six years. The president heads the executive branch and appoints a cabinet to assist him in the performance of his duties. The current president, Ricardo Lagos, was elected in 2001 and will remain in office until 2006. His government represents a center-left coalition that includes the Christian-Democratic and socialist parties.

The legislative branch is represented by a bicameral National Congress, which is formed by the Senate and the Chamber of Deputies. It sits in the port of Valparaiso, about 100 miles from Santiago. It is composed of a Senate, which has 38 members elected by direct popular vote (two for each of the 19 senatorial circumscriptions). In addition, there are nine institutional members, which are appointed in accordance with a special procedure established in the constitution. All of these senators serve eight-year terms. Finally, former President Frei is a senator for life by the express mandate of the constitution. The Senate is partially renewed every four years. The Chamber of Deputies has 120 members, all of whom are elected by popular vote and serve four-year terms.

The power to resolve civil and criminal cases and enforce those resolutions rests with the judicial branch, which is headed by the Supreme Court. The members of that court and of the Courts of Appeals, which exist in every region, are appointed by the president of the republic from a list of five and three candidates, respectively. The Supreme Court prepares these lists. Judges in each regional courts of appeals are appointed by the president from a list of three candidates proposed by the respective courts of appeals. There

are also special courts for labor, military and juvenile cases and two institutional arbitration centers.

Environmental Authorities

The governmental institutions created by Law No. 19,300, the Environmental Framework Law, are based on the recognition of the legal and technical responsibilities of each ministerial sector and the need to coordinate their various environmental actions and policies. As such, there is no single, centralized environmental authority. At the national level, the principal environmental authorities are represented by the National Commission for the Environment, called the CONAMA, and by the various sectoral ministries, many of whom have environmental functions in addition to other areas of responsibilities.

CONAMA is a functionally decentralized public service, with its own legal personality and assets. It essentially serves as a coordinating body in the management of the government's environmental policies, and operates under the supervision of the president of the republic.

Some responsibilities of CONAMA include:

•propose government environmental policy to the president of the republic;

•act as a body for consultation, analysis, communication and coordination on environmental matters;

•maintain a national public system that provides environmental information and is organized regionally;

•administer the Environmental Impact Assessment System at the national level, coordinate the creation of standards of environmental quality and determine the programs which will carry these out;

•coordinate the pertinent bodies for obtaining support for international environmental initiatives, and act, along with the Agency of International Cooperation, as the national funnel for internationally funded environmental projects;

•finance projects and activities aimed at protecting the environment, preserving nature and conserving the natural heritage.

Safety & Health Authorities

Two administrative groups share responsibilities for workplace safety and health: the Ministry of Labor and Social Security, and the Ministry of Health.

The Ministry of Labor and Social

Security is organized around two separate undersecretaries: Labor and Social Security. The Labor Directorate ("Dirección General del Trabajo") is one of the primary agencies serving the undersecretary of labor while the Social Security Service (SSS) is one of the main agencies supporting the undersecretary of social security.

The Labor Directorate is a technical service that is responsible for the enforcement and supervision of the labor laws, the supervision of the operation of the labor unions, and the prevention and resolution of labor conflicts. Its functions are exercised through the labor inspectors, which exist in those provinces, departments and municipalities determined by the director of the service.

The SSS concerns itself with the administration of the mandatory worker insurance system.

History of EH&S Legislation

Environmental

Prior to the enactment of the 1980 constitution and current Environmental Framework Law—"Ley de Bases del Medio Ambiente," No. 19,300 of 1994—Chile did not have legislation systematically organized for the protection of the environment as a whole. Instead, it had a profuse, greatly dispersed and miscellaneous set of natural resources—related legislation, separated by sectors, with only incidental environmental relevance.

In recognition of this, CONAMA started, in June 1990, the formidable task of identifying, assembling and publishing the sectoral legislation then in force.

From this research, a total of 1,004 legal texts of different hierarchies were identified. After a careful review of their level of effectiveness, 718 legal texts were finally included in the "Repertorio de la Legislación de Relevancia Ambiental en Chile," which was published in January 1992. This document covered legislation enacted through the end of 1991; municipal ordinances or regulatory plans were not included in this compilation.

Within the broad concept of "legislation," the repertory included, in what refers to national laws, the constitution (1), codes (6), laws (57), decrees with the force of law (19), law decrees (30), regulations and simple decrees (452), resolutions (79) and official Chilean norms

approved by the Instituto Nacional de Normalización (10). In the international area, it included treaties (3), conventions (18), agreements (26), covenants (11), pacts (2) and protocols (4) ratified or agreed to by Chile.

