

Innovation, Management Systems and Trading Committee Newsletter

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MESSAGE FROM THE CHAIR

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I am honored to have the opportunity to serve as chair of the Innovation, Management Systems and Trading Committee. Innovation is critical to environmental progress, especially in dealing with the difficult problems associated with diffuse sources of pollution. One example: the nutrient loading problems that have seriously degraded the Chesapeake Bay over the last several decades can be traced to four principal sources, only one of which—discharges from sewage treatment plants—is subject to a traditional permitting program. The other sources—including agricultural runoff, deposition of airborne nitrogen compounds derived in significant part from automobile emissions and urban, development-induced runoff—require new tools and new approaches if the bay is to recover. Increasingly, solving environmental problems like those plaguing the Chesapeake Bay requires new management tools, new relationships with localities, new ways of involving the public and new roles for government.

Much of my career has been occupied with innovation issues. In the Minnesota Attorney General's Office, where I served as director of Environmental Policy for 13 years, I worked with the Environmental Protection Agency (EPA) on the stakeholder group that helped create the agency's audit policy, helped develop Minnesota's ground-breaking Brownfields program

and served on the American National Standards Institute's first EMS Council overseeing early implementation of ISO 14001. As a consultant, I assisted EPA with the design of the Performance Track program and helped the Environmental Law Institute with a study of the impact of the SO₂ trading system. For the past seven years I have worked with the National Academy of Public Administration on assessing EPA programs in light of the changing nature of environmental problems and the changing role of government in our society. As a result, I am pleased to have the opportunity to work with the Section of Environment, Energy, and Resources to continue exploring ways that innovative approaches to environmental protection, the broader adoption of environmental management systems and the use of trading can produce better environmental outcomes as efficiently as possible.

Major challenges lay ahead—reducing greenhouse gases and adapting to climate change, restoring our estuaries and fisheries, dealing with the air quality, water quality and habitat impacts of sprawl, reducing the environmental impacts of energy production, addressing the environmental effects traced to discarded products such as electronic equipment, finding an appropriate management approach for the rapidly growing nanotechnology-based industries—that require innovative solutions. The Innovation, Management Systems and Trading Committee, drawing on its broad membership from the public and private sector, and from the academic community, is in an excellent position to help identify better solutions.

**Innovation, Management Systems
and Trading Committee Newsletter
Vol. 7, No. 1, November 2006
David A. Savage, Editor**

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in joining the Section or one of its committees should
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I look forward to working with our team in providing Section members with information about innovations through our newsletter and other publications, providing venues at which innovative environmental management approaches can be discussed including Section meetings, teleconferences and by partnering with other organizations, and by practicing what we talk about through our public service programs including work with EPA's "Community Action for a Renewed Environment" (CARE) program and a developing new initiative to encourage law firms to become leaders in energy efficiency.

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NOTES FROM THE EDITOR

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This issue of the Innovation, Management Systems and Trading Committee Newsletter focuses on the "Management Systems" aspects of Innovations, Management Systems and Trading. In particular, we have focused on the implementation of environmental managements systems (EMSs) in the non-private sectors and focused specifically on colleges and universities. Susanne Savely begins with a report that

synthesizes the results of several surveys undertaken in recent years to track the development, implementation and certification of EMSs at institutions of higher learning in the United States. Next is an article from Laurie Cecere, Molly McGovern and Tom Balf that addresses the linkage between EMS and the Environmental Protection Agency's compliance and enforcement efforts respecting institutions of higher learning in recent years, including a detailed report on the results of a 2006 campus EMS study. De' Anne Meeh and Sean Wilson then describe the process by which their institution is seeking membership in the highly regarded Clean Texas Program, a key component of which was the development and implementation of an EMS. Finally, John Shideler reminds us that non-private institutions may benefit from third-party certification of their EMS under ISO 14001. His article provides a brief history of ISO 14001, discusses the relevance of that standard and certification to public entities and provides some concrete examples of organizations that have certified their EMS.

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ENVIRONMENTAL MANAGEMENT SYSTEMS AT U.S. COLLEGES AND UNIVERSITIES

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Implementation of environmental management systems (EMSs) has become increasingly popular at U.S. colleges and universities as a means of establishing a process to ensure increased compliance with federal regulations, such as the Resource Conservation and Recovery Act, the Clean Air Act and the Clean Water Act. Some institutions have taken the extra step of having their EMS certified by a third-party auditor and obtaining ISO 14001 registrations. ISO 14001 is a voluntary international standard that sets the requirements for establishing and maintaining an EMS.

During the last few years, several surveys have been conducted in order to determine the progress made toward EMS implementation and increased compliance by U.S. colleges and universities. In 2000, the U.S. Environmental Protection Agency (EPA) Region 3, Office of Enforcement, Compliance and Environmental Justice published a survey that it had conducted regarding an educational outreach program started in May 1999 called The Colleges and Universities Initiative. Through this initiative, EPA began providing focused educational classes and enhanced information regarding environmental compliance and federal regulations, (including a Web site with specific information—www.epa.gov/region02/p2/college/), encouraging colleges and universities to perform self audits and to enter into audit agreements with EPA.

