2001

A guideline for initiating an environmental management system in academia

David Turkow

Follow this and additional works at: http://scholarworks.rit.edu/theses

Recommended Citation

This Thesis is brought to you for free and open access by the Thesis/Dissertation Collections at RIT Scholar Works. It has been accepted for inclusion in Theses by an authorized administrator of RIT Scholar Works. For more information, please contact ritscholarworks@rit.edu.
A GUIDELINE FOR INITIATING AN ENVIRONMENTAL MANAGEMENT SYSTEM IN ACADEMIA

By David Turkow

A thesis submitted in partial fulfillment of the requirements for the Master of Science Degree

May 23, 2001

Master of Science: Environmental, Health, and Safety Management
Rochester Institute of Technology
College of Applied Science and Technology
Civil Engineering Technology, Environmental Management & Safety

Approved:

John Morelli                      Maureen Valentine
Major Professor                  Department Chair

I, David Turkow, hereby grant permission to the Wallace Memorial Library, RIT, to reproduce my thesis in whole or in part. Any reproduction will not be used for commercial or profit.

Signed __________________________ Date 7/10/01
Table of Contents

Abstract: (Pg. 4-8)
Key Words: (Pg. 9)

I. Introduction (Pg. 10)
   A. Description of Topic (Pg.10)
   B. Background (Pg. 14)
       1. Overview of an EMS in Academics (Pg. 14)
       2. EPA Compliance Initiative in Academia (Pg. 19)
       3. EPA and EMSs (Pg. 20)
II. Description of the Problem (Pg. 23)
   A. Rationale, Significance and Need for the Work (Pg. 23)
   B. Theoretical Framework (Pg. 25)
   C. Statement of Problem (Pg. 27)
   D. Identification of the Aspect (Pg. 28)
   E. Limitations and Delimitations (Pg. 29)
   F. Definition of Terms (Pg. 30)
III. Literature Review (Pg. 31)
IV. Methodology (Pg. 33)
   A. Approach (Pg. 33)
   B. Objective (Pg. 34)
   C. Survey Methodology (Pg. 35)
   D. Data Collection and Management (Pg. 36)
   E. Analysis and Evaluation – Comparisons, Contrasts, Gaps (Pg. 37)
   F. Data & Attachment Discussion (Pg.45)
   G. Conclusions and Recommendations (Pg. 47)
       □ Survey Results (Pg. 47)
       □ Academic Structures, Issues and Functions (Pg. 49)
       □ Summation (Pg. 51)
Endnotes (Pg. 52)

Bibliography (Pg. 56)

Useful Websites (Pg. 57)

Attachment #1, Survey Questionnaire Results/Graphs (Pgs. 58)
Attachment #2, ISO14001 Model Environmental Management System (Pg. 63)
Attachment #3, Comparisons and contrasts between academia and industry (Pg. 64)
Attachment #4, Opportunities/Tips for Initiating an EMS (Pg.67)
Attachment #5, Survey Questionnaire – Senior Management (Pg. 69)
Attachment #6, Survey Questionnaire – EHS Professionals (Pg. 71)
Resume/Vitae: David Turkow (Pg. 73)
**Abstract:**

Managing environmental concerns in an academic environment poses unique challenges to colleges and universities. Many college EHS professionals face an uphill battle to promote environmental improvement in an organized, systematic, and sustainable fashion - an Environmental Management System (EMS) is designed to do just that. Some inherent difficulties encountered in an academic setting include 1) lack of management support and 2) the perception that colleges do not have major environmental compliance issues (contributing factor to #1). By identifying issues unique to academia and differences in perception between EHS professionals and academic senior management, chances for successfully initiating/implementing an EMS are improved.

Environmental Management Systems (EMSs) are being promoted as *the* method to effectively manage environmental issues on college campuses in the US. The Environmental Protection Agency (EPA) has made it clear that they expect colleges and universities to maintain compliance with environmental regulations and they feel an EMS is the preferred method for long-term, sustainable environmental compliance.

Although there are several guidelines/models (see references & attachment #2) for implementing an EMS, many colleges never make it to the planning stage of an EMS. There is no guideline for “getting an EMS off the ground” – or, initiating an EMS. The key element to successfully initiating an EMS is management support and this paper will attempt to identify relevant perceptions of academic senior management on the topic of environmental management.
The methodology involves surveying academic EHS professionals and senior managers on a variety of issues related to management support and environmental performance. It is intended to identify unique characteristics of academia, allowing EHS professionals to better prepare for successfully initiating an EMS in their respective institutions. The survey was structured to ask the same questions of academic EHS professionals and senior management in order to identify gaps in opinions/perceptions relative to each question category.

The detailed survey questionnaire analysis, including the gap analysis is provided in Attachment 1. An ISO 14001 EMS basic model is provided as a basic reference in Attachment 2. A comparison, contrast chart between academia and industry is provided as Attachment 3 and Opportunities/Tips for Initiating an EMS is provided as Attachment 4. The actual questionnaires used in the survey for EHS professional and senior management are provided in Attachments 5 & 6.

The survey results indicate some interesting differences in perceptions between EHS professionals and senior management in the academic setting. The largest gap in opinion dealt with the question of “How much of a challenge to implementing an EMS is lack of commitment among.” The response of top-level management created the largest discrepancy or gap between EHS professionals and senior management with EHS professionals perceiving top-level commitment as a much larger challenge than senior management. These results beg the question: why the big difference in response? Is senior management naturally biased on this question or do they perceive themselves as being committed to environmental management issues? This is an important issue that must be approached by each individual college/university implementing an EMS is the
goal. Informed management is a key element and many senior managers expressed the opinion that they weren’t aware of the potential environmental impacts of their campuses. The survey also indicated that managers are aware of environmental concerns but expressed the opinion that limited resources, lack of enforcement and environmental issues not being related to the core mission of the college as important factors in not giving environmental issues a high priority.

A clear result of the survey indicates that both EHS professionals and senior management consider government (EPA) regulations to be an important motivator for implementing an EMS and improving environmental performance. It would be admirable if the culture and climate of academia would inherently embrace environmental issues based on ethical and morale grounds or “doing the right thing.” However, it is clear that academic senior administration is most motivated by the threat of government regulatory actions and potential for negative impact on their image. This should not surprise anyone in the academic field of EHS, but it is important that EHS professionals not underestimate the power of regulatory pressures. The threat of fines, bad press and potential legal actions genuinely concern senior managers in the academic sector. EHS professionals can and should use this insight, knowing the window of opportunity created by EPA will not last forever. It can be used as leverage to initiate environmental improvements, as needed, including the implementation of an EMS.

It is an interesting difference to note: cost effectiveness was not considered an important factor, while limited resource’s was considered an important factor by senior management. This indicates the need to justify an EMS based on its own merit or relative importance within the institution, rather than justifying it on a cost effective basis. Any
proposal to initiate an EMS must compete for the limited resources available to academic management. Justification of an EMS based on cost effectiveness may not be as effective as it is in the industrial setting. The survey also indicates (from the senior management perspective) that integrating environmental issues into the culture and mission of an educational institution is an important factor in sustaining an EMS.

A significant discrepancy was found in the responses to the question of “how much of a challenge to implementing an EMS is.” The response of staffing resources and time clearly demonstrates EHS professional’s perception that they are inadequately staffed, funded, and resourced as compared to the senior management response. It may be apparent to EHS professionals (and EPA) that adequate resources are not being provided, but it is abundantly clear that management does not agree with this perception. A key factor for EHS professionals – has the point been made to document and communicate this information to management? EPA has specifically cited colleges for inadequate EHS resources and they may hold senior management accountable for not providing adequate staffing/resources. A key element of any effective EMS is providing adequate resources to do the job. Management and EHS professionals need to evaluate staffing and resources dedicated to EHS in an effective, meaningful manner. Benchmark results of the Campus Safety, Health & Environmental Management Association (CSHEMA), indicate an average EHS staffing level of 1 FTE per 2000 faculty, staff and students. Other suggestions for documenting staffing needs include an environmental audit (including staffing levels) by an outside consultant, an internal audit of the EHS program to document resource needs or a review of the program by environmentally experienced legal counsel.
The issue of accountability is a primary concern in initiating or implementing an EMS. Lines of communication with faculty, staff and students need to be established in order to assure the transition to an EMS has buy-in from stakeholders who are most effected. Both EHS professionals and management strongly agree on the importance of this issue. The difficult issue: establishing effective methods of accountability for tenured faculty. Professors have historically retained a degree of autonomy as part of the culture of higher education and the premise of academic freedom. Realizing this, successfully approaching faculty and getting buy-in, to some degree, is crucial. Performance measurement and accountability are integrally linked within the EMS. If faculty/staff are not accountable for performing, it will not happen. Management support is a key factor in this area; meaningful and consistent management review of the EMS (including feedback to stakeholders) is essential.

Finally, this thesis has been a work of both passion and frustration. For those in the field of EHS, I don’t need to explain. EHS, in most cases, is not given the priority it deserves in the academic world – simply put, it is not perceived as critical to the mission of higher education. EPA has found substantial environmental problems in academia, but they are only concerned with environmental issues (the “E” in EHS). EHS professionals are also responsible for the H&S (Health & Safety) in EHS and those issues, although not discussed in this paper, creates another set of questions/concerns that should be addressed on college campuses. The bottom line for successful EHS programs: someone fairly high up in the organization needs to CARE about EHS.
Key Words:

Environmental Management System (EMS): a systematic method of managing environmental issues/concerns on a college campus in order to minimize pollution and maintain compliance with environmental regulations.

Environmental Protection Agency (EPA): is the primary government agency responsible to oversee and enforce environmental laws and regulations in the U.S.

Environmental Health and Safety professional (EHS professional): those in the field of EHS (in the academic environment) that have responsibility to oversee environmental, health and safety issues relative to operations, land use, construction, research and educational programs on the campus.

Senior Management in academia: management personnel at an academic institution responsible at a management level to control resources and management systems. Titles may vary from Vice-President, Chancellor, Provost, Administrator, etc.

ISO14001: the International Standards Organization standard that provides a guideline for developing and implementing an environmental management system.
A Guide for Initiating an Environmental Management System in Academia

I. Introduction:

A. Description of the topic:

Colleges and universities provide many unique challenges to initiating and actually implementing an environmental management system (EMS). Decentralized organizational structure, cultural perceptions, complex physical layouts, diversity of operations, complex research programs, student body turnover, and increased competition for resources are just some of the issues that impact environmental, health and safety on college campuses. In essence, colleges are self-contained microcosms very similar to a small city with equally diverse environmental issues.

