Study Reveals Financial, Regulatory and Internal Benefits from ISO 14K

While meeting customer and corporate requirements, companies certified to ISO 14001 in the United States also have obtained financial, regulatory and internal benefits, according to a new landmark survey.

“The survey indicates that certifying to ISO 14001 provides a strong impetus to achieving goals set in the environmental area. It indicates that, while meeting customer and corporate requirements, the certified facilities are also obtaining financial, regulatory and internal benefits,” say researchers from the University of Pennsylvania’s prestigious Wharton Risk Management and Decision Processes Center, who performed the analysis.

“It reinforces that having performance components along with certification delivers environmental performance improvement,” according to the researchers, who examined responses from 421 environmental managers in an extensive analysis that will be published later this year by QSU Publishing (also see page 7).

The study, which was conducted by the ANSI-ASQ National Accreditation Board LLC (ANAB) and QSU Publishing Company (QSUP) in cooperation with Wharton, reveals that ISO 14001 certification provides enhanced employee and management awareness of environmental inputs, better awareness of environmental aspects that leads to improvement as well as enhanced standardization and an improved structure.

Moreover, researchers conclude that the presence of a certified ISO 14001 environmental management system is likely to lead to beneficial written documentation of environmental programs and a systematic approach to managing environmental issues.

“Based on these findings, regulators and trade organizations should encourage firms with marginal environmental programs to undertake certification and develop an EMS,” declares Peter J. Schmeidler, a Wharton senior research fellow, who is leading the research effort.

“Incentives should be considered by the regulatory community and, while harder to materially define, the public sector should recognize those firms that have committed to improving their environmental footprint.”

(See STUDY on page 5)
This ESU brings you an exclusive sneak peek at the first ever survey of ISO 14001 certificate holders in the United States.

While meeting customer and corporate requirements, companies certified to ISO 14001 in the United States also obtained financial, regulatory and internal benefits, according to the survey.

Sponsored by QSU Publishing (ESU’s parent organization) and the ANSI-ASQ National Accreditation Board LLC (ANAB) in cooperation with the University of Pennsylvania’s prestigious Wharton Risk Management and Decision Processes Center, the single most important contribution of the survey and accompanying analysis is to identify — in many cases for the first time — the conditions under which organizations are most likely to derive the greatest financial and organizational returns on their certification investments.

One of the biggest findings to emerge from the survey — and perhaps the key to unlocking the greatest potential benefit of certification — is that companies are much more likely to achieve performance gains from ISO 14001 certification when they target specific environmental aspects.

Based on the findings, a Wharton senior research fellow, who is leading the research effort, is calling for regulators and trade organizations to encourage firms with marginal environmental programs to undertake certification and develop an EMS.

You’ll find more insights from the Wharton researchers on page 7.

The complete analysis will be available through QSU Publishing by the end of the year as a book and/or electronic product.

Warmest regards,

Paul Scicchitano
President and CEO
Simultaneous English/Spanish translations will be available during all sessions.

May 22–25, 2007
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Location: Ixtapa Zihuatanejo - Mexico
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www.inlac.org
1 | Study Reveals Financial, Regulatory and Internal Benefits from ISO 14K

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7 | Analysis Reveals Positive Return on Certification Investment

The analysis of the first-ever survey of US facilities certified to ISO 14001 is almost complete. The aim of the survey is to obtain information on the motivation of companies in attaining third-party certification to the international environmental management system standard, to determine what — if any — barriers exist to maintaining it and examine the associated costs and benefits.

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11 | US Auditing Guidance Document Addresses OHSMS Audits

A US proposal aimed at strengthening audits of occupational health and safety management systems (OHSMS) is being circulated for comment amid growing support for formal inclusion of this emerging discipline in a future international standard by the International Organization for Standardization (ISO).

The proposal drafted by US standards experts is part of a planned national supplement to the ISO 19011 international guidance for management system auditors. The experts hope the US document will ultimately serve as the basis for internationally accepted minimum criteria for OHSMS audits.

13 | Gamecocks Fly Safer With 18001

The University of South Carolina’s environmental, health and safety department has become one of the first US colleges to attain certification to OHSAS 18001 for its occupational health and safety program.

The April certification by AQA International places the Columbia, South Carolina, school among a growing number of US organizations that have implemented or sought third-party certification to OHSAS 18001, the world’s best-known occupational health and safety standard. OHSAS 18001 specifies requirements for an occupational health and safety management system to enable organizations to develop and implement a policy and objectives which take into account legal requirements and information about related risks.

14 | Forum: Does Your OHS Program Meet Due Diligence Expectations?

The words ‘due diligence’ and ‘reasonable care’ in the context of occupational health and safety (OHS) typically refer to the degree of care that a reasonable person would exercise under the circumstances to avoid harm to workers in the workplace.

In the unfortunate circumstance that there is an OHS incident, good intent will not suffice. Organizations must be able to demonstrate — through actions, documents and records — that they have taken all reasonable precautions to prevent the incident, writes Khurshed Kutky in this month’s Forum.

15 | The Last Word: Inside Environmental Management Programs

Joe Casio takes us inside environmental management programs in the first of a two-part series. Specifically, Joe discusses how a user should decide which aspects qualify to have EMPs and how EMPs should be structured so that they include those elements that are essential for effective management.