Sixty-nine higher education institutions in Region 3 were surveyed to determine if knowledge had increased regarding federal environmental regulations and if any changes had been made to increase compliance. Ninety-five percent of the colleges and universities surveyed “were aware of the initiative and (had) had some contact with materials regarding the initiative.” Half of those that responded reported that

they were making changes to increase environmental compliance. In addition, 30-40 percent reported decreasing hazardous waste generation, reducing toxic material and energy usage, and that they had implemented an EMS.

A second environmental management survey regarding colleges and universities was published in 2001 by the National Wildlife Federation's Campus Ecology program, along with Princeton Survey Research Associates. They surveyed the presidents, provosts and facilities chiefs at 3,907 two- and four-year higher education institutions, obtaining a 23 percent response rate. This ecologically-oriented survey focused on issues such as transportation, landscaping, recycling, energy conservation and integration of environmental issues into curricula. The most common transportation, landscaping and energy strategies reported were as follows: placement of bicycle racks, integrated pest management and lighting retrofits. Many institutions reported that students were required to complete an environmental course.

In 2004, a survey of 925 institutions of higher education was conducted to determine the status of implementation of EMS, including the number of elements implemented (publication in press). Colleges and universities that offer masters and doctorate degrees typically generate the complex mixtures of hazardous waste that make it difficult to comply with local, state and federal regulations, so the survey audience was limited to these institutions. E-mails containing links to the online survey were sent to the chief executive officers, presidents and chancellors asking them to participate in the survey or to provide the contact information for the individual in charge of environmental management at their institution.

Thirty percent of the institutions contacted participated in the survey and responded that they implemented a median of 12 out of 16 possible essential EMS elements, while 10 percent reported having implemented all 16 elements. The 16 possible elements were identified by reviewing the ISO 14001 standard and focusing on the most critical elements. The number of elements implemented was not dependent on the size of the institution and ranged from

0 to 16. Approximately half of the colleges and universities that responded believed that implementing an EMS would be helpful, had a full-time employee working on environmental compliance and budgeted annually for environmental improvements, indicating that they had environmental programs that were well-developed enough to commit substantial time and resources to environmental issues and compliance.

Approximately one third of the colleges and universities that responded to the question regarding why they had delayed EMS implementation gave shortage of personnel or financial considerations as the main reasons, and were planning to implement an EMS during 2004-2009. The following institutions surveyed responded that they had obtained ISO 14001 registration of their EMS: Nova Southeastern University in Florida, Southern University at New Orleans in Louisiana, Metropolitan State University in Minnesota, the University of Mississippi Medical Center, the University of South Carolina-Columbia, the University of Missouri-Rolla, and the University of Texas M.D. Anderson Cancer Center.

In EPA's College and Universities Initiative Survey, about 36 percent of those surveyed reported having implemented an EMS, compared with 30 percent for Region 3 in this study. In comparing these results with EPA's survey, there was no significant difference and, therefore, would appear to have been no progress made in implementing EMS in Region 3 from 2000-2004. In comparing the results of this survey with the State of the Campus Environment Survey, there were significant differences between the three questions that were similar, and it would appear that progress has been made in the areas of implementing environmental policies, environmental training and the number of full time employees working on environmental compliance from 2001-2004.

This survey is one of the largest surveys ever reported, providing a broad overview of the number of elements of an EMS that U.S. colleges and universities have implemented, with statistically significant results comparable to the two other previously published surveys. As a result of conducting this survey, an Environmental Management System Implementation

Model for U.S. Colleges and Universities was developed based on these results, the ISO 14001 standard and EPA recommendations, and will be published along with the details of the survey early next year in the *Journal of Cleaner Production*.

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**Nanotechnology Teleconference
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the Law, Regulation, and Science
Policy Overview**

Nov. 16, 2006

25th Annual Water Law Conference

Feb. 22-23, 2007

San Diego, California

**36th Annual Conference on
Environmental Law**

March 8-11, 2007

Keystone, Colorado

15th Section Fall Meeting

Sept. 26-30, 2007

Pittsburgh, Pennsylvania

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**COLLEGES AND UNIVERSITIES TURN TO
EMS WHEN FACED WITH ENFORCEMENT**

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Colleges and universities are facing new and complex safety, health and environmental challenges as regulatory enforcement is tightening and penalties for non-compliance are rising. The U.S. Environmental Protection Agency (EPA) is presently expending great effort to notify colleges and universities about their responsibility to comply with environmental laws and regulations. In conjunction with this effort, EPA is encouraging academic institutions to develop and implement environmental management systems (EMSs), a framework that integrates environmental responsibilities into existing management practices, to help improve and sustain compliance and enhance performance.

**EPA's Recent Efforts Regarding Colleges
and Universities**

EPA Region 1 began targeting colleges and universities for multi-media enforcement inspections in the late nineties. As the rest of the higher education nation looked on, large and small and public and private institutions in New England were hosts to teams of inspectors who often found deficiencies that triggered six-figure penalties.