In January 1993, following the same methodology and format, CONAMA published Supplement No. 1 to the repertory, which identified and processed the environmental legislation enacted between Jan. 22 and Dec. 31, 1992. During this period, 58 new legal texts and regulations of incidental environmental relevance were issued. Finally, in 2003, CONAMA issued a complete compilation publication which includes all of the environmental legislation published until that date.

Safety & Health

Chilean health legislation dates back to 1924 with the enactment of Law No. 4,054 which established mandatory worker insurance for sickness and disability, and Law No. 4,055 of that same year, which provided compensation for labor accidents. Administration and management was entrusted to a social security agency, the Caja de Seguro Obligatorio. This system was complemented through the years by a vast and extremely complex set of legislation, which provided broad social security benefits to workers and employees until the major reform of 1980.

In 1980, two major developments took place. First, a new constitution was enacted, which guaranteed the right of all persons to health protection. Under this guarantee, the state provides free and equal access to all actions related to health promotion, protection and recovery. It also guarantees the right of every person to choose the health system, to which it may affiliate, which can be private or public.

In the second event, the existing social security system was drastically reformed by Decree Law No. 3500, which established a new social welfare and pension system, and by Decree Law No. 3501, of the same year, which adjusted the social security contributions of all workers to make them consistent with Decree Law No. 3500.

Future SH&E Legislation

In March 2002, with the purpose of ensuring the country's future sustainable development, CONAMA made public its

Country Profile: Chile

Environmental Agenda for the period 2002-06. This agenda contemplates the adoption of new standards or regulations for water, household wastes, air, the environmental impact assessment system, the preservation and protection of the natural heritage, territorial planning, noise pollution, environmental recovery within the larger cities, which extends to the treatment of waste, water and air pollution, and the issuance of air pollution bonds.

Water
In terms similar to those that exist for air quality, the government plans to issue uniform quality standards for all continental waters. In the process of adopting these standards, the government will hold consultations with each regional government to establish standards that reflect each region's use of this resource. The objective was that by 2003, at least 80 percent of the sewage from the country's largest cities would receive appropriate sanitary treatment.

Air Pollution Bonds
Article 47(B) of Law No. 19.300, the environmental framework law, establishes that prevention and decontamination plans may include the use of economic instruments, such as tradeable emissions permits. On this basis, on July 16, 2003, the government submitted a bill which is presently being examined by Congress and which will regulate the issuance of air decontamination bonds.

Construction Noise
On June 1, 2004, CONAMA published in the *Official Gazette*, for public consultation, a draft project that will regulate noise emissions in construction activities. The project is based on Supreme Decree No. 146 of 1997 of the Ministry Secretary of the Presidency.

Community Noise
Due to the numerous and contradictory nature of community noise regulations that have been adopted by the various municipalities, CONAMA has in preparation a Municipal Model Ordinance for Community Upsetting Noises which as of the date of publication of this protocol has not yet been adopted.

Environmental Recovery
CONAMA is executing an environmental recovery and modernization program for the country's largest cities that highlights the reduction of the volume of wastes generated and includes support of the responsible institutions. The goal is that by 2005, approximately 80 percent of residential wastes will be deposited in appropriate sanitary landfills.

Environmental Crime
Congress is currently discussing the possibility of adding a new title to the penal code that would establish "environmental crimes" and punish those who commit them. The bill would punish those who are responsible for endangering the balance of the natural ecosystems by infringing on the general or special provisions that protect the environment.

Enforcement of SH&E Legislation

Administrative Actions
CONAMA or the COREMAS, unlike the U.S. EPA, do not have direct legal enforcement authority. Instead, the respective sectoral authorities, in accordance with their governing laws, as will be discussed below, exercise enforcement.

In addition, a distinction must be made between the sanctions associated with infringement of the terms and conditions of an approval of an environmental impact study or declaration, and that of the various environmental plans that are applicable to the regulated community.

In accordance with Article 64 of Law No. 19,300 (Environmental Framework Law), enforcement arises in connection with the role and participation that State agencies have in the environmental impact assessment process. These agencies have the duty to supervise the permanent fulfillment of the terms and conditions under which the corresponding environmental impact study or statements were approved. In the event of a breach thereof, the respective authorities can request COREMA or CONAMA, as the case may be, to issue either a reprimand, a penalty of up to 500 monthly tax units (equivalent to approximately $28,000 U.S.) or the cancellation of the respective approval, without prejudice to their right to exercise the corresponding civil or criminal actions.