Environmental, Health and Safety (EHS) professionals in the academic sector are being urged by the Environmental Protection Agency (EPA) to develop an EMS in their respective colleges. Several guidelines and models are available for developing an EMS, however, there is a lack of supporting information on how to effectively initiate and ultimately implement an EMS. Management support and knowing how academic institutions work are key elements in the process of initiating an EMS.

Why is the Environmental Protection Agency (EPA) recommending implementation of an EMS in academic institutions? The Campus Safety Report Card, prepared by Campus Ecology (in affiliation with the National Wildlife Federation) states, “With an annual economy of $186 billion, the 3,700 campuses in the US are a microcosm of American society, working with thousands of vendors and including offices, research labs,
hospitals, residential housing, food services, landscaping, and infrastructure that produce substantial environmental pollution and waste.”

In March 1999, the EPA’s New England office announced its enforcement initiative targeting colleges and universities – significant fines have been assessed against many colleges and universities. As of May 2000, EPA has performed multimedia inspections at the following universities: Boston University, University of Maine, Brown University, University of Massachusetts-Amherst, Dartmouth College, University of New Hampshire, Harvard University, University of Rhode Island, MIT, Yale, and the U.S. Coast Guard Academy.

Colleges and universities have, in the past, assumed that environmental regulations don’t apply to them in the same way they are applied to industry. The perception is that they will not be dealt with as harshly as industry. The comments of Ken Rota, chief of the compliance unit, Environmental Protection Agency (EPA) that oversaw the investigation at Brown University: “People (at Brown) get concerned because of the significant penalties we assess,” says Rota. They say, ‘Nothing leaked. Nobody got hurt.’ The purpose of the rule is that if you do these things (comply), nothing will be released and no one will be hurt.” EPA is the primary government agency that regulates environmental compliance in the US; they were established by an act of Congress in 1970 and their regulatory reach includes hazardous waste, air pollution, water pollution and a variety of other environmental issues.

EPA actually began inspecting colleges in the early 1990s and, recently, several regional offices of EPA have initiated an inspection program focused, specifically, on academic
institutions. In December 1999, the EPA, Region 2 office (covering New York, New Jersey, the Virgin Islands and Puerto Rico) sent a letter to every college president in Region 2 regarding voluntary discover/disclosure and potential environmental violations. The letter urges colleges to focus on hazardous waste regulations of the Resource Conservation and Recovery Act (RCRA): “The USEPA Region 2 is planning to conduct inspections of colleges and universities within our region during the upcoming year, to determine their compliance with hazardous waste and other environmental regulations. It has come to our attention that some colleges and universities do not fully comply with environmental regulations. If inspections determine non-compliance, formal enforcement action with monetary penalties against significant violators is possible.” – G. Pavlou, Division of Enforcement and Compliance Assistance.

It is abundantly clear that EPA is treating academic environmental issues seriously and regulatory actions are being taken against higher-education institutions. It is also clear that academic institutions need to improve their environmental performance. Some of the colleges that have recently received the attention of EPA are as follows:

- April 18, 2001 – the Massachusetts Institute of Technology (MIT) settled an enforcement case with the EPA. MIT was cited for 18 violations of federal hazardous waste laws, the Clean Air Act and the Clean Water Act. The settlement includes a fine of $150,000 and an agreement to fund more than $400,000 in innovative environmental projects.
- January 6, 2000 – EPA, Region 1 filed a consent agreement resolving alleged RCRA violations found at the University of New Hampshire (UNH). UNH will
pay a fine of $49,000 and spend at least $147,000 on a Supplemental Environmental Project (SEP).

- The University of Hawaii was assessed a fine of $1.7 million in 1998 and 1999 after an EPA, Region 9 inspection team found dangerous chemicals buried for years in the basement of the Honolulu campus’s main chemistry building, plus other discards elsewhere.

- In 1998, EPA Region 1 filed a consent decree in federal district court resolving alleged violations of the Clean Water Act and the Resource Conservation and Recovery Act discovered at Boston University (BU). BU paid approximately $253,000 in fines and $500,000 in community projects.

In fact, a compilation of violations/fines recorded by the University of Louisville’s Environmental Health and Safety Department found that since 1990 over $8 million in fines and Supplemental Environmental Projects (SEP) have been levied against colleges and universities in the US.⁶ A SEP can be used to offset EPA penalties if the college agrees to a project that benefits the environment and the community where the violation occurred. The criteria are available at Region 2’s Pollution Prevention (R2P2) Site – www.epa.gov/region02/p2/sep.htm.

In negotiating the compliance process with colleges EPA has strongly encouraged development and implementation of Environmental Management Systems (EMS), to achieve and maintain environmental compliance.⁷ Many colleges are in the process of initiating some type of environmental management system and other colleges are contemplating improved management of environmental compliance issues to attain compliance. One of the critical factors for successfully implementing an EMS is gaining
the support of upper management. EPA has even stated in their presentations to other colleges, “we know it’s not the EHS staff that’s at fault - management needs to support environmental improvements.” By identifying those issues that are relevant to academic management, specific to the academic setting and specific to the individual college/university, the initial approach (or planning stage) can be tailored to target those issues and aspects. The cornerstone of successfully initiating any management program, including an academic EMS, is meaningful management support – without it, an effective management system is impossible.

Identifying the challenges, issues and opportunities that impact a major change in the way academic environmental concerns are managed will greatly enhance the likelihood of success. The focus of this paper is to provide useful, practical, and insightful information that will assist EHS professionals and academic management in initiating an EMS or improving current environmental programs. Making wholesale management changes in any setting is difficult; in the academic setting it is truly a difficult task. As Woodrow Wilson, while President of Princeton, stated, “Effecting change at a university is like trying to move a graveyard.”

B. Background:

1. Overview of an EMS in Academics

Environmental Management Systems (EMSs) have been in existence since the early 1980s and were predominantly used by industrial facilities in response to regulatory enforcement by EPA. In the early years, EPA took an aggressive enforcement approach towards industry and heavy fines were handed down as a result. This “command and
“control” style of regulation forced industry to take a hard look at how they managed environmentally sensitive operations. The unforeseen benefits of managing environmental concerns became apparent: cost savings, lower liability, decreased risk, regulatory relief and improved public image. Whatever label is used (compliance-based, ISO-based, comprehensive, strategic) to describe an EMS, managing environmental concerns has become an increasingly important issue, particularly in academics, in the last 5-10 years.

An ISO 14001 based EMS summary is provided as Attachment #2 and is based on information provided in the RIT Strategic Environmental Management Plan, by Dr. John Morelli, College of Applied Science and Technology, RIT – EHS Management.

By far, the most recognized model for an EMS is the International Standardization Organization (ISO) 14001 Standard. This model provides a somewhat flexible framework for developing an EMS and is based on continuous improvement and a comprehensive approach to environmental management. ISO 14001 provides a well thought out guideline for implementing an effective EMS. It does not, however, provide guidance to obtain the required management support and motivation to actually implement the system. The EMS summary is provided as a brief overview of the nuts and bolts of an EMS and is not intended as a comprehensive implementation plan.

How does academia compare to industry in experience with an EMS? Industry has been involved in implementing and improving upon EMS strategies over the last 20 years or more. As a result of the increased attention paid to management of environmental concerns, larger industrial companies began to document the savings and a cost-benefit
return of their investment. IBM estimates that for every dollar ($1) spent on environmental management, a two dollar ($2) return on the investment was realized.\(^\text{10}\)

The positive cost-benefit factor in industrial settings was, and still remains, a powerful motivation for implementing environmental management systems. It is sometimes more difficult to demonstrate the same positive effect in academic settings for a variety of reasons that will be discussed. Cost effectiveness in industry is based on value-added principles whereby the company gains a competitive advantage by managing environmental issues. Stephen Poltorzyki, VP and Managing Director for Environmental, Health, and Safety Consulting (Arthur D. Little, Inc.) succinctly states, “To deliver business value, you have to do one of two things. Either you find a way to have EHS serve as the basis for a unique competitive position, or you determine how EHS can contribute to the business activities that the company performs differently from its competitors.”\(^\text{11}\) For the most part, EMS's in industry are based on a business approach – if it doesn’t add value to the company, it doesn’t fly.

Again, *management support is a critical factor if an EMS is to be successfully implemented*. Sarah H. Creighton, in “Greening of the Ivory Tower,” states: “Top-level commitment is as important for universities as it is for corporations.”\(^\text{13}\)

According to Creighton (11), five ingredients are key to successful university environmental action: 1) understanding how the institution works; 2) university commitment and demonstrated support; 3) a university-wide environmental planning committee or smaller issue-specific committees; 4) individual leaders; and 5) an understanding of the basic principles of environmental protection.
Academic institutions do not inherently recognize the benefits of systematically managing environmental concerns. The core mission of an educational institution it not traditionally perceived as linked to environmental protection. Compared with industry the main products of academics are students, not widgets; analogous to the BASF commercial – “we don’t make the students (you buy), we make them better.”

Understandably, it can be inherently more difficult to convince upper management in academics that environmental concerns are somehow linked to the core mission of the institution. Patty Bagnoli, Region 1 EPA, Pollution Prevention administrator, provides a characterization of the attitude displayed from a meeting sponsored by the Campus Ecology organization (part of the National Wildlife Federation), held in the fall of 2000 at Oberlin College. The meeting was held to discuss environmental issues in academics and attracted upper-level managers and several presidents from academia. In her discussions with academic management (after the meeting) she was told, “there is no justification for us to spend that kind of money (on environmental issues) until we are inspected or fined.”

The ISO 14001 model of environmental management systems does not necessarily fit the academic environment. Factors such as decentralized management structure, faculty autonomy, unclear cost benefits, lacking resources and lacking management awareness of environmental issues contributes to the difficulties of initiating an EMS. The ISO 14001 model EMS (for industry) emphasizes documentation of policies and procedures, comprehensive/strategic planning, measurable targets, objectives and a rigorous certification process (if the company chooses to be ISO 14001 certified). Basically, it involves addressing the myriad of environmental regulations and goes one step further in
requiring documentation of all operations and processes that have an impact on environmental performance. Compliance with regulations is not required as long as continual improvements are being made. Simply put, it is a management system with the purpose of continually improving environmental performance and adding value to the business.