In 1999, several other EPA regional offices began College and University Initiatives to improve environmental performance at institutions of higher learning. The EPA Region 2 Office's initiative, for example, signaled its intention to conduct inspections and encouraged institutions to conduct voluntary audits and self-disclose under the U.S. EPA Audit Policy or prepare for likely EPA inspection. Over 100 academic institutions in Region 3 took advantage of the

opportunity to voluntarily audit and disclose incidents of non-compliance. From these schools alone, more than 1,500 violations have been reported. Most of the penalties associated with the violations, totaling more than \$10 million, have been waived. Institutions that choose not to participate in EPA's voluntary audit program are, of course, being targeted for inspections. From the more than 60 institutions that have been inspected, 25 formal enforcement actions have been assessed along with over \$3.6 million in penalties.

However, the initiatives have moved beyond the arena of enforcement to also include innovative and proactive assistance programs. The EPA Region 1 Office added the voluntary audit initiative to its arsenal of carrots and sticks. Additionally, it developed: (a) an EMS Guide specifically to help a college or university develop and implement an effective EMS and (b) a Best Management Practices (BMPs) Catalog that includes real examples of successful strategies for adopting environmentally sustainable practices in the academic world.

Within five years, half of the 10 EPA regions throughout the country had implemented a compliance, audit or educational initiative aimed at colleges and universities. In 2003, key associations of colleges and universities asked to participate in the U.S. EPA's Sector Strategies Program and were subsequently selected. This addition to the program created an opportunity for EPA Headquarters and colleges and universities to work together to improve environmental performance sector-wide. Six national organizations have partnered with EPA in support of this effort, including the American Council on Education (ACE); Association of Higher Education Facilities Officers; Campus Consortium for Environmental Excellence (C2E2); Campus Safety Health and Environmental Management Association (CSHEMA); Howard Hughes Medical Institute (HHMI); and the National Association of College and University Business Officers (NACUBO). These organizations are currently working with EPA to develop sector-specific approaches for colleges and universities to use in the following areas: (a) implementing EMS, (b) reducing regulatory performance barriers and (c) measuring environmental progress.

Progress has been made on all fronts. The Sector Strategies Program EMS working group sent a letter to all college and university presidents encouraging the development and implementation of an EMS. The Web site www.campusems.org was also developed to assist campuses. The performance measurement working group developed a self-tracking tool (www.c2e2.org/cgi-admin/navigate.cgi) to enable institutions to track energy, water, recycling, and solid and hazardous waste, and to compare data among institutions of comparable size. Finally, the regulatory working group, with the support of numerous associations, spurred EPA to publish a proposed rule for managing hazardous wastes generated in academic research laboratories (www.epa.gov/fedrgstr/EPA-WASTE/2006/May/Day-23/f4654.htm).

EMS on Campus

The new attention on the academic world has certainly paved the way for one of EPA's objectives, which is to encourage colleges and universities to improve their environmental performance through the establishment of EMSs. According to a survey conducted by the EPA Region 2 Office about its enforcement and awareness efforts, 90 percent of the colleges and universities in the region that responded are presently planning for or considering the adoption of an EMS.

While management and environmental compliance performance are improving on campus, a clear vision of what is happening on campus has not truly emerged. Many campuses say they are "doing" an EMS, but are they? And what does it look like? Is it campus-wide, or is it limited in scope? Is it interdepartmental or generally limited to the SHE (Safety, Health and Environment) Department? Is it based on managing environmental impacts, or is it totally focused on compliance activities? These are but a few of the questions for which the Campus Consortium for Environmental Excellence or "C2E2" decided to seek answers.

The C2E2 engaged Cameron-Cole LLC, an environmental consulting firm, and Nima Hunter, Inc., a market survey consultancy, to conduct a survey of SHE management system practices at colleges and

universities in the United States. This was not merely a series of questions that essentially translate ISO 14001 elements into a survey. Rather, the survey asked questions that solicited information with respect to issues such as stakeholder engagement, governance, program design and implementation, training, communication, performance measurement and organizational integration.

2006 Campus EMS Benchmark Survey

The on-line survey was conducted during April and May of 2006. The survey received 251 responses from 206 colleges and universities. Among the major findings were the following:

1. EMSs are still in their infancy among colleges and universities.

Two-thirds of respondents are developing or have an interest in developing an EMS. By far the strongest focus of EMSs is SHE compliance.

2. EMSs have executive support but half of them do not have a management team to lead the EMS.

Half (49 percent) of the respondents reported that their campus has an environmental or sustainability policy endorsed by senior management. For a quarter of the respondents, campus EMS leadership is at the executive level: the president, chancellor or executive vice president position. Nearly half reported, however, that they do not have an EMS steering committee or management team to lead an EMS initiative.

3. The overwhelming initial and present EMS priority was compliance.

The outstanding initial EMS priority was compliance management (47 percent); the next priority, pollution prevention, fell far behind at 32 percent. For future anticipated priorities, some initially lagging themes jumped to the top of the list. The largest changes anticipated were for renewable energy, greenhouse gas (GHG) inventories and management, and food services and composting.

4. The biggest obstacle to EMS implementation was lack of resources, but most EMSs do not track resource use—expenses or savings.

The catalyst for colleges and universities to implement an EMS was a need to find a better framework for management of SHE issues and responsibilities and to promote environmental stewardship (49 percent). The most significant obstacle (52 percent of respondents) to EMS implementation was perceived to be a lack of adequate resources. However, over half of the EMSs do not track expenditures. Most EMSs track conventional SHE metrics: 77 percent track energy use and 71 percent track compliance, for example.