Under Article 56 of Law No. 19,300, the municipalities and other competent state agencies may request the competent judge to impose administrative sanctions against those responsible for emission sources that have not complied with environmental prevention or decontamination plans, or with special regulations for environmental emergency plans, or that have not met the requirements of those environmental management plans regulated by Law 19,300.

In accordance with the procedures established in the law, the judge may impose the sanction of a reprimand, a penalty of 1,000 monthly tax units (equivalent to approximately $56,000 U.S.) or require temporary or permanent closure of the offending establishment. If the offender continues to violate the conditions or terms set forth by the judge, an additional penalty of 40 monthly tax units per day may be imposed.

Civil Liability
Two situations must be distinguished. The first is the traditional responsibility of whoever, willfully or negligently, causes injury or damage to another person or property, which is regulated by the general rules of the civil code. Under these rules, the affected party has the burden of demonstrating that the resulting damage was directly caused by that negligent action or omission.

The second situation is that of environmental damage which is different and is regulated by Articles 52, 53, 54, 55, 56 and 57 of Law No. 19,300 (Environmental Framework Law).

In accordance with the above provisions of the Environmental Framework Law, there is a legal presumption of liability for environmental damage when there is a violation of the environmental quality standards, emission standards, environmental or decontamination plans, special regulations for environmental emergency situationsm or of the environmental protection, preservation or conservation rules established in Law 19,300 or other relevant laws or regulations. However, compensation in these situations will only be granted if a causal relationship can be established between the said violation and the resulting damage.

Strict Liability
Law No. 19,300 does not recognize strict liability nor is there any indication that this situation will change. However, strict liability is recognized in some special laws such as those on nuclear security, (Articles 49 and 56 of Law No. 18,302 of 1984)

and maritime navigation (Law Decree No. 2222 of 1978). However, no information has been found indicating the existence of cases in which the strict liability provisions of these laws has been invoked.

Criminal Sanctions

As noted, a bill is now pending before Congress that would punish those who commit environmental crimes. This bill will be without prejudice to Article 314 of the penal code that allows for the imposition of a prison sentence to anyone who infects or poisons water for human consumption causing death or serious damage to health; or to anyone who adulterates substances destined for public consumption by making them hazardous to health.

Audit Privilege

An essential element of the law on privileged information is whether the information, by its nature, circumstances or the relationship between the parties concerned, is secret or confidential, or not. Therefore, the question of whether disclosure is required in a given case is open to interpretation.

Without prejudice to the exceptions mentioned below, the general rule is that titled professionals, including, among others, lawyers and priests, are under the duty not to reveal those facts which have been communicated to them in confidence by reason of their profession or office. Public employees have a similar obligation, which extends to documents, papers or archives under their responsibility. The breach of this duty may be subject to both civil and criminal sanctions.

Therefore, if a private party requests an environmental audit, the resulting information would not be privileged unless it can qualify as being secret or confidential by its nature, circumstances or the parties involved. In essence, the qualifying factor will revolve around whether or not a confidential relationship has been established with a titled professional and whether or not the work was performed at the direction of that titled professional. In Chile, the term "titled professional" includes lawyers, accountants and engineers, among others. The issue of confidentiality and privilege may be of limited relevance in Chile, for the authorities will only request such information (such as audit findings) from private parties if and when they have a legal cause.

If the party requesting the environmental audit is a corporation that has more than 100 shareholders or in which 10 percent of the subscribed capital belongs to a minimum of 100 shareholders, the disclosure of information is subject to special rules.

Pursuant to Article 10 of Law No. 18,045 of 1981, such entities come under the supervision of the superintendency of securities and must provide the latter and the general public, in a timely, accurate and complete manner, every essential fact or piece of information related to them and their affairs at the time they happen. Moreover, their board of directors must also provide shareholders and the public in general, with sufficient and timely information on the legal, economic and financial status of the company.

Without prejudice to the above, with the approval of three-fourths of the directors in office, certain facts or antecedents related to pending businesses which, if made known, could be detrimental to the corporate interest may be kept confidential, provided such decisions are communicated to the superintendency the day after their adoption. Whether the results of an environmental audit require disclosure will depend on the materiality of the findings relative to the financial condition of the company.

Access to Information

There is nothing in Chilean law resembling freedom of information-type legislation. The country's constitution recognizes the right of every person to submit petitions to the authorities concerning any matter, public or private, without any other limitation other than that of using respectful and convenient terms. Of course, such petitions may request access to specific information and, in that event, the response of the corresponding authority will be determined on a case-by-case basis and in consideration of the merits of the request.