Continuous improvement in environmental performance vs. compliance with environmental regulations is a key element in the ISO model that is often criticized by regulatory agencies that would prefer a compliance-based conformance system. The difference between performance and conformance is directly related to the issue of compliance. With performance, compliance is not necessarily achieved; with conformance improved performance is not necessarily achieved. In a perfect world, performance and conformance would be achieved simultaneously.

In essence, most colleges already have some a form of a program that resembles an EMS. Based on existing written programs, policies and environmental controls there is already a system in place to address environmental issues. These written programs may include hazardous waste, hazard communication, spills and emergency response, lab safety, air emissions, water pollution, and radiation safety. The point is, academic institutions should not think they are starting from scratch – existing environmental programs can be built upon, modified and improved.

In my conversations with several college EHS professionals and EPA representatives, instituting an EMS in a college environment is perceived as an overwhelming task. In many instances, resources are stretched to the limit, making it more difficult to take on
new tasks and responsibilities. Although EHS professionals understand the potential benefits, implementing an EMS is oftentimes viewed as a monumental task that cannot be accomplished with existing resources and support. The comprehensive and complicated nature of the ISO 14001 model adds to this apprehension. Carl Plossl, Lead Inspector - EPA, Region 2, states, “They (EHS professionals) just want a basic, simple process they can follow without it being too complicated.” It may be that EHS professionals are looking for a simpler, more pragmatic approach that focuses on compliance first, continuous improvement later.

Furthermore, many small to mid-size colleges do not have the resources or the expertise available to take on the perceived complex and complicated task of a comprehensive environmental management system. In this case, focusing on compliance issues, primarily, may be more appropriate. As stated by John DeLaHunt, CSHEMA, “Many schools don’t have centralized or formalized environmental management programs in place. Many schools have responded to regulatory requirements piecemeal – allocating collateral duty to existing personnel to meet the new challenge.”

2. EPA Compliance Initiative in Academia

The EPA compliance initiative aimed at colleges and universities began in EPA Region 1, New England in 1997. Since then, EPA Region 3, has also initiated inspections of colleges and recently, EPA Region 2 has followed suit by sending a letter to each college president in Region 2 stating that they should expect an inspection in the fall of 2000. At present, EPA Region 2 is in the process of inspecting colleges in the metropolitan New York area. A significant number of colleges and universities have been found in violation
of environmental regulations and have been fined anywhere from $20,000 to $1.8 million. And, at the present time, there are no indications that EPA is going to let up on colleges.

Senior management in academics is taking notice of EPA’s actions and in a limited number of cases is taking proactive measures to improve environmental performance. However, in this writer’s opinion, a majority of colleges have not taken meaningful actions to improve the manner in which they manage environmental issues on campus. As the EPA Region 1 Administrator, John DeVillars stated, “We have found that some educational institutions don’t take their environmental obligations as seriously as they should. It is important that institutions of higher learning set an example for their students and the communities of which they are a part.”

3. EPA and EMSs

EPA has strongly encouraged academia to act responsibly concerning environmental issues and they have pointed out the virtues of adopting an Environmental Management System. In fact, Region 1 EPA is actively involved with a project to develop a model EMS for academic institutions in conjunction with the University of Massachusetts (Umass), Lowell. An EPA EMS/ISO 14001 Pilot Site has been established at U of Mass. and at least two other colleges, Florida Gulf Coast University and Boston University, are participating in the process. It is clear that most EPA Regions are recommending environmental management systems for the academic sector as they have in the past for industry. EPA has prepared the Code of Environmental Management Principles (CEMP) that outlines environmental management objectives and performance measures for federal agencies.
Although it has not been put in writing, the implication by EPA is that if you have implemented an EMS, they will consider it a mitigating factor for less stringent enforcement and they may even forego an inspection of the specific college/university if it can document the EMS is successfully implemented. At the Lake Placid Environment 2000 Summit conference sponsored by the SUNY Environmental Health and Safety Association (SEHSA) the EPA speakers (Carl Plossl, Region 2 EPA and Martha Curran, Region 1 EPA), extolled the virtues of instituting an EMS and implied that an effective compliance-focused EMS would demonstrate a sustained effort to achieve and maintain compliance. EPA, itself, issued Executive Order 13148, dated April 21, 2000, entitled “Greening the Government Through Leadership in Environmental Management”, which requires federal agencies to implement an EMS consistent with the CEMP model at their individual facilities by December 31, 2005. The motivation for implementing an EMS in academia is fairly clear; the process of initiating, planning and implementing an EMS is not.

Those colleges that are in the process of implementing an EMS have found the initiation/planning stage to be a critical factor. Amy Gillman, EHS Director from the University of Missouri – Rolla (UMR), is of the opinion that “once you get through the planning stage and management support is in place, the EMS implementation goes relatively smoothly.” UMR is presently in the process of certifying their EMS program in accordance with ISO 14001 standards and they plan to receive their final ISO 14001 certification in June of 2001. UMR plans to market the fact that they have achieved ISO 14001 status. UMR has a website that contains good information on EMSs and plans to develop a clearinghouse website for other colleges to use in developing their own EMS.
It is important to mention that UMR is under a compliance directive/consent order from EPA to develop an EMS. Most colleges are not inherently motivated to adopt a meaningful management systems approach to environmental concerns. In UMRs case the potential for additional fines surely provided motivation to upper management and the Chancellor of UMR was instrumental in _making it happen_. A mandate from the Chancellor was sent to all faculty, staff and students. The task of developing the EMS was given to faculty, with the EHS professional staff acting as consultants/technical advisors.\textsuperscript{23}

University of Missouri at Rolla’s environmental policy statement, signed by the Chancellor:

"The University of Missouri-Rolla is a leader in education for our state and the nation. We pledge to teach our graduates to be responsible stewards of the earth and its resources and understand the principles of sound environmental management. As chancellor of this university I personally affirm that UMR will minimize the adverse environmental impacts of our activities and ensure a safe environment for university students, employees, and the community. We will strive to be environmental leaders through the promotion of new technologies which support the goals of sustainable development and resource conservation."\textsuperscript{24}

Chancellor Gary Thomas

University of Missouri-Rolla
Gaining management support after an EPA inspection, fine and required corrective actions (which could include an EMS) may be easier than to gain management support to institute an EMS *upfront*. One of the main purposes of this paper is to gain management support prior to an EPA inspection, fine and/or directive to implement an EMS.

**II. Description of the Problem**

**A. Rationale, Significance and Need for the Work**

The principal reason this work is needed is to address one of the major challenges faced by the vast majority of conscientious Environmental, Health and Safety (EHS) professionals in academics. The resources dedicated to EHS in academic institutions are, in many instances, inadequate. A benchmarking survey conducted by the Campus Safety, Health and Environment Management Association (CSHEMA) indicates that EHS staffing levels average approximately **1FTE per 2000 faculty/staff/students**.\(^{25}\) Generally accepted as a best practice standard in industry: **1FTE EHS staff per 500 workers (in low to medium hazard industry)** and **1FTE EHS staff per 200 workers (in a high hazard industry)**.\(^ {26}\) Many colleges appoint maintenance workers or other non-professional staff to carry out the duties of EHS. It some instances, EHS is viewed as a “cost only” program that is given a low priority. This puts the burden of EHS performance on a limited number of people who are often not prepared or trained to carry out the day-to-day EHS duties.

Academic institutions now recognize the increased regulatory pressure and potential for fines and bad press. EPA has recognized the lack of meaningful commitment and management support at recent seminars put on by EPA and, they have specifically
mentioned management support as a weakness in the academic arena. In a PowerPoint presentation by Carl Plossl, Region 2 EPA\textsuperscript{27}, the bullets of one slide, entitled \textbf{Achieving & Maintaining Environmental Compliance} included:

- \textit{Communication from the top the importance of compliance and other environmentally beneficial activities}
- \textit{Ensure adequate resources for people, equipment and training to carry out environmental activities}
- \textit{Institute an environmental management system}

If this pattern continues, we have set up a formula for continued inspections, fines and bad press on college campuses across the nation regarding environmental issues. To no one’s surprise (with the possible exception of academic management) there have already been severe EPA penalties and bad publicity for many colleges and... very likely, more to come.

Many EHS professionals realize there is now a window of opportunity to promote and gain support for improved environmental performance. With the increased visibility of EPA and likelihood that – “an EPA inspector is coming to a location near you”, there is an increased potential for EHS issues to be taken seriously. If resources are dedicated to assure the EMS is functioning properly and management involvement becomes an integral part of the process, implementing an EMS can be the best thing that ever happened to the college and the EHS department.
The potential value to academic management is the successful initiation of a systematic method of managing environmental issues on the campus including: 1) provides a compass for program planning 2) establishes senior management commitment and feedback loops 3) develops clearly defined roles and responsibilities 4) creates potential for cost avoidance, risk reduction and pollution prevention and 5) has the potential/flexibility to be used for different outcomes (e.g. – environmental protection, quality management).\textsuperscript{28}

There are several environmental management system models that can be effective and many of the models are extremely flexible in how they are designed and implemented (See the EMS Websites listing included in the bibliography). It is not the goal of this paper to provide a template or guideline for an EMS. The focus is on the important - and often overlooked issue - of how to gain management support in order to begin the process of initiating an EMS.

B. Theoretical Framework

The approach of identifying key factors that will effect the successful initiation of an EMS will combine the theoretical with the pragmatic. The theoretical portion of the thesis involves surveying upper management and EHS professionals in academia to elicit their views, opinions and perceptions on selected critical issues involving instituting an EMS. The questions are loosely formatted on the National Survey of Environmental Management on College Campuses, which was prepared by the Princeton Survey Research Associates.\textsuperscript{29} Some of the questions were modified to include specific issues that were found to be critical to EHS professionals and the perceptions of management.
The goal of the Princeton survey is to assemble a database of best practices for higher education in environmental management. The Campus Ecology organization, which is affiliated with the National Wildlife Federation (NWF), has sponsored this survey. The NWF survey is really three surveys in one as a different set of questions was sent (via email) to 1) the president or executive officer, 2) the provost or academic officer and 3) the head of facilities or plant operations. My particular focus is on the questions asked of the president or executive officer. The reason for including ONLY the questions asked of the presidents/CEOs of colleges is that these questions capture the essence of management support issues.