5. Only a quarter of EMSs produce objectives and targets. Of these, half were expressed as measurable or metric-based.

Of the quarter of colleges and university EMSs that produce EMS objectives and targets, 56 respondents provided 141 examples of EMS objectives and targets. Of these, 59 percent were measurable or metric-based.

6. Although EMSs are focused on compliance, faculty and students were considered to be more important stakeholders than regulators.

The institutions' senior administration and management was identified as the principal stakeholder by 86 percent of the respondents. The second most important stakeholder was SHE staff. The message that the EMS brings compliance was seen as the most important point to communicate to stakeholders, followed by financial savings and risk reduction.

7. Despite the lack of EMS metrics, several colleges and universities produced internal and external public environmental or sustainability reports.

Eighty-four colleges and universities produced environmental or sustainability performance reports for senior and executive management—62 to senior management and 22 for trustees or officers. Eighty-nine colleges and universities produced external public environmental or sustainability reports, or GHG emissions reports—56 and 23 respectively.

Laurie Cecere and Molly McGovern are with Cornell University in Ithaca, New York and Tom Balf is director of C2E2 in Boston.

CLEAN TEXAS' ENVIRONMENTAL MANAGEMENT SYSTEM

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The online version of *The Year in Review 2005* contains all chapters found in the paper copy, each in .pdf format. *NR&E* online contains all articles found in the paper copy, created in .pdf format. Past issues dating back to 2002 can be found in the archives page.

As a member of the Section, you have access to view both *The Year in Review 2005* and *NR&E* after logging onto the Web site with your ABA Member ID number and password.



The Texas Commission on Environmental Quality (TCEQ) is responsible for protecting the human and natural resources in the state of Texas in a manner consistent with sustainable economic development. Primarily, this is accomplished by ensuring that facilities within the State comply with all applicable environmental permits and regulations. In addition to its compliance functions, however, the TCEQ has established the Clean Texas Program in order to further generate environmental improvements by promoting and recognizing facilities for enhanced environmental performance (www.cleantexas.org). The gauge for such enhanced performance is a facility's commitment to improving the environment, as evidenced by setting goals that exceed compliance levels under existing regulations, promoting public awareness and participation in sustainable activities that protect natural resources, and providing measurable environmental results. The Clean Texas program encourages facilities to focus on issues important to local communities, take a creative approach to solving local problems, and employ partnerships and networking with neighborhood citizens to achieve environmental goals.

Membership in the Clean Texas program is voluntary, and provides recognition and incentives to facilities that choose to achieve the necessary environmental performance. Applications from prospective members are evaluated by Clean Texas and, based on the findings, successful applicants are accepted at one of four membership levels—Bronze, Silver, Gold and Platinum. Higher membership levels require increasing levels of performance, but also offer greater incentives. The benefits offered by Clean Texas membership include recognition, networking, technical and program assistance, and regulatory benefits. Through an agreement with the U.S. Environmental Protection

Agency (EPA), acceptance into Clean Texas as a Platinum member automatically results in a facility's acceptance into the EPA's National Environmental Performance Track (NEPT) program (www.epa.gov/performance-track), which offers similar incentives on the federal level.

The most notable requirement for Silver, Gold and Platinum members is the implementation of an environmental management system (EMS). An EMS is a system that organizations use to reduce their environmental impact by employing a continual cycle of planning, implementing, reviewing, and improving processes and actions to meet both business and environmental goals. In evaluating the effectiveness of an EMS, the TCEQ utilizes the EMS protocol set forth in the Title 30 of the Texas Administrative Code, Chapter 90, Subchapter C (Regulatory Incentives for Using EMS).

The University of Texas Medical Branch (UTMB) established an institutional goal for the 2005 fiscal year to obtain Platinum level membership in the Clean Texas Program. Following is a description of the steps taken and resources allocated in pursuit of this goal.

Environmental Compliance Audit Tool (ECAT)

In April 2005, UTMB hired an environmental consulting firm to conduct a gap analysis utilizing the TCEQ Environmental Management Systems Interim Evaluation Protocols (2003) to provide a benchmark for formally establishing an EMS. The gap analysis consisted of a site visit during which a reviewer met with university staff tasked with key environmental responsibilities, and reviewed records, Web-based tools and data relating to the university's environmental compliance. Overall findings indicated that UTMB has a strong foundation upon which to formally establish its EMS. Some of UTMB's strengths in this area that were specifically noted include: a culture that creates a strong predisposition toward teaming in order to implement environmental management programs, a high degree of staff awareness regarding the real and potential impacts of campus activities on the environment, and delineation of roles and

responsibilities for environmental management already firmly established in the organization. The analysis also concluded that UTMB faced specific challenges to successfully establishing an EMS, including: the predisposition toward teaming leading to potential difficulty in determining ultimate responsibility for a given area of environmental management, a lack of formalization and documentation regarding specific environmental issues, and the need to convey complex information in an extremely concise and efficient manner due to the staff's critical focus on the university's core mission (higher education, research and health care).