Safety Data Sheets

The Chilean Ministry of Health Decree No. 594 of 1999 (594/99) requires safety data sheets (SDS) to be maintained where hazardous substances are stored. Norma Chilena (NCh) No. 2245 of 2003 replaces Norma Chilena (NCh) No. 2245 of 1993 of the Chilean National Standards Institute, which established standards for the content and order of the sections of SDS and haz-

ard labels. Norm ISO 10014-1:1994 was used for the preparation of this standard. These standards are consistent with the EU format as per Directive 2001/58/EC.

The information contained on an SDS must be clear, concise and in Spanish. The standard includes an annex with a model for the preparation of a safety data sheet, which includes the following sections: company information; dangerous component information; physical-chemical properties; risks of fire and explosion; reactivity; health risks; handling and storage requirements; control measures; disposition of hazardous wastes; transport information; regulatory information; and general information. It also includes an annex with a model for the preparation of a transportation safety data sheet.

In addition, Decree No. 594 of 1999 prohibits the use of certain chemicals and contains the Chilean list of occupational exposure limits for chemicals in the workplace.

Reporting Obligations

There is no explicit obligation under Chilean law to report accidental spills and/or releases of pollutants. The government approved, in 1998, a special plan for confronting emergencies or disasters caused by hazardous substances or materials. The plan establishes the measures and actions to be undertaken when such situations occur; however, it does not establish the obligation to report them.

Other Useful Information

Sources of Regulatory Information

Regulatory information can be obtained from the following sources:

Official Gazette
La Nación S.A.
Agustinas1269 - Casilla 81-D
Santiago, Chile
Phone: 56-2-787-0110
Fax: 56-2-698-3969
www.anfitrion.cl
e-mail: Info@anfitrion.cl

CONAMA
Comisión Nacional del Medio Ambiente
Centro de Documentación
Teatinos No. 254, Santiago Centro
Phone: 56-2-240-5600
Fax: 56-2-244-5758
www.conama.cl
e-mail: conama@conama.cl

ASSE Welcomes Western Australia Chapter

ASSE Vice President Richard Nugent, CSP, presented ASSE's new Western Australia Chapter its charter during the Industrial Foundation for Accident Prevention Conference in Fremantle, Western Australia, Nov. 15, 2005.

In his remarks during the chapter's inaugural meeting, Nugent said, "Along with your overwhelming commitment to protecting people, property and the environment, you are now a member of a network of 30,000 occupational safety, health and environmental practitioners from around the globe who are very pleased to welcome you into the ASSE family.

"We know the Industrial Foundation for Accident Prevention and its members have a long history of involvement in safety and health, saving lives and reducing injuries in Australia and we applaud you," Nugent continued. "The international business focus on occupational safety, health and the environment continues to grow, and as illustrated by the number of ASSE members spread throughout the world."

As of mid-September, ASSE had more than 900 international members residing in 73 countries, including Mexico, Singapore, South Africa, Trinidad West Indies, Brazil, China, Italy, Jamaica, Venezuela, the U.K., Nigeria and Russia. The Western Australia Chapter already has more than 50 members. ASSE also has international chapters in Saudi Arabia and Kuwait, and sections in Ecuador and Egypt.

Additionally, ASSE is a founding member of the International Network of Safety and Health Practitioner Organizations (INSHPO—www.inshpo.org). INSHPO provides a venue for practition-

Country Profile: Chile

Other Contacts

Chilean Embassy
1732 Massachusetts Avenue, N.W.
Washington, DC 20036
Phone: (202) 785-1746
Fax: (202) 887-5579
e-mail: embassy@ofchile.org

U.S. Embassy
Andres Bello
2800 Santiago, Chile
Phone: (56-2) 232-2600
Fax: (56-2) 330-3710

Chilean American Chamber
of Commerce-Amcham,
Américo Vespucio No. 80
Santiago, Chile
Phone: (56-2) 290-9747
Fax: (56-2) 206-0911
e-mail: Amcham@entelchile.net

Public Holidays

National holidays are noted at right. This is a working guide only; dates should be verified prior to undertaking any visit. In accordance with Law No. 19.668 of March 10, 2000, there are three specific holidays (Corpus Christi, Saint Peter & Saint Paul and Discovery of the New World) in which the celebration date is transferred to the Monday of the week in which they occur, or to the Monday of the following week if they occur on a Friday if the holiday falls on a Tuesday,

Chilean National Holidays

Holiday	Fixed Date	Variable Date (2006)
New Year's Day	January 1	
Good Friday		April 9
Easter Monday	April 12	
Labor Day	May 1	
Navy Day (Naval Glories Day – Battle of Iquique)	May 21	
Corpus Christi		June 10
St. Peter & Saint Paul Day	June 28	
Assumption of the Blessed Virgin Mary	August 15	
Unity Day (Reconciliation Day) (1st Monday in September)		September 6
Independence Day	September 18	
Armed Forces Day	September 19	
Day of the Race	October 12	
All Saint's Day	November 1	
Immaculate Conception	December 8	
Christmas Day	December 25	

Wednesday or Thursday. All dates shown are for 2004. For further information on holidays in Chile, consult www.earth calendar.net.