It has been learned from the Campus Ecology group that the responses (1100 at present) included 470 from presidents or chief operating officers in the academic sector. This survey should be available to the public by July/August of 2001. The questions from my survey are designed for qualitative and quantitative results in the hope of gaining meaningful input and insights into what drives upper management and what critical issues would lead to support of an EMS process or improvements in environmental programs.

The same questions asked of presidents/CEOs will be asked of EHS professionals in the academic environment – they will be surveyed through the email list server known as Safety, operated by the University of Vermont and the SUNY Environmental Health and Safety (SEHSA) list server. Some surveys will be faxed to contacts made by telephone. This will provide an interesting and revealing comparison of attitudes and perceptions relative to environmental issues. Gaps between management and EHS
professionals will also identify specific areas where EHS professionals may need to reevaluate their approach to management.

The pragmatic portion of the thesis will identify specific characteristics in the academic environment that impact the process of initiating an EMS. Comparisons and contrasts between academic settings and industrial settings will identify opportunities and potential drawbacks of utilizing an industry-based approach such as the ISO 14001 model. (Attachment #3) By identifying gaps in perceptions/opinions between management and EHS professionals opportunities for successful initiation of an EMS can be better understood. Specific suggestions and options will be provided on how best to approach management effectively on this issue, based on experience and the results of the survey. By identifying those aspects that are specific to academic institutions, individual colleges will be better prepared to initiate an EMS that is appropriate to its activities and supportable by management. Experiences of other colleges and universities will be reviewed and analyzed to identify critical issues for success and/or failure to gain management support leading to the initiation of an EMS.

C. Statement of the Problem

Environmental programs in academics are often lacking in support from upper management (see previous citations). The culture, structure and organizational framework in academics provide unique challenges to instituting an EMS. Recently, EPA has made it clear that it expects colleges and universities to meet or exceed environmental compliance standards – the same standards that industry is held to. EPA has stressed the
importance of adopting a systematic approach to managing environmental issues on college campuses.

A major obstacle to implementing an effective EMS is lack of management support and the perception by EHS professionals that it may not be possible to gain management support without first being inspected and/or fined by EPA. Initiating an EMS by gaining management support is not an easy task depending on the specific factors at each individual college. The decentralized structure, lack of clear objectives, faculty autonomy, and the dynamic nature of academic institutions provide additional obstacles to a systematic management approach of environmental issues. As stated by the University of California’s (UC) publication, EH&S Partnership for Performance Annual Report, 1999, “In an environment that is extraordinarily decentralized and consensual in nature, performance measures offer the opportunity to develop a common message to …stakeholders.” This is in reference to UC’s goal of adopting the Malcolm Baldrige Award criteria for managing EH&S.

D. Identification of the Aspect

The focus of this paper is to identify specific characteristics of the academic management structure, those beliefs and perceptions that effect decision making at the management level and misconceptions that EHS professionals may have regarding the means and motivations for gaining management support. By surveying upper management and comparing their responses to EHS professionals’ responses it is hoped that gaps will be identified and lead to a better approach to gaining academic management’s support. The key aspect of an effective EMS is the initiation/planning stage which “sets the table” for
the successful implementation phase. In order for a management system to be sustainable it requires management support and leadership on a consistent basis.

E. Limitations and Delimitations

Limitations

- Upper management and EHS professionals may be unwilling to participate in the survey or answer specific questions posed.
- Upper management and EHS professionals may not answer the questions truthfully for fear of damaging their image or reputation.
- Survey results may not reveal measurable gaps between upper management and EHS professionals.
- The limited number of responses may not be representative of all colleges and universities.

Delimitations

- Confine the scope to environmental management systems that do not include health and safety issues.
- Development and implementation stages of an EMS will not be covered – it is expected that each college would select a model that fits their specific needs.
- Lack of previous study and literature sources in this specific area (initiating an EMS) will limit the ability to compare and contrast issues from a literature review standpoint.
F. Definition of Terms:

**Academics**: the term used to describe colleges and universities in the field of higher education.

**Aspect, environmental**: element of an organization’s activities, products, and services the can interact with the environment.

**Environment**: surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation.

**Environmental Management System (EMS)**: a systematic management plan to prevent pollution, comply with applicable environmental laws and continually improve environmental performance. It includes an organizational structure, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing, and maintaining the environmental policy. Environmental issues common to college campuses include hazardous waste, air pollution, water pollution and operations that generate environmental concerns.

**Environmental performance**: the measurable results of the environmental management system, related to an organization’s control of its environmental aspects, based on its environmental policy, objectives, and targets.
Environmental policy: statement by the organization of its intention and principles in relation to its overall environmental performance, which provides a framework for action and for the setting of its environmental objectives and targets.

Environmental Protection Agency (EPA): is the primary federal government agency responsible to oversee and enforce environmental laws and regulations in the US.

ISO 14001: the International Standards Organization standard that provides a guideline for developing and implementing an environmental management system. Certification requirements are also included in the ISO standard which is considered an industry standard for environmental performance throughout the world.

III. Literature Review

The literature published on EMSs is substantial and includes the ISO 14001 standard and numerous industry papers, journals, and books covering EMS development, evaluation and review. These literature sources provide little insight into how to initiate an EMS, particularly in an academic setting. In every case the guidelines/literature sources for developing an EMS point to the need for management support, but little is provided in the way of “how” to develop that support. The ISO 14001 guideline is based on industry applications. Although the ISO model is somewhat flexible and can be adapted to an academic setting, there are inherent difficulties. Literature sources have been reviewed (included in the bibliography) to determine contrasts between industry and academic systems. A summary table of the differences (Academics vs. Industry) will be provided (see Attachment # 3: Comparisons and contrasts between academia and industry).
Recently, EPA and several environmental organizations within the academic field have taken on the task of promoting the use of an EMS as a logical and practical means to improve environmental performance on the campuses in the U.S. Again, these efforts have focused on the implementation process and the actual planning, development, implementation and review stages (plan, do, check, review) of an EMS. There is lack of literature covering the specific aspects of initiating an EMS and gaining the support of upper management to successfully implement an EMS. A recently proposed EPA project was recently abandoned by EPA administration based on the fact that the Campus Ecology (National Wildlife Federation) organization is conducting a very similar study. However, the fact that EPA considers it a priority points out the concern EPA has with environmental policy statements being backed up with action on the part of academia.

Increased attention is being given to “greening” issues in the academic environment. “Green” activities that effect the global environment such as energy consumption, recycling and global warming issues are commuting used as benchmarks for greening programs. However activities that have a direct impact on regulatory compliance such as hazardous waste, spill prevention, wetlands, air pollution, water pollution and environmental management systems are generally not included in greening programs. Greening issues include, but are not limited to energy conservation, protection of habitats, building design, solid waste recycling, indoor air quality, grounds, vehicle efficiency, food waste, paper recycling, and water conservation programs. (Creighton, 4) Although many of these aspects do not pertain directly to environmental management systems, there are opportunities for symbiotic relationships with established or planned greening activities. “The Greening of the Ivory Towers,”13 (Creighton), is a good
example of a greening project (Tufts Clean!) that was established at Tufts College. Several references to national, international and global environmental agreements indicate the global focus of “greening” activities.

In some cases, these projects have little to do with the less visible environmental health and safety activities that directly effect the environmental compliance at colleges and universities. For example, Brown University (mentioned previously) has just been fined $500,000 by EPA for an oil leak at one of their properties. Brown University has a greening program called “Brown is Green”34. There are certainly opportunities to “piggyback” on greening efforts that are in place in any academic institution. Care should be taken to assure compliance with environmental regulations is a component of the program and clear communication of EHS compliance issues is a must.

The literature review revealed very little information regarding the specific topic area of initiating an EMS. However, several references are provided that specifically provide guidance for the development and implementation phase of an EMS.

IV. Methodology

A. Approach

The survey of academic upper management and EHS professionals will provide a basis for effectively evaluating means and methods to gain management support of an EMS. Anecdotal information has been reviewed related to other college’s experiences in dealing with EPA mandates, inspections and potential fines will also provide valuable information as to the whys and wherefores of improving the overall environmental
performance in the academic setting. This information is not backed up by literature sources and is provided only as supplemental information that may be relative to individual EHS professionals in the academic arena. The relative point in providing this information is to learn from others’ experiences and improve management support. (See Attachment #4, Opportunities/Tips for Initiating an EMS)

It is evident that without meaningful support of upper management, it is virtually impossible to implement an effective EMS. By identifying issues specific and unique to academia, opportunities to focus on successful strategies will be enhanced.

B. Objective

There are three objectives for this paper:

1. Provide survey results that identify similarities and differences (gaps) in perceptions between academic management and EHS professionals, thereby providing insight into how to successfully initiate an EMS.

2. Provide a meaningful and practical guide for EHS professionals to more effectively approach upper management in academia gain support and initiate an EMS, based on #1.

3. Identify organizational structures, issues and functions characteristic to the academic environment in order to provide opportunities for increased success in initiating an EMS.
C. Survey Methodology

The survey questions are included in Attachment 5 and 6. Attachment 5 includes the survey question format for academic upper management. Attachment 6 includes the survey question format for EHS professionals.

- The survey questions are loosely based on the questionnaire developed by the Princeton Research Associates but are more focused in order to obtain specific information relative to developing an EMS. The questions were reviewed with Dr. Michael Yacci, Information Technology Professor at RIT for proper construction, methodology and skewing considerations.

- The method of email surveying academic upper management and EHS professionals will be conducted over the Internet website of the University of Vermont, entitled Safety (www.safety@list.uvm.edu) and the SEHSA listserver (www.sehsa.org). Both of these listservers combined have about 4000 people enrolled as users and is predominantly populated by academic EHS professionals. Also, EHS professionals in the State University of New York (SUNY) system will be surveyed directly at the spring meeting of the SUNY Environmental Health and Safety Association (SEHSA) at Cornell University, Ithaca, NY.

- The results will be tabulated and formatted on a 1-4 scale-ranking factor to provide easily discernable differences between management and EHS professional responses. There will not be a rigorous statistical analysis used to evaluate the results as the quantitative aspect of the results are not being relied on to project statistical significance to other colleges. A percentage pie chart will be used for Question #4, as it is a straight comparison of management’s response to EHS professional’s response. The goal is to obtain responses from 20
presidents/CEOs and the responses from EHS professionals is expected to be over 25.