UTMB's Environmental Health and Safety (EHS) staff integrated existing environmental management programs into an Environmental Compliance Audit Tool (ECAT), with compliance assurance occupying highest priority. ECAT utilizes a database that provides e-mail task notification to personnel charged with specific environmental responsibilities. In addition, ECAT effectively monitors and tracks significant environmental activities to ensure compliance while allowing for efficient use of EHS staff time. ECAT serves as an invaluable information resource with references to environmental aspects and regulatory citations, clear definitions of roles and responsibilities for specific tasks, and reporting functions which monitor environmental compliance.

In addition to EHS, UTMB's Resource Conservation Initiative programs address issues beyond compliance requirements, such as energy conservation, recycling programs, campus-wide mercury reduction efforts and air quality initiatives. (For more information on UTMB's Resource Conservation Initiative programs, see <http://intranet.utmb.edu/conservation/>.) As with the environmental compliance aspects, the objectives of the Resource Conservation Initiative are incorporated into ECAT in order to facilitate achievement of these goals.

Independent Audit

To ensure the effectiveness of EMSs at Clean Texas member sites, the TCEQ has developed independent EMS assessment criteria. The Clean Texas verification

process calls for a three-stage evaluation process to include: pre-assessment (document review); on-site evaluation; and reporting, recommendations and follow-up.

In June 2006, UTMB hired an environmental consulting firm to conduct an independent assessment of the university's EMS. The assessment was designed adhering to the most recent available protocols from the TCEQ: *Environmental Management System Audit Protocols (draft 2006)* and *Proposed TCEQ Independent EMS Assessment Criteria (May 2006)*. These assessment criteria specify that the lead auditor must either be certified by the Registrar Accreditation Board; the Board of Environmental, Health, & Safety Auditor Certifications; or meet the qualifications for a Clean Texas Assessment Leader. As with any valid EMS audit, the auditor conducted document reviews, interviews and facility observations. The aim of these activities was to determine UTMB's compliance with the following nine criteria for conformity to the Clean Texas program requirements, which are established by Texas statutory regulations and TCEQ policy.

Policy

A facility must adopt a formal written Environmental Policy Statement with management commitment, and demonstrate how employee actions compare with this policy. UTMB revised its Environmental Policy in an effort to strive for continuous improvement in environmental performance, and to establish processes by which reductions in environmental impacts are considered in project planning, purchasing and operating decisions. The revised policy is currently communicated to campus personnel through the UTMB Safety Manual and is in the process of being adopted into the UTMB Institutional Handbook of Operating Procedures.

UTMB has an independent policy for Resource Conservation guidelines, with initiatives extending beyond compliance, such as energy conservation, recycling programs and environmental education support with campus "Green Teams." This policy is posted on the campus Web site, and is part of the UTMB Institutional Handbook of Operating

Procedures. The "grass roots" education of employees and their conservation efforts are recognized as key elements in positively and proactively engaging and communicating with the surrounding community regarding the university's potential environmental impacts. The Resource Conservation Initiative program is led by UTMB's Facilities Operation and Maintenance (FOAM) and EHS coordinators who train, inform, and encourage employees to practice pollution prevention as part of their daily business activities. As UTMB "Green Team" members act as responsible environmental stewards for their facility areas, the message to "save resources and prevent pollution" is passed along to coworkers, further extending the roots of this "grass roots" effort.

Environmental Aspects

A key element for an EMS is to identify all significant environmental "aspects" and the associated impacts. An environmental aspect is a business activity or function that may result in an actual or potential impact to the environment. UTMB EHS staff identified key environmental activities and processes relating to campus operations for both regulated and non-regulated activities. These aspects were integrated into ECAT in order to track and manage the associated environmental impacts.

When identifying a facility's environmental aspects, it is imperative to implement a systematic process to accurately identify aspects, as well as applicable legal requirements. The University of Texas System (UTS) is responsible for the central management and coordination of all UTS academic and health institutions. UTS administers an Environmental Health and Safety Advisory Committee (EHSAC), which is comprised of health and safety program representatives from the individual UTS institutions and designated representatives from specific UTS offices. The EHSAC provides expert advice and recommendations to UTS in the development and implementation of health and safety policies. Periodic reviews of environmental regulations and program activities are conducted by the EHSAC and UTS environmental attorney. Also, UTMB EHS personnel

subscribe to various college, university and regulatory Web list serves and regularly attend environmental conferences and seminars, including those sponsored by the TCEQ, to maintain current knowledge of environmental regulations.

Prioritization of Environmental Aspects

Prioritization of aspects is to be performed annually by a team with common technical knowledge of potential environmental impacts and issues, based on TCEQ-established environmental priorities. UTMB's activities are evaluated using an impact/aspect ranking tool, which uses a numerical scoring system to take into account the following aspects of each activity: regulatory compliance; probability of occurrence; duration, scale or magnitude; severity; and cost/feasibility. The environmental risks and impacts associated with both emergency situations and daily activities are prioritized based on the outcome of the impact/assessment ranking process.

Goals and Targets

EMS goals and targets can take into account many factors, such as cost and effect on operations. However, the audit process will focus on how the environmental impacts have been integrated into the EMS and whether they reasonably reflect their relative environmental significance.