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Environmental Managers Contacted

The research team began contacting ISO 14001 certificates holders in the United States to ascertain the costs, benefits and savings associated with accredited, third-party certification in February 2006. Respondents visited a special web site that was set up to collect data, but not all completed the survey instrument, which took some respondents as little as 15 minutes and others as long as 45 minutes.

“A great number of people in the survey said that it helped raise awareness in general. That’s what it’s supposed to do,” observes Robert H. King, Jr., president of ANAB. “That really means to me that the people who are using it have driven it down through the ranks of the organization. It showed me that it just wasn’t the environmental department doing the work. Everybody was involved. This is not speculation. It’s feedback from actual users of the system, from a broad spectrum of industries.”

Paul Scicchitano, president and CEO of QSU Publishing, says that the survey focuses on meat-and-potato type issues that will help companies make more informed decisions regarding third-party certification.

“One of the most important findings in my opinion is that companies can increase their bottom-line benefits by doing a thorough job up front in identifying environmental aspects and targeting them for improvement. It makes sense, but now we have the facts to back it up.”

Greater Performance Gains

The analysis reveals that facilities that didn’t previously have formal environmental management systems (EMS) in place prior to becoming certified to ISO 14001 had improved their environmental performance to a greater extent than other organizations.

“They generally felt that this improvement was due to certification,” says Schmeidler. “Additionally, the financial data collected demonstrates that the cost of certification is not excessive, and that savings attributable to being certified could provide a fairly quick payback of around two years.”

Benchmarking

Schmeidler tells ESU that the analysis will be a useful benchmarking tool that companies can use in determining how they stack up to other organizations without undertaking costly and time-consuming benchmarking studies.

“Facilities should also compare their responses with those in the survey and review these data for opportunities to improve their environmental programs,” he says.

No Significant Differences

While the survey was open to certificate holders from all industries and sectors, researchers did not observe any significant differences among the various SIC groups, or “certainly not large enough to make any definitive findings,” observes Schmeidler.

“The biggest mistake regarding the adoption of ISO 14001 is to have it as a stand-alone process,” he tells ESU.

“It should be integrated with other facility systems to obtain the greatest benefits at the lowest cost. The survey demonstrates that facilities which have

(See STUDY on page 6)
People on the Move

Amy Holtz has been named vice president of human resources with BSI Management Systems. She will work out of the firm’s corporate headquarters in Reston, VA.

“We are pleased to welcome Amy to the BSI family. Amy’s role involves providing both HR strategic direction and tactical support to all countries in the Americas’ hub,” says Gary Pearsons, president of BSI Management Systems America. “Amy brings a broad set of HR experiences to BSI and she also has a finance background.”

Contact Holtz via e-mail at amy.holtz@bsi-global.com.

Kevin Maromonte has been named regional vice president, Northeast for AQA International. He will be responsible for sales in the northeast United States.

“I am delighted for the chance to work with Kevin again,” explains Ronald D. Mathis, executive vice president of the firm, which is headquartered in Columbia, South Carolina. “Kevin has been in the quality industry for many years and worked for me in the past. I absolutely delight in the fact that he is joining AQA International.”

Contact AQA International at 800-281-4384.

Frank Sidorowicz has joined Orion Registrar as TL 9000 program director. Sidorowicz has 37 years experience in operations, business performance and management system certification.

“We are delighted to have someone of Frank’s experience and abilities join Orion,” explains Paul Burck, the firm’s president. “He will certainly enhance Orion’s growing scope of services. His skills and contributions to Orion’s continuous improvement projects will help enable us to achieve our strategic goals and provide customer delight.”

Sidorowicz can be reached at 303-645-4029 or fsidorowicz@orion4value.com.

Study

(Continued from page 5)

better integrated ISO 14001 with other systems achieve larger environmental improvement than others.”

Schmeidler says that it is also clear from the analysis that companies must commit sufficient resources to identify improvement opportunities and implement them. “Facilities should also take advantage of the periodic audits, to get best-practices benchmarking ideas from their registrar’s representative and determine if what works for others will lead to better environmental approaches.”

Customer Expectations

The vast majority of companies in the United States that attained ISO 14001 certification were obliged to do so by their customers or by a corporate mandate.

“Customer expectations are the strongest motivation for ISO 14001 certification. This is also consistent with previous findings relative to ISO 9000 certification in the case of quality management systems,” according to the survey team.

“Conversely, the absence of customer expectations, more than any other single factor, might explain why there have not been more third-party certifications to ISO 14001 in the United States. While there are many positive findings relative to third-party certification, companies may not necessarily seek them out if left to their own devices.”

Invitations to Participate

Electronic invitations to participate in the survey were sent to certified clients of the 10 largest ISO 14001 certification bodies in the United States as determined by QSU Publishing (ESU’s parent organization), which maintains the WhosRegistered.com Global database as well as the ISO 14001 Worldwide Certified Company Directory of ISO 14001 certificate holders.

In addition, electronic invitations were sent to the clients of some smaller certification bodies, based on extensive outreach conducted by ANAB and QSU Publishing. All but one of the Big Ten Registrars for North America cooperated in making client information available.

The fourth in a series of surveys conducted by QSUP and Quality Systems Update (QSU) since 1993, the current initiative will result in a book and/or CD-ROM by the end of the year.