☐ Evaluation of the survey results will identify those aspects that are critical to gaining management support. Organizational structure, culture and functional characteristics of the academic setting will be reviewed and assessed for potential opportunities and potential downfalls in initiating an EMS. Anecdotal information gathered during the questionnaire survey will be discussed in order to gain some insight into how best to approach upper management for support of an EMS.

D. Data Collection and Management

Data collection will be accomplished by use of email, personal telephone interviews with upper management and personal contact at EHS professional seminars. The data will be collected on survey forms (See Attachments 5 & 6) and collated to provide summary data. The data will be formatted to provide a relative rating scale based on the 1-4 response patterns in each question. The number 1 response is most positive; the number 4 response is most negative. This will require an averaging of the numbered responses to generate a relative number between 1 and 4, with lower numbers indicating a positive response and higher numbers indicating a negative response. The questions for upper management and EHS professionals will be compared and contrasted in table format in order to provide an easily discernable difference between the responses of each group. The survey responses will be ranked in the relative order of positive responses, in order to identify the strongest responses to specific questions.
E. Analysis and Evaluation – Comparisons, Contrasts, Gaps

The data will be analyzed for particular indications on specific questions. There may be indications from the responses that certain issues/concerns are more important to management than EHS professionals and visa versa. There may be instances of a strong negative or positive response on a specific question that bears further analysis. The responses will be presented in graphic format to provide the information in an easily understandable form. The gap analysis graphs are located directly below the standard graph for each question to allow for easy comparison/contrast.

The last question on the survey asks, “The single most important factor for successfully gaining management support.” The responses from this question will be categorized and grouped to identify responses that are similar in content for EHS professionals and insightful responses from academic management will simply be listed exactly as the written response on the survey questionnaire.

*Question responses were ranked from 1 to 4: 1 being a positive response and 4 being a negative response. A lower bar indicates positive responses and a higher bar on the bar graphs indicates negative responses, with response ranges from 1-4.*

The gap analysis graphs (Questions 1, 2, 3 and 5) depict differences in the response between upper management (management) and EHS professionals (EHS) are provided directly below the standard graph for each question. The difference in responses was calculated by subtracting the management response from the EHS response. Therefore, a positive number on the gap analysis graphs indicate a more positive response by
management. The vice versa is true - a negative number indicates a more positive response by EHS.

Question #1 – To what extent is your campus encouraged to implement an EMS because:

- The most positive response to this question, by far, was “Government regulations (EPA)” which indicates a concern by both management and EHS regarding the potential for inspections and/or fines by regulatory agencies. There is a perceived importance that regulatory pressure is a major factor in encouraging both EHS professionals and management to implement an EMS or make improvements in the environmental programs on campus.

- The most negative response involved “potential to recruit/retain students.” This is a revealing response as students are the lifeblood of any campus and relates directly to the core mission of academic institutions. There does not appear to be a link between student recruitment/retention and environmental issues. If (big if) environmental performance was in some way linked to attracting or retaining students it would be much easier to sell environmental stewardship on a college campus.

- Cost effectiveness – the responses (middle of the road) indicates cost effectiveness is not a major issue when considering an EMS. Management did consider cost effectiveness to be relatively more important than EHS professionals. This points out a major contrast between industry and academics – industry’s main focus is on cost-effectiveness.
Gap Analysis: The largest difference in responses involved the response “Fits the culture and values of the campus.” Management responses were much more positive (the 2nd largest difference of the total survey) on this response and indicates that management perceives the culture and values on campus to be relatively more important than EHS. This may be an opportunity for fostering support of an EMS by EHS professionals and it may be indicative of the “big picture” viewpoint of management.

Question #2 – How much of a challenge to implementing an EMS is lack of commitment among:

- Clearly, the most positive response by both management and EHS was “Faculty and staff interest.” This points out the common ground shared by management and EHS - they both perceive faculty and staff interest/commitment as an important issue for successfully implementing an EMS.

- By far, the most negative response involved the “EHS staff” response, which is a good thing for EHS professionals. Neither management nor EHS view EHS staff to lack commitment for implementing an EMS.

- The most positive response revolved around faculty and staff commitment pointing out the perception of both EHS and management that faculty/staff commitment is an important issue in approaching an EMS.

Gap Analysis: The largest discrepancy (biggest measured difference of the total survey) involves “Top-level management.” This may be of minimal surprise to those in the field of EHS, but management support is viewed by EHS as much more of a challenge than management, itself. Herein lies the key factor in evaluating
management support. If management (themselves) does not view management support as an important issue, EHS professionals need to communicate - in management language – the importance of top management support. This may be the most critical hurdle in initiating an EMS.

**Question #3 – How much of a challenge to implementing an EMS is:**

- The most positive responses to this question from both EHS and management involved inadequate funding, staffing resources and faculty accountability. These are all issues that are confirmed to be critical to EMS development as indicated in previous questions. EHS professionals perceive staffing/resources to be the most critical challenge to implementing an EMS.

- The most negative response to this question involved the “not cost effective” response, which again indicates the difference between academics and industry. This could be due to the perception that environmental performance is not considered a cost-benefit at academic institutions.

- Responses were substantially positive indicating “Inadequate funding” as an important factor for management and EHS. There is increasing pressure and competition for limited resources. As stated by University of Missouri, Rolla (UMR), “the present course of higher education – in which costs and demand are rising much faster than funding – is unsustainable” EHS professionals are keenly aware of limited resources in the academic environment – making it even more important to identify and take advantage of opportunities for cost savings.

**Gap Analysis:** The most positive response from EHS dealt with “Staffing resources/time.” This response also revealed the greatest difference between
management and EHS opinions. It is apparent that EHS staffing levels are a concern amongst EHS professionals and not considered as much of a challenge by management. Identifying needs for increased staffing and resources and communicating those needs to management in a business-like fashion, is an integral part of an EMS. “Faculty accountability” also received a very positive response from EHS as compared to management. Accountability is a key factor of a meaningful EMS and a significant obstacle in academia. However, the fact that senior management recognizes faculty accountability as an issue should be perceived as a positive outcome.

Question #4 – How important is a formal system for holding faculty, staff, and students accountable for environmental compliance/performance?

- Both management and EHS responded very positively to this question with 82% of EHS responding as very important, 15% as important. Management responded similarly, 77% very important, 18% important, 5% somewhat important. Again, this indicates accountability is considered an important issue related to environmental compliance. The means and methods of holding faculty, staff and students accountable could be the subject of another thesis. It is a complex issue that involves tenure, academic freedom, academic culture and the true mission of higher education. If EHS principles became an integral part of the educational process for faculty, staff and (especially) students, they would be self-sustainable.

Question #5 – Environmental issues are not given a high priority in academic institutions because:
The most negative response involved “Colleges are model citizens, with insignificant environmental issues.” This question was added to the survey as a result of a response received from an academic Vice-President as to why he thought colleges were not responsive to environmental concerns. The negative response clearly points out that management and EHS don’t believe colleges are without significant environmental issues. It is also clear that there are no misconceptions relative to the potential environmental issues on college campuses.

The response “Environmental issues are not related to the core mission of the college” received a very positive response from EHS professionals, which demonstrates EHS perceptions that environmental issues are not considered critical to the educational mission. Apparently, EHS professionals feel it should be more closely related to the core mission.

The “Management uniformed” response was judged as a relatively important to EHS and management – this is a signal to EHS professionals to keep communication lines open with upper management and… vice versa.

“Resources can be better used for other purposes” garnered the exact same positive response from EHS & management, indicating an opinion that the core mission of educational institutions doesn’t relate well to environmental issues.

“Government regulations are a cost without benefit” was more positively received by EHS, indicating those who deal with government mandates/regulations on a daily basis may view some regulatory requirements as burdensome with no intrinsic value to the campus.

“Environmental regulations not strictly enforced” – both management and EHS responded very positively indicating a perception that lack of strict enforcement
has lead to environmental issues not being given a high priority. This is actually
the fact that EPA has taken; if colleges think we are going easy on them (as
compared to industry) they’re wrong.

**Gap Analysis:** Responses from management and EHS were relatively similar with
the exception of “Government regulations a cost without benefits.” The more
positive response by EHS could be due to several factors: 1) EHS is more
experienced with government regulations that sometimes seem onerous and 2) if
benefits are realized by compliance they are not easily accounted for. Also,
management seems to be more keenly aware of the enforcement aspects of
environmental issues which points out the need to use enforcement potential as a
positive, proactive management tool for avoiding environmental problems.

**Question #6:** The single most important factor for successfully gaining management
support in academia is:

**EHS Professionals responses are summarized as follows:**

- Management buy-in: awareness and understanding EHS issues – 11 of 34.
- Fines and legal actions: fear factor – 9 of 34.
- Externally motivated: other colleges, outside audits, peer pressure – 6 of 34.
- Accountability issues in management/faculty: 5 of 34
- Integrate EHS into the core mission of the college: 3 of 34

**Comments:** Management awareness of environmental issues is a key factor in
successfully initiating an EMS. Levels of awareness are wide-ranging and dependent on
the position held in the college. Presidents of colleges are sometimes shielded by
subordinates and consider environmental matters someone else’s job. Not one president
of a college filled out the survey form, which is indicative that environmental issues are referred to someone else to handle. Fines and legal actions was definitely a factor in motivating actions in the academic arena recently and that will continue to be a key motivator.

Management responses are summarized as follows:

- A total of 22 upper management people in academia responded to the survey. Out of the 22 respondents the following titles were indicated on the survey:
  - 11 Vice Presidents, 6 Administration Officials, 2 Provosts, 2 Risk Managers, 1 Vice Chancellor.

- Unfortunately only 15 of the 22 survey responses answered question #6.

- There was no discernable pattern to categorize responses; the responses that were found to be insightful are as follows:

1. Convincing the President, Provosts, and Deans that safety and environmental stewardship are not an option. An EPA fine helps!

2. A champion among senior leadership.

3. The answer is money. Senior administration is motivated by potentially legal or financial liability for environmental problems.

4. I don’t have really anyone to even turn to – to get an assessment of what we are doing and what needs to be done. With all that is on my plate, an issue without an advocate gets relegated to the bottom of the list of things to do.