Air pollution is recognized as a particular challenge for the Houston/Galveston area, in which UTMB is located, as evidenced by the area's nonattainment status for failing to meet the eight-hour National Ambient Air Quality Standard (NAAQS) for ozone. In addition to compliance with air permits and regulations, the establishment of an environmental performance goal to reduce oxides of nitrogen (NO_x) and volatile organic compound (VOC) emissions from UTMB commuter employee vehicles reflects the university's commitment to being a responsible environmental steward in the local community. UTMB plans to promote this goal via incentives awareness campaigns through university Web sites, campus news outlets and promotional events in order to increase participation by UTMB employees in formal ride sharing programs (e.g., commuter vans, carpooling).

Assignment of Responsibilities

Responsibilities specific to EMS issues are delineated in work plans, job descriptions and performance reviews. ECAT maintains delegation of specific responsibilities related to facility compliance issues (e.g., air permit recordkeeping requirements assigned to utilities personnel) through an automated e-mail notification process, and monitors the ongoing compliance status of these activities. In the event that a specific task or process falls short of full compliance on occasion, ECAT then tracks the process of implementing the necessary corrective actions to ensure the return to and maintenance of compliance.

Documentation of Implementation Procedures and Results

The UTMB ECAT matrix clearly defines responsibility for implementing action plans, performance goals and reviews. Environmental responsibility is documented with checklists, training records and audit processes. The example spreadsheet in Figure 1 shows the means by which system-level procedures related to UTMB's Title V Federal Operating Permit are tracked and monitored on a continuous basis.

Routine Evaluation to Demonstrate Attainment of Goals

EMS audit procedures should document multiple levels of system review, primarily on a continuous or near-continuous basis rather than a single event review. Examples of such system reviews employed by UTMB include: management level review with frequent reports on environmental protection goals; operational level review with weekly audits of facility operations; and the system tracking tool, which monitors the routine reports generated by ECAT.

Clean Texas requires an annual EMS summary report of the system performance as measured by attainment of compliance and achievement of stated goals. UTMB utilizes this report for internal and external communication regarding UTMB's EMS, as it clearly documents the university's environmental performance improvement realized by having an EMS. UTMB's

Source	Requirement	Regulatory/ Permit Citation	Key Control Point	Task Definition	Trigger Date
Medical Waste Incinerator	Documentation of Operating Procedures and Operator Training	Title V Operating Permit No. O-01531; 30 TAC 113.2078(a); Air Quality Permit No. 18655, Special Condition No. 3.	Maintain on an annual basis documentation of the following: (1) Operating procedures specified in 30 TAC 113.2078, Table 9; (2) training of operators specified in 30 TAC 113.2078, Table 10.	Ensure that documentation of unit operating procedures and required operator training are maintained at the unit.	Annual (Jan.1)
Gasoline Tank/ Gasoline Fuel Dispensing Area	Submit Facility's Monthly Gasoline Throughput for Calendar Year	30 TAC 115.247(2)	Submit to TCEQ the facility's monthly gasoline throughput for the preceding calendar year, in order to maintain exempt status from the emissions, control, inspection, testing, and recordkeeping requirements of Motor Vehicle Dispensing Facilities under 30 TAC 115, Subchapter C, Division 4.	Obtain gasoline throughput from Fleet Planning on monthly basis. At end of calendar year, submit monthly throughputs for preceding year to TCEQ.	Annual (Jan.1)
Facility	Title V Semiannual Deviation Report	30 TAC 122.145	Submit Deviation Report Form to TCEQ. Form must identify all Deviations that occurred within past six months, the applicable permit/regulatory requirement, cause of the deviation, and any corrective action taken to remedy the deviation situation.	Complete Semiannual Deviation Report Form, identifying all deviations within the most recent semiannual compliance period. Submit completed form to TCEQ.	Semiannual (Nov. 2, May 2)

Figure 1: UTMB Tracking of Title V Obligations through ECAT.

initial annual report, for the period July 2005 through June 2006, has been provided to the UTMB vice president of Community Outreach.

Stakeholder Involvement

The stakeholder involvement element of an EMS should address how a facility communicates and responds to the community with regard to environmental impacts. One example of how UTMB communicates and responds to the local community is illustrated through the UTMB Resource Conservation Initiative Team members who frequently make presentations to local Rotary Clubs and public schools on UTMB’s pollution prevention programs.

Also, UTMB is continuing the 10-year-old “Galveston Partners in Composting” program in conjunction with the city of Galveston and the local Moody Gardens facility. The program was initiated with a grant from the TCEQ to purchase a tub grinder and convert the three entities’ landscape debris, broken or odd size pallets, Christmas trees and horse bedding into a mulch or compost. UTMB now saves the expense of purchasing mulch for campus and surplus mulch is made available free of charge to employees. UTMB’s solid waste contractor transports landscape debris and pallets to the compost site and relocates the finished product for use on campus. The compost program is a reusable resource and replenishes Galveston soils with 1,000 tons of compost or mulch annually.

Community Environmental Outreach

UTMB's vice president for Community Outreach serves as the liaison for the university's recycling and conservation work for both campus and throughout the community. Environmental performance is shared through existing communication mechanisms to inform the local community about environmental protection and resource conservation programs.