The present survey is the first to look specifically at ISO 14001, which was first published in September 1996 and revised in November 2004.

Haitao Yin, a Wharton doctoral candidate, who has been culling through the responses, confirms that the data shows a direct positive correlation between the environmental performance of certified facilities and the environmental aspects they target as part of their ISO 14001 implementation.

“If you really select one environmental aspect as your EMS goal, you really will do better on this aspect,” Yin has said.

Conversely, companies that do not tie a particular environmental aspect to an EMS goal do not report improvement in those areas merely from the presence of an environmental management system based on ISO 14001.

The survey team also drew from the experiences of the three previous surveys of ISO 9000 certificate holders. The first survey was conducted with Deloitte & Touche while QSU partnered with Dun and Bradstreet Information

(See STUDY on page 7)
Services on the second survey and Plexus Corp. on the third. The latter
drew responses from 1,150 respondents representing nearly 4,000 cer-
tificate holders in the United States and Canada. It resulted in a
301-page survey analysis and CD-ROM published by McGraw-Hill
(now published by QSUP).

Each of the previous surveys turned up both positive and negative
findings with respect to quality management system certification.
Registration costs can vary widely depending on a number of variables,
including whether companies use their system as a springboard for
advanced quality practices, whether they incorporate audit findings
into training and whether top management applies data to find solu-
tions to problems.

The US accreditation body for management systems, ANAB,
accredits certification bodies (CBs) for ISO 9001 quality management
systems (QMS) and ISO 14001 environmental management systems
(EMS) as well as a number of industry-specific requirements. ANAB is
a member of the International Accreditation Forum (IAF) and a signa-
tory of the IAF multilateral cooperative arrangements (MLAs) for QMS
and EMS programs.

The analysis of the first-ever survey of US facilities certified to ISO
14001 is almost complete. The aim of the survey is to obtain informa-
tion on the motivation of companies in attaining third-party
certification to the international environmental management system
standard, to determine what — if any — barriers exist to maintaining it
and examine the associated costs and benefits.

The single most important contribution of the survey and accom-
panying analysis is to identify — in many cases for the first time — the
conditions under which organizations are most likely to derive the
greatest financial and organizational returns on their certification
investments.

**Why Certification**

Respondents were asked to provide information on various
aspects of their organizations so that we might better understand why
they decided to embrace this 10-year-old framework for managing their
environmental commitments.

- Possible factors include:
  - Ownership.
  - Customer base.

Through the IAF MLAs and a Multilateral Cooperative
Accreditation Arrangement, ANAB cooperates with other accreditation
bodies around the world to provide value to its accredited certification
bodies and their clients, ensuring that accredited certificates are recog-
nized nationally and internationally. The global conformity assessment
system ensures confidence and reduces risk for customers engaging in
trade worldwide.

QSUP publishes authoritative journals, books and software on
management systems, including *Quality Systems Update (QSU)*,
*Environmental Systems Update (ESU)*, WhosRegistered.com Global and

Respondents of the ISO 14001 survey received complimentary
subscriptions to *ESU* for a limited time. In addition, they were offered a
free copy of the book, *Ford and ISO 14001*, written by Tim O’Brien,
then the Director of the Environmental Quality Office of the Ford
Motor Company. Everyone who completes the survey was also
entered in a drawing to win a $250 shopping certificate for use on
Amazon.com.

**Analysis Reveals Positive Return on Certification Investment**

By Peter J. Schmeidler, P.E. and Haitao Yin, Ph.D.

The analysis of the first-ever survey of US facilities certified to ISO
14001 is almost complete. The aim of the survey is to obtain informa-
tion on the motivation of companies in attaining third-party
certification to the international environmental management system
standard, to determine what — if any — barriers exist to maintaining it
and examine the associated costs and benefits.

- Previous experience with international standards.
- Participation in external environmental programs.
- Corporate commitment to environmental performance.
- Prior experience with formal environmental management sys-
tems.
- Industry leadership.
- Selection of environmental managers.

**Survey Methodology**

Electronic invitations to participate in the survey were sent to cer-
tified clients of the 10 largest ISO 14001 certification bodies in the
United States as determined by QSU Publishing (ESU’s parent organi-
zation), which maintains the WhosRegistered.com Global database as
well as the ISO 14001 Worldwide Certified Company Directory of ISO
14001 certificate holders.

In addition, electronic invitations were sent to the clients of some
smaller certification bodies, based on extensive outreach conducted by
the ANSI-ASQ National Accreditation Board and QSU Publishing.

(See *WHARTON* on page 8)
Respondent Pool

As of the end of 2005, there were a total of 5,061 active ISO 14001 certificates in the United States, according to data collected by the two related databases and previously published in ESU. The total number of US certificate holders at the time of our survey was 5,038 — 23 fewer than the year’s end total.

For the purposes of our survey, the total number of unique contacts was 3,595 and that number became the potential response pool based on the methodology we employed.

Overall, a total of 3,196 survey e-mail openings were recorded for a “contact” rate of 89 percent. Since multiple e-mail invitations were sent to potential respondents, some of these openings could theoretically represent the same person or contact opening the survey for a second or third time. The invitations bore the logos of the three sponsoring organizations — ANAB, QSU Publishing and the Wharton Risk Management and Decision Processes Center. As the US accreditation body of most of the ISO 14001 certificates issued in the United States, ANAB’s interest was in assessing the effectiveness of existing third-party certification and in identifying possible opportunities for improvement.