5. Violation of Federal, State and Municipal Law.
6. Getting support from Deans and Department Heads to put pressure on non-compliant faculty to improve conditions in the labs. Aggressive enforcement would also be a key.

7. An enforcement/accountability system, implemented by regulatory agencies, that correctly identifies the individuals or units that are causing a problem and holds them accountable by the use of carefully designed and targeted penalties (NIH grants administration model).

8. Showing how it relates to the core mission of the institution.

9. Presidential statement of support for EHS policy and enforcement.

10. Availability of resources.

F. Data & Attachments Discussion

Data collected (See Attachment #1) from the survey questionnaire involved quantitative analysis and ranking of the responses on a 1-4 basis with “1” being a positive response and “4” being a negative response to the question. The data was reviewed and analyzed for particular indications/perceptions on specific questions. Instances of a strong negative or positive response on a specific question were identified and discussed in detail in Section E – Analysis and Evaluation – Comparisons, Contrasts, Gaps. Gap analyses graphs are also provided that highlight differences in responses between management and EHS. The survey questionnaire identifies specific aspects concerning management support of environmental management systems. EHS professionals will be able to identify specific issues that may be relative to their own individual campus. Many of the issues raised in the survey questionnaire are specific to the academic environment, which allows for perceptions to be more easily interpreted by EHS professionals.
Question #6 of the survey required a narrative answer that was used to provide anecdotal responses to the question, “**The single most important factor for successfully gaining management support.**” The responses to this question were summarized based on repeated similar responses or responses that seemed particularly insightful. One clear indication that came out of this question: Management doesn’t necessarily have a clear line of communication on environmental issues. The communication gap between management and EHS needs to be narrowed if environmental issues are to be taken seriously.

A comparison/contrast table is provided that summarizes organizational differences between industry and academics as it related to environmental management issues. See **Attachment #2, Comparisons and Contrast Between Academia and Industry.** These observations summarize input from academic and industry EHS professionals, differences gleaned from the review of pertinent literature and some differences that seem almost self-evident. The table provides insight into organizational/structural differences that can affect management systems, operational functions and environmental issues on a college campus. Some of these issues and functions are capable of creating hurdles for initiating an environmental management system in the academic environment and some identified differences may point out opportunities.

**Attachment #3, Opportunities Specific to Academics for Initiating an EMS** is provided based on experience in the field of academic EHS, discussions with academic EHS professionals and the process of preparing this thesis. It is hoped that this listing will provide practical and pragmatic options for gaining management support and initiating an
EMS. As stated previously, there is a lack of literature sources on the specific topic of gaining management support in an academic setting. This attachment is written in a simple format, without literature references, with the intent of providing EHS professionals with some ideas on how to begin the process of EMS implementation. It is not meant to provide a definitive answer to the difficult question of “how to gain management support”, but provides “food for thought” when considering specific management issues at individual colleges and universities.

G. Conclusions and Recommendations

Survey Results

The apparent difficulties in instituting meaningful improvements in an academic environment can be frustrating and, hopefully, this paper will provide EHS professionals with some guidance on how to approach initiating an EMS. It is not the EHS department’s role to implement an EMS – it cannot be done without academic management and faculty involvement. A critical factor: consistent, meaningful communication with faculty, staff, students and management. If the message isn’t getting through to upper management, there is no reason for change or improvement.

The survey results indicated that EHS professionals and upper management have similarities and differences in their perceptions of environmental issues on campus. One of the biggest gaps in opinion was on the need for top management commitment. EHS professionals view top management commitment as a crucial issue, while top management rates it considerably lower in priority. This is a gap that must be narrowed if an EMS is to be successful. Anything less than top management support of an EMS in an
academic setting will most likely result in failure. The EPA recognizes the critical need for top management support and their approach to encourage development of an EMS is based on their experience in the industrial sector – a truly effective EMS will not work without top management support.

The survey strongly indicates the bottom line for initiating an EMS is the fact that EPA is aggressively inspecting colleges and universities. This negative/punitive-based motivation may not be intrinsically ethical or sustainable, but it may be the window of opportunity that EHS professionals have been looking for. Once an EMS is in place and is accepted by the academic community, it should take on a life of its own. It behooves all EHS professionals to communicate effectively and regularly with senior management, regardless if an EMS is the goal or not. If management has been made aware of the potential consequences of an EPA audit, what other colleges have experienced in an EPA inspection, and the advantages of managing environmental concerns in a business-like manner, there isn’t much more the EHS professional can do to initiate an EMS.

Accountability is one of the issues that received a very positive response on the survey. An effective EMS creates performance measures and accountability measures that address lack of performance. In the tenured faculty world, it would be difficult to imagine a simple, yet effective system for accountability. Management support is clearly a critical aspect of an EMS. It is clear from the survey that management also views faculty accountability as an important issue. Existing accountability systems may already be in place within the Human Resources Department or within existing departmental policies and they should be reviewed and modified to reflect the needs of the EMS. There is no
easy answer. It is crucial to have faculty/staff involvement in the process of developing the EMS, especially if you expect buy-in once the system goes into effect.

Although EHS professionals rated “staffing resources/time” as an important factor for initiating an EMS it is also apparent that cost effectiveness is not as important a factor to both management and EHS. Consequently, it is not necessarily required to demonstrate a cost benefit effect for more staffing/resources. Obviously, if management is not aware of staffing shortages or aware that initiating an EMS requires additional resources, there is a problem. EHS professionals need to provide meaningful data to back up any request for additional staff/resources. Benchmarking information is available, consultants can evaluate your environmental performance and staffing levels, and you can compare with similar colleges. EPA has mentioned lack of staffing as a contributing factor to non-compliance. Finally, the cost avoidance issue (fines) is real and should be used in communicating with management.

Cost effective EHS management has not been analyzed to any degree in the academic sector. Industry has been doing it for years. It is hard to imagine that good environmental management would not result in lower costs, cost avoidance, decreased liability and an enhanced public image. Cost-benefit analysis is a logical progression for academic EMSs and provides a potential motivation for senior management in the future. UMR’s plan is to use their ISO14001 certification as a marketing tool to attract research, students, and prestige to the campus. If successful, UMR will set a benchmark for other colleges to strive for.
Academic Structures, Issue and Functions

Beyond comparisons between academia and industry there are specific organizational structures, issues and functions unique to academia. The decentralized management issue revolves around management titles such as Dean, Director, Associate VP, Department Head, etc. The power structure in the academic environment does not promote uniform, consistent, and coherent policy-making. In recognizing this issue, it is vital to build some kind of consensus amongst all the stakeholders for support of an EMS. Existing safety committees, faculty organizations, staff organizations, and student groups need to be included in the process and represented on any EMS committee that is formed to initiate the process.

Academic freedom issues have always been discussed in the academic sector and the issue needs to be addressed. If the academic community perceives an EMS as a threat to academic freedom it is going to be very difficult to implement. Again, honest and clear communication with faculty and staff is vitally important.

Academia is increasingly promoting partnerships with private-sector businesses. This is a clear opportunity for promoting an EMS, especially if the businesses have environmental issues/concerns. Potential business partners may be encouraged that the college is implementing an EMS and takes environmental issue seriously.

EHS professionals sometimes overlook the multi-faceted operations and functions on a typical college campus. In particular, the Physical Plant/Facilities department can provide valuable information on a diverse range of environmental issues from energy usage to
land use. This is one of the few centralized operations that control a variety of operations – take advantage.

**Summation**

Some of the options, comparisons, and suggestions presented here need to be evaluated by each college on an individual basis. What works at one college will not work at all colleges. The perception that an EMS guideline or model is a “one-size fits all” written program that the EHS staff should implement is inherently flawed and must be changed. A meaningful EMS is constantly changing - a work in progress for the life of an EMS. Environmental issues ought to be managed like a business – integrated into the core mission, with involvement by everyone. Without the management support to sustain a business-like approach, the EMS will not be successful in the long term.

It is not indicated on the survey results, but relating environmental, health and safety issues to the core mission of education is a truly sustainable approach to improving EHS performance. EHS issues could be integrated into the educational curriculum, whereby students are educated on EHS issues that could positively impact their career, personal safety, and awareness of environmental stewardship issues. It would be a matter of good education principles that could potentially increase customer (student) satisfaction. In essence, this would be the ultimate business approach to sustainable environmental performance.

Finally, college and university systems are the oldest and most durable institutions on earth. Institutions of higher learning have survived while many other institutions have not. The central mission of educational institutions is to promote learning and improve the mind, body and spirit of the students attending. Academic senior managers are faced
with new and diverse challenges and they must prioritize these challenges based on the potential to impact their respective institution. The connection between good environmental management and good education is not readily apparent to management. It is the EHS professional’s task to relate the two issues in a meaningful way. Academic institutions are havens for free thinking and academic freedom. These facts should not be overlooked when initiating an environmental management system that requires support, discipline and accountability. Flexibility is required to match the EMS to the individual college and diplomacy is required to motivate towards a common goal.
Endnotes:


6 Chronology of EPA Inspections/Penalties for Universities”, *University of Louisville, Department of Environmental Health and Safety*, 7/27/00.

7 Telcom with Carl Plossl, EPA Lead Inspector – Region 2, College and University Initiative. 19 April 2001.


9 Izzo, R. “EMS’s at Colleges”. Personal E-mail. rmirizzo@princeton.edu, 16 Nov. 2000.


24Website of the University of Missouri, Rolla: www.umr.edu


University of Vermont list server: safety@uvm.edu, 2001.

SUNY Environmental Health and Safety Association list server: www.SEHSA.org


“Chronology of EPA Inspections/Penalties for Universities.” *University of Louisville, Department of Environmental Health and Safety*, [www.louisville.edu](http://www.louisville.edu).


“Malcolm Baldridge National Quality Award Fact Sheet.”
http://asq.org/abtquality/awards/baldridge/mbguide2.html


National Pollution Prevention Center for Higher Education, USEPA,
http://www.snre.umich.edu/nppc/

Office of Regulatory Enforcement (OECA), USEPA, Audit Policy Information,
http://www.epa.gov/oeca/


Useful Websites:

USEPA Region 2 College and University Environmental Compliance Website:
www.epa.gov/region02/p2/college/index.htm

State University of NY Environmental Health and Safety Association Website, with links to several other college and university websites and EPA: www.sehsa.org.