UTMB established a recycling program in 1990 that has grown into the UTMB Resource Conservation Initiative. As part of this initiative, UTMB has hosted an Earth Day event on campus, which is recognized for educating the local community about the importance of waste minimization, energy conservation and environmental protection. Earth Day events are open to the local community and university staff and students. In addition, UTMB volunteers participate in the Texas General Land Office's Adopt-A-Beach program. In 2006, the UTMB Beach Cleanup Team was responsible for cleaning the beach at Galveston's Big Reef Beach, which is located on the east end of Galveston Island, with the team's focus on cleaning the dunes and lagoons in the park.

TCEQ Clean Texas Verification Visit

In addition to reviewing applications of prospective Clean Texas members, the TCEQ will visit an applicant's facility and observe select areas of the site to gain familiarity with the operations, environmental performance and overall effectiveness of the EMS. While on site, the TCEQ will also informally interview personnel, both in operations and management positions, to further understand and evaluate operational practices.

In April 2006, UTMB submitted an informal application to the TCEQ for Clean Texas Platinum level membership. The Clean Texas program is dynamic and currently has proposed changes for EMS assessment criteria and the Clean Texas verification visit protocol. Although the Clean Texas program is not in final form, the TCEQ gave scheduling consideration to UTMB by agreeing to a site verification visit prior to Aug. 31, 2006. This is

significant to UTMB because, as stated earlier, UTMB established an institutional goal to obtain Platinum level membership in the Clean Texas Program for the 2005 fiscal year, which ends on Aug. 31, 2006. This cooperation illustrates the emphasis that the TCEQ and the Clean Texas program place on encouraging facilities to achieve enhanced environmental performance.

The TCEQ staff visited UTMB Aug. 9-10, 2006 for a site verification visit in order to assess environmental performance and identify improvement opportunities. Information regarding the outcome of UTMB's application for membership into the Clean Texas program will be available at a later date.

De'Anne Meeh and Sean Wilson are with the University of Texas Medical Branch in Galveston, Texas.



Innovation, Management Systems
and Trading Committee Newsletter

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Back issues of this newsletter can be found at: www.abanet.org/innovation/newsletter/archive.shtml.

GOVERNMENT AGENCIES REALIZE BENEFITS FROM THIRD-PARTY CERTIFICATION OF ENVIRONMENTAL MANAGEMENT SYSTEMS

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A Brief History of ISO 14001

The publication in September 1996 of an international standard on environmental management systems, ISO 14001, was the culmination of a five-year long development effort. An important impetus for the work had come in 1990 from two industrialists, Maurice Strong of Canada, and Stephen Schmidheiny of Switzerland. Strong was the designated secretary-general of the United Nations Council on Environment and Development, which was convened in 1994 in Rio de Janeiro, Brazil. Schmidheiny was the founder of the World Business Council on Sustainable Development. Both men realized that a systems approach to environmental management was preferable to a reactive approach, and each approached the secretary-general of the International Organization for Standardization, ISO, with the idea of developing a standard for environmental management along similar lines as ISO 9001, a successful quality management system standard.

In 1991 the secretary-general of ISO formed a committee to study the matter. Twenty-two countries participated in this Strategic Advisory Group on the Environment (SAGE). At the beginning, SAGE grappled with the public policy implications of the proposed standard. Should the document address environmental performance in terms of emissions or product characteristics? They decided no, that these subjects should remain within the purview of national governments. It was harder for SAGE to describe what the standard should address, so the experts began writing. Within two years they had brought forth both a positive recommendation to proceed and an outline for the later ISO 14001 standard. In 1993 the work was continued under the auspices of ISO Technical Committee 207 and separate subcommittees

took up the development not only of the management system standard but also a series of guidance documents.

A key consensus was maintained in the development process that ISO 14001 was not a substitute for regulatory authority and that continual improvement was a concept that applied first and foremost to the environmental management system (EMS) itself. However, no sooner was the standard published and more widely circulated than confusion about its meaning became more intense. Regulators in many countries were disappointed that the standard did not assure regulatory compliance. They were joined by representatives of environmental nongovernmental organizations in seeking greater public disclosure of environmental performance by organizations claiming to follow the standard. In Europe an alternative standard called EMAS, which added disclosure and third-party verification of annual environmental reports, achieved regulatory status. Meanwhile, some U.S. regulators found fault with ISO 14001 and began to press for changes that would remake the standard along more prescriptive lines. Disappointed with the reception they received within the U.S. Technical Advisory Group, a body constituted to develop a U.S. negotiating position within TC 207, they mostly left that forum and concentrated their efforts within the newly created Multi-State Working Group (MSWG).

By the late 1990s, the expectations of some industry representatives that implementation of ISO 14001 would improve relations with regulatory authorities had nearly evaporated. In the United States, regulators lacked confidence that companies that demonstrated conformity to ISO 14001 deserved any reduction in regulatory oversight. Instead, state regulatory authorities active within the MSWG developed regulatory concessions based on the concept of “ISO 14001–Plus,” where the “plus” consisted of additional public reporting of environmental performance, a track record of meeting regulatory compliance and commitment to achieve agreed-upon sets of objectives.

Now 10 years after its publication, ISO 14001 is seen by most regulators in the United States as a positive element that can contribute to sound environmental

management. Although not a replacement for regulatory oversight, the standard is seen as a helpful tool for organizations of all types, public and private, to manage environmental aspects in a systematic way. From treating it with some reservation, if not suspicion, U.S. regulators at the federal and state levels now mostly embrace ISO 14001, encourage its adoption and look for ways to justify streamlining the regulatory process for those organizations that have implemented EMSs.