Business Customs & Practices

Business practices and protocols vary around the world. What is acceptable in one country may be taboo in another. Useful information on appropriate business practices and protocols in Chile can be obtained from the following sources:

Getting through Customs

Newtown Square, PA
(610) 353-9894
E-mail: 74774.1206@compu serve.com
www.getcustoms.com
WorldBiz.com

Country-specific reports containing current information on international customs, business practices, etiquette and country-specific information can be obtained from the following website: www.worldbiz.com. ∎

Safety & the Bottom Line: Proving the Financial Benefits of Your Safety Initiatives

By W.P.D. Van Den Raad, CMIOSH, AIEMA

There are three commonly accepted reasons for reducing accidents at work—legislation, humanistic and moral considerations, and economic considerations. Often, however, the last one, economic considerations, tends to be forgotten. It is, however, accepted in industry that "good safety is good business." In 1990, the CBI estimated that each accident, whether investigated or not, costs £1500. Thus, they tried to highlight the economic argument.

One of the reasons that the economics of safety often takes a back seat could be that managers do not always realize the true cost of accidents. This is often brought about by the way that accident costs are used in industry.

Responsibility is often seen as the domain of the safety department, which means that the knowledge about accident costs tend to be divorced from the rest of the business.

But let us first look at this demon called accident costs. It is first of all important to remember that the actual cost of accidents is industry specific. However, there are some principles that can be generally applied.

Calculating the Cost of Accidents

In calculating just how much accidents costs your business, there are firstly two types of costs that need to be considered—direct costs and indirect costs. Direct costs typically reflect those that are directly associated with the accident, e.g. investigation costs (how many people involved multiplied by the number of man hours multiplied by the average hourly salary); production downtime (e.g., time spent by first-aider with injured person, time spent by coworkers in attendance to injured person, and actual downtime of all the production processes); medical expenses; damage to equipment or product; sick pay; repairs; legal costs; court fines, etc. The indirect costs typically includes costs that are indirectly linked to the accident, e.g. employers and public liability claims, business interruption, product liability, training of replacement staff, loss of goodwill, loss of corporate image, etc.

Another distinction between different types of costs is that some costs can be insured against, but others cannot. From an economic point of view, the latter distinction may be seen as more important. It is clear from studies that have been done by the HSE and others that the ratio between insured and uninsured costs leads to an iceberg effect.

The exact ratio will differ between industries, but the effect is the same: the uninsured costs far outweigh the insured costs. It is these uninsured costs that come straight off the company's bottom-line profits. The HSE estimates that for small businesses the ratio of insured to uninsured costs range anywhere between two to 36 times the insured costs, but the average uninsured losses are about 10 times the amount paid in insurance premiums. Thus, for every £1 recovered from insurance, your company is absorbing an average of £10, which can only come off profits.

If you want just an idea of how much accidents are costing your organization you can use these ratios to calculate the cost of accidents. If you want a more accurate picture you need carry out your own study. To do this you would work out the costs of accident fitting the definition of "any event where there was the risk of harm and which a) damaged property, equipment or materials, or b) delays production or service and which costs you time and money."

Include the costs of all accidents and ill health occurrences. It is common practice not to include accidents that could not have been prevented, but take care, because for example an unforeseeable machine breakdown may be due to inadequate maintenance, or an accident that seems to be due to an employee's carelessness may be due to lack of supervision or training.

You also have to remember the hidden costs, in particular the costs incurred by the diversion of people's time to deal with the accident. These can include helping the injured person, giving first aid, cleaning up, rescheduling production, accident investigation, preparing reports and repairs. You would also need to include costs of changes to machinery, safety devices or procedures, hire costs of temporary equipment, waste disposal, temporary labor, customer penalties, and possibly fines and costs from prosecution.

The longer you run your study, the more accurate your results will be. If you integrate the costing study with your existing accident reporting and investigation procedure, you will be able to make individual managers in the business accountable for uninsured accident costs, thereby providing them with an economic incentive for implementing remedial actions. One step further would be to charge the cost of an accident to individual departments, but finance remedial actions from a central fund. The effect that this has on the departmental manager is that it is costly to have accidents, but not to prevent them.