Wharton Analysis

In all, responses from 421 environmental managers were incorporated into an extensive analysis by researchers at the Wharton Risk Management and Decision Processes Center. Based on the number of contacts who opened the e-mail, the survey had an overall response rate of 13 percent.

An additional 12 responses provided by multi-facility respondents who represented the collective experiences of more than 15 separate facilities were considered, but not incorporated into our analysis. We felt that the overall analysis might potentially be skewed by including such responses, particularly in instances where averaging was employed to formulate a group response.

In addition to the 12 responses that were intentionally omitted from the analysis, another 151 contacts opened the survey but went no further than the introductory page. The so-called “balk” rate attributable to these non-useable responses was 5 percent.

Multi-Site Responses

Out of the total number of responses that were incorporated into the analysis, we received a total of 335 single-facility responses and 86 multi-site responses. The 86 multi-site responses collectively represent a total of 169 certificates and 360 facilities. Multi-site responses include those in which a single certificate may be held by two or more facilities or where a single respondent may respond on behalf of two or more certificates.

Of the 470 responses for which certification data was reported, 18 percent of the associated certificates were obtained between 1996 — the year ISO 14001 was first released by the International Organization for Standardization (ISO) — and 2000. The largest group of certificate holders, representing 45 percent of the total respondent pool, received their certificates between 2001 and 2003. Another 34 percent attained their certificates after 2004.

The information gleaned from this question alone provides the most accurate data to date on the spread of certification. Since not all certification bodies report such information in the same manner, it has been difficult to develop an accurate timeline for the uptake of ISO 14001 in the United States. For example, a customer that transfers its certificate from one certification body to another may have been treated as a new certificate holder for reporting purposes.

Industry Spread

Of the 413 certificates for which we were able to determine an industry sector, 19 percent represent chemical, rubber, plastics and allied products. Some 16 percent were associated with electronic and other electrical equipment; eight percent work with industrial machinery and equipment; 19 percent are involved with primary and fabricated metal; 17 percent work with transportation equipment, and 29 percent are in other sectors.

While the breakdown of responses by industry is consistent with the overall ISO 14001 community in the United States, we note that the survey slightly over-represents the industrial machinery and equipment sector and under-represents the transportation equipment sector.

Ownership Varies

Of the 563 facilities whose ownership was reported, only six are governmental agencies and non-profit organizations; 253 are private firms and 304 are publicly traded.

Who’s in Charge?

The survey also sought to determine how a facility’s environmental programs are administered.

When asked if they have a separate individual and/or group in charge of environmental affairs, 191 (710.52 percent) of the 268 single facility responses answered affirmatively. Only nine (4.10 percent) said no – they do not have a separate individual and/or group in charge of environmental affairs, and 68 (25.437 percent) gave no response. Among those who reported having a separate individual and/or group in charge of environmental affairs, 169 (88 percent) had one established prior to ISO 14001 certification. Some 15 (8 percent) established one after ISO 14001 certification and seven (4 percent) gave no response to this question. Thus it appears that for a small number of firms, getting certification led to a greater focus on environmental affairs via the appointment of an individual to manage this area.

With respect to the backgrounds of environmental managers, 80 percent appear to have come from traditional backgrounds involving environmental, occupational health and safety and engineering.

For the 180 facilities that reported having had no major environmental audits, or reported that major environmental audits were not reviewed by top management prior to ISO 14001, nearly everyone indicated their organization now incorporates management oversight of
audits. Interestingly, there were a large number of non-responses to this question, which may indicate a reluctance to admit having had no major audits and/or audits that were not reviewed by upper management.

If this were the case, that would offset the high percentage of organizations answering in the affirmative. The survey finds that adoption of ISO 14001 serves as a significant positive force for increasing management review with respect to environmental aspects. We can only conclude that this increased oversight and commitment by management should lead to improved environmental performance.

**Companies Gain Structure**

Nearly 60 percent of the respondents said they did not have a formal environmental management system, or EMS, prior to certification. Consequently, we can say that the spread of ISO 14001 has significantly increased the use of formal EMSs in the United States. This should translate into a greater focus on environmental issues and a reduction in the environmental footprint of American businesses that have sought ISO 14001 certification. About half of the respondents that had an EMS reported making modifications during the certification process.

**Customer Expectations**

Customer expectations are the strongest motivation for ISO 14001 certification. This is also consistent with previous findings relative to ISO 9000 certification in the case of quality management systems. Conversely, the absence of customer expectations, more than any other single factor, might explain why there have not been more third-party certifications to ISO 14001 in the United States. While there are many positive findings relative to third-party certification, companies may not necessarily seek them out if left to their own devices.

**Guidance from Above**

Similarly, many companies sought certification in response to corporate mandates. This proved to be a powerful motivation and may reflect a concern by upper management with respect to complying with environmental regulations and/or achieving environmental benefits, two areas that proved to be important for some companies.

We found that keeping up with competitors and meeting shareholder expectations were the least important factors driving certification.

**Training a Barrier**

Training requirements and document maintenance are the single most common barriers to maintaining ISO 14001 certification, according to the survey. Following these two barriers in importance are conducting internal audits and obtaining management commitment.