Value of ISO 14001 to Public Organizations

Just as the approach that U.S. federal and state environmental authorities have taken with regulated industry has evolved in recent years, so has the perceived value of EMSs increased on the part of public organizations. In particular, public sector organizations can achieve additional benefits when they subject their management systems to audit and certification by independent organizations.

One of the first uses of ISO 14001-based environmental management systems in public sector organizations was in the National Biosolids Partnership (NBP). This was a program jointly sponsored by the U.S. Environmental Protection Agency's Office of Water, the National Association of Clean Water Agencies and the Water Environment Federation. It was created in 2001 to help bring a systems approach to the beneficial reuse of nutrients from the nation's waste water treatment plants. Too often community objections had placed temporary or permanent obstacles in the way of land application, forcing treatment plants to incinerate, a more costly option that wasted both the fuel and the feedstock.

The Office of Water, which had been involved with the U.S. Technical Advisory Group to ISO Technical Committee 207 (U.S. TAG) since its inception, saw ISO 14001 as a good starting point for their program. Recognizing the need for more community involvement than was provided for in the International Standard, the Biosolids Partnership enhanced the requirements by strengthening the communications and consultation elements in the standard as well as the provisions that related to regulatory compliance.

The NBP recognized that issuing management systems guidance was necessary, but not sufficient, to ensure that the implementing organizations achieved their goals. The NBP required third-party certification by certifiers accredited by the ANSI-RAB National Accreditation Program (now ANSI-ASQ National Accreditation Board). Two independent certifiers currently provide these audit services, KEMA-Registered Quality and NSF-ISR. The accreditation requirement provided oversight of the certification bodies' programs to ensure that all NBP rules were followed. To date approximately 12 public agencies have been certified, and several dozen more are currently in the process of implementing their management systems.

Implementation of EMSs at the federal agency level received a big boost in April 2000 when President Clinton mandated that federal departments and agencies implement management systems. Conformity with Executive Order 13148 is tracked by EPA and progress reported to the Office of the Federal Environmental Executive (FEE) via annual report cards. According to the current FEE, Ed PiZero, figures showed only 15 percent compliance by the end of 2004. A year later, approximately half the departments and agencies had met the Dec. 31, 2005 deadline. To close the gap, in April 2006 the Bush administration urged remaining departments and agencies to meet the requirement as expeditiously as possible. (See Memorandum to the Heads of Departments and Agencies, issued jointly by the Office of Management and Budget and the Council on Environmental Quality on April 11, 2006 and accessed at www.ofee.gov/whats/41806_m06-11.pdf.)

Implementation at the federal level of EMSs is driven by the desire to "lead by example." Certification by a third party is one way to meet the executive branch requirement for independent evaluation. According to Mr. PiZero, it represents the highest level of objectivity. But it is not the only way, and departments and agencies may use other forms of independent evaluation. (Personal communication with Mr. PiZero.)

Real-world Examples

U.S. EPA Region 3 provides an example of an public entity that chose to certify its EMS. The decision was made by the region's top management. According to EPA's project manager, the certification strengthened the EMS because it is understood that an outside entity will be reviewing the EMS annually.

The management of the Enterprise Support group of the Defense Logistics Agency (DLA-ES), Richmond, Virginia, is another believer in third-party certification. Its director had seen the advantages of third-party certification to quality management standards during his service in a former agency, and wanted the same when his group implemented ISO 14001. He saw third-party oversight as a way of obtaining independent assurance that the management system really met the requirements of the International Standard. The organization was certified to ISO 14001 in December 2005 by ABS Quality Evaluations. It has since achieved U.S. EPA Performance Track and Virginia Department of Environmental Quality Environmental Excellence designations.

The management representative for DLA-ES credited the third-party certification with improving relationships with external stakeholders, helping maintain the visibility of environmental management on the site, improving compliance with regulations and completing environmental management programs. He pointed to \$18,000 annual savings per bay by getting variable lighting installed, improvements in fluorescent bulb recycling, stormwater management enhancement through the building of rain gardens and better document control. He felt that having a third-party auditor meant that the organization had to show continual improvement and maintain awareness of environmental management throughout the organization.

The Naval Air Station, Cherry Point, North Carolina, is also certified. This certification, which occurred in 2004, complemented the site's certifications to ISO 9001, the quality management standard, and to the aerospace quality standard AS 9000. The Naval Air Station repairs aircraft for military customers and maintains third-party certification in part to

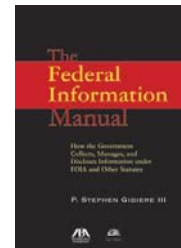
demonstrate the quality of its operations in comparison to civilian competitors.

Federal Environmental Executive PiZero said he believes that only about 10 percent of federal departments and agencies have chosen third-party certification of their EMSs as the means of demonstrating independent evaluation. It remains to be seen whether that number increases when the focus of the environmental executive's office shifts from conformance with the executive order to the measurement of performance. That shift will begin in earnest during 2006.

John Shideler is president of Futurepast: Inc., an Arlington, Virginia-based environmental management consulting, training and audit service organization.

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