Case Examples

Case studies of companies with average accident records show that the cost of accidents takes a huge chunk out of their profits each year. An engineering company employing 60 people has six minor injury accidents in a month, at an average cost of £40. Thus, with 72 minor injuries per year the company can expect a cost of £2,880/year just on minor accidents alone. If the company works on a profit margin of five percent, it needs to generate sales to the order of £57,600, or at a profit margin of 10 percent nearly £29,000 [(Cost of accidents/profit margin)*100].

A chemical company, part of a large multinational, employed 80 people. Seven lost-time accidents and 16 minor injury accidents resulted in an accident cost of £47,000 for the year. This represented nearly four percent of the annual profit,

Safety & the Bottom Line

which led the managing director to say, "If we didn't have any accidents, we could have shut up the shop for two weeks with everybody on full pay, without affecting the profit."

In small firms, the cost of accidents can be even higher. A transport company employing 80 people had a total cost of accident bill of £195,000. This represented 1.8 percent of its operating costs and 37 percent of its annual profits. The greater cost of accidents was due to the fact that most of the accidents also involved damage to plant or equipment, and subsequent loss of business.

Analyzing ROI

One important point to remember is that when integrating safety into the business it then carries the same responsibility as the rest of the business.

One of the main responsibilities is return on investment. The logical conclusion from this is that funding for safety programs could be more easily acquired if it can be seen as an investment, rather than just "spending money on safety." A proposal for expenditure on a safety program can be prepared and put forward in exactly the same way as a proposal for a new piece of equipment for the factory. The bottom line of such a proposal is to show that spending the money will have a positive effect on the company's profitability in the future.

This provides yet another reason to calculate the cost of accidents, as this information would form an important part of the proposal. The other important part of the proposal would then of course be the anticipated reduction in accidents brought about by implementing the safety program. This information can be more difficult to get, but most reputable providers and consultants should be able to provide an expected percent reduction in accidents based on past experience. Once you have got this information it really becomes a case of simple mathematics.

Let us take the case of the transport company mentioned earlier. If the company decides to implement a behavioral-based program to reduce the accidents we can calculate the ROI. The cost for implementing such a program in a company of what size would be approximately £40K. This cost would include consultancy, soft-

Figure 1
Recorded Injuries & Throughput Data
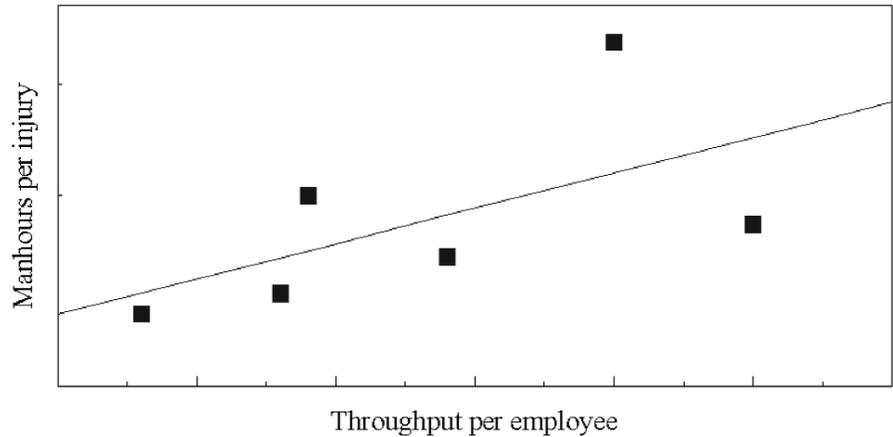
Data is proprietary to source organisation
R-square = 0.35

ware, training and personnel resources (i.e., time involvement). From our experience, we know that successful implementation of a behavioral safety program will result in a 40-percent reduction in accidents within the first six to nine months. If the company's accident bill was £195,000 for a year, this equates to an average reduction of £78,000 in the first six to nine months, providing a return on investment of £78K-40K = 38K = 95 percent. To some companies this could represent the difference between an overall trading profit or loss. Needless to say, this level of benefits would continue year on year as the behavioral safety initiative would continue to deliver the same rate of accident reductions.