**Design, Development and Use**

A series of questions were asked concerning the design, development and use of ISO 14001. We asked respondents to choose among “very high, high, some, little importance and unimportant.” Elsewhere, we gave respondents possible selections of “very high, high, medium, low extent or not at all.”

With respect to “learning from other facilities that already had ISO 14001 certification,” the responses were evenly split among high, medium and low. Some 65 percent of respondents indicated that they had “integrated their certification with environmental practices already in place” to a very high extent.

As with the previous environmental practices, “integration with other corporate measurement and management systems” was similarly used to a very/high extent by about 65 percent of the respondents. Half of the respondents indicated that “managers participated” to a very high extent in the certification initiative.

Similarly, 50 percent of the respondents had “employee involvement” in designing the ISO 14001 system to a very high extent. Another interesting finding is that only 30 percent of the respondents used the “assistance of knowledgeable consultants” to a very high extent.

Two thirds of the respondents “customized their ISO 14001 design to their facility” to a very high extent rather than employing a standardized design.

**Marketing Value**

ISO 14001 certification has been used as a “marketing tool” to a high extent by 25 percent of the respondents. We found that private firms used ISO 14001 to a very high extent for marketing, as much as twice that of publicly traded firms. Early adopters tended to be more likely to attempt to gain marketing value from their certifications than late adopters.

More than 60 percent of respondents indicated that “ISO 14001 standards had become part of their daily operations” to a very high extent. Publicly traded firms “routinized” ISO 14001 to a higher extent than private firms.

A third of the respondents indicated that “changes had been made to their certification since writing the original manual” to a very high extent. Not surprisingly, there was a decreasing trend for changes from the first adopters to facilities that were certified later.

Thirty-six percent of respondents said that “ISO certification was a springboard for introducing new environmental practices” to a very high extent. Some 60 percent of facilities “go beyond the minimum required for ISO certification” to a very high extent.

More than 50 percent of the respondents indicated that “ISO 14001 certification had led to environmental improvement opportunities” to a very high extent. Significantly, private firms found this to be the case to a higher extent than publicly traded firms. There is a decreasing trend from early adopters to those certified later.

Some 25 percent of facilities viewed ISO 14001 certification as an “opportunity to interact with external stakeholders more constructively” to a very high extent. In the case of electronics and other

(See WHARTON on page 10)
electrical equipment firms and early adopters, respondents placed a higher value on this than other groups. Over 80 percent of facilities reported that the "senior management team supported the adoption of ISO 14001" to a very high extent, accounting for the highest scores in this segment of the survey.

With respect to "informing given stakeholders" about their ISO 14001 certification, facilities were more likely to do so to a very high extent in the case of:

- Employees: 95 percent.
- Customers: 80 percent.
- Shareholders/investors: 55 percent.
- Neighboring communities: 33 percent.

A series of questions addressing the environmental, financial, external and internal benefits obtained from ISO 14001 were posed. Some 81 percent of the facilities that responded had greater waste reduction as a goal of their EMS followed by 66 percent of the facilities that made lower utility consumption an EMS goal.

**Secret to Success**

One of the biggest findings to emerge from the survey — and perhaps the key to unlocking the greatest potential benefit of certification — is that companies are much more likely to achieve performance gains from ISO 14001 certification when they target specific environmental aspects.

Moreover, with respect to the extent to which ISO 14001 certification factored into the improvement, for the majority of those aspects that were indicated as a goal, we found a higher extent than for the improvement itself.

We performed a study from the data (Wharton Risk Center working paper - http://opim.wharton.upenn.edu/risk/papers.php) which finds that facilities that developed EMSs in the process of ISO certification, that assimilated ISO standards into their daily operations to a larger extent and that included performance elements in their ISO 14001 standards to a larger extent, are more likely to report a greater environmental performance improvement and more likely to report that ISO certification contributed to the improvement.

**Future Improvements**

This study suggests that future ISO certification might address performance management elements as well as measures to ensure that facilities assimilate ISO standards into their daily operations. It also suggests that special treatment, such as regulatory flexibility for ISO certified facilities, may be a desirable policy instrument to promote the adoption of an EMS by facilities which lack one, providing the expected environmental benefits associated with a well grounded EMS.

**Costs and Savings**

Our survey also focused on the range of costs and savings associated with the implementation of ISO 14001. We found that:

- Some 65 percent of the single facilities which estimated their first year savings indicated a maximum of $25,000, while another 27 percent reported savings up to $100,000.
- About 57 percent of single facilities estimated maximum continued savings of $25,000, 28 percent had a maximum of $100,000, while 15 percent reported savings greater than $100,000.
- Some 55 percent of facilities indicated at least 80 percent of the savings were achieved as a result of having been certified.

The internal costs for implementing ISO 14001 were less than $25,000 for 38 percent of the respondents and were less than $100,000 for 87 percent of respondents. The external costs were less than $25,000 for 58 percent of the respondents and less than $100,000 for 94 percent of the respondents.

Adding up the internal and external cost responses, for 38 percent of the facilities, the cost of implementing ISO 14001 was $50,000 or less. Comparing this to the potential savings, a two-year payback could be implied for those spending $50,000 or less.