Campus Consortium for Environmental Excellence: http://www.c2e2.org

Campus Ecology: www.nwf.org/campus/newsletter

Global Environmental Management Institute: www.gemi.org

Twenty Questions for College and University Presidents, Region 3 EPA:
www.epa.gov/reg3ecei/compliance_assistance/questpres.htm

www.yale.edu/oehs/yaleepa.htm
Question #1 - To what extent is your campus encouraged to implement an EMS because:

**Gap Analysis:** To what extent is your campus encouraged to implement an EMS because: (Positive number = positive management response)
Question #2 - How much of a challenge to implementing an EMS is lack of commitment among:

![Graph showing responses for Top-level management, Mid-level management, Faculty/Staff, Students, and EHS Staff.]

**Gap Analysis:** How much of a challenge to implementing an EMS is lack of commitment among:

(+ = positive mgt./ minus = positive EHS)
Question #3 - How much of a challenge to implementing an EMS is:

![Graph showing responses to various challenges]

**Gap Analysis:** How much of a challenge to implementing an EMS is: (Positive=mgt. more positive/negative=EHS more positive)

![Graph showing gap analysis responses]
Question #4 – How important is an accountability system for Faculty, Staff and Students:

EHS Response

EHS Staff: How important is a formal system for holding faculty, staff, and students accountable for environmental compliance?

- Very Important: 82%
- Important: 15%
- Somewhat Important: 2%
- Not Important at All: 1%

Management Response
Question #5 – Environmental issues not a high priority because:
Gap Analysis: Environmental issues not given a high priority because:

(Positive=positive mgt. response/negative=positive EHS response)
Attachment #2:

ISO 14001 Model Environmental Management System

(From: RIT Strategic Environmental Management Plan, by Dr. John Morelli, College of Applied Science and Technology, RIT – EHS Management)

5 Steps to Implement an EMS

1. Define an environmental policy and commitment
2. Formulate a plan
3. Develop capabilities
4. Evaluate performance
5. Continual improvement

Characteristics and Components of an Environmental Management System

1. General requirements – part of the overall management system, integrate into the core business management system in place.

2. Environmental policy – top management develops, documents and communicates to all.

3. Planning
   - Environmental aspects – identify and prioritize environmental issues
   - Legal and other requirements – process to identify regulations that apply
   - Objective and targets – develop for relevant organizational levels
   - Environmental management program – allocate resources, set measurable time frames, accommodate new or changing activities

4. Implementation and operation
   - Structure and Responsibility - top management designates management representatives, all responsibilities documented
- Training, awareness and competence – all employees aware of environmental impacts, are aware of the EMS, understand importance of EMS, are competent based on experience and training
- Communication – processes developed to facilitate environmental communication
- Environmental management system documentation – describe the management system
- Document control – control of all environmental documents, procedures
- Operational control – identify operations with environmental impacts and develop controls to ensure compliance with the environmental policy
- Emergency preparedness and response – identify potential accidents and emergencies, develop response procedures

5. Checking and corrective action
- Monitoring and measurement – develop and document procedures for all operations, measure, evaluate compliance with regulations, calibrate equipment
- Nonconformance and corrective and preventative action – allocate responsibilities and authority for corrective action, modify as needed to reflect changes
- Records – maintain all relevant environmental records, permits, etc.
- Environmental audit – develop a audit program, define frequency, scope, methods and responsibility for conducting audits

6. Management review
- Top management periodically reviews audits, effectiveness of EMS, need for changes, modifications.
### Comparisons and contrasts between academia and industry:

<table>
<thead>
<tr>
<th>Academia</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decentralized structure—many separate colleges/departments within the college</td>
<td>Centralized reporting structure even within diverse departments within the business</td>
</tr>
<tr>
<td>Management structure decentralized – VPs, Deans, Directors, Dept. Heads, etc.</td>
<td>Management structure hierarchical, line personal report to a select few – the boss</td>
</tr>
<tr>
<td>Top down &amp; bottom up – tenured faculty can have a powerful influence</td>
<td>Top down management structure with corporate having the ultimate power</td>
</tr>
<tr>
<td>Accountability not necessarily a priority, not part of the culture</td>
<td>Accountability built in and necessary – considered part of the culture</td>
</tr>
<tr>
<td>Constantly changing – research, student turnover, new faculty, change encouraged to an extent</td>
<td>Changes but strategically planned changes. Turnover minimized and changes are fiscally justified</td>
</tr>
<tr>
<td>Academic freedom – a value in academics, with no strings attached</td>
<td>Freedom limited by the value to the business, creativity encouraged in research departments</td>
</tr>
<tr>
<td>Environmental issues not easily integrated – not viewed as critical to mission</td>
<td>Environmental issues more likely to be integrated into business core mission – viewed as critical to sustainable growth</td>
</tr>
<tr>
<td>Environmental issues not inherently tied to product – students</td>
<td>Environmental issues may be directly related to the product manufactured effecting sales and marketability - ISO</td>
</tr>
<tr>
<td>Main product (education) is intangible</td>
<td>Main product is tangible</td>
</tr>
<tr>
<td>Not easy to measure environmental performance because a measurable, tangible product is not being produced</td>
<td>Easier to measure environmental performance – related to reducing costs, pollution prevention, product overhead</td>
</tr>
<tr>
<td>Cost-benefit not readily apparent – no history of EMS analysis in academia, value to business not readily apparent</td>
<td>Cost-benefit can be measured and is expected to be measured as a value to the business – e.g., pollution prevention savings</td>
</tr>
<tr>
<td>No history of success with environmental issues</td>
<td>Long history of success in environmental cost savings</td>
</tr>
<tr>
<td>No external pressure to commit to environmental performance, not tied to market</td>
<td>Pressure from larger businesses on suppliers &amp; international markets to meet ISO14001</td>
</tr>
<tr>
<td>Good examples to follow on developing an EMS very limited</td>
<td>Several EMS models developed and implemented in industry</td>
</tr>
<tr>
<td>Limited environment resources in some colleges – viewed strictly as a cost</td>
<td>Resources devoted to environmental issues as a necessity and value to the business – potential cost savings</td>
</tr>
<tr>
<td>EMS is not considered a marketable program to students, research, public</td>
<td>EMS is linked to market, competitive advantage, and public image</td>
</tr>
<tr>
<td>Academia</td>
<td>Industry</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Colleges viewed a good citizens by the public in general</td>
<td>Many businesses viewed as polluters, bad neighbors by many</td>
</tr>
<tr>
<td>Environmental concerns not addressed in a business-like manner</td>
<td>Environmental concerns managed a business necessity</td>
</tr>
<tr>
<td>Sustainability not a priority</td>
<td>Sustainability a priority for many businesses</td>
</tr>
<tr>
<td>Management disconnected from environmental issues</td>
<td>Management aware of environmental, health and safety issues</td>
</tr>
</tbody>
</table>
Opportunities/Tips for Initiating an EMS:

1. Brief management on what an EMS is and why it’s required – establish lines of communication.
2. Retain an experienced consultant to audit/assess the existing environmental programs and/or help with organizing the implementation of an EMS.
3. Obtain management commitment through consistent, meaningful communication.
   □ Gaining the support of a senior management leader is a big plus.
4. Provide management with data, facts and supporting documentation – including EPA inspections/fines of other academic institutions.
5. Use the existing EHS programs you have and assess what else you need to initiate an EMS – gap analysis.
6. Identify other colleges that are initiating or have implemented an EMS – University of Missouri, Rolla, Yale, MIT, Tulane, etc. - providing management with a comparison for why and how it should be done.
7. Link environmental issues to existing programs, strategic plan, objectives of the individual institution (is there a priority of the college that fits the management model of an EMS?)
8. Identify existing faculty, staff and students organizations for support and common interests.
9. Identify Board of Trustees members that may be involved in environmental management issues:
   □ Board members who operate ISO14001 certified businesses or are familiar with the advantages of an EMS.
   □ Board members who may be sensitive to environmental issues through industry experience.
10. Get faculty involved - it is crucial.
    □ Identify faculty with an interest in environmental issues.
11. Identify opportunities for external partnerships – business, environmental groups, regulators.
12. Link environmental issues to greening activities – energy conservation, recycling, etc.
13. Get students involved: student organizations, environmental curriculum, greening activities, grass roots support.
14. Is there a potential cost benefit of implementing an EMS?
    □ Waste reduction, lower liability, cost/fine avoidance
15. What are management’s expectations? Clear, concise, and understandable information is critical - do not get too technical.
Have you communicated clearly with upper management?
Is there a reporting structure problem?
Mid-level management may have some good ideas on how to approach upper management.
Provide reliable data and facts; keep it short and simple when communicating with upper management.
Find a leader who cares = improved chance for success.

16. Start with a small project that guarantees success – “low hanging fruit”.

17. Choose an EMS model that fits your institution – focus on compliance first, continuous improvement next, comprehensive EMS last.

18. Identify obstacles:
   - Faculty accountability – is there an existing accountability structure such as performance appraisals, sanctions, rewards?
   - Decentralized structure – identify a leader internally or externally that can maintain a focus and command interest.
   - Bottom-up management – be aware that upper management is somewhat accountable to faculty.
   - Team approach is required, buy-in from stakeholders – it has to be “us” not “I” doing the work.

19. Remain flexible and willing to change – if you aren’t, they aren’t.

20. Act in a consultant role and don’t try to take on too much responsibility for implementation of an EMS.
Survey Questionnaire: for Senior Management in Academia
(There are ONLY 6 questions – estimated 10 minutes to complete)

Introduction: The purpose of this survey involves my thesis project (A Guide to Initiating an Environmental Management System in Academia). By identifying challenges, issues and opportunities specific to academics, academic managers and EHS professionals will be better prepared to initiate an EMS and improve environmental performance. The survey focuses on issues that impact management support. The information is confidential, no names of people or colleges will be used nor are they necessary for the purpose of the survey. ONLY the title of the interviewee is necessary.

Title of survey participant: __________________________________________

Definition of an Environmental Management System: An EMS provides a systematic method of managing environmental issues on a college campus. Issues such as hazardous waste, water pollution, air pollution, and other impacts on the environment are covered by an EMS. Improved environmental performance is the goal of an EMS. Environmental audits, establishing measurable performance objectives, management review, corrective actions and accountability are key aspects of an EMS that are sometimes difficult to implement in an academic environment.

Instructions: Please indicate your response by selecting the best answer from the choices listed (1-4) and writing it in on the line provided or by just checking the appropriate response (Question #4). The results will be provided to all survey participants.