These figures are borne out by actual behavioral safety implementations. For example, one company in eastern England started behavioral safety in September 1997 when its lost-time accident rate was 2.6, meaning that 2.6 people per hundred were suffering a lost time accident (LTA). With 850 people on site, this equated to 22 LTAs per annum. The average cost per LTA was £10K, totaling an average £220K per annum. By September 1998, the LTA rate was reduced to 1 (i.e., one person per 100 employees was suffering an LTA) with eight LTA injuries occurring. Thus the reduction in LTA's was 62 percent. In financial terms, this represents a savings of £140K giving a return on investment of 250 percent (i.e., £140K LTA costs minus £40K behavioral safety costs = £100K. £100K divided by £40K = 2.5 multiplied by 100 = 250 percent). In other words, for every pound spent on the initiative a return of £2.50p was produced. However, the

return on investment increased again by September 1999 when the LTA rate was (and still is) zero. Thus, compared to September 1997, the ROI on the original £40K investment in the second year of the behavioral safety initiative was a further 550 percent (i.e., £220K), representing £5.50p for every pound spent. Thus, for every pound spent the total ROI over two years was £5.50 + £2.50 = £8.00. Although these figures exclude reductions in minor injuries, they clearly demonstrate that the payback from investing in a behavioral safety initiative can be considerable.

Additional ROI can also be demonstrated by the positive impact safety improvements exert on productivity. Foster Wheeler Energy UK Ltd. conducted an interesting statistical study of their construction performance records and safety improvements for a 17-year period, encompassing some 19 construction projects (Stewart & Townsend). Four financial indicators were used.

•Cost Ratio. (Total project control budget cost)/(Actual project cost).

•Schedule Ratio. (Planned construction span in months)/(Actual construction span in months).

•Safety. (Actual or estimated exposure man-hours in millions)/(Number of lost-time injuries).

•Productivity Ratio. (Budget field man-hours)/(Actual field man-hours).

They found a 65-percent degree of overlap between improving safety and improving productivity indicating that the cost benefits of safety are significantly higher than previously calculated using the model of reduced unplanned costs. This

research showed that halving the LTA rate produced a six-percent increase in productivity. Even if the cost benefit is as low as a one-percent improvement in productivity, it would mean a significant annual saving. For example, a company expending 1 million man-hours a year (approximately 500 employees) at an average direct labor cost of £30 per hour would make an annual labor cost saving of £300,000.

In a follow-up study with a cattle farm and meat processing company, the cost benefit from safety and productivity was compared with the cost benefit from safety and reduced accidents.

According to the traditional cost benefit approach of reducing unplanned costs, the internal rate of return for the cost of implementing and maintaining the safety management system was seven percent. However this took no credit for improving productivity. As shown in Figure 1, during the study period, productivity improved by 11 percent. Four percent of this can be attributed to the association between productivity and safety.

The on-site health and safety professional indicated that improvements made for safety reasons such as better ergonomics and housekeeping had also increased productivity. Risk assessment techniques learned for safety management were also proving useful to the business operation. As an indication of the potential cost benefit analysis, a conservative one-percent improvement in productivity was attributed to safety. This increased the internal rate of return from seven percent to 30 percent.

Working with the Finance Department

The people in your finance department are the experts in calculating and tracking costs. Make use of them. As noted, it could be a good idea to make departmental managers responsible for accident costs. By including a cost analysis in every accident investigation, your financial department can track these costs by department. This data can then be in annual reports, for capital expenditure requests and even form part of individual manager's annual performance appraisal (departmental contribution to profit minus departmental cost of accidents = real contribution from department).

By working closely with your finance department, it also becomes possible to provide economic evidence in favor of the more everyday safety systems that companies employ, not just the major projects. It becomes possible to calculate the ROI from risk assessments, safety training, engineering fixes, permit to work systems, etc. To do this we need to consider the cost of the service against the expected benefits. In terms of risk assessments, such an economic analysis may help us to make a more informed decision about whether a "low" risk is adequately controlled or not.

Financial Data as Part of the Strategy

One of the lessons I have learned is that the route to a director's heart is through his wallet. I learned this from a CEO who was in a meeting with a gaggle of researchers from the research and development department. They were all putting forward all kinds of justifications for funding for a piece of research. In the end, he said, "Gentlemen, there is only one question I want you to answer. Will it make money?"

And in terms of improving health and safety performance we will be able to answer "Yes, it makes money."

Firstly, from a loss control perspective we have seen that there is a considerable ROI from reducing accidents in that it keeps the hard earned profit where it belongs, as profit and not as losses.

Secondly, we have seen that an improvement in safety performance actually increases productivity, and increased productivity means increased profit.

And thirdly, although we have been concentrating on the economic perspective, no responsible company can forget to look at the human cost. This calculation cannot be done with a calculator but has to be done with the heart. The ROI in human terms is the satisfaction to know that your employees are safe and that you are doing your part to help ensure this. After all, the rest is only money. ∎

References

Stewart, D.A. and A.S. Townsend. "Is There More to 'Health and Safety Is Good Business' Than Avoiding Unplanned Costs?" A study into the link between safety performance and business performance. Foster Wheeler Energy UK Ltd., 1999.