Concerning the necessary resources required for certification, less than 25 percent of those that responded took more than two person-years to prepare for certification, and 45 percent took less than one person-year. These numbers do not allow one to estimate an “average” time for preparation.

Based on the response to two broad financial questions, ISO 14001 certification was not a factor in increasing facility business volume or reducing unit cost.

Opinions with respect to other benefits — both external and internal — were solicited with the following responses:

- About 60 percent of respondents felt that “fulfilling customer requirements” was to a very/high extent the most important external benefit of ISO 14001 certification.
- Around 40 percent had easier relationships with government and positive publicity to a very/high extent.

Internally, companies appeared to benefit most in four areas: Employee environmental awareness, improved specificity/measurability of targets, improved use of performance indicators and increased management involvement/awareness. They were cited to a very high extent by at least 60 percent of the respondents.

We received a large number of responses toward the end of the survey to one question in particular: "If you think ISO 14001 has been effective in improving your facility's environmental performance, could you describe what particular procedures/aspects have made it effective?"

A number of aspects were cited, such as formulation and structure and documentation of environmental programs, environmental aspect awareness for both management and employees, continuous improvement, consolidation with other programs for improved effectiveness, etc.

In all, there were only three negative comments among the many responses to this particular question. We received fewer responses to a
second “extra credit” question: “What procedures/steps/efforts do you think your facility needs to take in order to make ISO 14001 more effective in improving environmental performance?”

Increased management commitment was the most common response to this question. Also notable was a concern for funds to carry out environmental programs, some of which were rejected because of a failure to deliver an adequate return on investment.

Peter J. Schmeidler, P.E. is a senior research fellow at the Wharton Risk Management and Decision Processes Center. He worked for 40 years in the area of process engineering, including environmental and safety analyses, at the Rohm and Haas. His research at the Risk Center has covered the use of private third party inspections to augment regulatory oversight. Wharton Risk Management and Decision Processes Center, Room 558, Jon M. Huntsman Hall, 3730 Walnut Street, Philadelphia, Pa.

US Auditing Guidance Document Addresses OHSMS Audits

A US proposal aimed at strengthening audits of occupational health and safety management systems (OHSMS) is being circulated for comment amid growing support for formal inclusion of this emerging discipline in a future international standard by the International Organization for Standardization (ISO).

The proposal drafted by US standards experts is part of a planned national supplement to the ISO 19011 international guidance for management system auditors. The experts hope the US document will ultimately serve as the basis for internationally accepted minimum criteria for OHSMS audits.

The draft revision to ANSI/ISO/ASQ QE19011S:2004 is expected to be authorized following a period of public comment and balloting by the ANSI/ISO/ASQ Z1 Joint Task Group on Management System Auditing. The membership of the Joint Task Group includes representatives of the environmental and quality subcommittees of the Z1 committee as well as other interested parties. The QE19011S standard already incorporates additional guidance for quality and environmental management system auditors on conducting internal audits, supplier audits and the use of the standard by small organizations.

“I think the new revision does fulfill a need,” explains Thea Dunmire, an environmental attorney who headed a task group that drafted a position paper on the need for OHSMS guidance. “It will be very helpful for identifying the kinds of qualifications that occupational safety and health management system auditors need.”

The proposed standard is intended to help companies with internal audit programs for OHSMS as well as companies such as insurance carriers conducting OHSMS audits and third-party certification bodies that perform OHSMS audits.

While there has been increased demand for occupational health and safety management system audits, there are no internationally agreed minimum criteria at present. The level of auditor competence varies widely, depending largely on specific screening programs employed by each certification body.

In recent years, a growing number of third-party certificates have been issued around the world for occupational health and safety management systems. OHSAS 18001 and equivalent national standards are estimated to account for about 10,000 such certificates alone. In the United States, ANSI approved Z10, the first US national standard on OHSMS.

Dunmire tells ESU that the proposed revision was largely based on a position paper created by occupational safety and health associations two years ago.

“The qualifications are word for word from the position paper,” she says.

(See 19011 on page 12)
The proposed US standard was expected to be circulated in mid-May, according to Dunmire, who adds that the document may well change as more people have an opportunity to review and comment on the draft. Final publication is expected before the end of 2007.

Standards experts will almost certainly seek to position the US document as a model for the first revision to the international standard for management system auditors, which is expected to come up for its initial review this year.

The intent is to be able to use the work that we've done in the United States as a springboard for revising the ISO 19011 at the international level starting next year,” Dunmire explains.

The Z1 Committee is responsible for creating American national standards for quality, environmental management, dependability and statistics wherever a need exists. It has the ability to adopt international standards as written or adapt them to suit US interests as in the case of ISO 19011:2002.

While ISO 19011 sets minimum requirements for quality and environmental management system auditors, there is no equivalent document for OHSMS auditors. That's because ISO 14001 and 9001 on quality management systems are international standards while neither OHSAS 18001 or the ANSI/AIHA Z10 in the United States enjoy similar status in the OHSMS arena.

Some international certification programs have been developed for OHSMS auditors, including one by RABQSA International and one by the International Register of Certificated Auditors in the United Kingdom. But neither of those programs are based on common criteria.

The potential inconsistencies are even greater in the case of third-party certification bodies and companies that must rely on their own internal resources to develop internal or second-party OHSMS audit programs.