Thank you for taking time from your busy schedule,
David Turkow – Director of EHS, SUNY Brockport

Question #1: To what extent is your campus encouraged to implement an EMS because of it is

___ Cost effective 1 - A great deal
___ Good public relations 2 - Somewhat
___ Potential to recruit/retain students’ 3 - Not too much
___ Government (EPA) regulations 4 - Not at all
___ Fits the culture and values of the campus
Questions #2: How much of a challenge to implementing an EMS is lack of commitment among

- Top-level management
- Mid-level management
- Faculty and staff interest
- Student interest
- EHS staff

1 – One of the biggest
2 – A key challenge but not the biggest
3 – Somewhat of a challenge
4 – Not a challenge at all

Question #3: How much of a challenge to implementing an EMS is

- Inadequate funding
- Not cost effective
- More pressing concerns
- Inadequate information/awareness levels
- Staffing resources/time
- Faculty accountability

1 – One of the biggest
2 – A key challenge but not the biggest
3 – Somewhat of a challenge
4 – Not a challenge at all

Question #4: How important is a formal system for holding faculty, staff and students accountable for environmental compliance/performance?

- Very important
- Important
- Somewhat important
- Not important at all

Question #5: Environmental issues are not given a high priority in academic institutions because: (assume this is the case, though many colleges have given environmental issues a high priority)

- Environmental issues are not related to the core mission of the college.
- Resources can be better used for other purposes.
- Government regulations are a cost, without benefit.
- Management is uninformed about environmental issues.
- Colleges are model citizens, with insignificant environmental issues.
- Environmental regulations are not strictly enforced.

1 – Strongly agree
2 – Agree
3 – Disagree
4 – Strongly disagree

Question #6: The single most important factor for successfully gaining management support in academics is:
__Government (EPA) regulations 4 – Not at all
__Fits the culture and values of the campus

Questions #2: How much of a challenge to implementing an EMS is lack of commitment among

___ Top-level management 1 – One of the biggest
___ Mid-level management 2 – A key challenge but not the biggest
___ Faculty and staff interest 3 – Somewhat of a challenge
___ Student interest 4 – Not a challenge at all
___ EHS staff

Question #3: How much of a challenge to implementing an EMS is

___ Inadequate funding 1 – One of the biggest
___ Not cost effective 2 – A key challenge but not the biggest
___ More pressing concerns 3 – Somewhat of a challenge
___ Inadequate information/awareness levels 4 – Not a challenge at all
___ Staffing resources/time
___ Faculty accountability

Question #4: How important is a formal system for holding faculty, staff and students accountable for environmental compliance/performance?

___ Very important
___ Important
___ Somewhat important
___ Not important at all

Question #5: Environmental issues are not given a high priority in academic institutions because: (assume this is the case, though many colleges have given environmental issues a high priority)

___ Environmental issues are not related to the core mission of the college.
___ Resources can be better used for other purposes.
___ Government regulations are a cost, without benefit.
___ Management is uninformed about environmental issues.
___ Colleges are model citizens, with insignificant environmental issues.
___ Environmental regulations are not strictly enforced.

1 – Strongly agree
2 – Agree
3 – Disagree
4 – Strongly disagree

Question #6: The single most important factor for successfully gaining management support in academics is:
Survey Questionnaire: Environmental Health and Safety Professionals in Academia. (ONLY for EHS Professionals in the Academic Sector)

Introduction: The purpose of this survey involves my thesis project (A Guide to Initiating an Environmental Management System in Academia). By identifying challenges, issues and opportunities specific to academics, academic managers and EHS professionals will be better prepared to initiate an EMS and improve environmental performance. The survey focuses on issues that impact management support. These identical questions will be asked of academic upper management by way of a telephone survey. The information is confidential, no names of people or colleges will be used nor are they necessary for the purpose of the survey. ONLY the title of the interviewee is necessary.

Title of survey participant: ______________________________________________________

Definition of an Environmental Management System: An EMS provides a systematic method of managing environmental issues on a college campus. Issues such as hazardous waste, water pollution, air pollution, and other impacts on the environment are covered by an EMS. Improved environmental performance is the goal of an EMS. Environmental audits, establishing measurable performance objectives, management review, corrective actions and accountability are key aspects of an EMS that are sometimes difficult to implement in an academic environment.

Instructions: Please indicate your response by selecting the best answer from the choices listed (1-4) and writing it in on the line provided or by just checking the appropriate response (Question #4). You can either e-mail the response to or fax the response to . Please do not respond to the Safety list server. A helpful hint: press the INSERT key on your computer to prevent the responses from disrupting the format. If there are any questions, please feel free to call me at . The results will be provided to all survey participants (via email) and at the Northeast Winter Safety Conference at University of Vermont.

Thank you and good luck,
David Turkow – Director of EHS, SUNY Brockport.

Question #1: To what extent is your campus encouraged to implement an EMS because of it is

___ Cost effective 1 - A great deal
___ Good public relations 2 - Somewhat
___ Potential to recruit/retain students’ 3 - Not too much
DAVID P. TURKOW

EDUCATION

Fall, 1997 to Present
Environmental Health and Safety Management - Masters level.
College of Applied Science and Technology - Rochester Institute of Technology

Spring, 1997
Photography for Non-Photo Majors,
4 Credit Hours, Rochester Institute of Technology

1989-91
Health Physics and Radiation Biology,
8 credit hours, Rochester Institute of Technology

1988
Masters Degree, State University of New York at Brockport
Major: Public Administration (Health Emphasis)

1973
Bachelor of Science Degree, State University College of NY at Brockport
Major: Physical Education, Minor: Philosophy

TRAINING

1988-present
Attended several training sessions on topics including hazardous waste, radiation safety, industrial hygiene, water and wastewater treatment, occupational safety, confined spaces, personal protective equipment, hearing conservation, art safety, spill response and chemical handling. Certified as a respirator fit tester, hazardous materials responder, hazard communication trainer, blood-borne pathogens trainer, chemical hygiene officer/lab safety trainer.

1994
Laser Safety Officer Training Course - (40 hours)
Laser Institute of America, Orlando, Florida
Laser Safety Officer at the Rochester Inst. of Technology

1993
Indoor Air Quality - Jeff Burton, CIH
Measurements and Analysis

1990
Radiation Safety Officers Training Course - (40 hours)
Radiation Safety Associates, Hebron, Conn.
Certified by NY State Dept. of Health as Radiation Safety Officer

1989
On-Site Hazardous Waste Site Training Course - OSHA Hazwoper Approved (40 hours) - Certified as Hazardous Materials Responder

1979
New York State Dept. of Environmental Conservation Wastewater Treatment Plant Troubleshooters Course - (1 week)
1976
12-Week New York State Comprehensive Environmental Health Course
Certified with the New York State Dept. of Health as a Public Health
Sanitarian

EXPERIENCE

March, 2001  Director of Environmental, Health, and Safety at the State University
College at Brockport, Brockport, NY 14420. This position reports to the
Vice-President for Administrative Services and is responsible for all
environmental, health and safety programs on campus including fire
safety, asbestos abatement, and building code issues in addition to those
duties listed below at the RIT position.

Nov., 1988 - March, 2001  Senior Environmental Health Specialist/Radiation Safety Officer
Rochester Institute of Technology, 61 Lomb Memorial Drive, Rochester,
NY, 14623

Responsible in an administrative position for supervising a
comprehensive environmental health and safety program for a campus of
12,500 students and 2300 employees. RIT provides a unique challenge
as a high-tech, career-oriented technical college that utilizes state-of-the-
art technology. Job duties include Hazardous Waste Manager, Radiation
Safety and Laser Safety Officer, Institute Chemical Hygiene Officer,
Industrial Hygiene and Occupational Health functions as required.

Act as principal liaison with OSHA, the New York State Department of
Health, the New York State Department of Environmental Conservation
and other government agencies. Conduct investigations of safety and
health related matters. Written programs developed in chemical
inventory, radiation safety, laser safety, confined spaces, respiratory
protection, ergonomics, indoor air quality, personal protective equipment,
bloodborne pathogens, emergency response, hazardous waste and lab
safety (Chemical Hygiene Plan). Conducts and oversees training in all the
above programs.

March, 1989 - Present  Environmental Consultant, Orleans Environmental Consulting
Owner and principal operator of this environmental business that
provides services such as Phase I audits, water supply contamination
and remediation, indoor air sampling and analysis and industrial hygiene
concerns.

Sept., 1974 - Nov., 1988  Public Health Sanitarian, Orleans County Health Department
14012 Route 31 West, Albion, New York 14411

Responsibilities included: Program Director for a wide range of
environmental health programs including solid waste, spill response,
stream surveys, air quality, commercial water and wastewater
treatment systems, public health concerns including foodborne illness
investigations, rabies control, insect and vermin control and infectious
disease control.
1981-82 Director - Consumer Product Safety Commission Grant

Directly supervised a demonstration grant for a Poison Prevention Program in Orleans County which documented a 43% reduction in childhood poisoning (ages 1-5); results published in the Journal of Environmental Health, February - 1982.

CERTIFICATES/TITLES

- Public Health Sanitarian, New York State Dept. of Health
- Radiation Safety Officer, RIT- New York State Dept. of Health
- Laser Safety Officer, RIT - Laser Institute of America
- Institute Chemical Hygiene Officer, RIT
- Hazardous Materials Handler and Spill Response Coordinator
- Senior Environmental Health Specialist
- Trainer - Industrial Management Council of Monroe County
- Board of Directors - SUNY College Environmental Health & Safety Assoc.

ORGANIZATION MEMBERSHIPS

- Western NY Industrial Hygiene Association
- College Radiation Safety Officers
- National Safety Council - Graphic Arts Section
- Former President, Health Physics Association of Western NY
- American Association of Physicists in Medicine
- SUNY Environmental Health and Safety Association, Executive Board
- National Health Physics Society
- Genesee Valley Safety Conference

INTERESTS AND ACCOMPLISHMENTS

- Captain - Brockport State College Football Team, 1972
- Wrestling Referee, Section 5, Monroe County - 12 years
- RIT Campus Safety Directors Award - 1990
- Requested speaker at several state, local, governmental functions
- Enjoy wide variety of sports - basketball, softball, racquetball, hockey, hunting and fishing, X Country and Downhill Skiing, kayaking & canoeing.