The Costs of Accidents at Work: Five Case Studies. Health and Safety Executive.

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er organizations from around the world to promote, develop and access international information pertinent to the profession of occupational safety, health and the environment.

As for additional activities, Nugent mentioned that two international standards may be soon be introduced, an international safety and health management standard and a risk management standard. ASSE and its members would play a role in each.

ASSE plays a strong role in standards development. The Society is the secretariat for several ANSI committees and projects and is the administrator for the U.S. Technical Advisory Group to International Organization for Standardization on fall protection. Members also serve on more than 40 safety and health standards committees worldwide.

"ASSE members have a voice on key issues that affect their job and the issues they deal with every day," Nugent concluded. "We continue to work hard so the millions of workers around the globe who go to work every day, return home safely." ∎

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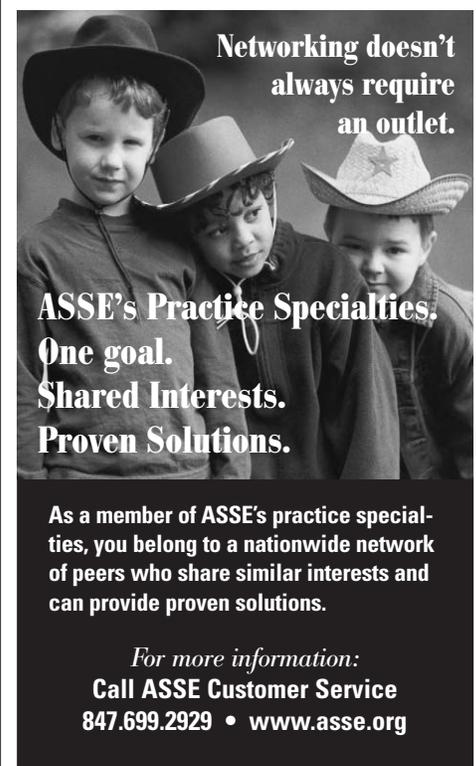
European OSHA Noise Standard

including exposure to impulse noise;
b) the exposure limit values and the exposure action values;
c) any effects concerning health and safety of workers belonging to particularly sensitive risk groups;
d) as far as is technically achievable, any effects on workers' health and safety resulting from interactions between noise and work-related to toxic, and between noise and vibrations;
e) any direct effects on workers; health and safety resulting from interactions between noise and warning signals or other sounds that need to be observed in order to reduce the risk of accidents;
f) information on noise emission provided by manufacturers of work equipment in accordance with relevant community directives (Note: decree 459/96; Machining directive 93/37/EC establishes criteria, including noise control, for purchasing new equipment);
g) the existence of alternative work equipment designed to reduce the noise emission;
h) the extension of exposure to noise beyond normal working hours under the employers' responsibility;
i) appropriate information obtained following health surveillance, including published information, as far as possible;
j) the availability of hearing protectors with adequate attenuation characteristics.

7) The employer shall be in possession of an assessment of the risk in accordance with this standard and shall identify the measures to be taken to be in compliance with Articles 5, 6, 7 and 8. The risk assessment shall be kept up to date on a regular basis, particularly if there have been significant changes which could render it out of date or when the results of health surveillance show it to be necessary.

Article 5: Provisions Aimed at Avoiding or Reducing Exposure

1) Taking into account technical progress and the measures available to control the risk at the source, "the risks arising from the exposure to noise shall be eliminated at their source or reduced to a minimum."

Article 6: Personal Protection

1) If the risks arising from exposure to noise cannot be prevented by other means, use of personal protective equipment is absolutely the last consideration, and only with adequate evidence that attempts to implement engineering controls prove inadequate or have failed.

Conclusion

The European approach for hearing protection is quite different than U.S. OSHA's requirements. It should be noted there is some influence from the precautionary principle normally found in EU legislation. This article is intended to give the reader certain information necessary to properly manage the new EU OSHA requirements for noise exposure, Directive 2003/10/EC. If the reader has responsibility for SH&E management in Europe, s/he should carefully study the information found in the links below. ■

References

EU OSHA information on noise at work: http://ew2005.osha.eu.int.

EU Safety and Health legislation: http://europa.eu.int/eur-lex.

Directive 2003/10/EC. New noise standard pdf file: http://europa .eu.int/eur-lex/pri/en/oj/dat/2003/l_042/ l_04220030215en00380044.pdf.

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