According to the position paper drafted by the associations, OHSMS auditors should possess knowledge and skills in occupational health and safety management methods and techniques as well as in occupational health and safety science and technology.

They should have sufficient previous education and experience to comprehend and evaluate how activities, raw materials, production methods and equipment, products, by-products, and business management systems may impact occupational health and safety performance in the workplace.

The position paper made the following recommendations with respect to specific knowledge and skills needed by OHSMS auditors:

- Occupational health and safety terminology.
- Occupational health and safety management principles and their application.
- Occupational health and safety management tools (including hazard identification and risk assessment, selection and implementation of appropriate hazard controls, developing proactive and reactive performance measures, understanding techniques to encourage employee participation and evaluation of work-related accidents and incidents).
- Understanding of the physical, chemical, and biological hazards and other workplace factors affecting human well being.
- Potential interactions of humans, machines, processes and the work environment.
- Principles of hazard identification, evaluation, risk assessment and risk communication.
- Various methodologies for exposure monitoring and assessments.
- Life safety and emergency planning principles.
- Medical surveillance methodologies for monitoring human health and well being.
- Various methodologies for accident and incident investigations.
- Various methodologies used to monitor occupational safety and health performance.
- Sector-specific terminology.
- Critical characteristics of operational processes, products and services.
  - A general knowledge of sector-typical occupational health and safety hazards and risks.
  - Sector-typical technologies used to prevent occupational injuries and illnesses.

Many experts contend it is only a matter of time before ISO weighs in with an international standard on the topic. Member bodies such as ANSI that have national or regional standards will almost certainly seek to position their documents as the model for any international work.
The University of South Carolina’s environmental, health and safety department has become one of the first US colleges to attain certification to OHSAS 18001 for its occupational health and safety program.

The April certification by AQA International places the Columbia, South Carolina, school among a growing number of US organizations that have implemented or sought third-party certification to OHSAS 18001, the world’s best-known occupational health and safety standard. OHSAS 18001 specifies requirements for an occupational health and safety management system to enable organizations to develop and implement a policy and objectives which take into account legal requirements and information about related risks.

“It’s a good thing for us to do, to organize our safety system,” says USC Environment, Health and Safety Department Director Tom Syfert, who pushed for adoption of the standard. “It also helps the other departments on campus become aware of what we’re doing in trying to manage safety impacts and aspects.”

School officials decided to try for the OHSAS standard after attaining ISO 14001 certification several years ago, says Syfert, who adds that the two standards complement each other.

“We spent about a month modifying some of our documents, and now our system does both” 14001 and 18001, he explains. “We were sort of different. Most people don’t have safety incorporated into their management system to begin with. It wasn’t a stretch for us.”

The university believes that it was the second US school to attain ISO 14001 certification, behind only the Missouri-based St. Louis University, according to Syfert.

OHSAS 18001’s hazard identification and risk assessment processes require organizations to look for potential hazards emanating from outside the workplace that may have an impact on the workplace. Conversely, organizations are also expected to look at activities in the workplace that may have an impact on areas outside of the workplace.

Occupational health and safety has been among the most contentious issues within the International Organization for Standardization (ISO), which first began exploring the topic in 1996. A workshop held that year concluded that there was insufficient consensus to proceed with standardization at that time. In 1998, the International Labor Organization (ILO) proposed that ISO assist it in the development of an occupational health and safety management system guidance document.

Since the initial publication in 1999, an estimated 15,185 third-party certificates have been issued to OHSAS 18001 and equivalent standards, according to a 2005 Standards and Certificates Survey conducted by the Project Group, an association of national standards bodies, occupational health and safety institutes, certification bodies and other interested parties around the world.

While OHSAS 18001 is not published by the International Organization for Standardization (ISO), there has been strong support internationally for aligning the document with ISO 14001 on environmental management systems.

The overall intent of the standard is to promote good OHSMS practices balanced with socio-economic needs. OHSAS 18001 is applicable to all types and sizes of organization and able to accommodate diverse geographical, cultural and social conditions. The system requires a commitment from all levels and functions within the organization, including top management.

The first revision to OHSAS 18001 recently achieved “full” consensus among standards drafters and is expected to be published in late June or early July. The standard is being revised to reflect changes contained in the 2004 edition of ISO 14001.

In March, a consensus on the document was achieved during a meeting in Shanghai. Drafters considered some 550 comments from 46 sets of contributors. Based on the anticipated release date, users will have until July 1, 2009 to complete their transitions to the next edition of OHSAS 18001.

The United States only recently joined a growing number of countries that have attempted to standardize the elements of OHSMS with the release of an American national standard that will also be used for certification purposes. Unlike OHSAS 18001, ANSI/AIHA Z10, American National Standard for Occupational Health and Safety Management Systems does not share an identical clause structure with ISO 14001. Instead, it employs “recognized management system principles” to be compatible with environmental and quality management system standards such as ISO 14001 and ISO 9001.
Does Your OHS Program meet Due Diligence Expectations?

Khurshed Kutky

"Safety first" is a banner that you will see in many workplaces today.

In the face of staggering workplace injury and illness statistics, increasing lawsuits and penalties on organizations and individuals — plus the possibility of criminal prosecution — more and more CEOs, managers and supervisors are recognizing the importance of doing more than just the bare minimum when it comes to workplace health and safety.

The words ‘due diligence’ and ‘reasonable care’ in the context of occupational health and safety (OHS) typically refer to the degree of care that a reasonable person would exercise under the circumstances to avoid harm to workers in the workplace.

In the unfortunate circumstance that there is an OHS incident, good intent will not suffice. Organizations must be able to demonstrate — through actions, documents and records — that they have taken all reasonable precautions to prevent the incident.

Depending on the jurisdiction, the satisfactory demonstration of due diligence may be considered a mitigating factor by the investigating authority or the courts, and could result in reduced liability to the company or individual.

Top management must set the direction through policies and procedures, and must provide the leadership and resources to implement an OHS program that will demonstrate a reasonable standard of care and will protect workers from work-related injuries, illnesses and fatalities.

While the specific circumstances in individual cases will differ, an organization is expected to have certain components of an occupational health and safety program in place in order to demonstrate due diligence. It must also possess relevant documents and records to show that the program is effectively implemented and maintained. These components include:

Documented OHS policies and procedures; defined responsibility, accountability, authority; compliance with relevant legal and other requirements, including industry standards; processes for ongoing hazard and risk identification and assessment; preventive and protective control measures to eliminate or minimize risk; provision of training, equipment and other necessary resources needed; effective communication and feedback processes relating to the OHS program, including information on workplace hazards and risks as well as associated control measures; emergency prevention, preparedness and response processes; effective implementation of OHS procedures and practices; monitoring and evaluation of the OHS program and related activities by managers, supervisors and others; corrective and preventive action processes, including disciplinary measures; incident reporting and investigation processes; and OHS program review by management.

Depending on the circumstances, organizations may consider other additional steps to gain assurance and demonstrate that all reasonable precautions to protect worker health and safety are in place. The recording of any such actions, showing due process, sound judgment, and the use of experts where required, can demonstrate that due diligence is exercised.

All of the above components and more are inherent within a structured occupational health & and safety management system (OHSMS), such as CAN/CSA Z1000, ANSI/AIHA Z10 or OHSAS 18001.

Companies that have a functional and effective OHSMS based on these standards are therefore better able to eliminate or reduce hazards and risks, and prevent or minimize injuries, illnesses and fatalities. An OHSMS provides a structured framework for identifying, assessing and managing hazards and risks, and for continual improvement of the OHS performance of the organization.

The documents and records associated with the implementation of the various requirements of these standards, in conjunction with other information demonstrating organizational responsibility, leadership and commitment can contribute to proving OHS due diligence.

In addition to the reduction in occupational injury and illness, there are financial benefits as well. Aside from reduced insurance and health care costs, having fewer OHS incidents can ensure that employees spend less time away from work, which directly improves productivity. This can also result in reduced staff replacement costs (hiring, training), fewer work errors by replacement staff, and a higher quality product.

The investment in implementing an OHSMS can provide significant benefit to organizations through improved employee well-being and satisfaction, improved employee retention, the ability to attract the best new skills, and the enhanced reputation in the community and industry.

Khurshed Kutky is product manager for occupational health and safety management systems with QMI, one of QSU Publishing’s Big Ten Registrars. He has previously served as manager of education services at QMI and manager of the CSA Learning Center, which included responsibility for QMI’s training programs. QMI, 20 Carlson Court, Suite 100, Toronto, Ontario, Canada M9W 7K6; tel: 1-800-465-3717, ext. 8673; e-mail: kkutky@qmi.com.
Inside Environmental Management Programs

Joe Cascio

An EMS is the organization’s system that it uses to address all its environmental interactions. It is not simply a new environmental program. It is not a new strategy. It is not a new activity or a new policy. It is the organization’s one and only system focused on managing the environmental consequences of its operations. The system should be seen as a totality and, by definition, anything that has to do with environmental interactions should be seen and made a part of that system. With this approach and understanding, existing mature programs should be the first candidates to be brought into the system irrespective of whether new objectives and targets have been set for the aspects they address. After all, these programs probably address the earliest identified and most significant environmental issues the organization faces. The fact that these issues are under control, and no new objectives and targets have been set for them, does not mean that they can be exempted, or that they are somehow separate and distinct from the EMS. The issues that these mature programs address should have been the first to be designated as significant aspects in the EMS. They should have also been given objectives and targets, even if those objectives and targets are set to only maintain levels of performance already attained. Finally, the existing programs should have been adapted to the new EMP format that is used for programs in the EMS, to ensure that all particulars for managing significant environmental aspects are being taken into account.

I’ll describe this in more detail in Part II of this column in the next edition of ESU.

Joe Cascio is a consultant with Booz Allen Hamilton in Tysons Corner, Virginia, who has assisted numerous ISO 14001 clients in both the private and public sectors, including headquarters functions of federal agencies and departments. He was the founding chairman of the US Technical Advisory Group to International Organization for Standardization Technical Committee 207, which is responsible for developing and advancing US positions related to the ISO 14000 family of standards. He co-authored ISO 14000 Guide published by The McGraw-Hill Companies and edited The ISO-14000 Handbook published by then CEEM Information Services. Booz Allen Hamilton, 8283 Greensboro Dr., McLean, VA 22102; tel: 703-902-5748; e-mail: cascio_joe@bah.com.
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